CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

1. Object / Subject of the Research

The populations in this research are Intellectual Capital (IC) intensive companies listed in Indonesia Stock Exchange (IDX) and Bursa Malaysia. The samples used are high IC intensive companies. The periods of the research are data in 2015 and 2016.

2. Data Type

The type of data that used in this research is secondary data. The data is taken from annual report of high IC intensive companies listed in the Indonesia Stock Exchange and Bursa Malaysia in 2015 and 2016.

3. Sampling Technique

Sampling method that used in this research is purposive sampling, which the researcher selects the samples based on consideration and certain specified criterion. The sampling technique of the companies in the research is based on the following criteria:

a. Companies that publish their full annual report for 2015 and 2016.

b. Companies that have complete data related to research variables.

c. The high-IC intensive companies listed in the Indonesia Stock Exchange and Bursa Malaysia in 2015 and 2016.

d. 100 biggest total asset companies

4. Data Collection Technique

Data are collected by using secondary data through documentation method. Documentation method is undertaken by using documentary data sources such as annual report and summary of financial statement as a research sample.

5. Operational Definition of Research Variables

a. Dependent Variable

Dependent variable used in this research is Intellectual Capital Disclosure (ICD). ICD is a form of contribution or role of the company in informing the activities of the company derived from intangible assets, which will be reported on the annual report for transparency and public accountability by various interested parties. ICD as the dependent variable is used to test the factors that affect the ICD. The percentage of the disclosure index as a total is calculated according to the formula:

$$\textbf{Score} = (\sum di/M) \times 100\%$$

Index:
Score = dependent variable intellectual capital disclosure index (ICD Index)
Di = number 1 if an is disclosed in the annual report, 0 if an is not disclosed in the annual report.
M = total number of items measured (40 items).

This research uses a disclosure index of 40 items developed by Haji and Ghazali (2013). This index has been used for research in Malaysia and adapted to Malay culture. This index is quite relevant to use, because the business and cultural environment of Indonesia and Malaysia is almost same. Disclosure of intellectual capital is divided into three categories, namely internal capital 9 items, external capital 17 items and human capital 14 items. The disclosure index is as follows:

Table 3.1
Intellectual Capital Disclosure Index

SECTION	ITEMS	CODE
Internal Capital (9 item)	Intellectual Property	ICA
	- Patent	ICA 1
	- Copyright	ICA 2
	- Trademarks	ICA 3
	Corporate Culture	ICB
	- Corporate culture	ICB 4
	- Management philosophy	ICB 5
	- Information systems	ICB 6
	- Leadership	ICB 7
	- Innovation	ICB 8
	- Research and development	ICB 9
External Capital (17 item)	Information on Brands	ECC
	- Brand	ECC 10
	- Brand recognition	ECC 11
	- Brand development	ECC 12

SECTION	ITEMS	CODE
	- Goodwill	ECC 13
	Customer Base	ECD
	- Information relating to customers	ECD 14
	- Customer satisfaction	ECD 15
	- Customers loyalty	ECD 16
	- Customer appreciation	ECD 17
	- Customer retention	ECD 18
	- Customer service/support	ECD 19
	- Customer feedback system	ECD 20
	- Special care counters for old/disabled customers	ECD 21
	- Distribution channels	ECD 22
	- Customer market share	ECD 23
	Partnership	ECE
	- Business collaboration	ECE 24
	- Licensing agreements	ECE 25
	- Joint venture	ECE 26
Human Capital (14 item)	Competence	HCF
	- Employee know-how	HCF 27
	- Education	HCF 28
	- Vocational qualification	HCF 29
	- Work-related knowledge	HCF 30
	- Knowledge sharing	HCF 31
	- Motivation	HCF 32
	- Employee expertise	HCF 33
	- Expert teams	HCF 34
	- Specialist	HCF 35
	- Training	HCF 36
	- Cultural diversity	HCF 37
	Personnel	HCG
	- Human resources (number)	HCG 38
	- Employee satisfaction	HCG 39
	- Employee retention	HCG 40

Source: Haji and Ghazali (2013)

b. Independent Variables

1) Board Size

Board size refers to the number of members on an organization's board of directors. The board size of the companies in the research is proxied by the total number of members in the board of directors (Rodrigues, *et al.,* 2015).

2) CEO Duality

CEO duality is a situation in which the chairman of the board at a company who also a chief executive officer at the same time. The CEO duality in this research is proxied by dummy variable with the value of 1 if there is a duality and 0 otherwise (Rodrigues, *et al.,* 2015).

3) Audit Committee

Audit committee refers to the number of members on an organization's audit committee. The audit committee of the companies in the research is proxied by the total number of members of the audit committee (Haji, 2015)

4) Board Gender

Board gender is the existence of woman in the company's board of directors. The board gender in this research is proxied by dummy variable with the value of 1 if there is a woman and 0 if otherwise.

