Analysis of Factors Affecting Hedging Decision using Derivative Instruments/Futures Contracts in Manufacturing Companies Listed on the Indonesia Stock Exchange for the Period 2016-2022

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ABSTRACT: The objective of this investigation is to assess the impact of leverage, liquidity, financial distress, growth opportunities, and firm size on hedging determinations utilizing derivative instruments/futures contracts among manufacturing firms listed on the Indonesian Stock Exchange from 2016 to 2022. The study encompasses the entire population of manufacturing companies listed on the Indonesian Stock Exchange during the aforementioned period, totaling 138 entities. A purposive sampling method was employed to select a sample of 123 companies. Secondary data was utilized for analysis, employing logistic regression as the analytical technique. The results indicate that leverage, liquidity, and financial distress exhibit adverse effects on hedging decisions, while firm size exerts a positive influence on such determinations. Moreover, the study finds no significant impact of growth opportunities on hedging decisions.

KEYWORDS: Leverage, Liquidity, Financial distress, Growth opportunity, Firm size, Hedging

I. INTRODUCTION

Nowadays, international trade flows are growing rapidly, this shows that the international economy is getting better. This phenomenon is characterized by the increasing number of multinational companies carrying out international trade activities, such as buying and selling goods or capital between countries. This international trade is supported by various things, such as encouragement to meet needs for goods or services, to gain profits and increase income within the country, as well as differences in knowledge or capabilities in technology to process existing resources (Saragih & Musdholifah, 2017). There are many companies in Indonesia that contribute to international trade activities, details of the contribution to international trade activities can be seen in the following picture:
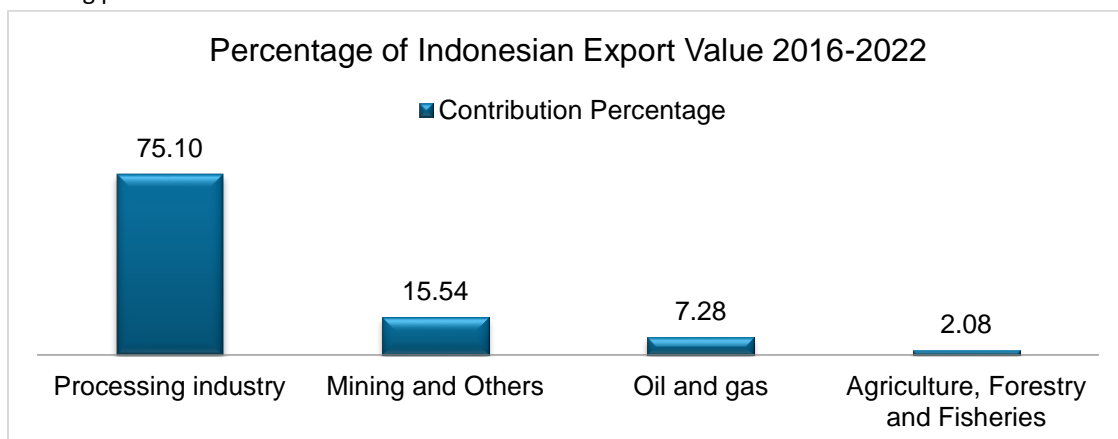

Figure 1. Percentage of Indonesian Export Value
Source: www.bps.go.id

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Figure 2. Percentage of Indonesian Import Value
Source: www.bps.go.id

Figure 1 shows that during the last 7 years, starting from 2016-2022, export activities or transactions in Indonesia were mostly dominated by processing industry companies. The export contribution percentage from the Processing Industry reached 75.10% compared to other industries. Figure 2 shows that over the last 7 years, starting from 2016-2022, import activities in Indonesia have mostly been dominated by the purchase of raw materials or auxiliary materials, where these materials are the main materials used by the processing industry to make or produce their products. These export-import activities, of course, require companies to use foreign currency in transactions. The use of foreign currency makes the company have the opportunity to be affected by exchange rate risk which has a negative impact on cash flow and worse, can threaten the company's survival (Situmeang & Wiagustini, 2018). Considering the many risks that companies must face due to international trade, companies need to manage risks appropriately so that existing risks can be minimized properly.

