

**DETERMINANTS OF HEDGING DECISION WITH DERIVATIVE  
INSTRUMENTS IN MANUFACTURING COMPANIES LISTED ON  
INDONESIA STOCK EXCHANGE PERIOD 2013-2016**

**(Undergraduate Thesis)**

**By**

**ZAKIA AGUSTRI ATIKAH**



**FACULTY OF ECONOMICS AND BUSINESS  
UNIVERSITY OF LAMPUNG  
BANDAR LAMPUNG  
2018**

## ABSTRACT

### **DETERMINANTS OF HEDGING DECISION WITH DERIVATIVE INSTRUMENTS IN MANUFACTURING COMPANIES LISTED ON INDONESIA STOCK EXCHANGE PERIOD 2013-2016**

By

**ZAKIA AGUSTRI ATIKAH**

The purpose of this study was to determine the effect of Growth Opportunity (GRWTH), Leverage (LEV), Liquidity (LIQ), Firm Size (SIZE), and Financial Distress (FND) on hedging decision in manufacturing companies in Indonesia Period 2013-2016. The greatest risk of international trade transactions is risk of fluctuations in foreign exchange rates. Changes in the value of foreign currency that can unexpectedly significant impact of the company, therefore the company needs to do a risk management one of which is the hedging decision with derivative instruments. The population in this study is a companies listed on Indonesia Stock Exchange Period 2013-2016. The sample in this study amounted to 98 companies by using purposive sampling. The variables in this study include Growth Opportunity (GRWTH), Leverage (LEV), Liquidity (LIQ), Firm Size (SIZE), and Financial Distress (FND). The analytical tool used is the logistic regression analysis. The result of this study found that the variable Growth Opportunity (GRWTH), Leverage (LEV), and Firm Size (SIZE) positively affect hedging decision, whereas for the other variable Liquidity (LIQ) and Financial Distress (FND) does not affect hedging decision. From the results of logistic regression found that the variable Growth Opportunity (GRWTH), Leverage (LEV), and Firm Size (SIZE) can explain hedging decision by 48.9% while the remaining 51.1% explained by variables outside the study.

**Keywords: Hedging Decision, Derivative Instrument, Growth Opportunity, Leverage, Liquidity, Firm Size, Financial Distress**

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INDONESIA STOCK EXCHANGE PERIOD 2013-2016**

**Researcher**

**ZAKIA AGUSTRI ATIKAH**

**Undergraduate Thesis**

As One of Requirements to Achieve  
**BACHELOR OF ECONOMICS**

In

Management Department  
Faculty of Economics and Business University of Lampung



**FACULTY OF ECONOMICS AND BUSINESS  
UNIVERSITY OF LAMPUNG  
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Bandar Lampung, April 13, 2018

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## **BIOGRAPHY**

The author was born in Bandar Lampung on Thursday, May, 16th 1996, as the first child of three siblings. Daughter of Mr. H. Agusman Arief, S.E., M.M. and Mrs. Hj. Endang Trihandayani, S.E. and the eldest sister of Zulfa Agustri Annisa and Zeta Agustri Azzahra.

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In 2014, the author was accepted as a student in University of Lampung entered in Management Department in Economics and Business Faculty, then choose in Bilingual Class and took Financial concentration. In January 2016, the author did the local internship or KKN in Kalirejo, Lampung Tengah for 40 days.

Now with full of struggle, hard work and learning process are relentless, eventually, Writers can complete the educational strata 1 (one) in the Department of Management Faculty of Economics and Business, University of Lampung.

## MOTTO

وَعَسَىٰ أَنْ تَكْرَهُوا شَيْئًا وَهُوَ خَيْرٌ لَّكُمْ وَعَسَىٰ أَنْ تُحِبُّوا  
شَيْئًا وَهُوَ شَرٌّ لَّكُمْ وَاللَّهُ يَعْلَمُ وَأَنْتُمْ لَا تَعْلَمُونَ ﴿٢١٦﴾

“But perhaps you hate a thing and it is good for you; and perhaps you love a thing and it is bad for you. And Allah Knows, while you know not.”

**(QS. Al Baqarah 2:216)**

“Fall seven times, stand up eight.”

**(Japanese Proverb)**

“You are your only limit. Live your life without limits. All things are possible to those who believe.”

**(Zakia Agustri Atikah)**

## **DEDICATION**

### **Alhamdulillahirabbil'alamin**

With gratitude of all joy and blessings given by Allah SWT, I hereby dedicate  
my undergraduate thesis to:

**My dearest parents, My Father H. Agusman Arief, S.E., M.M. and My  
Mother Hj. Endang Trihandayani, S.E.**

Thank you for the everlasting prayer, all the sacrifices you have given and also  
provide the best facilities and fully supported me to finish my undergraduate  
thesis. Thank you so much for believing in me. You both are the most precious  
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It is important to be known that the script would never have come into existence without any supports, encouragements, and assistance by several amazing persons. It is the great honor for the researcher to make acknowledgement of indebtedness to convey her sincere gratitude to:

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The researcher realized that the writing of this undergraduate thesis is still far from perfection. However, the researcher hoped that this humble thesis will be useful for us all.

Bandar Lampung, April 2018

Zakia Agustri Atikah

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# I. INTRODUCTION

## A. Background

The era of globalization has now increased inter-country interaction in various fields, including international trade. International trade transactions differ from domestic trade because of international trade transactions involve several countries. International trade means trade between the two or more countries, it is the trade of capital, goods, and services across international borders or territories (Griffin and Pustay, 2005).

International trade gives rise to a world economy, in which prices, or supply and demand, affect and are affected by global events. Trading globally gives consumers and producers the opportunity to be exposed to goods and services not available in their own countries. The growth of international trade not only allows companies to increase their profits by exploiting unspoiled market opportunities but also increase risks. The risk can be minimized by applying risk management through several processes including risk identification, risk evaluation and risk measurement (Sunaryo, 2009).

The biggest risk of multinational transactions is the fluctuation of foreign exchange rates. Such fluctuations have a direct impact on sales, product determination, and profit of exporters and importers. Fluctuations in foreign exchange rates also cause uncertainty in the value of assets and liabilities, and can threaten the survival of a company that can lead to bankruptcy (Guniarti, 2014).

Exchange rate risk is a risk caused by fluctuations in the exchange rate of a currency against another currency. Uncertainty of global economic conditions

affect Indonesia's economic condition. This uncertainty poses a great risk. One of them is the fluctuation of the Rupiah against foreign currencies, especially the US dollar. To mitigate the risks arising from the exchange rate exposure, the government is currently socializing the importance of hedging on transactions using foreign currency ([www.dpr.go.id](http://www.dpr.go.id)).

