CHAPTER III

RESEARCH METHODS

A. Research Object

The research object used in this research is the data obtained from websites of manufacturing companies that are listed on the Indonesia Stock Exchange. Moreover, the financial statements and annual reports of these companies are also required in this research. The data that will be researched on is for the accounting period of the year ended 31 December 2014 and that the manufacturing companies are listed as of the year 2014.

Based on the IDX fact book 2015, it was stated that 142 manufacturing companies were listed on the Indonesia Stock Exchange for the period 2014 and 80 companies were taken as sample to be used in this research.

B. Research Design

According to Cooper and Schindler (2014: 126-129), research design can be grouped, using 8 different descriptors as follows:

1. Degree of Research Question Crystallization

A study may be viewed as exploratory or formal. The study used in this research is formal study. The formal study begins with the hypothesis or research question and involves precise procedures and data source

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specifications. The goal of formal research design is to test the hypothesis or answer the questions posed.

2. Method of Data Collection

The classification distinguishes between monitoring and communication processes. Based on the perspective of data collection methods, this research uses data collection by observation method in which the researcher examines the activity of a subject without trying to get a response from anyone. The researcher does not examine the company directly, but only through the data obtained in their websites and financial statements accessible from www.idx.co.id.

3. Researcher Control of Variables

In this study, the researcher did not have the ability to manipulate and has no control over the variables studied. This is called an *ex post facto design*, researchers have no control over the variables in the sense of being able to manipulate them. They can only report what has happened or what is happening. It is important that the researchers using this design not influence the variables; to do so would introduce bias.

4. The Purpose of the Study

The purpose of this study is to see whether the size of the firm, audit firm, leverage, profitability and liquidity has influence over the extent of internet financial reporting and also to know how many companies have disclosed their financial statements in their websites. Based on the objectives stated above, this research is included in causal-predictive study.

5. The Time Dimension

   This research uses cross sectional data. Cross section is done only once and represents one specific period. In this research, the researcher uses data obtained from the company at one point in time.

6. The Topical Scope

   The topical scope is the focus on the breadth and depth of research. This is a statistical study. Statistical study is designed for breadth rather than depth. This study is part of a statistical study because researchers are trying to determine the characteristics of the population based on inferences from the characteristics of representative samples. In addition, research hypothesis are tested quantitatively with statistical tests.

7. The Research Environment

   Research environment in this study is the actual environment conditions because data used is the data obtained from events that occurred under actual environmental conditions and not a simulation, that is, it is actually listed on the Indonesia Stock Exchange.

8. Participants' Perceptual Awareness

   Participants' perceptual awareness influences the outcomes of the research in subtle ways or more dramatically. When participants believe something out of the ordinary is happening, they may behave less naturally. There are three levels of perception:

   1) Participants perceive no deviations from everyday routines.

   2) Participants perceive deviations, but unrelated to the researcher.

   3) Participants perceive deviations as researcher-induced.

C. Research Variables

1. Dependent Variable

The dependent variable used in this study is Internet Financial Reporting Disclosure Index (IFR index). Internet Financial Reporting can be used by companies to deliver information to the creditors, shareholders and stakeholders. Before the year 2012, Internet Financial Reporting (IFR) was a form of disclosure done voluntarily. On 1st August 2012, the Indonesian Capital Market and Financial Institutions Supervisory Agency ("BAPEPAM-LK") issued a new rule no. X.K.6 which regulates the mandatory disclosure of information in issuers' and public company's annual reports in their websites, which are intended to serve as a source of information for shareholders and the public to make investment decisions.

