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What Factors Affect Hedging? Empirical Evidence from Indonesia

48 ABSTRACT

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This research aims to analyze each of the operational and financial factors that can be used as variables influencing decisions and the intensity of hedging. There are two test analysis model used in this study, the first to test the company decision to hedge as a measured by using dummy variables and the second model is used to test the intensity of the company in hedging as measured by the ratio of derivative and natural logarithm of derivative. By using Probit and Tobit regression, the results of the logistic regression test show that financial factors such as financial distress, and leverage, and so operational factors such as foreign sales variables did not influence the firm's decisions and intensity in carrying out hedging activities. Foreign debt variables, profitability, and firm size that include financial factors have a positive influence on company decisions and intensity in carrying out hedging decisions, while the last part of financial factors such as growth opportunity variables only has a positive effect on company decisions in carrying out hedging activities and have no effect on the intensity of firms in hedging activities. The liquidity variable has a negative influence on the decisions and intensity of the company in conducting hedging activities. The originality of this study lies in the intensity factor of the use of hedging on the company's operations and finances in hedging, whereas in previous studies only focused on the influence of factors that can influence hedging decisions.

Keywords: Hedging, Operational Factors, Financial Factors

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INTRODUCTION

Indonesia as a country that is a member of the Asean Economic Community can receive benefits from these activities. These benefits can be felt directly by companies in Indonesia, the company is able to expand market segments and expand into other countries so that it can improve company performance for the better. The involvement of the company in international trade activities can create a separate risk that must be borne by the company, especially risk caused by fluctuations in exchange rates, therefore it is very important for companies to carry out risk management by taking preventive steps in the form of hedging activities as a form of mitigation in prevent and minimize risk.

In this study, the companies that will be observed are companies that are included in the manufacturing sector. The reason for making manufacturing companies as objects of observation is because manufacturing companies have the intensity of international trade, especially in terms of exports and imports, whether exports of raw materials or exports of goods will be greater than other companies. This is supported by some data obtained from the Bappenas, (2019),²⁰ which stated that from 2016 to 2017 the manufacturing sector consisting of basic industrial and chemical sectors, various industries, and the consumer goods industry sector dominates international trade compared with the main sector consisting of the agricultural sector and the mining sector.

In conducting international trade transaction, the average company uses foreign exchange rates in units of dollars as a payment transaction tool, so that it does not rule out the possibility that the company will face risks caused by exchange rate fluctuations. Reporting from routers.com shows that from 2013 the rupiah exchange rate was Rp.9700 and in 2017 amounted to Rp.14.700, the figure shows that the rupiah exchange rate every year starting from 2013 to 2017 continues to depreciate, so indirectly the existence of these phenomena can reduce company performance. Therefore it is important for companies to carry out hedging activities as a first step to minimize risk that can occur at any time.

A company in conducting international trade transaction not only conducts transaction in cash, but the company also uses transaction through debt in the form of foreign exchange and this can make a company experience profits or losses in transactions. When a company obtains debt from a creditor where the company trades, the risks faced by the company indirectly are far greater, not only the risk of fluctuations in exchange rates but the risk of fluctuations in interest rates can also pose significant risk affecting the company's performance. This statement is reinforced by data obtained from Bank Indonesia, (2019), that during the period of observation the value of debt held by manufacturing companies continued to increase after being converted into rupiah, so it is highly probable that all transactions carried out by manufacturing companies will experience the impact of these fluctuations. Therefore, it is important for companies to carry out hedging activities.

At this time, not only companies in developed countries that have carried out hedging activities, but companies in developing countries such as Indonesia have also applied hedging as a form of mitigation of the risks that must be faced, both risks that originate from the company's external and internal risks. In this study, researcher only observes what internal factors can influence the decision and intensity of companies in hedging. Many researchers have observed internal company factors that can affect hedging activities such as Geyer-Klingeberg et al., (2018), Bartram, (2019), Rokhmi, (2017), Iqbal et al., (2014), Guniarti, (2014), Lantara, (2012), Zhu, M, (2011), Gay, (2011), Aretz, (2010), Ammer, (2010), Davies et al., (2006), Judge, (2006), Kim & Sung, (2005) But between researchers have internal factors as variables and the results of observations are

different from each other. So in this study, researcher want to combine several variables that have been used by previous researchers to be tested and analyzed in more detail whether internal variables such as financial distress, leverage, foreign debt, profitability, foreign sales, growth opportunity, firm size and liquidity can influence decision and the intensity of the company in hedging.

LITERATURE REVIEW

According to Brigham, Eugene F., (2014) risk management is a method used to identify an event that can have a detrimental impact and then preventive measures are taken to minimize the losses caused by the event. The reason a company carries out risk management is to reduce the risk caused by uncertainty over debt that can make the company go bankrupt. Risk is one form of loss that can't be avoided and must be anticipated in various ways to minimize the risk (Hanafi, 2016).

Hedging is one of strategy that can be utilized by companies to minimize the risks that must be borne and faced by the company. One form of hedging that can be used to minimize risk due to fluctuations in the rupiah exchange rates is by making portfolios through financial derivatives instruments such as option contracts, forward, future and swap contracts. Derivative instruments are financial contract carried out by several parties who share interests. This instrument is also a form of agreement between the two parties in making a purchase or sale of assets traded at a time and at an agreed price between two parties. Derivative instruments are type of instrument traded on the stock exchange or capital market and generally have more than one year of age in addition to equity securities and bond securities (Tandelilin, 2017). According to Shapiro, Alan, (2014) foreign exchange exposure is a basic concept that refers to how much company activity is affected by exchange rate fluctuations. There are three types of foreign exchange exposures including translation exposure, transaction exposure and operating exposure. In this study, researchers wanted to see how much the internal variables mentioned in the previous discussion were able to influence the intensity and decision of companies in hedging. The following will be explained on the logic of thinking of each variable that will be used in this study.