There are various risk management alternatives that can be used by companies to minimize the high risks in export and import activities. One alternative that companies can use is to hedge. According to Bank Indonesia Regulation No.15/8/PBI/2013, hedging is a way or technique to reduce risks that arise or are expected to arise due to price fluctuations in the financial market. According to experts, the definition of hedging is a company's effort to protect the value of its assets or debts from the possible risk of a decline in asset value or an increase in debt caused by fluctuations in exchange rates through the use of derivative instruments such as forward contracts, futures, swaps, or options (Samsul, 2010).

The decision-making action using hedging is explained based on risk management theory, namely how to minimize the risks arising from international trade that can be done by using one alternative, namely hedging. Hedging is an important strategy in risk management that is relevant to several key company financial factors, such as Debt to Equity Ratio (DER), Current Ratio (CR), Financial Distress (FD), Asset Growth Opportunity (GO), and Firm Size (FS) (Paranita, 2011). Debt to Equity Ratio (DER) reflects the company's leverage and risk of default which can be minimized by hedging. Current Ratio (CR) shows short-term liquidity, where hedging can ensure the company has sufficient liquidity even though there are market fluctuations. Financial Distress (FD) measures the risk of bankruptcy, and hedging helps reduce financial risks that could worsen a company's condition. Asset Growth Opportunity (GO) indicates asset growth opportunities, which can be protected from market risk through hedging. Finally, Firm Size (FS) is related to a company's ability to expand its business, which makes them more vulnerable to various international market risks, such as fluctuations in exchange rates and commodity prices, so hedging becomes important to maintain the stability of cash flow and profits. Thus, the use of hedging along with these factors helps companies manage risks effectively and maintain their financial health in the face of global market dynamics.

Based on the background description previously explained, the researcher wants to find out and re-examine the "Analysis of Factors Affecting Hedging Decision Using Derivative Instruments/Futures Contracts in Manufacturing Companies Listed on The Indonesia Stock Exchange for The Period 2016-2022".

II. LITERATURE REVIEW AND HYPOTHESIS FORMULA
A. Literature Review
1) Risk management

Risk management is a process of identifying events that can have adverse financial consequences and then taking action to prevent and/or minimize losses resulting from these events (Brigham and Houston, 2018). An example of a loss that a company can experience is financial loss. One way to minimize financial risk is with the hedging method as mentioned by Hanafi (2016) as one way to overcome risk.

2) Hedging

Hedging in a general sense, it is an effort made to reduce risks due to very sharp price fluctuations caused by differences in exchange rates (Ambarwati, 2010). Hedging is one of the economic functions of futures which acts as a transfer of risk, namely a strategy used by companies to reduce the risk of losses caused by exchange rate fluctuations (Putro et al., 2012).

3) Types of Hedging Derivative Instruments

Derivatives are contractual agreements between two parties to sell and buy a number of goods (both financial assets and commodities) in the future on a certain date at a price agreement made at this time (Putro et al, 2012). According to Putro et al. (2012), hedging derivative instruments can be grouped into several types, including:as follows:

- Options,is a contract that gives the holder the right to buy or sell assets at a predetermined price and time period (Ambarwati, 2010);

- Future,is an agreement made now to buy or sell an asset in the future with the aim of protecting themselves against unexpected movements in interest rates, exchange rates and stock prices (Putro et al., 2012);

- Forwards,is an agreement to buy or sell an asset in the future at an agreed price. Forward contracts are future contracts that are tailored to your needs (Putro et al., 2012);

- swaps,is a transaction that exchanges an obligation to pay cash flows in one currency with an obligation to pay cash in another currency. This scheme is usually used by companies that carry out exports and imports (Putro et al., 2012).

4) Leverage

The leverage ratio is usually used to see a company's ability to meet all obligations. This means how much debt the company bears compared to its assets. According toBrigham & Houston (2018), leverage is a ratio used to measure the extent of a company's ability to use its funding through debt. A company that has a high leverage ratio indicates that the company cannot pay off its maturing debt.

5) Liquidity

Liquidity is the company's ability to fulfill its obligations (Subramanyam & Wild, 2012). There are several types of liquidity ratios that can be used to measure a company's capabilities (Hanafi, 2016), namely:

- Current ratio, is a tool used to measure how much cash is available to pay debts;

- Quick ratio, is a ratio that shows the company's ability to pay short-term liabilities with current assets without taking into account the value of inventory;

- The cash ratio is a tool used to measure how much cash is available to pay debts.

6) Financial Distress

Financial distress is a condition where a company is facing financial difficulties, namely the company's operating cash flow is unable to pay off current obligations (trade payables or interest expenses) and the company is forced to take corrective action to avoid the threat of bankruptcy/liquidation (Platt & Platt, 2002). Indications of financial distress or financial difficulties can be seen from the financial performance of a company. The company's financial performance is reflected in the financial reports published by the company.