In this research, Internet Financial Reporting disclosure is measured using an index. The disclosure index obtained from Bonsón and Escobar (2006) comprises of 44 items or variables. The index was developed with reference to Botosan (1997), Debrency *et al.* (2001), Ettredge *et al.* (2001) and Xiao *et al.* (2004). Each of the 44 items may take a value of 1 or 0 depending on whether or not the company provides the class of information specified by the item. Therefore, the maximum value of the index would be 44 and a minimum value of 0. The disclosure index developed by Bonsón and Escobar (2006) will be used in this research. A few minor changes have been made due to differences in the object of research and sample countries. The index used in this research has not been used in any other research within this country. The table below shows the index which will be used in this research:

Table 3.1

Disclosure Index

V01	Balance sheet of current year
V02	Balance sheet of past years (at least, the last 2 years)
V03	Income statement of current year
V04	Income statement of past years (at least, the last 2 years)
V05	Cash flow statement of current year
V06	Cash flow statement of past years (at least, the last 2 years)
V07	Notes to financial statements of current year
V08	Notes to financial statements of past years (at least, the last 2 years)
V09	Quarterly report of current year
V10	Quarterly report of past years (at least, the last 2 years)
V11	Half-year report of current year
V12	Half-year report of past years (at least, the last 2 years)
V13	Financial ratios
V14	Audit report of current year
V15	Audit report of past years (at least, the last 2 years)
V16	Segmental reporting by line of business in current year
V17	Segmental reporting by region of business in current year
V18	Annual report of current year
V19	Annual report of past years (at least, the last 2 years)
V20	Number of shares
V21	Classes of shares (if there are different types)
V22	Securities markets on which it is quoted
V23	Schematic chart with the evolution of the authorised capital (Share chronology)
V24	Shareholder structure (composition)
V25	Communication channels used to reach investor relations (e-mail, telephone, …)
V26	Investor calendar (dates of main events)
V27	Information on dividends
V28	Section on relevant events
V29	Press releases — updated information about the presence of the company in informative media
V30	Information about management, at least the identity of executives
V31	Environmental information
V32	Information on intellectual capital
V33	Information on corporate strategy or company's vision and mission
V34	Corporate social responsibility
V35	Direct link to investor relations (specific item to access information for investors and shareholders)
V36	Management discussion and analysis (changes in financial figures)

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V37	Projected information
V38	Frequently asked questions
V39	Link to the information of the company in databases of supervisory bodies
V40	English Website (Is it a Dual Language Site?)
V41	Sitemap
V42	Internal search engine
V43	Mailing lists
V44	Date when site was last updated (based on copyright at the bottom of the page)

Source: Bonsón and Escobar (2006)

2. Independent Variables

a. Firm Size

Large companies incur higher agency cost because larger companies have greater obligation in delivering financial reporting completely and quickly to shareholders as a form of management accountability to their shareholders. (Kusumawardani, 2011: 33)

Large firms potentially have larger agency costs (Jensen and Meckling, 1976) or political costs (Watts and Zimmerman, 1978) than smaller ones. According to Watts and Zimmerman (1978), smaller firms are not subjected to political pressure in compared to larger firms. Prabowo and Angkoso (2006: 95) further adds that larger firms with broader stakeholders (such as governmental agencies, press and Non-Governmental Organizations) also probably put pressures to larger firms involving various issues, such as environment, labour, tax, compliance, ethics and social responsibility. Larger firms therefore incur higher political costs.

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This variable is measured using natural logarithm of total assets of the company. (Almilia, 2008)

$$Firm\ Size = Ln\ Total\ Assets$$

b. Audit Firm

The use of the Public Accounting Firms (CPA firm) that are well reputed is one positive sign for the company because the company will be deemed to have information that is not misleading and report financial information more transparently. This will enhance the company's image and encourage companies to disseminate financial statements through IFR in order to raise the confidence of investors, because the company's financial statements can be trusted. (Kusumawardani, 2011: 37)

This variable is measured using a dummy variable to see if the firm is affiliated with a Big Four Accounting firm or not, 1 is to indicate a Big Four accounting firm and 0 for Non Big Four accounting firm. The big four accounting firms used in this research are:

1) KAP Osman Bing Satrio & Eny affiliated with Deloitte Touche Tohmatsu

2) KAP Tanudiredja, Wibisana, Rintis & Rekan affiliated with Pricewaterhouse Coopers (PwC)

3) KAP Purwanto, Suherman & Surja affiliated with Ernst & Young

4) KAP Siddharta dan Widjaja affiliated with Klynveld, Peat, Marwick, Goerdeler (KPMG).