Hedging activities of a company are also conducted to comply Bank Indonesia Regulation Number 18/4/PBI/2016 Concerning Amendment of Bank Indonesia Regulation Number 16/21/PBI/2014 Concerning The Implementation of Prudential Principles in Managing External Debt of Non-Bank Corporation. From these rules, Bank Indonesia continues to encourage companies to hedge their foreign currency debts.

According to Eiteman et al., (2010) hedging is taking a position, obtaining a cash flow, asset, or contract (including forward contract) which will increase (or decrease) its value and offset it by a decrease (or increase) in value from an existing position. Hedging will protect the company's assets from losses caused by the decline in the exchange rate, but hedging will also eliminate the possibility of profits that should be gained from the increase in exchange rates.

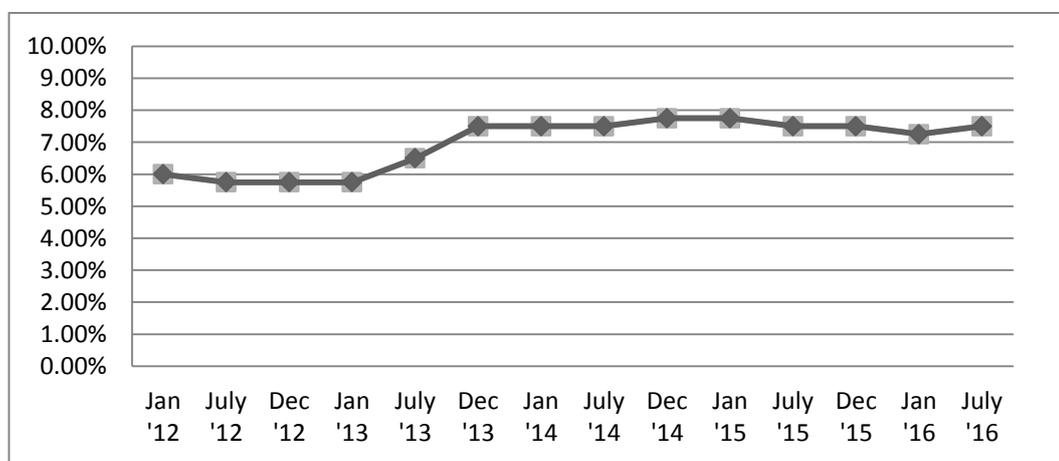
Companies can anticipate the negative impact of foreign exchange rate fluctuation risk and protect the interests of shareholders by making hedging decisions through derivative instruments. According to Utomo (2010), derivatives are contractual agreements between two parties to sell and purchase a certain amount of goods (commodities and securities) on a future date at a price already agreed upon at present. Derivative instruments are named because their value is derived from an underlying asset (Eiteman et al., 2010). Note that underlying instruments in

derivatives are not limited to financial assets, such as stocks, warrants, and bonds, but can be found in commodities, precious metals, stock indices, interest rates, and exchange rate.

According to Horne and Wachowicz (2007), to minimize the risk of foreign exchange fluctuations hedging can be conducted with foreign currency derivative instruments through forward contracts, futures contracts, currency options and currency swaps. Hedging with foreign currency derivative instruments is very beneficial for companies that conduct transactions using foreign currency.

Hedging is affected by various external and internal factors of the company. External factors that can influence the decision of hedging such as fluctuations in BI rate and exchange rate. High interest rate and exchange rate fluctuations indicate that the risks that will arise will also be higher. The BI Rate is the policy rate reflecting the monetary policy stance adopted Bank Indonesia and announced to the public ([www.bi.go.id](http://www.bi.go.id)). Figure 1.1 shows a graph of BI rate fluctuations in 2013 – 2016 with observations per 6 months.

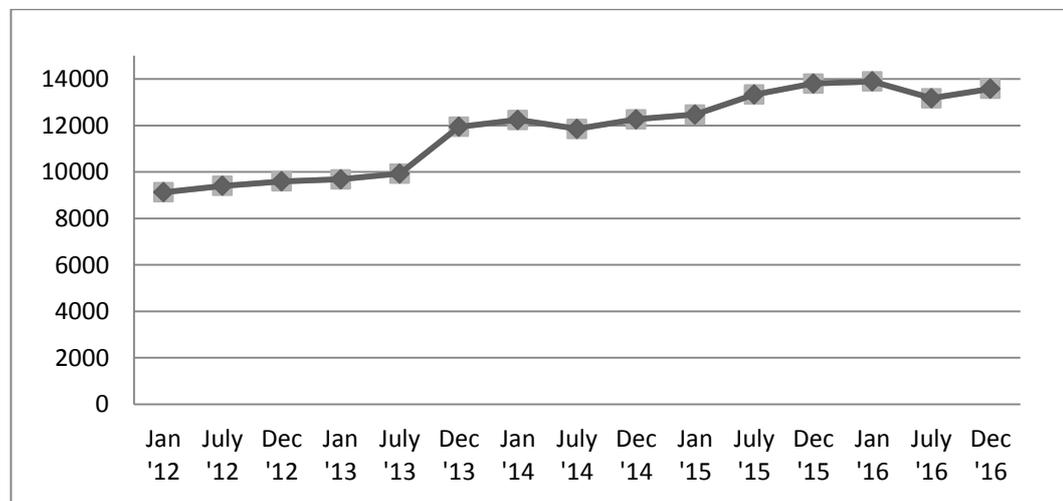
**FIGURE 1.1 FLUCTUATION OF BI RATE WITH OBSERVATIONS PER 6 MONTHS PERIOD 2012 – 2016**



Source: [www.bi.go.id](http://www.bi.go.id), Juni 2016, processed.

Figure 1.1 shows the movement of BI rate fluctuation with observations per 6 months in 2012 until 2016. BI rate fluctuation is the benchmark interest rate of banks in providing loans and will affect some companies in trading related to accounts payable. Changes in interest rates will be a risk for companies that make loans. So that the BI rate fluctuations can be used as a reference by the company to conduct hedging activities or not.

**FIGURE 1.2 FLUCTUATION OF RUPIAH EXCHANGE RATE AGAINST US DOLLAR PERIOD 2012-2016**



Source: [www.bi.go.id](http://www.bi.go.id), Juni 2016, processed.