Financial Distress

Financial distress is a condition that occurs in companies that experience difficulties with funding and are threatened with bankruptcy. A company that is in difficulty with funding tends to take steps to carry out hedging activities, in order to maintain and protect the company from various types of risks, especially the risk of fluctuations in the rupiah exchange rate. The lower the company's financial health condition shows that the company's bankruptcy rate is higher, so directly the decision and intensity of the use of hedging activities will be higher, this is because the company's ability to protect its assets will be higher. In this study the proxy used to calculate the company's health condition is to use interest coverage ratio (ICR). When a company has an ICR ratio above a value of one, it indicates that the company is in a healthy condition, in other words, the

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company does not experience bankruptcy, so the risk that will be faced by the company is smaller and the company's intensity in hedging becomes smaller. This explanation is supported by research conducted by Guniarti, (2014) and Judge, (2006) stating that there is a negative influence between financial distress and the firm's decision and intensity in hedging.

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H₁: Financial distress has a negative effect on the decision and intensity of companies in hedging

Leverage

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Leverage is one of the financial ratios used to see and measure the amount of debt used by the company in carrying out company activities. For the survival of the company, debt can be used as an alternative funding to cover the shortage of equity owned by the company. The company that has a high debt ratio must be more careful and as soon as possible take steps to hedge the risks caused by the high debt owned by the company. The greater value of leverage as measured by debt to equity ratio (DER), the greater the intensity of the company in conducting hedging activities. This is because companies that have a high value ratio prove that the amount of debt owned by the company is much greater than its own capital, so the possibility of the company experiencing default is higher, therefore the intensity of the company in carrying out hedging activities increases. This statement is reinforced by research conducted by Bartram, (2019) and Guniarti, (2014) which states that there is a positive influence between leverage and company decision in hedging.

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H₂: Leverage has a positive effect on the decision and intensity of companies in hedging

Foreign Debt

Foreign debt is an alternative external funding that can be used by companies to conduct business activities. The greater the foreign debt owned by the company, the greater risk will be faced by the company, both the risk of default and the risk due to exchange rate fluctuations. Therefore, it is important for companies to carry out a very large hedging activity and intensity so that it can adequately protect the asset owned by the company. This is supported by research conducted by Bartram, (2019) and Kim & Sung, (2005) which states there is a positive influence between foreign debt and the company's decision to hedge.

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H₃: Foreign debt has a positive effect on the decision and intensity of companies in hedging

Profitability

Profitability is a financial ratio that is useful for examining the amount of profit generated by the company during business activities, including net profit, gross profit, and profit before interest and tax. The company that is able to create a high ratio has the opportunity to expand its business. Starting from a faster business expansion can lead to uncertain risks so that companies must be able to prevent and minimize these risks by conducting hedging activities. In this study to measure the size of the profitability ratio

owned by the company, researchers used return on sales as a proxy for the calculation. When the company has a high profitability ratio, the intensity of the company in hedging will be greater. This is because the higher profits the company earns, so the operational activities that the company will carry out will also be greater and the risks faced by the company will also be greater. This statement is reinforced by research conducted by Aretz, (2010) and (Bartram, 2019) which states that there is a positive influence between profitability and the company's decision to hedge.

H₄: Profitability has a positive effect on the decision and intensity of companies in hedging

Foreign Sales

Foreign sales are part of the business activities conducted by the company in terms of trade. In other words, a foreign sales is a strategy used by companies to improve company performance through exports, because these activities can indirectly increase company revenue. Foreign sales activity itself is closely related to changes in each exchange rate used by the company during these activities. Therefore, if the company carries out foreign sales activities, the risks that will be borne and faced by the company will also be greater, so that the decision to use hedging is needed for the company when carrying out this activity. This statement is supported by the results of research conducted by Davies et al., (2006) and Judge, (2006) which prove that there is a positive influence between foreign sales and the company's decision to hedge.

H₅: Foreign sales have a positive effect on the decision and intensity of companies in hedging

Growth Opportunity

Growth opportunity is a condition that describes the opportunities that can be used by companies to invest in the future. Growth opportunity has a positive relationship with hedging activities. Even for a company that has a large growth opportunity, it is possible that it will experience a shortage of costs for the investment to be made, in other words, the company really needs a significant injection of external funds. Furthermore, the greater growth opportunities for the company, the more funds are needed for the company to carry out these activities. This is what the company must be able to anticipate because it can pose its own risks that must be borne by the company. So it becomes important for companies to carry out hedging activities and intensity for companies that have large growth opportunities as a preventive measure to protect all company assets. This statement is supported by the results of research conducted by Judge, (2006) and Rokhmi, (2017) which state that there is a positive influence between growth opportunity and the company's decision to hedge.