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c. Leverage

Leverage is a tool to measure how much a company depends on its creditors to finance the company's assets. Signaling theory suggests that loans from external parties shows that the company can be trusted with loans and that the company is reliable enough to pay back loans in time of settlement.

According to Lestari and Chariri (2007: 7), managers can use IFR to help disseminate positive information about the company to creditors and shareholders, so that they would not be too overly focused on the company's high leverage. This can be done because financial reporting through the internet can contain more information than what the company could share previously through paper-based reporting.

This variable is measured using debt to total assets ratio. Debt to total assets ratio measures the percentage of the total assets that creditors provide. It is computed by dividing total debt by total assets. It also provides some indication of the company's ability to withstand losses without impairing the interests of the creditors. The higher the percentage of debt to total assets, the greater the risk that the company may be unable to meet its maturing obligations. (Weygandt *et al.*, 2011: 675)

$$Debt\ to\ Total\ Assets\ Ratio = \frac{Total\ Debt}{Total\ Assets}$$

d. Profitability

Profitability measures the income or operating success of a company for a given period of time. Income, or the lack of it, affects the company's ability to obtain debt and equity financing. (Weygandt *et al.*, 2011: 671) According to Kusumawardani (2011: 33-34) Profitability is an important aspect that can be used as a reference by the investor or owner to assess the performance of management in managing a company. Profitable companies will have a stronger incentive to disseminate corporate information, especially financial information.

This variable is measured using Return on Equity ratio. Return on Equity is the company's ability to obtain profit on total equity that is owned by the company, this variable is measured by the profit after tax divided by total equity. (Almilia, 2008)

$$Return\ on\ Equity = \frac{Net\ Income}{Total\ Equity}$$

e. Liquidity

Liquidity can be defined as a company's ability to repay short-term obligations. The higher the company's ability to repay short-term debt, the more liquid the company is, wherein the level of liquidity of the company will influence investors in making investment decisions. Investors will not invest in companies that are less liquid because they would assume that

companies which are less liquid has a tendency to undergo a bankruptcy.

(Kusumawardani, 2011: 34-35)

This variable is measured using current ratio. Current ratio is a widely used measure for evaluating a company's liquidity and short-term debt-paying ability. The ratio is computed by dividing current assets by current liabilities.

$$Current\ Ratio = \frac{Current\ Asset}{Current\ Liabilities}$$

Table 3.2

Operational definitions of Variables and their measurements

Variable	Operational Definitions	Variable Concepts	Indicators	Measurement	Scale	Previous Findings
1.Firm Size	Measures how small or large a company is through its total assets	*Natural Logarithm*	Natural Logarithm of Total Assets	Ratio Value	Ratio	Almilia (2008)
2.Audit Firm	Reputation of audit firms determine audit quality	*Dummy Variable*	1= Audited by *Big Four*, 0=Not audited by *Big Four*	Dummy Value	Nominal	Aly (2010)
3.Leverage	The company's ability to pay off its liabilities.	*Debt to total asset ratio*	Total debt divided by total assets	Ratio Value	Ratio	Xiao (2004), Anna (2013)
4.Profitability	ROE measures the ability of the company to obtain profit	*Return On Equity*	Net income divided by total equity	Ratio Value	Ratio	Almilia (2008), Anna(2013)
5.Liquidity	Company's ability to repay short-term obligations	*Current Ratio*	Current assets divided by current liabilities	Ratio Value	Ratio	Aly (2010)

Source: Processed Data

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D. Data Collection Techniques

This study was designed to observe the influence of factors such as firm size, audit firm, leverage, profitability and liquidity as an influence to the extent of Internet financial reporting done by manufacturing companies which is reflected in the websites of these companies as well as their financial statements and annual reports for companies listed on the Indonesia Stock Exchange.