6. Data Analysis

Data analysis method is a technique or procedure to test the research hypothesis. This method uses statistics analysis, classical assumption test, multiple regression equation models, and hypothesis test.

a. Descriptive Statistics Analysis

Descriptive statistics provide an overview of data seen from mean, standard deviation, variance, maximum, minimum, sum, and range (Nazaruddin and Basuki, 2016). Descriptive statistics analysis is used to describe the sample data profile before utilizing statistical analysis techniques that serve to test the hypothesis.

b. Classic Assumption Test

Classic assumption test is undertaken in the research to know that the data is fulfill the requirements of the test. The purpose of this classic assumption is to determine whether the result of multiple regressions is a deviation from the classical assumption. The classic assumption test consists of normality test, autocorrelation test, multicollinearity test and heteroscedasticity test.

1) Normality test

Normality test is performed to test whether the data being analyzed is normal distribution or not. Good data is data that is normally distributed or near normal. Normality can be detected using non-parametric statistical tests Kolmogorov Smirnov. The assumptions are if Asymp Sig 2 tailed > significance level (α =

0.05), thus the data is distributed normally. On the other hand, if Asymp Sig 2 tailed < significance level (α = 0.05), thus the data is not distributed normally.

2) Autocorrelation Test

An autocorrelation test was conducted to test whether there was a correlation between residuals in one observation with another observation (Nazaruddin and Basuki, 2016). If there is a correlation, then the problem is called autocorrelation. Research data is good if not affected by autocorrelation. To detect the existence of autocorrelation is using Durbin-Watson (DW test).

3) Multicollinearity Test

Multicollinearity test to test whether there is correlation between independent variables (Nazaruddin and Basuki, 2016). Research data can be said good if not exposed to multicolinearity. To detect the presence or absence of multicolinearity by looking at the value of variance inflation factor (VIF). If the VIF value is < 10, then there is no multicolinearity, whereas if the VIF value > 10, then there is multicolinearity among the independent variables.

4) Heteroscedasticity Test

Heteroscedasticity test aims to test whether in the regression model there is a variance inequality of the residual one observation to another observation. Research data can be said good if not exposed to heteroscedasticity. If the variance of the residual one

observation to another observes remains, it is called heteroscedasticity. To detect whether or not heteroscedasticity is used glejser test. If the value of sig > 0.05 then it can be said not affected by heteroskedastisitas.

c. Hypotheses testing

In this study, to see the comparative influence of independent variables on dependent variable using multiple regression analysis (Multiple Regression Analysis). Multiple regression model is statistical method serves to test the influence of several independent variables to one dependent variable. This analysis aims to test the magnitude of the influence of each independent variable to the dependent variable. The regression model was used to examine the effect of CEO Duality, board size, audit committee composition, and gender board towards ICD:

$$\mathbf{ICD = \alpha_0 + \alpha_1\, BSIZE + \alpha_2\, DUAL + \alpha_3\, ACCOM + \alpha_4\, GEN + e}$$

Index:

ICD	= Intellectual Capital Disclosures
α_0	= Constant
α_1 α_2 α_3 α_4	= Regression Coefficient
DUAL	= CEO Duality
BSIZE	= Board Size
ACCOM	= Audit Committee
GEN	= Board Gender
e	= Error

1) F-Test

F-test is statistics test to know whether independent variables simultaneously affect dependent variable. The assumption if sig < alpha 0,05, independent variables simultaneously have significant effect towards dependent variable.

2) t-test

T-test is statistics test to know the effect of independent variables towards dependent variable. The assumption is the hypotheses accepted if sig < alpha 0,05 and the regression coefficient has same direction with the hypotheses.

3) Adjusted R^2

Coefficient determination test means that dependent variables can be described by the independent variables. Coefficient determination can be seen from adjusted R^2 . the value of adjusted R^2 should be changed in percentage. While the rest is explained by the other factors which is not contained in the model.

4) Independent Sample t-test

Independent sample t test was conducted to find out the difference level of intellectual capital disclosure in Indonesia and Malaysia. Before doing the t test, previously tested the similarity of variance (homogeneity) with F test (Levene Test). If the variants are same, then the t test uses Equal Variance Assumed. If the variants are different, then the t test uses Equal Variance Not Assumed. Hypothesis accepted if sig value < 0,05 and if value sig > 0,05 the hypothesis rejected.

5) Chow test

Chow test is a testing tool for equality of coefficients test. This test was conducted to test the regression model for the group used where

in this research there are two groups namely high IC intensive companies in Indonesia and Malaysia. Criteria used in making the decision are to compare the value of F arithmetic with F table. If F arithmetic > F table, then it can be interpreted that there are differences in the influence of independent variables on the dependent variable in both groups of samples.

This test is conducted to determine the effect of board size, CEO duality, audit committee, and board gender towards intellectual capital disclosures in Indonesia and Malaysia. This test can be undertaken with the following formula:

$$\mathbf{F} = \frac{(\mathbf{RSSr} - \mathbf{RSSUr})/\mathbf{k}}{\mathbf{RSSUr}/(\mathbf{n} + \mathbf{n2} - \mathbf{2k})}$$

Index:

F = value F arithmetic
RSSr = Residual value of combined regression results RSS1 and RSS2
RSS1 = Residual value of the first regression result
RSS2 = Residual value of the second regression result
RSSUr = RSS1 + RSS2
k = independent variable + dependent variable – 1
n1 = Number of RSS1 samples
n2 = Number of RSS2 samples