H₆: Growth opportunity has a positive effect on the decision and intensity of companies in hedging

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Firm Size

Firm size is a reflection of the company's wealth. The size of the company can be seen from the amount of assets and the amount of sales owned by the company. The size of the company's operational activities greatly affects the size of the company, the greater the operational activity, the greater the size of the company and the greater the risk faced by the company, so that the intensity of the hedging carried out by the company is also greater. This is conducted as a preventive measure to prevent and minimize the occurrence of risks resulting from the magnitude of the company's operational activities. This statement is reinforced by the results of research conducted by Geyer-Klingenberg et al., (2018) and Iqbal et al., (2014) which prove that there is a positive influence between company size and the company's decision to hedge.

H₇: Firm size has a positive effect on the decision and intensity of companies in hedging

Liquidity

Liquidity is part of the financial ratios that can be used to determine the company's ability to pay off all of its short-term debt. The Company is able to produce a high ratio value shows that the company is able to pay all its short-term obligations due to the amount of funds or cash owned by the company to pay off these obligations. Furthermore, the greater value of the liquidity ratio owned by the company, the smaller risk will be faced by the company, because the company has a large amount of liquid cash and is able to cover all debts owned by the company so that the intensity of the company in hedging becomes smaller. This statement is supported by research conducted by Bartram, (2019) which states that there is a negative influence between liquidity and the company's decision to hedge.

H₈: Liquidity has a negative effect on the decision and intensity of companies in hedging.

Conceptual Framework

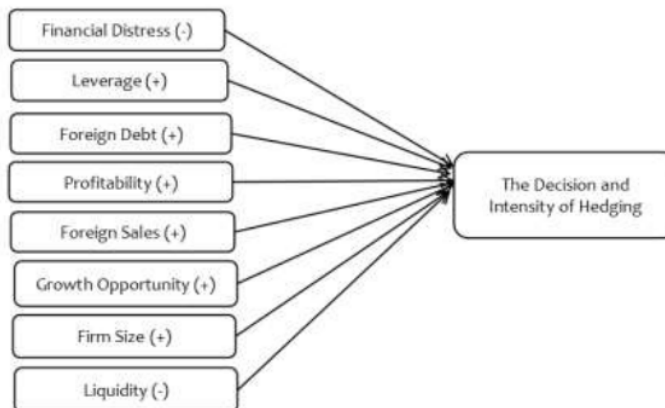


Figure 1. Conceptual Framework

METHODOLOGY

²⁵ The populations used in this study are all of manufacturing companies listed on the Indonesia Stock Exchange in 2013-2017. The type of research used is quantitative research using secondary data sources. The data is obtained from the company's annual reports as well as various important pages such as bi.go.id and idx.co.id. On the other hand, this study also used a purposive sampling method with criteria namely manufacturing companies listed on the Stock Exchange in 2013-2017, companies that did not conduct IPOs in 2013, companies that were not delisted on the IDX in the period 2013-2017, companies that issued reports annual finance from 2013-2017 and companies that have foreign debt for five consecutive years.

Scales

In this study involved two endogenous variable are hedging decision and intensity of hedging. The proxy used to determine hedging decision and intensity of hedging carried out by the companies is to use dummy variables and derivative ratios. The dummy variable has a criterion, when the company carries out derivative hedging, the company has a value of one while the company that does not hedge derivatives will get a zero value. The derivative ratio uses a natural logarithmic proxy for the number of derivatives carried out by the company, while the company that does not hedge the value of the ratio is considered zero. And this study also involved eight exogenous variables including financial distress, leverage, foreign debt, profitability, foreign sales, growth opportunity, firm size and liquidity.

First, financial distress, to measure this variable used by the interest coverage ratio which is formulated by dividing between earning before interest and tax (EBIT) with interest expense. When a company has an ICR value above number one, the company is not in financial distress, whereas if the ICR value is below the number one, the company is in financial distress.

$$\text{ICR} = \text{EBIT} / \text{interest expenses}$$

The second variable used is leverage, which is measured by using a debt to equity ratio which is formulated by dividing between total liabilities and total equity.

$$\text{DER} = \text{total debt} / \text{total equity}$$

The third variable used is foreign debt, which can be formulated by dividing between total foreign debt and total debt.

$$\text{Foreign debt} = \text{foreign debt} / \text{total debt}$$

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The fourth variable used is profitability, which is measured by using return on sales formulated by dividing earning before interest and tax (EBIT) and total sales.

$$\text{ROS} = \text{EBIT} / \text{total sales}$$

The fifth variable used is foreign sales, which can be formulated by dividing foreign sales and total sales.

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$$\text{Foreign sales} = \text{foreign sales} / \text{total sales}$$

The sixth variable used is growth opportunity, which can be formulated by dividing the market value equity and book value equity **15**

$$\text{Growth opportunity} = \text{MVE} / \text{BVE}$$

Information:

$$\text{MVE} = (\text{EAT} / \text{EPS}) \times \text{closing price}$$

$$\text{BE} = \text{Total asset} - \text{total debt}$$

The seventh variable used is firm size, which can be formulated with natural logarithms (Ln) for total sales.

$$\text{Firm Size} = \text{Ln total sales}$$

The eight variable used is liquidity measured using by **18** current ratio formulated by dividing total current assets and total current liabilities.