In Figure 1.2 shows a graph of fluctuation rupiah exchange rate against US Dollar from 2012 to 2016, with observations per 6 months. In the graph represents the price of the rupiah against one US Dollar. Exchange rate is the ratio of the price of a country's currency to another country's currency (Horne and Wachowicz, 2005). For example, rupiah exchange rate against the US dollar shows how much rupiah is needed to be exchanged for one US dollar. Rupiah currency fluctuations affect international trading activities such as companies in Indonesia that conduct export-import activities between countries using foreign currency.

In Figure 1.2 shows that in the period 2012 - 2016 the exchange rate of Rupiah against US Dollar has significant fluctuations. In the period of October 2013, the Rupiah currency depreciated against US Dollar, with the previous value in July 2013 valued at Rp. 10.073/\$ to Rp. 11.366/\$ so there is an increase of Rp. 1.293/\$. If there is a company entering into an agreement in July 2013 while October 2013 is the maturity period, the company will pay more than Rp. 1.293/\$ of the number of transactions that should be. However, the case will not happen if the company uses one of the derivative instruments as a hedging activity to cover the losses that would arise from the depreciation risk of the Rupiah currency.

This study uses a sample of manufacturing companies listed on the Indonesian Stock Exchanges from 2014 to 2016, because the manufacturing companies in the world economy is a very productive company where to protect products and assets from foreign exchange fluctuations companies tend to hedge. The manufacturing company actively conduct transactions of exports and imports so that the manufacturing company has greater foreign exchange exposure, and in the financial statements will be recorded in the assets or liabilities of foreign exchange (Fitriasari, 2011).

Besides due to external factors, the company engages in hedging activities with derivatives also due to several internal factors. In this research will be observed the internal factors that encourage companies to make hedging decisions are growth opportunity, leverage, liquidity, firm size and financial distress (Guniarti, 2014). Here is an explanation of the internal factors that encourage companies to make hedging decisions.

The first internal factor is the growth opportunity, companies with high growth opportunities require additional capital from external parties in a strong amount to finance the activities of the company. Company will retain the revenue earned to reinvest and continue to use the funding alternative through debt (Guniarti, 2014). Research conducted by Putro and Chabachib (2012), Ahmad and Haris (2012), and Guniarti (2014) found that there is a positive relationship between growth opportunity and hedging activity. While Ameer (2010) found that growth opportunity negatively affects the use of derivative instruments as a decision of hedging activity.

The second internal factor is leverage, leverage ratio shows how much debt of the company so it can be said this ratio to know how the company's ability in using borrowed money. According to Putro and Chabachib (2012) the higher the leverage borne by the company so the greater hedging decision that needs to be done to reduce the adverse impact of risk, so the greater the chances of the company to take a derivative instrument decision as a hedging decision. Research conducted by Afza and Alam (2011) and Guniarti (2014) found that leverage has a positively affects on corporate hedging decisions. While Ahmad and Haris (2012) found that leverage negatively affects the use of derivative instruments as a hedging decision.

The third internal factor is liquidity, liquidity is the company's ability to fulfill the obligations that must be fulfilled immediately. Research conducted by Nguyen and Faff (2002), Ahmad and Haris (2011), and Guniarti (2014) found that liquidity variables negatively affect the hedging decisions. However, different results emerged from research by Clark and Judge (2005) and Ameer (2010) who

found that liquidity variables positively affect the hedging decisions.

The fourth internal factor is firm size, the size of the company can affect the ease of a company in obtaining the source of funding both external and internal (Ameer, 2010). Research conducted by Guniarti (2014) states that firm size has a positive effect on hedging activity by using derivative instruments. Several previous studies conducted by Nguyen and Faff (2002) and Clark and Judge (2005) also support it however, research conducted by Ahmad and Haris (2012) suggests different things that the firm size has a negative effect on hedging decision by using derivative instruments.

The fifth internal factor is financial distress, companies that have indications of financial difficulties will be more careful in managing its finances so that it is driven to protect the company against risks by hedging decision (Putro and Chabachib, 2012). Research conducted by Putro and Chabachib (2012) found that financial distress variables have a negative effect on hedging decisions, while Clark dan Judge (2005) found that the financial distress have a positive effect on hedging decision.

Based on the research that has been done show the result that the inconsistency between research one with other research, researchers are interested in conducting research on determinants of corporate hedging with derivative instruments. This study focuses only on internal factors of the company, the reason not to examine external factors because all companies have the same data for external factors, thus causing external factors will not affect the dependent variable that is hedging decision. In addition, literature books such as Sunaryo (2009), Madura (2006) and Faisal (2001) support the company to hedge due to external factors, while for

internal factors there are still inconsistency in the results of previous research so that this study focuses on internal factors of the company. Based on the background that has been described before the researchers took the title **“Determinants of Hedging Decision with Derivative Instruments in Manufacturing Companies Listed on Indonesia Stock Exchange Period 2013-2016”**

### **B. Problem Formulation**

Based on the effects described in the background, then the authors formulate problem as follows:

1. Does growth opportunity has positive effect to the probability of using a derivative instrument as a hedging decision?
2. Does leverage has positive effect to the probability of using a derivative instrument as a hedging decision?
3. Does liquidity has negative effect to the probability of using derivative instruments as a hedging decision?
4. Does firm size has positive effect to the probability of using derivative instruments as a hedging decision?
5. Does financial distress has negative effect to the probability of using derivative instruments as a hedging decision?

### **C. Purpose of The Research**

Based on the formulation of the problem that has been described, the purposes of this research are:

1. Analyze the effect of Growth Opportunity on the probability of using derivative instruments as hedging decision.
2. Analyze the effect of Leverage on the probability of using derivative instrument as hedging decision.
3. Analyze the effect of Liquidity on the probability of using derivative instruments as hedging decision.
4. Analyze the effect of Firm Size on the probability of using derivative instrument as hedging decision.
5. Analyze the effect of Financial Distress on the probability of using derivative instrument as hedging decision.

#### **D. Research Benefit**

The results of this study are intended to be useful to:

1. For the company, the results of this study are expected to be a reference for companies to take strategic steps in making decisions to protect the value of investments that have been issued.
2. For investors, the results of this study is expected to be a reference in the selection of companies to be invested funds that Investors have, because it can know which companies are indeed responsive in protecting its investment.
3. For academics, the results of this research are expected to be a good reference in developing further research and become a guide to broaden the knowledge insight, especially in the field of Financial Management.