7) Growth Opportunity

Growth opportunitiesis the opportunity for growth of a company in the future (Suliyanto, 2018). The growth ratio can describe how much the company's ability is to maintain its position in economic development (Fahmi, 2013). Companies with high growth rates need more funds in the future, especially external funds to meet their investment needs or to finance their growth.

8) Firm Size

According to Hidayat & Meiranto (2014), company size is a scale that shows the size of a company or the number of assets a company owns, which can be measured in various ways, including total assets, log size, stock market value, etc. However, basically company size is only divided into three categories, namely large companies, medium size companies and small firms. Company size is an indicator to see the development of a company since it was founded. The bigger a company, the greater its operational activities and the greater the risks to the company.

B. Hyphotesis

1) The Effect of Leverage on Hedging Decisions

The first factor that encourages companies to make hedging decisions is leverage which in this research is proxied by the Debt to Equity Ratio (DER). Debt to Equity Ratio is a ratio that reflects the company's ability to pay off its debts using the equity it has. The higher the DER ratio the company has, the higher the risk of default that the company will face, so this will increase the company's motivation to hedge (Paranita , 2011). This is supported by previous research conducted by Paranita (2011) and Wang

& Fan (2011) in their research which states that leverage as proxied by the debt to equity ratio has a significant positive influence on hedging decisions.

H1 : Leverage has a positive effect on Hedging Decisions

2) The Influence of Liquidity on Hedging Decisions

Another factor that encourages companies to make hedging decisions is liquidity, which in this research is proxied by the current ratio. The higher the current ratio value indicates that the company is more liquid so the company tends to be able to meet its short-term debts without requiring more external funding in foreign currency which will create a risk of default due to fluctuations in currency exchange rates and the smaller the company's decision. to carry out hedging (Paranita, 2011). This is supported by previous research conducted by Ameer (2010), Paranita (2011),Dewi & Purnawati (2016), and Chaudhry et al. (2014) who found that liquidity as proxied by the current ratio had a significant negative effect on hedging decisions.

H2: Liquidity negative effect on Hedging Decisions

3) The Influence of Financial Distress on Hedging Decisions

The next factor that encourages companies to hedge is financial distress, which is a condition where a company experiences a decline in financial performance before finally experiencing bankruptcy. This indication of bankruptcy occurs when a company has difficulty paying its debts, especially when the company has debts in foreign currency, which results in the amount of debt being affected by foreign exchange rates and the company tends to experience a greater risk of default due to fluctuations in currency exchange rates, so that the higher the s-score value a company has, the higher the company's decision to take hedging actions (Arnold et al., 2014). This is supported by previous research conducted by Nuzul & Lautania (2015) and Paranita (2011) which obtained results that financial distress had a significant negative effect on hedging decisions.

H3: Financial distress has a negative effect on hedging decisions

4) The Influence of Growth Opportunity on Hedging Decisions

The next factor that also encourages companies to hedge is growth opportunity which is a ratio that measures how big a company's business opportunities will be in the future. Companies that have high growth will require greater funding so that when the company is no longer able to fund investments with internal funds, the company will carry out external funding using foreign currency, so that the higher the growth opportunity a company has, the higher the company's motivation to do so. hedging (Paranita, 2011). This is supported by previous research conducted by Ameer (2010) and Paranita (2011) which states that growth opportunity has a significant positive effect on hedging decisions.

H4: Growth opportunity has a positive effect on hedging decisions

5) The Influence of Firm Size on Hedging Decisions

Another factor that can encourage companies to carry out hedging activities is firm size. Companies with a larger size tend to carry out hedging activities than companies with a smaller size because the larger the size of a company, the greater the activities that occur within the company, such as the wider trading area covered by the company, which will give rise to higher risks that must be covered. Therefore, the higher the size of a company, the higher the company's motivation to carry out hedging activities (Wang & Fan, 2011). This is also supported by previous research conducted by Ameer (2010), Sasmita & Hartono (2019), and Bodroastuti et al. (2019) who obtained the results that firm size has a significant positive effect on hedging decisions.