Data collection techniques used by the researcher in this study is through observation techniques. While the data used in this research is secondary data taken from the websites of manufacturing companies as well as the financial statements, annual reports and audit reports of manufacturing companies listed on the Indonesia Stock Exchange.

In addition to using the data derived from websites and financial statements obtained through IDX website www.idx.co.id, this study also uses data from IDX fact book 2015 for the period 2014. Period of data collection for this research was from 10th December 2015 until 21st December 2015.

E. Sample Selection Techniques

The population of this research is all the manufacturing firms that are listed on the Indonesia Stock Exchange for the period 2014. Sample selection for this research uses non probabilistic sampling that is using the method of purposive sampling, judgment sampling technique. Criteria for sample selection include:

1. Manufacturing companies that are currently listed in the IDX fact book 2015.

2. Manufacturing companies that have websites and those websites can be accessed without any problems.

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3. Manufacturing companies that publish their financial statements and annual reports in their websites. Financial statements and annual reports that are available in the websites must be accessible and updated.

4. Financial statements must be stated in Indonesian currency (rupiah) and published for the year ended 31st December.

5. Companies with a positive net income and positive total equity.

Table 3.3

Sample Selection Process

Total manufacturing firms	142
Firms without websites	(2)
Firms with web problems	(2)
Firms without Internet Financial Reporting	(6)
Firms that do not report in rupiah	(27)
Firms with financial year that don't end in December	(1)
Firms that incur losses	(10)
Firms with capital deficiency	(4)
Firms with inaccessible information	(10)
Sample of manufacturing firms	80

Source: IDX fact book 2015 and companies' websites

F. Data Analysis Techniques

1. Descriptive Statistics

Descriptive statistics according to Ghozali (2013: 19), gives an overview or description of a data seen from the average value (mean), standard deviation, variance, maximum, minimum value, sum, range,

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kurtosis and skewness. Mean used to estimate the average size of the estimated population of the sample. Standard deviation is used to assess the average dispersion of the sample. Maximum-minimum, used to see the minimum and maximum values of the population. The mode is the value that appears most frequently for each variable nominal scale. Descriptive statistics test needs to be done to see the overall picture of the sample collected and are eligible to be used as research sample.

2. Classical Assumption Test

a. Normality Test

Normality test aims to test whether in a regression model, the variables or residuals have a normal distribution or not. As it is known that the t test and F test assumes that the values of the residuals follow a normal distribution. A good regression model has a normally distributed data. Test used to test the normality of the residuals is a non-parametric statistical test called the Kolmogorov-Smirnov (K-S). (Ghozali, 2013: 164)

K-S test is done by making hypothesis:

H_0: residuals are normally distributed data

H_a: residual data is not normally distributed

Bases to draw out the conclusion:

Do not reject H_0 if probability $\geq 0{:}05$

Reject H_0 if the probability of < 0.05

b. **Multicollinearity Test**

According to Ghozali (2013: 105), multicollinearity test aims to test whether the regression model finds a correlation between independent variables. A good regression model should not have correlation between the independent variables. If the independent variables are correlated, then these variables are not orthogonal. An orthogonal variable is an independent variable with a correlation value between the members of the independent variables with a value of zero.

Multicollinearity testing can be seen from the VIF (Variance Inflation Factor) and Tolerance. Tolerance measures the variability of independent variables chosen and which were not explained by other independent variables. So, tolerance value which is low becomes equal to the value of VIF = 1 / Tolerance. The cutoff value commonly used to indicate the existence of multicollinearity is the tolerance value of ≥ 0.10 or equal to the value of VIF ≤ 10.

c. **Heteroscedasticity Test (Glesjer Test)**

According to Ghozali (2013: 139), heteroscedasticity test aims to test whether in the regression model inequality happens in a residual variance from one observation to another observation. If the variance of the residuals of the observations to other observations remains the same, it is called homoscedasticity and if it is different, it's called heteroscedasticity. A good regression model is one that is homoscedasticity and not heteroscedasticity.