## **II. LITERATURE REVIEW, THE CONCEPTUAL FRAMEWORK AND HYPHOTESIS**

### **A. Theoretical Basic**

#### **1. Risk Management**

Risk management is the implementation of management functions in risk management, especially the risks faced by organizations/companies, families, and communities. So risk management involves planning, organizing, organizing, leading/coordinating, and overseeing (including evaluating) risk mitigation programs (Djojosoedarso, 2003).

Brigham and Houston (2006) stated that risk management is the identification of events that may have adverse financial consequences and then take action to prevent or minimize the harm caused by such events. Here are some of the reasons that have been suggested for why it might make sense for companies to manage risks according to Brigham and Houston (2006):

1. Debt capacity. Risk management can reduce the volatility of cash flows, and this decreases the probability of bankruptcy.
2. Tax effects. Companies with volatile earnings pay more taxes than more stable companies due to the treatment of tax credits and the rules governing corporate loss carry-forwards and carry-backs.

Risk management is an important thing for a company to protect losses that may arise. According to Darmawi (2005) the benefits of risk management given to the company can be divided into five main categories:

1. Risk management may prevent the company from failure.

2. Risk management directly supports the increase in profit.
3. Risk management can provide profit indirectly.
4. The existence of peace of mind for managers caused by protection against pure risk, is a material non-material property for the company.
5. Risk management protects firms from pure risk, and since customer and supplier creditors prefer a protected company it indirectly helps improve the public image.

## **2. Types of Foreign Exchange Exposure**

Foreign exchange exposure is the sensitivity of changes in the real value of assets, liabilities or operating income declared in the domestic currency against unanticipated exchange rate changes (Levi, 2001). Foreign exchange exposure is the time when the company will be affected by foreign exchange rate fluctuations. Foreign exchange exposure will certainly happened to the companies that have exposed to foreign exchange fluctuations either from sales transactions, purchases, or both using foreign currency (Horne and Wachowicz, 2007).

Exposure to exchange rate changes can be grouped into three types: translation exposure, economic exposure and transaction exposure. Here are the explanation according to Horne and Wachowicz, 2007):

### a. Translation Exposure

Translation exposure is the change in accounting income and balance sheet statements caused by changes in exchange rates. Translation exposure relates to the accounting treatment of changes in exchange rates. The functional currency used is important because it determines the translation

process. If the local currency is used, all assets and liabilities are translated at the current rate of exchange. Moreover, translation gains or losses are not reflected in the income statement but rather are recognized in owners' equity as a translation adjustment.

b. Transaction Exposure

Transactions exposure involves the gain or loss that occurs when settling a specific foreign transaction. The transaction might be the purchase or sale of a product, the lending or borrowing of funds, or some other transaction involving the acquisition of assets or the assumption of liabilities denominated in a foreign currency. While any transaction will do, the term "transactions exposure" is usually employed in connection with foreign trade, that is, specific imports or exports on open-account credit.

c. Economic Exposure

Economic exposure is the change in value of a company that accompanies an unanticipated change in exchange rates. Economic exposure does not lend itself to as precise a description and measurement as either translation or transactions exposure. Economic exposure depends on what happens to expected future cash flows, so subjectivity is necessarily involved.

### **3. Hedging**

Hedging refers to any technique designed to reduce or eliminate risks of adverse movement in financial terms (Nguyen, 2012). According to Faisal (2001), hedging is an act of protecting companies to avoid or reduce the risk of loss on foreign exchange as a result of business transactions. The company can make a

sale or purchase of any currency, in order to avoid the risk of loss due to foreign exchange incurred due to business transactions conducted by the company.

According to Eiteman, Stonehill, and Moffett (2010) hedging is taking a position of obtaining a cash flow, asset, or contract (including forward contracts) which will increase (or decrease) in value and offset it by a decrease or increase in value of a position which has existed. Hedging will protect the company's assets from losses caused by the decline in the exchange rate, but hedging will also eliminate the possibility of profits that should be gained from the increase in exchange rates.

Hedging is a strategy used to protect the value of assets owned by a company from losses incurred by risks. The principle of hedging is to cover the loss of the initial asset position with the advantage of the hedging instrument position. Before committing, hedger only holds a number of initial assets. After hedging, hedger holds a number of initial assets and a certain number of hedging instruments (Sunaryo, 2009).

Hedging as a financial strategy will ensure that the value of the foreign exchange used to pay or received in the future is not affected by fluctuations in foreign exchange rates (Fitriasari, 2011). Horne and Wachowicz (2007) stated that one way to deal with foreign exchange exposure is by hedging through forward contracts, futures contracts, currency options, and currency swaps.

#### **4. Derivative Instrument for Hedging**

According to Utomo (2000), derivative instruments are contractual agreements between two parties to sell or purchase a certain amount of goods (whether financial assets or commodities) on a certain date in the future at a price agreed

upon at this time. Horne and Wachowicz (2007) stated that one way to deal with foreign currency exposures by hedging through forward contract, futures contract, options and swaps. Here are an explanation of derivative instruments:

a. Forward Contract

A forward contract is an agreement to buy or sell an asset at a certain future time for a certain price. It can be contrasted with a spot contract, which is an agreement to buy or sell an asset today. A forward contract is traded in the over-the-counter market, usually between two financial institutions or between a financial institution and one of its clients. One of the parties to a forward contract assumes a long position and agrees to buy the underlying asset on a certain specified future date for a certain specified price. The other party assumes a short position and agrees to sell the asset on the same date for the same price (Hull, 2006).

b. Futures Contract

A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future for a certain price. Unlike forward contracts, futures contracts are normally traded on an exchange. To make trading possible, the exchange specifies certain standardized features of the contract. As the two parties to the contract do not necessarily know each other, the exchange also provides a mechanism that gives the two parties a guarantee that the contract will be honored. One way in which a futures contract is different from a forward contract is that an exact delivery date is usually not specified (Hull, 2006).

c. Options

Option is the agreement that confers to the holder the right to purchase or sell an assets for a agreed-upon price and at a certain assets at a specified time in the future. But the option holder is not compulsory to exercise the contract. For this right to choose, at the outset, the holder has to pay premium to the broker, a firm or individual who executes orders to buy or sell option contracts on the behalf of holder (Nguyen, 2012). There are two basic types of options (Hull, 2006):

1. A call option gives the holder the right to buy the underlying asset by a certain date for a certain price.
2. A put option gives the holder the right to sell the underlying asset by a certain date for a certain price.