$$\text{Current ratio} = \text{current assets} / \text{current liabilities}$$

Table 1. Exogenous Variables Measurement

No	Exogenous Variables	Measurement
1	Financial Distress	ICR = EBIT/Interest Expenses
2	Leverage	DER = Total Debt/Total Equity
3	Foreign Debt	FD = Foreign Debt/Total Debt
4	Profitability	ROS = EBIT/Total Sales
5	Foreign Sales	FS = Foreign Sales/Total Sales
6	Growth Opportunity	GO = MVE/BVE
7	Firm Size	Firm Size = Ln Total Sales
8	Likuditas	CR = Current Assets/Current Debt

Data Analysis Method

In this study, to test each existing hypothesis using two model from the logistic regression, the first model uses Probit regression which is useful to determine whether the exogeneous variables used are able to influence company decision in hedging, while the second model uses Tobit regression which is useful to see how the exogeneous

variables used can influence the intensity of the company in hedging. The following is the regression model equation in this study:

$$\text{Model 1: } Y_{(Dummy)} = \beta_0 + \beta_1 X_{Fd} + \beta_2 X_{Lev} + \beta_3 X_{For.Debt} + \beta_4 X_{Profit} + \beta_5 X_{For.Sales} + \beta_6 X_{GO} + \beta_7 X_{Sizw} + \beta_8 X_{Liq} + e_t$$

$$\text{Model 2: } Y_{(Rasio Derivatif)} = \beta_0 + \beta_1 X_{Fd} + \beta_2 X_{Lev} + \beta_3 X_{For.Debt} + \beta_4 X_{Profit} + \beta_5 X_{For.Sales} + \beta_6 X_{GO} + \beta_7 X_{Sizw} + \beta_8 X_{Liq} + e_t$$

RESULTS

In this study, the object used was all manufacturing companies listed on the Indonesia Stock Exchange during 2013-2017 using the purposive sampling method as a method of selecting samples. Based on predetermined criteria, the number of companies use was only 117 companies, consisting of 52 companies from the basic industrial and chemical sectors. 33 companies from various industrial sectors and 32 companies from the consumer good industry sector. The number of samples used in this study with a period of five years was as many as 585 samples. From the 585 samples used, the results of 495 companies that did not make hedging decision were obtained and 90 samples of companies made hedging decision in the period 2013 to 2017. The following is a sample scope obtained by researchers over a period of five years.

Table 2. Summary of Research Samples

Research Sample Categories	Total	Percentage (%)
Companies that make hedging decision	90	15.38
Companies that do not make hedging decision	495	84.62

Source: Data Processed with E-Views 8

In this study there are several testing methods used in this study including testing descriptive statistics, testing the goodness fit of model, testing the coefficient of determination and testing hypotheses using probit and tobit regression. The results of testing descriptive statistics in this study can be seen from Table 3.

Table 3. Descriptive Statistics Test Results.

Information		N	Minimum	Maksimum	Mean	Standar Deviation
Independent variable	Hedging (Dummy)	585	0.00	1.00	0.15	0.36
	Derivative Ratio (Ln Derivatif)	585	0.00	36.12	3.58	8.62
	Interest Coverage Ratio	585	-740.74	10840.33	68.21	622.47
	Debt to Equity Ratio	585	-31.04	162.19	1.73	8.76
Dependent Variable	Foreign Debt	585	0.00000217	79.81	1.16	5.59
	Return on Sales	585	-0.32	3.14	0.24	0.42
	Foreign Sales Growth	585	0.00	1.00	0.22	0.28
	Opportunity	585	-9.93	556.77	7.75	43.54
	Firm Size	585	23.2	32.96	28.50	1.61
	Current Ratio	585	0.033	15.16	2.07	1.9

Source: Data Processed with E-Views 8

The Table 3, describes that the amount of data used in 585 samples, the hedging variables in the first model has an average value of 0.15 this shows that the average company in using hedging decision is only 15% and the amount of data distribution from this variable which is represented by the standard deviation value of 0.36. The hedging variable with derivative ratio shows that the company is able to utilize the derivatives amount as a hedging action with an average of 3.58 and a standard deviation value of 8.62. The minimum value for this variable is 0.00 while the maximum value is owned by the Indomobil Sukses International Tbk company in 2015 with a value of 36.12. Interest coverage ratio variables shows that the average company has the ability to pay off all of its interest expenses by using earning before interest and tax of 68.21 and a standard deviation value of 622.47. The minimum value for this variable is produced by the company Keramika Indonesia Association Tbk in 2015 with a value of -740.74 while the maximum value was generated by the company Merck Tbk in 2015 with a value of 10840.33.

The debt to equity ratio variable shows that the average ability of the company to utilize debt as external funding is 1.73 and the standard deviation value is 8.76. The minimum value for this variables was produced by the company Merck Sharp Dohme Pharma Tbk in 2014 with a value of -31.04 while the maximum value was generated by the company Eterindo Wahanatama Tbk in 2016 with a values of 162.19. The foreign debt variable shows that the average value of a company's ability to utilize foreign debt as external funding is 1.16 with a measure of data distribution of 5.59. The minimum value of this variable is produced by the company Indofarma Tbk in 2015 with a value of 0.00000217 while the maximum value is generated by the company Unggul Indah Cahaya Tbk in 2017 with a value of 79.81.

Return on sales shows if the average ability of a company to utilize total sales to generate profit is 0.24 or 23.62% with a standard deviation value of 0.42. The minimum value of this variable was produced by the Primarindo Asia Infrastructure company in 2013 with a value of -0.32 while the maximum values of this variable was generated by the company Sar Nusapersada Tbk in 2015 with a value of 3.14. The foreign sales variable shows that the average company has the ability to improve the performance of companies through exports of 0.22 with a size of the data distribution of 0.28. The minimum value of this variable is 0.00 while the maximum value is generated by the Toba pulp Lestari Tbk Company with a value of 1.00.