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Steps of conducting this test includes:

a. Determining the error rate (α) = 0.05 (5%)

b. Obtain the sig. value from the coefficients table. (See that dependent is the residual value made absolute)

c. Bases to draw out conclusion:

   i) If the value of sig. < α (5%), then the regression model contains heteroscedasticity.

   ii) If the value of sig. > α (5%), then the regression model does not contain heteroscedasticity.

d. Autocorrelation Test

The term autocorrelation may be defined as "correlation between members of series of observations ordered in time [as in time series data] or space [as in cross-sectional data]. (Gujarati and Porter, 2009: 413)

According to Ghozali (2013: 110) Autocorrelation test aims to test whether the linear regression model has no correlation between the residuals (errors) in period t with the residuals (errors) in period t-1. A good regression model is a regression that is free of autocorrelation. This research uses the Durbin-Watson test. The hypothesis for this test:

H_0: there is no autocorrelation (r = 0)

H_a: there is autocorrelation (r $\neq$ 0)

Table 3.4 shows the bases to draw out conclusion:

Table 3.4

Durbin-Watson decision rules

Null Hypothesis	Decision	If
No positive autocorrelation	Reject	$0 < d < dL$
No positive autocorrelation	No decision	$dL \le d \le dU$
No negative correlation	Reject	$4 - dL < d < 4$
No negative correlation	No decision	$4 - dU \le d \le 4 - dL$
No autocorrelation, positive or negative	Do not reject	$dU < d < 4 - dU$

Source: Basic Econometrics, Gujarati and Porter (2009: 436)

Another way of testing for autocorrelation is using the Run test. Run test as part of a non-parametric statistics may be used to test whether there is a high correlation between residual. If there is no correlation between the residual, then it is said that the residual is random. (Ghozali, 2013: 120)

H_0: residual (res_1) is random

H_a: residual (res_1) is not random

The base to draw out a conclusion is by obtaining the Asymp. Sig value from the output Runs test table. If the value is $\le \alpha$ (0.05) or statistically significant then reject H_0 and conclude that residual is not random or there is autocorrelation among residual values. Otherwise, if the value of Asymp. Sig is $\ge \alpha$ (0.05) then do not reject H_0 and conclude that residual is random or there is no autocorrelation among residual values. (Ghozali, 2013: 118)

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3. **Multiple Regression Analysis**

Regression analysis is concerned with the study of the dependence of one variable, the *dependent variable,* on one or more other variables, the *explanatory variables,* with a view to estimating and/or predicting the (population) mean or average value of the former in terms of the known or fixed (in repeated sampling) values of the latter. (Gujarati and Porter, 2009: 15)

In regression analysis, in addition to measuring the strength of the relationship between two or more variables, also shows the direction of the relationship between the dependent variable and independent variables. The dependent variable is assumed random / stochastic, which means having a probabilistic distribution. Estimation techniques underlying dependent variable regression analysis is called the Ordinary Least Squares (OLS). OLS is a core method of estimating a regression line by minimizing the sum of squared errors of each observation on the line. (Ghozali, 2013: 96)

Multiple regression is used as a descriptive tool. It is often used to develop self-weighting estimating equation by which to predict values for a criterion variable (DV) from the values for several predictor variables (IVs). In addition to being a descriptive tool, multiple regression is also used as an inference tool to test hypotheses and to estimate population values. (Cooper and Schindler, 2014: 477) The equation to test the hypothesis as a whole in this research is as follows:

$$IFR = \beta_0 + \beta_1 SIZE + \beta_2 AUDIT + \beta_3 LEV + \beta_4 PROF + \beta_5 LIQUID + \varepsilon$$

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Explanation:

IFR	= Total number of items disclosed
β_0	= constant
$\beta_1 \beta_2 \beta_3 \beta_4 \beta_5$	= regression coefficients
SIZE	= Firm size (Natural logarithm of total asset)
AUDIT	= Audit firm (Dummy Variable)
LEV	= Leverage (Total debt over total assets)
PROF	= Profitability (Return on Equity)
LIQUID	= Liquidity (Current Ratio)
ε	= error term