It should be emphasized that an option gives the holder the right to do something. The holder does not have to exercise this right. This is what distinguishes options from forwards and futures, where the holder is obligated to buy or sell the underlying asset. Note that whereas it costs nothing to enter into a forward or futures contract, there is a cost to acquiring an option.

d. Swap

According to Marcus (2006) swap is an agreement between two parties to exchange cash flow periodically for a certain period in the future according to agreed rules. There are two main types of swap contracts: the swap coupon and the swap basis, the following describes two types of swap contracts (Utomo, 2000):

1. Coupon swap, ie one party pays interest at the fixed rate at the time of trading as a spread to a bond, while the other party pays at a floating rate adjusted periodically throughout the life of the agreement.
2. Swap basis, ie two parties exchanging floating interest payments based on different reference levels, thus such a mechanism takes place, swap transactions change the flow of assets, debts, or cash flows from one type to another and from currency to another currency.

### **5. Growth Opportunity**

A high growth opportunity indicates that the company's opportunity to enlarge its operations is greater. This makes the company able to maintain its survival, so to be able to answer the opportunity, the need for large amounts of funds to finance such growth in the future is urgently needed. Company will retain the revenue earned to reinvest and continue to use the funding alternative through debt (Guniarti, 2014).

Companies that have high growth opportunity will have many investment opportunities, so the company will experience the problem of underinvestment cost or lack of investment cost to finance the investment. Therefore, companies need external sources of funds to finance these investments. External financing is usually very costly for the company so there is a possibility for the company not to execute those projects which consequently will not increase the value of the company and not maximize shareholder wealth (Ahmad and Haris, 2012). To

reduce dependence on costly external financing which may ultimately lead to a lack of investment, firms can engage in hedging activities using derivative instruments to minimize such risks (Ameer, 2010).

## **6. Leverage**

According to Brigham and Houston (2006), leverage ratio is a ratio that measures how far a company's ability to fund with debt. High leverage ratio shows the company's funding was dominated by debt. Leverage ratio or debt ratio commonly known as solvency ratio. According to Horne and Wachowicz (2007) there are two types of leverage ratios are debt to total asset ratio and debt to equity ratio. Debt to total asset ratio shows the proportion between the liabilities owned and the entire wealth owned. Debt to equity ratio illustrates the ratio of debt and equity in the funding of the company and shows the capability of the company's own capital to fulfill all its obligations.

## **7. Liquidity**

Liquidity is the company's ability to fulfill the obligations that must be fulfilled immediately. Liquidity is measured by current asset ratio divided by current liabilities. The measure of corporate liquidity that further illustrates the level of corporate liquidity is shown by the cash ratio (cash to current liabilities). The ratio of liquidity, among others, consists of current ratio is to compare the total current assets of the company and the current liabilities of the company and the quick ratio is to compare the current assets minus the company's inventories with current liabilities of the company. The more liquid the company will tend not to

do hedging, on the contrary the company whose liquidity level is low then it needs to do hedging (Paranita, 2011).

### **8. Firm Size**

Firm size is basically the grouping of companies into several groups, including large companies, medium and small. Firm size becomes one of the factors considered by investors in making investment decisions. Investors assume that large companies are relatively more stable and more capable of generating greater profits than small firms, with the company getting stagnant, the risks to be borne by investors are lower (Ahmad and Haris, 2012).

Size of the company seen from the total assets owned, the greater the assets owned, the more carefully the company stepped up an activity in his company. Larger firms certainly have broader and more risky operational activities because it is likely to transact to different countries involving several different currencies. In its activities there will be transaction exposure due to fluctuation of foreign exchange rate. For that bigger company will do more hedging decision making in order to protect the company from risk (Guniarti, 2011).

### **9. Financial Distress**

Financial distress is a measure that indicates difficulties in returning a company's liability to the creditor, or it may be called a bankruptcy measure. Financial distress is usually faced by companies that use higher debt compared to their own capital, in addition to financial distress can also be caused by the low ability of companies to generate profits from the operation. Companies that have high

financial distress ratios are more likely to make hedging decisions (Putro and Chabachib, 2012).

## B. Previous Research

In this research, researcher will observe internal factors that probably affect the use of derivative instruments as hedging decision making to maximize firm value. This research is conducted because based on previous studies, they showed inconsistent results about observe internal factors that probably influence the use of derivative instruments as hedging decision making, as presented in the following table:

**TABLE 2.1 SUMMARY OF PREVIOUS RESEARCH**

No	Researcher	Research Variable	Analysis Tools	Result
1.	Nguyen and Faff (2002)	Leverage, size, market to book value, current ratio, liquidity	Logit Regression	Logit analysis suggests that a firm's leverage, size and liquidity are important factors associated with the decision to use derivatives.
2.	Clark and Judge (2005)	Expected financial distress cost, liquidity, firm size	Logit Regression	There is a relationship between expected financial distress costs and hedging decisions of foreign exchange rates. Corporate liquidity also significantly explains the hedging of foreign currency. The results also show that firm size is positively correlated with hedging decisions.
3.	Afza and Alam (2011)	Size, financial distress costs, DER, leverage, growth opportunity, liquidity.	Logit Regression	The result showed that size and financial distress costs have a positive significant relationship to the decision on the use of hedging derivative instruments. Leverage, growth

				opportunity, and liquidity support the theory of hedging although not significant. While interest coverage ratio is negatively significant to hedging decision with derivative instrument.
4.	Paranita (2011)	Interest coverage ratio, market to book value, firm size, current ratio	Logistic Regression	Based on the results of hypothesis testing in this study by using logistic regression analysis method shows that the variable, interest coverage ratio, market to book value, firm size and current ratio have a significant influence on corporate hedging decisions.
5.	Putro and Chabachib (2012)	Debt equity ratio, financial distress, growth opportunity, liquidity, and firm size	Logistic Regression	The variable debt equity ratio, growth opportunity, and firm size consistently have a significant effect on the probability of hedging activity with derivative instruments. While the variables of financial distress and liquidity showed insignificant results on the probability of hedging decision with derivative instruments.
6.	Ahmad and Haris (2012)	Leverage, liquidity, size, market-to-book-value	Logistic Regression	Based on the results of research conducted, it can be concluded that leverage, liquidity, size, have negative effect while market-to-book value have positive effect to hedging decision with derivative instrument.
7.	Guniarti (2014)	Growth opportunity, leverage, liquidity, firm size, financial distress	Logistic Regression	Based on the result, it can be concluded that growth opportunity has positive but not significant impact on hedging decisions.