Growth opportunity shows that the average company has a growth opportunity of 7.75 with a standard deviation value of 43.54. The minimum value of this variable was produced by the Asia Pacific Investama Tbk company in 2013 with a value of -9.93 while the maximum value of this variable was generated by the company H.M Sampoerna Tbk in 2014 with a value of 556.77. Firm size variable shows that the average size of the company is 28.50 with the size of the data distribution of 1.61. The minimum value of this variable was produced by the Kertas Basuki Rachmat Indonesia Tbk company in 2013 with a value of 23.2 while the maximum value of this variable was produced by the Astra International Tbk company in 2017 with a value of 32.96. And the liquidity variable shows that the average ability of a company to manage its short-term debt is 2.07 with a standard deviation value of 1.9. The minimum value of this variable is produced by the company Intikeramik Alamasri Industri in 2017 with a value of 0.033 while the maximum value is generated by the company Duta Pertiwi Nusantara Tbk in 2016 with a value of 15.16.

The second test result is the feasibility test of the model that will be shown in table 4 below. The Hosmer and Lemeshow's Goodness of Fit test results show that the statistical HL value generated is 8.204 with a significance value of 0.414 which exceeds the 0.05 significance value. This shows that the model used is in accordance with the observation data or the sample used.

Table 4. Hosmer and Lemeshow's Test Results Goodness of Fit

Model	H-L Statistic	Significance
1	8.204	0.414

Source: Data Processed with E-Views 8

On The other hand, to test the feasibility of the model can also be seen from the results of the Andrews statistic test. The following are attached the results of the Andrews statistic test.

Table 5. Andrews Statistic Results

Model	H-L Statistic	Significance
2	78.572	0.000

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56 Table 5 shows that the results of Andrews Statistical testing have a fairly large value of 78.5718 from this figure it can be concluded that the model used in this study is in accordance with the observational data used. The next test results is a test of the coefficient of determination which will be shown in table 6 below. The test results of the coefficient of determination using McFadden R-squared shows that the resulting value is 0.313, this proves that the dependent variable (hedging) can be explained by the independent variables used by 31.3% and the remaining 68.7% can be explained by other variables not explained in this study.

Table 6. Determination Coefficient Test Results (McFadden R-squared)

Step	McFadden R-squared
1	0.313

Source: Data Processed with E-Views 8

The results of the hypothesis in the first model using probit regression test show that the financial distress variable represented by interest coverage ratio as a proxy calculation produces a coefficient of 0.000150 with a probability value of 0.3586, this result shows that financial distress has no effect on company decision to hedge; The leverage variable represented by the proxy debt to equity ratio has a coefficient value with a negative direction of -0.0124 with a probability value of 0.6361, this results proves that leverage does not affect the company's decision to hedge.

10 The foreign debt variable has a coefficient value with a positive direction of 0.0451 and a probability value of 0.0039, this result shows that between the foreign debt variables and the company's decision to hedge have a positive influence; The profitability variable represented by return on sales as a proxy has a coefficient of 0.7871 with a probability value of 0.02, this results shows that the profitability variable has a positive effect on the firm's decision to hedge; The foreign sales variable has a negative coefficient value of -0.6962 with a probability value of 0.087, this results proves that between the activities of foreign sales carried out by the company has no influence on the company's decision in hedging.

1 The growth opportunity variable has a positive coefficient of 0.004831 with a probability value of 0.0178, this results indicates that there is a positive influence between growth opportunity with the company's decision to hedge; The liquidity variable has a negative coefficient of -0.4556 with a probability value of 0.000, this result shows that there is a negative influence between liquidity and the company's decision to hedge; And the firm size variables produces a positive coefficient of 0.5623 with a probability value of 0.000, this results proves that the firm size of the company is able to positively influence the company's decision to hedge.

1 The results of the hypothesis in the second model are Tobit Regression show that the financial distress has a coefficient of 0.003842 with a probability value of 0.3549, this result shows that financial distress can't influence the intensity of the company in

conducting hedging activities; The leverage variable has a negative coefficient of -0.2282 with a probability value of 0.6938, this results proves that the leverage variable can't affect the intensity of the company in hedging activities; The foreign debt variable has a positive coefficient value of 0.8123 with a probability value of 0.000, this result indicates if the foreign debt made by the company is able to positively influence the intensity of the company in carrying out hedging activities; The Profitability variable has a coefficient of 20.129 with a probability value of 0.026, this results proves that the profitability with return on sales as a proxy can positively influence the intensity of the company in carrying out hedging activities.

The foreign sales variable has a negative coefficient of -16.691 with a probability value of 0.1275, this result proves that foreign sales activities carried out by the company can't influence the intensity of the company in carrying out hedging activities; The growth opportunity variable has a positive coefficient of 0.0393 with a probability value of 0.2022, this result shows that the greater the chance of growth of the company can't influence the intensity of the company in hedging activities; Firm size variable has a coefficient value of 14.471 with probability value of 0.000, this result shows that the larger the size of the company can positively influence the intensity of the company in conducting hedging activities; And the liquidity variable has a negative coefficient of -11.906 with a probability value of 0.000, this result shows that liquidity can affect the intensity of the company in carrying out hedging activities. The following will be attached to the results of each regression test conducted in this study.