4. **Hypothesis Testing**

   a. **Simultaneous Significance Test (Statistic F test)**

      The simultaneous significance F test indicates whether all the independent variables included in the model have a joint influence on the dependent variable. (Ghozali, 2013: 98)

      H_0: b1 = b2 = b3 = b4 = b5 = … = bk = 0

      H_a: b1 ≠ b2 ≠ b3 ≠ b4 ≠ b5 ≠ … ≠ bk ≠ 0

      Bases to draw out conclusion:

      i) If Sig. F ≥ α (0.05) means do not reject H_0, the model is not fit and not suitable for use in research.

      ii) If Sig. F ≤ α (0.05) means reject H_0, the model is fit and can be used for research.

b. Statistic t test

According to Ghozali (2013: 98-99), statistical t test basically shows how far the effect of an explanatory variable / independent variable individually explains variations in the dependent variable. With a significant level of 0.05 (5%), the hypothesis tested is as follows:

H_0: bi $= 0$

H_a: bi $\neq 0$

Bases to draw out conclusion:

i) If the significance value is $\geq \alpha$ (0.05) means do not reject H_0, which means that the independent variable has no significant effect on the dependent variable.

ii) If the significance value is $\leq \alpha$ (0.05) means reject H_0, which means that the independent variable has a significant effect on the dependent variable.

c. The Coefficient of Determination (R^2)

The coefficient of determination (Nagelkerke's R Square) is the coefficient Nagelkerke R Square, which is a modified Cox & Snell R Square. Where Cox & Snell R Square is a measure that seeks to imitate the size of R^2 at multiple regression estimation techniques based on Maximum Likelihood with a value less than 1 (one), so it is difficult to interpret. Nagelkerke's R Square is useful to ensure that the coefficient of determination (R Square) varies from 0 (zero) to 1 (one). (Ghozali, 2013: 97)

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Value of Nagelkerke's R Square may be interpreted as the coefficient of determination (R^2) in multiple regression, with the aim to explain the variability of the dependent variable that can be explained by the variability of independent variables, in which the value of R^2 lies between $0 \leq R^2 \leq 1$. The value of R^2 generated has a few meanings, namely:

- If $R^2 = 0$, then it means that there is no relationship between X and Y, or the regression model that was formed is not accurate to predict Y.

- If $R^2 = 1$, then it means the regression line Y that is formed can predict perfectly.

5. **Hypothesis Testing Criteria**

To test the significance of the coefficients of each independent variable, conducted test of the hypothesis as follows:

1) Hypothesis 1

H_0: $\beta 1 = 0$

Shows that the variable, *firm size* has no influence in the disclosure of financial information through the internet.

H_a: $\beta 1 > 0$

Shows that the variable, *firm size* has an influence in the disclosure of financial information through the internet.

2) Hypothesis 2

$H_0: \beta2 = 0$

Shows that the variable, *audit firm* has no influence in the disclosure of financial information through the internet.

$H_a: \beta2 > 0$

Shows that the variable, *audit firm* has an influence in the disclosure of financial information through the internet.

3) Hypothesis 3

$H_0: \beta3 = 0$

Shows that the variable, *leverage* has no influence in the disclosure of financial information through the internet.

$H_a: \beta3 > 0$

Shows that the variable, *leverage* has an influence in the disclosure of financial information through the internet.

4) Hypothesis 4

$H_0: \beta4 = 0$

Shows that the variable, *profitability* has no influence in the disclosure of financial information through the internet.

$H_a: \beta4 > 0$

Shows that the variable, *profitability* has an influence in the disclosure of financial information through the internet.

5) Hypothesis 5

H_0: $\beta 5 = 0$

Shows that the variable, *liquidity* has no influence in the disclosure of financial information through the internet.

H_a: $\beta 5 > 0$

Shows that the variable, *liquidity* has an influence in the disclosure of financial information through the internet.