				Leverage has a positive and significant impact on hedging decisions. Liquidity has a negative but insignificant effect. Company size has a positive and significant impact on hedging decisions. Financial distress negatively affects the decision of hedging.
8.	Nuzun and Lautina (2015)	Leverage, financial distress, growth opportunity	Logistic Regression	Leverage and growth opportunity has a positive effect on hedging decisions, while financial distress has a negative effect on hedging decisions on non-financial companies in IDX.

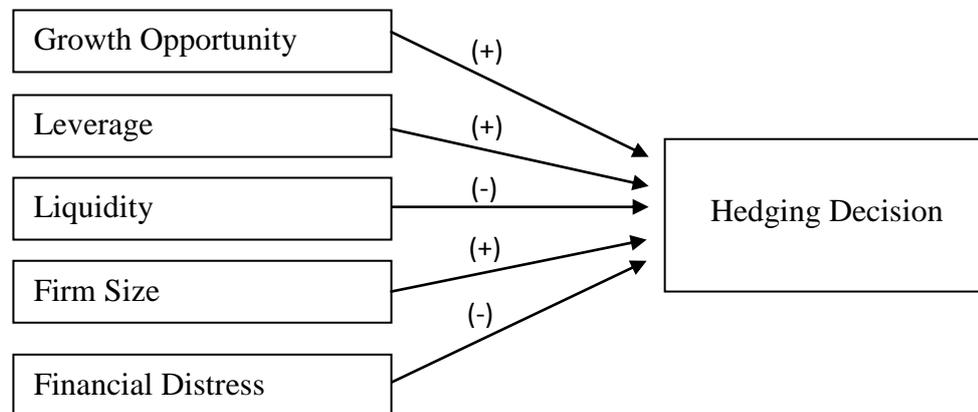
Source: Journals and research, processed.

### C. The Conceptual Framework

Hedging is an act of protecting companies to avoid or reduce the risk of loss on foreign exchange as a result of business transactions. Hedging as a financial strategy will ensure that the value of the foreign currency used to pay or any amount of foreign currency to be received in the future is not affected by changes in foreign exchange rate fluctuations. Hedging for foreign exchange risk is usually done using derivative instruments (Putro, 2012).

Hedging decision making is influenced by factors that come from external and internal company. In this research, internal factor of company is used as independent variable consist of growth opportunity, leverage, liquidity, firm size,

and financial distress. Based on the background, problems and literature review that explains the relationship between variables, it can be described the conceptual framework of thought as follows:



**FIGURE 2.1 THE CONCEPTUAL FRAMEWORK**

#### **D. Hypothesis Formulation**

##### **1. The effect of growth opportunity on hedging decision with derivative instruments**

External financing is very important for the company because it is a source of funds to finance the company's investment. External financing is usually very expensive. Therefore, it is possible for the company not to undertake this project (high investment cost) which consequently will not increase the value of the company. To reduce dependence on high external funding that may lead to a lack of investment, firms can use hedging derivatives to maximize investment (Ahmad and Haris, 2012).

According to Paranita (2011) higher growth opportunity indicates the greater the company's motivation to do hedging. Hedging can reduce the lack of investment costs as it reduces the likelihood of financial difficulties by protecting the future

flow of cash flows from changes in exchange rates, interest rates, and commodity prices of companies (Nuzul and Lautania, 2015). Putro and Chabachib (2012) and Guniarti (2014) also found that there is a positive relationship between growth opportunity and hedging decision. Based on the description that has been described, the hypothesis of this research:

H1 = Growth opportunity positively affects the probability of using a derivative instrument as a hedging decision

## **2. The effect of leverage on hedging decision with derivative instruments**

The leverage ratio shows how big the company's debt, so it can be said this ratio can know how the ability of companies to use borrowed money. The higher the leverage the company bears, the greater the hedging action that needs to be done to reduce the adverse impact of risk, so the greater the chances of the company to take a derivative instrument decision as a hedging decision (Putro and Chabachib, 2012). According to Batram et al., (2009) when company have high debt ratios, the greater the company's decision to hedge to reduce the risk, because if the company can not settle its obligations will result in a loss or worse is bankruptcy.

Guniarti (2014) also raises other internal factors that affected hedging decisions was leverage and the same was found by Afza and Alam (2011). Based on the description that has been described, the hypothesis of this research:

H2 = Leverage positively affects the probability of using a derivative instrument as a hedging decision

### **3. The effect of liquidity on hedging decision with derivative instruments**

The liquidity ratio is used as a measure of the company's ability to pay its short-term loan at maturity or to meet its short-term liabilities. This ratio is often used by companies and investors to determine the level of ability of the company in fulfilling its obligations. This research will see at the level of liquidity with current ratio. A low current ratio indicates that short-term liquidity is low where the current debt is high enough that there is a higher risk as well. While the high current ratio indicates that there is an excess of current assets (high liquidity with low risk) and have a good profitability effect on the company.

The more liquid a company, the smaller the risk of a company's failure to meet its short-term liabilities so the threat of financial difficulties is also small which will impact on the decrease of hedging activities undertaken by the company. Thus the higher the value of liquidity the lower the hedging activity is done because the risks that appear tend to be low (Guniarti, 2011). Research conducted by Nguyen and Faff (2002), Ahmad and Haris (2011), and Guniarti (2014) found that liquidity variables negatively affect the hedging decisions. Based on the description that has been described, the hypothesis of this research:

H3 = Liquidity negatively affects the probability of using a derivative instrument as a hedging decision

### **4. The effect of firm size on hedging decision with derivative instruments**

The bigger a company then the more activity will occur in the company, thus raising the high risk that will be borne by the company, especially if the company doing activities related to international trade. The larger size of the company,

there is a tendency for companies to further implement hedging policies (Guniarti, 2011). Several previous studies conducted by Nguyen and Faff (2002) and Clark and Judge (2005) also support that firm size has a positive effect on hedging decision by using derivative instruments. Based on the description that has been described, the hypothesis of this research:

H4 = Firm size positively affects the probability of using a derivative instrument as a hedging decision

#### **5. The effect of financial distress on hedging decision with derivative instruments**

Companies that have indications of financial difficulties will be more careful in managing its finances so that it is driven to protect the company against risks by hedging decision (Putro and Chabachib, 2012). Financial distress is measured using the interest coverage ratio, the greater the ratio means the lower indication of bankruptcy costs, it will reduce the tendency of the company's decision to hedge. Paranita (2011) and Guniarti (2014) found that financial distress has a negative effect on hedging decision by using derivative instruments.. Based on the description that has been described, the hypothesis of this research:

H5 = Financial distress negatively affects the probability of using a derivative instrument as a hedging decision

### **III. RESEARCH METHODOLOGY**

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

This research is a quantitative research to test the effect of growth opportunity, leverage, liquidity, firm size and financial distress to hedging decision with derivative instrument on manufacturing companies in 2013-2016. The data used in this study is secondary data. Secondary data is a source of research data obtained by researchers indirectly through an intermediary medium (obtained and recorded by the other party). Secondary data in this research in the form of annual financial statements from manufacturing companies listed on Indonesia Stock Exchange (IDX) in 2013-2016 that obtained from the Indonesia Stock Exchange (IDX) website namely [www.idx.co.id](http://www.idx.co.id).