Table 7. Results of Testing for Probit and Tobit Regression

Independent Variables	Probit Regression		Tobit Regression	
	Coefficient	Z-Statistic	Coefficient	Z-Statistic
Constanta	-16.7577	-9.1831 (0.0000)	-429.4335	-8.1447 (0.000)
Financial Distress (ICR)	0.000150	0.9181 (0.3586)	0.003842	0.9252 (0.3549)
Leverage (DER)	-0.0124	-0.4732 (0.6361)	-0.2282	-0.3937 (0.6938)
Foreign Debt	0.0451	2.888 (0.0039)**	0.8123	4.2329 (0.000)**
Profitabilitas (ROS)	0.7871	3.0878 (0.0020)**	20.129	3.0132 (0.0026)**
Foreign Sales	-0.6962	-1.7112 (0.0870)	-16.691	-1.52403 (0.1275)
Growth Opportunity	0.004831	2.3704 (0.0178)**	0.0393	1.2754 (0.2022)
Firm Size	0.5623	8.9799 (0.000)**	14.471	8.2846 (0.000)**
Liquidity (CR)	-0.4556	-4.5819 (0.000)**	-11.906	-4.2506 (0,000)**

Source: Data Processed with E-Views 8

Description: ** Level Significance 5%

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And the last test is used to test the hypothesis simultaneously using LR statistics. the significance level in this test is 5%. The following are attached the results of simultaneous hypothesis testing.

Table 8. Results of Testing LR Statistics (Simultaneously Test)

LR Statistics	Probability LR Statistics
157.1318	0.000000

44 From the test results in Table 8, it can be seen that generally the independent variables are able to significantly influence the dependent variable. This can be proven by the results of the statistical LR value and the statistical LR probability value of 0.000000 which is smaller than the significance level of 0.05. Therefore, it can be concluded that the variables of financial distress, leverage, foreign debt, profitability, foreign sales, growth opportunity, firm size and liquidity jointly affect the decision and intensity of the company to conduct hedging activities.

DISCUSSION

The Effect of Financial Distress on Hedging Decision and Intensity

9 Based on the first hypothesis which states that financial distress has a negative effect on decisions and the intensity of the company in carrying out hedging activities is unacceptable, because based on the results of the probability and tobit regressions above, it can be seen that the probability value generated in the probability regression exceeds the significance level of 5%.

12 This variable uses the interest coverage ratio as a calculation method. The test results on this variable are not in accordance with the logic of thought which states that the greater the ratio of the interest coverage ratio, the smaller the decision and intensity of the company in carrying out hedging activities that can be carried out by the company. However, the regression results above show results that are inversely proportional to the logic of this thinking. This is because from 2013 to 2017 the average value of this ratio exceeds the number one, which indicates that the company has the ability to pay off all debts used or it can be said that the overall manufacturing company is not in financial distress. Therefore, many of the manufacturing companies do not engage in hedging activity. There are other reasons that can explain the ineffectiveness of financial distress on the company's decision and intensity in hedging, one of which is the difference in the amount of domestic debt and foreign debt used by the company. The following is attached a chart related to the difference between domestic debt and debt dominated by foreign exchange rates, which can strengthen this reason.

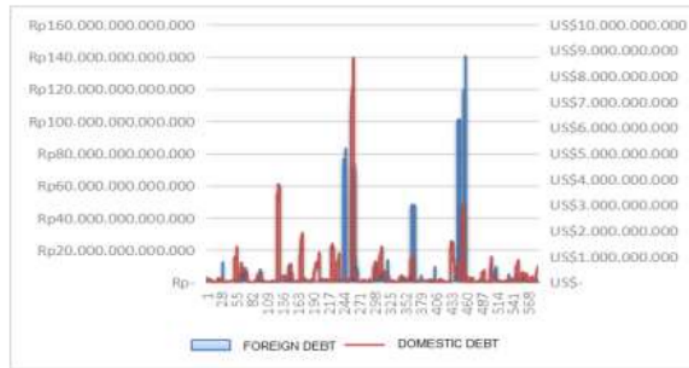


Figure 2. Comparison of Foreign & Domestic Debt
 Source: Data Processed from The Annual Report

Based on figure 2, it can be seen that the amount of debt which is dominated by the rupiah exchange rate is far greater than the amount of debt which is dominated by foreign exchange rates. So that it makes many companies not make hedging activity decisions because on average the companies have the ability to pay off debts and interest expenses incurred and the company is free from financial distress conditions. This argument makes it clear that the size of the value of financial distress cannot be used as a reference for companies to make decisions related to hedging. The explanation above is also reinforced by the results of research conducted by Geyer-Klingeberg et al., (2018), and (Sasmita, 2019) which states that there is no significant influence between financial distress and the company's decisions and intensity in hedging.

The Effect of Leverage on Hedging Decision and Intensity

The next hypothesis states that leverage has a positive effect on the company's decision and intensity to engage in hedging activities. Leverage or debt ratio in this study is represented by the Debt to equity ratio as a proxy for calculation. From the results of the probability and tobit regression above, it shows that the probability value exceeds the significance value of 5%, so it can be concluded that the hypothesis cannot be accepted. This insignificant research result can be proven by the Figure 3.