#### **B. Definition of Operational Variables**

##### **1. Dependent Variable**

Dependent variable used in this research is company's hedging decision. Hedging in this research is an effort of the company to mitigate the adverse effects of transaction exposure (debt and accounts receivable in foreign currency) with derivative instruments. Companies that do hedging will be given a score of = 1 and companies that do not do hedging will be given a score = 0 by looking at the annual financial statements of manufacturing companies listed on the Indonesia Stock Exchange (IDX) in the period of 2013-2016. In the annual financial statements, the company's hedging decisions are seen from the notes to financial statements section of a derivative financial instrument or long-term debt.

## **2. Independent Variable**

### **a. Growth Opportunity**

High growth opportunity of a company can show that the company has a good market value among other companies. Developing companies tend to use many alternatives in their funding. The proxy used to measure growth opportunity is MVE/BVE that is the ratio between market value of equity and book value of equity, this ratio reflects that the market assesses the return of the firm's future investment from the expected return of its equity, the difference between the market value and the book value of equity indicates a growing opportunity for the firm. According to Putro and Chabachib (2012) dan Chaundry et al., (2014) growth opportunity formulated as follows:

$$\text{Market to Book Value} = \frac{\text{Market Value of Equity}}{\text{Book Value of Equity}}$$

Description:

MVE = Out standing stock x closing price

BVE = Total equity

### **b. Leverage**

Leverage ratio is a ratio that measures how far a company's ability to funding with debt (Brigham dan Houston, 2006). The leverage ratio used is Debt to Equity Ratio (DER). DER is one of the financial leverage ratios that provide information about the company's ability to repay the debt with the equity owned by the firm, DER is the ratio of total debt compared to the total equity owned by the company.

Debt to Equity Ratio can be formulated as follows (Horne and Wachowicz, 2005).

$$\text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

### **c. Liquidity**

Liquidity indicates a company's ability to fulfill its financial obligations that must be fulfilled immediately, or the company's ability to fulfill its financial obligations when billed. Companies that have high levels of liquidity will try to avoid not using expensive external financing sources. High liquidity results in companies tending to lower risks, thus firms have less incentive to use hedging. Theoretically the company's liquidity is inversely proportional to the probability of companies using derivatives to manage financial risks. The implications of previous research indicate that more liquid companies, the smaller the use of derivatives to manage risk (Nguyen and Faff, 2002). Liquidity in this research proxied with current ratio and formulated as follows (Brigham and Houston, 2006):

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

### **d. Firm Size**

According to Ahmad and Haris (2012) that large companies tend to use hedging derivatives to deal with risk exposure rather than small firms because they have the necessary resources and knowledge to do so. The size of a company is a company scale that can be seen from the total assets of the company. Company size is formulated as follows (Klingeberg et al., 2015)

$$\text{Firm Size} = \text{Ln Total Asset}$$

### **e. Financial Distress**

Risk protection by hedging can reduce the risk of financial distress that ends in bankruptcy of the company (Guniarti, 2014). Financial distress in this research is formulated by calculation of interest coverage ratio, the reason to use interest coverage ratio is because in previous research many use Z score Altman scale so this research try to use different measuring instrument. The greater the value of the resulting ratio indicates that the cost of financial distress is lower, so the lower the company's motivation to do hedging. Interest coverage ratio is formulated as follows (Klugeherg et al., 2015).

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

### **C. Population and Sample**

The population in this study is manufacturing companies listed on the Indonesia Stock Exchange (IDX) with a period of time from 2013 to 2016. Sample determination selected from the population of companies that fulfill several criteria with purposive sampling method (selection of samples with certain criteria) as follows:

1. Manufacturing Companies listed on the Indonesia Stock Exchange (IDX) in the period of 2013-2016.
2. Companies that have transactions exposure (debt and receivables in foreign currency) in the period of 2013-2016.

**TABEL 3.1 RESEARCH SAMPLE**

<b>No.</b>	<b>Sample Criteria</b>	<b>Total</b>
1.	Manufacturing Companies listed on the Indonesia Stock Exchange (IDX) in the period of 2013-2016.	144
2.	Companies that not have transactions exposure (debt and receivables in foreign currency) in the period of 2013-2016.	(46)
<b>Total Research Sample</b>		<b>98</b>
<b>Total Observations</b>		<b>392</b>

Source : data processed.

Based on these criteria there are 98 the manufacturing companies on Indonesia Stock Exchange (IDX) period 2013-2016 that fulfill the criteria as sample in this research.

#### **D. Data Collecting Method**

The method of data collection is done by documentary study from annual financial report and its notes from Indonesia Stock Exchange (IDX) in the period of 2013-2016. For the purposes of the analysis, pooled data is used for 4 years from the sample company, thus obtained  $98 \times 4 = 392$  observations.

#### **E. Data Analysis Method**

##### **1. Descriptive Statistics Analysis**

According to Ghozali (2011), descriptive statistics provide a description of data from the average value/mean, standard deviation, maximum, and minimum. It aims to provide an overview of the object under study through the sample data to make general conclusions so that the variables used in the study are easier to understand.

## **2. Logistic Regression Analysis**

Testing this hypothesis using logistic regression with stepwise method. Logistic regression is used to test whether the probability of occurrence of dependent variables can be predicted with independent variables. This study used logistic regression because the dependent variable used in the form of dummy variable consisting of 1 for companies that do hedging and 0 for companies that do not do hedging. The method used to select the model in this research is stepwise method is by entering one by one proxy independent variable which have significant effect to the dependent variable. Proxies of variables that significantly influence will go into the research model, while those that have no significant effect will be out of the research model.

Ghozali (2013) stated that logistic regression analysis techniques do not require assumptions of normality and classical assumptions. Logistic regression does not have the assumption of normality that its explanatory variables do not have to have a normal, linear distribution, or have the same variant in each grip. Logistic regression ignores heteroscedacity meaning the dependent variable does not require homoscedacity for each independent variable. This regression model can be estimated using the following steps (Ghozali, 2013):

### **a. Hosmer and Lemeshow's Goodness of Fit Test**

Test the null hypothesis that empirical data match the model. If the statistical value of Hosmer and Lemeshow's Goodness of Fit Test is lower than 0.05, the null hypothesis is rejected which means there is a significant difference between the model and the observed value so that the Goodnes fit model is not good

because the model can not predict the observed value. If the value of Statistic Hosmer and Lemeshow's Goodness of fit is greater than 0.05, then the null hypothesis can not be rejected and means the model is able to predict the observed value.

### **b. Assessing the Fit of Regression Models**

The first step is to assess the overall fit of regression models of the data. Some statistical tests are given to assess this. The hypothesis for assessing the fit of regression model is:

Ho: The hypothesized model fit with the data

Ha: The hypothesized model is not fit with the data

Testing the null and alternative hypothesis,  $L$  is transformed to  $-2 \log L$ , then compared between the value  $-2 \log L$  at the beginning (block number = 0) model only enter the constant with  $-2 \log L$  after the model entered the free variable (block number = 1). Test results from log-likelihood function can be concluded if the value  $-2 \log L$  block number = 0 > value  $-2 \log L$  block number = 1 then shows a good regression model. Conversely if the value  $-2 \log L$  block number = 0 < value  $-2 \log L$  block number = 1 then shows a bad regression model.

### **d. Nagel Karke R Square ( $R^2$ )**

Nagel Karke R Square in the summary model table is a modification of Cox and Snell's coefficients to ensure that the value varies from 0 to 1. Done by dividing the Cox and Snell's R Square values by their maximum values. The value of nagelkerke's can be interpreted as  $R^2$  value in multiple regression. The purpose of

this test is to know how big combination of independent variable consist of growth opportunity, leverage, liquidity, firm size, and financial distress able to explain dependent variable that is hedging decision.

#### **e. Logistic Regression Coefficient Test and Hypothesis Testing (Wald Test)**

The regression coefficient test is performed to test how far the independent variables included in the model have an influence on the dependent variable. Logistic regression uses wald statistic (such as t test) that has a special distribution of chi-square distribution. Rejection and acceptance of H0 can be determined by wald statistic and probability value (sig), by the value of wald statistic compared with chi-square while the probability value (sig) is compared with the 5% significance level with the criterion:

- a. H0 is accepted if wald statistic <chi-square and probability value (sig)> level of significance (a), this means Ha rejected or hypothesis that express free variable affect against bound variable rejected.
- b. H0 is rejected if wald statistic > chi-square and probability value (sig) <level of significance (a), this means Ha accepted or hypothesis that express free variable influence on dependent variable accepted.

This model of analysis can be expressed as follows (Ghozali, 2013):

$$\begin{aligned} \text{Hedging}_{i,t} = & \beta_0 + \beta_1 \text{FND}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{PRFT}_{it} + \beta_4 \text{GRWT}_{i,t} + \beta_5 \text{SIZ}_{it} \\ & + \beta_6 \text{LIQ}_{it} + \beta_7 \text{DIV}_{it} + \epsilon_{i,t} \end{aligned}$$

Description :

Hedging<sub>i, t</sub> = Company hedging decisions, this variable is measured by

assigning a value of 1 for a hedging company, and a value of 0 for a non-hedging company.

GRWTH	= Growth opportunity calculated with market to book value.
LEV	= Leverage calculated by debt to equity ratio.
LIQ	= Liquidity calculated by current ratio.
SIZE	= Firm size calculated by ln total asset.
FND	= Financial distress calculated with interest coverage ratio.
e	= Error.

## V. CONCLUSION AND SUGGESTION

### A. Conclusion

This study aims to examine the effect of growth opportunity, leverage, liquidity, firm size, and financial distress on hedging decisions on manufacturing companies listed on the Indonesia Stock Exchange in 2013-2016. The sample number of 98 companies selected using purposive sampling method, so that the observed data as much as 392 data and analyzed using logistic regression stepwise method. The resulting conclusions are as follows:

1. The growth opportunity variable measured by the market to book value has a positive and significant effect on the hedging decision, so the first hypothesis ( $H_1$ ) that states growth opportunity positively affects on hedging decision with derivative instruments is accepted.
2. The leverage variable measured by debt to equity has a positive and significant effect on the hedging decision, so the second hypothesis ( $H_2$ ) that states leverage positively affects the probability of using a derivative instrument as a hedging decision is accepted.
3. The liquidity variable measured by the current asset does not effect the hedging decision, so the third hypothesis ( $H_3$ ) that states liquidity negatively affects the probability of using a derivative instrument as a hedging decision is rejected.
4. The firm size variable measured by Ln total asset has a positive and significant effect on the hedging decision, so the fourth hypothesis ( $H_4$ ) that

states firm size positively affects the probability of using a derivative instrument as a hedging decision is accepted.

5. The financial distress variable measured by the interest coverage ratio does not effect the hedging decision, so the fifth hypothesis ( $H_5$ ) that states financial distress negatively affects the probability of using a derivative instrument as a hedging decision is rejected.

## **B. Suggestion**

Based on the results of the conclusion obtained, the authors want to provide advice to interested parties are as follows:

1. For manufacturing companies with financial characteristics such as high leverage ratios, high growth opportunity ratios and high firm size ratios are expected to take derivative instruments as hedging decisions. This is necessary to prevent companies from exposure to foreign currency to be transferred using derivative instruments as hedging decisions, and preventing companies from generating derivative costs by not delivering the expected benefits.
2. For investors who will invest in a manufacturing company listed on the Indonesia Stock Exchange to be able to choose companies that make hedging decisions in advance compared to companies that do not, because companies that make hedging decisions mean the company has the ability to protect its assets. And for investors it is better to make an investment selection first by taking into account the leverage ratio, growth opportunity ratio, and company size ratio. For investors, it can also be considered that if there are firms with high leverage ratios, high growth opportunity ratios and high firm size ratios

but do not take derivative instruments as hedging decisions then it should be sidestepped not to invest in them.

3. For further research it suggested to add extend of the study period, using different measuring tools, and also suggested to be able to add research object by using all non-financial company listed on Indonesia Stock Exchange.

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