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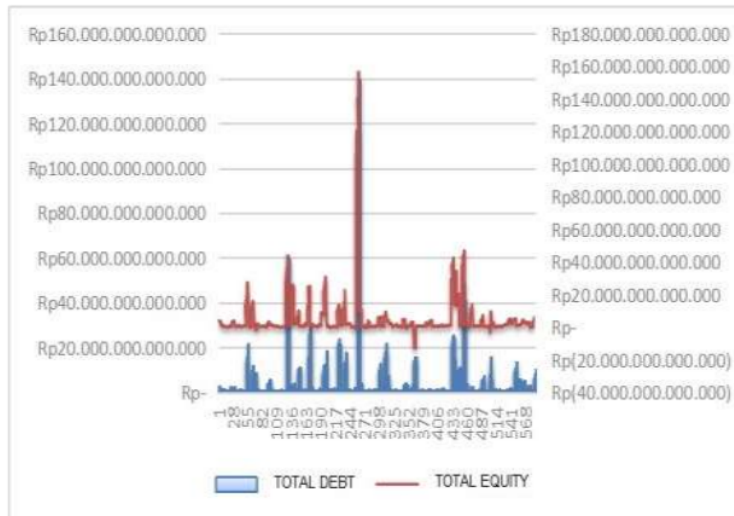


Figure 3. Comparison of Total Debt & Total Equity
Source: Data processed from the annual report

From the paragraph above shows that in the last five years from 2013 to 2017 in carrying out their business activities, manufacturing companies are more dominant in using total equity compared to total debt as a means of operational funding. Looking at the test results above, it proves that there is no compatibility between the framework of this hypothesis which states that the higher the leverage ratio of a company indicates that the amount of debt used by the company is also higher and causes higher decisions and the intensity of the company in hedging activities with the test results above. This is because most of the manufacturing companies have small debt compared to their equity, so that the company is able to fulfill all long-term obligations and is less likely to be exposed to the risk of bankruptcy. When the company has a large enough equity, the risk to be faced by the company is smaller so that the hedging activity that the company will use is also getting smaller.

On the other hand, there is a reason that the debt to equity ratio is not influential as a proxy for leverage on the company's decision and intensity in conducting hedging activities. Because manufacturing companies, which in fact carried out international transactions during this period, on average had a larger proportion of debt dominated by rupiah than debt dominated by foreign currencies, so many of these companies did not carry out hedging activities because companies thought they were still able to meet all debts. they have. This discussion is also reinforced by research conducted by Géczy et al., (1997), Triaryati & Jiwandhana, (2016), and Aditya, Angga T., (2019) which proves that the leverage variable and the company's decision to carry out hedging activities have a negative and insignificant effect.

The Effect of Foreign Debt on Hedging Decision and Intensity

The third hypothesis states that foreign debt has a positive effect on the company's decision and intensity to carry out hedging activities. From the results of probit and tobit regression, it shows that the coefficient value of this variable has a positive direction with a probability value less than the significance value of 5%, this proves that the above hypothesis can be accepted.

Based on the results above, it proves that there is a match between the logic of thought that has been described in the previous discussion and the results of the above tests. The statement from the logic of thinking above is that when a company has foreign debt, the company will certainly be affected by exposure caused by fluctuations in exchange rates and exposure to fluctuations in interest rates. The greater the foreign debt borrowed by the company, the greater the possibility of exposure that must be borne by the company, because any change in exchange rate fluctuations of one rupiah can affect the size of the debt that the company must pay to creditors.

when the rupiah exchange rate appreciates, the cost of debt and interest expenses to be paid to foreign creditors is much less than when the rupiah depreciates. That is why it is important for companies to take preventive steps early by taking decisions to carry out intense hedging activities so that the company is able to prevent risks that the company does not expect. The explanation regarding this discussion is also supported by the results of research conducted by Bartram, (2019) and Kim & Sung, (2005) which prove that there is a positive influence between foreign debt and the company's decision and intensity in hedging activities.

The Effect of Profitability on Hedging Decision and Intensity

The next hypothesis states that profitability has a positive effect on firm decisions and intensity in hedging activities. The results of probit and tobit regression show that the resulting coefficient values have a positive direction with a probability value less than the 5% significance level. Thus the above hypothesis can be accepted.

In this variable, the proxy used in calculating profitability is return on sales, the logic of thinking in this variable states that a company that has a high profitability ratio indicates that the company has the ability to generate profits, both gross profit, profit before interest and taxes or net income with both from its operational activities. When the company has a high ratio, the company's ability and capacity to expand is also higher.

The magnitude of the expansion carried out by the company will certainly not be separated from the risks that must be borne by the company, therefore before expanding the company must take preventive steps first by hedging in order to minimize the occurrence of risks that cannot be overcome by the company. This discussion is also reinforced by research conducted by Aretz, (2010), Bartram, (2019), and Saraswati,

4 What Factors Affect Hedging? Empirical Evidence

(2019) which proves that there is a positive influence between profitability and hedging decisions.

The Effect of Foreign Sales on Hedging Decision and Intensity

The fifth hypothesis states that foreign sales or exports have a positive effect on firms' decisions and intensity in hedging activities. From the results of the probit and tobit regressions both show the coefficient value in a negative direction and the probability value that exceeds the significance value of 5%, so it can be concluded that the hypothesis cannot be accepted.

The results above are contrary to the logic of thinking which states that the greater the foreign sales transactions carried out by a company, the greater the risk that the company will feel and bear due to exchange rate fluctuations, so that the company's intensity in hedging activities is also greater. This is indicated by the fact that in the last five years the rupiah has tended to depreciate against the dollar, reported on the routers.com page, it is known that in 2013 the value of the rupiah against the dollar was IDR 10,000 and in 2019 it reached IDR 14,000. The depreciation that occurs in the rupiah currency creates its own opportunities that can be used by companies to maximize their profits so that hedging activities are currently an avoided option for companies. This analysis is also supported by research conducted by Gay, (2011), Lantara, (2012) and Kim & Sung, (2005) which have proven that the foreign sales activities carried out by companies cannot influence the company to make decisions.

The Effect of Growth Opportunity on Hedging Decision and Intensity

The next hypothesis states that growth opportunity or company growth opportunity has a positive effect on the company's decision and intensity in hedging activities. The results of the profit regression show that the resulting coefficient value has a positive direction with a probability of less than the 5% significance value, while the Tobit regression results show that the probability value exceeds the significance value. Thus, it can be concluded that growth opportunity has a positive effect on the company's decision to carry out hedging activities, which is acceptable but not on the intensity of the company in carrying out hedging activities.

In making hedging decisions alone, this result is in accordance with the explanation of the logic in the previous discussion which states that the greater the growth opportunities obtained, the greater the injection of funds needed by the company, so that indirectly the company really needs external funds and matters. this triggers the company to make hedging decisions. However, the size or intensity of companies in hedging cannot be affected by the opportunities for company growth. This is because during the past five years the average amount of equity held by manufacturing companies is greater.

This proves that the company has sufficient funds to deal with the underinvestment costs faced by the company when facing high growth opportunities. So it can be concluded that the size of the opportunity for growth cannot affect the intensity of the company in conducting hedging activities and is only able to influence the company in making hedging decisions. The presentation of the above analysis is also supported by research conducted by Judge, (2006), and Listiana R & Niken P, (2022) which has proven that growth opportunity and a company's decision to hedge has a positive effect.

¹⁵ **The Effect of Firm Size on Hedging Decision and Intensity**

The next hypothesis states that firm size has a positive effect on the company's decision and intensity to hedge. From the results of probit and tobit regression both show the coefficient value in a positive direction and a probability value that is less than the significance value of 5%. Thus the hypothesis can be accepted.

In this variable, the proxy used to measure company size uses the natural logarithm of total sales. Based on these results, it proves that there is a match between the logic of thought that has been previously described and the test results. The explanation of this logic is that when the company has a large enough company size, the intensity of the company in making hedging decisions will also be greater. Because the size of a company reflects the wealth owned by the company. The size of a company can create a large enough operational activity so that the risks that must be borne and faced by the company are also greater. The exposure to this analysis is supported by research conducted by Geyer-Klingenberg et al., (2018), Iqbal et al., (2014), Judge, (2006), and Dharmiyanti & Darmayanti, (2020) which states that there is a positive influence between firm size and company decision hedge.

The Effect of Liquidity on Hedging Decision and Intensity

The final hypothesis states that liquidity has a negative effect on the company's decision and intensity in hedging. From the results of probit and tobit regression both show the coefficient value in a negative direction and a probability value that is less than a significant value of 5%. Thus the hypothesis can be accepted.

In this variable, the proxy used to measure company liquidity is the current ratio. The large liquidity ratio of the company makes the intensity of the company in making hedging decisions smaller. This is because the company has a large enough capacity to cover all of its short-term debt, which comes from the company's cash. This discussion is also reinforced by several previous studies such as Geyer-Klingenberg et al., (2018), Bartram, (2019), Iqbal et al., (2014), and Dharmiyanti & Darmayanti, (2020) which have proven that there is a negative influence between liquidity and the company's decision to hedge.

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Implications

This study is able to prove that only some variables such as profitability, foreign debt, firm size, and liquidity are influencing the decision and intensity of the company to conduct hedging activities. And growth opportunity can only affect the company's decision to hedge and not the intensity to use hedging. And other variables such as financial distress, leverage and foreign sales are not influencing the decision and intensity of the company in conducting hedging activities. Therefore, this can be considered as a factor for company financial managers to always examine and monitor the existence of other factors other than those mentioned in this study that can create risks that cannot be overcome by managers. Therefore, before the unwanted risk by the company occurs, a financial manager from the beginning must take preventive steps to protect assets from risks, especially the risk of exchange rate fluctuations.

CONCLUSIONS

Based on the results of testing the hypothesis both testing using probit regression and using tobit regression it can be concluded that Financial distress measured by using interest coverage ratio, leverage measured by using debt to equity ratio and foreign sales does not affect the decision and intensity of the company in hedging activities in manufacturers; Foreign debt, profitability with return on sales as a proxy calculation, and firm size have a positive affect on the decision and intensity of the company in hedging activities in manufacturers; Growth opportunity has a positive influence on the company's decision to engage in hedging activities, but not on the intensity of hedging activities; and the last results show that Liquidity with current ratio as a proxy calculation, has a negative affect on the decision and intensity of the company to engage in hedging activities in manufacturers.

Limitations

This research is only limited to manufacturing companies as the object of research and does not use all non-financial companies listed on the Indonesia stock exchange, so this research cannot explain in detail whether there are other factors that can influence the decision and intensity of hedging activities; and Measurement for the tobit regression test is only limited to using the natural logarithm of the total derivatives used and does not look at the derivative ratio using total derivatives divided by total assets or total sales.

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