H5: Firm size has a positive effect on hedging decisions

III. RESEARCH METHODS

A. Population and Sample

Population is a generalization area consisting of objects or subjects that have certain quantities and characteristics (Sugiyono, 2019). Due to the limitations of the author, the population in this study is Manufacturing sector companies listed on the Indonesia Stock Exchange (BEI) for the 2016 - 2022 period, totaling 138 companies. . The sampling in this research was carried out using a purposive sampling method, namely determining samples based on suitability of certain characteristics and criteria. The sample selection criteria in this research are as follows:

1. Manufacturing Companies listed on the Indonesia Stock Exchange for the 2016-2022 period;
2. The company carries out international trading activities during the 2016-2022 period.
    Based on the criteria above, a sample of 123 companies was obtained that met the research sample criteria.

B. Operational Definition of Variables

1) Dependent variable

The dependent variable is a variable that is influenced by the presence of an independent variable. The dependent variable in this research is hedging decisions.This hedging decision is measured using a Dummy Variable, namely if a company hedges with

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derivative instruments it will be given a score of 1, while companies that do not hedge will be given a score of 0 (Sprcic & Sevic, 2012).

2) Independent Variable

a) Leverage

The proxy for leverage in this research is the Debt to Equity Ratio(Brigham & Houston, 2018). The Debt to Equity Ratio formula according to Brigham & Houston (2018) can be written as follows:

b) Liquidity

$$DER = \frac{\text{Total Long Term Debt}}{\text{Total Equity}}$$

The proxy for liquidity is calculated using the Current Ratio. The Current Ratio Formula according to Brigham & Houston (2018) is:

c) Financial Distress

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

This research uses a method of measuring financial distress using the Springate method. According to Mediana & Muharam (2016), the S-score for companies going public is calculated using the following formula:

Information:

$$S = 1{,}03\ A + 3{,}07\ B + 0{,}66\ C + 0{,}4\ D$$

A = Working Capital / Total Assets

B = Net Profit Before Interest and Taxes / Total assets

C = Net Profit Before Taxes / Current Liabilities

D = Sales / Total Assets

Table 3. Company classification based on S-Score value

Keterangan	Kriteria
Healthy	S > 0,863
Potential Bankruptcy	S < 0,863

Source : Mediana & Muharam (2016)

d) Growth Opportunity

Proxy fromGrowth Opportunitiesin this research it is calculated using AssetsGrowth Opportunities.The formulation for measuring growth opportunity according to Mediana & Muharam (2016) is as follows:

e) Firm Size

$$Growth\ Opportunity = \frac{Total\ Aset_t - Total\ Aset_{t-1}}{Total\ Aset_{t-1}}$$

According to (Hidayat & Meiranto, 2014), asset size is used to measure the size of the company, the asset size is measured as the logarithm of total assets or if formulated is as follows:

$$Firm\ Size = Ln\ (Total\ Asset)$$

C. Data Analysis Technique

1) Descriptive Statistics

Descriptive statistics provide an overview or description of data seen from the average value, standard deviation, variance, maximum, minimum, sum, range, kurtosis and skewness. (Ghozali, 2018). This discussion explains leverage, liquidity, financial distress, growth opportunity, and firm size which influence hedging decisions.

2) Logistic Regression Analysis

The data analysis method in this research uses the logistic regression analysis method. The test is carried out to see whether the company "has a hedging policy" or "does not have a hedging policy". This regression was used because this research has a dependent variable which is measured using dummy data which has data that is not normally distributed (Ghozali, 2018). The model used in this research using logistic regression is as follows:

$$Ln \frac{p}{1-p} = \alpha + \beta 1 DER + \beta 2 CR + \beta 3 FD + \beta 4 GO + \beta 5 FZ + e$$

Information:

P   : Hedging activities, value 1 if the company hedges, value 0 if the company does not hedge.

Ln   : Natural Logarithm

α   : Constant

β1- β6   : Independent Variable Coefficient

DER   : Debt to Equity Ratio

CR   : Current Ratio

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FD   : Financial distress

GO   : Growth opportunity

FZ   : Firm size

E   : Error

D. Model Fit Test

1) Model Feasibility Test

Test statistics in logistic regression are assessed using Hosmer and Lameshow's Goodness of Fit Test. The feasibility of this model aims to test whether the empirical data fits or fits the model. If the Hosmer and Lemeshow's Goodness-of-fit test statistics value is <0.05, then the null hypothesis is rejected, which means there is a significant difference between the model and the observed values. If the statistical value of Hosmer and Lemeshow's Goodness-of-fit test is > 0.05, then the null hypothesis cannot be rejected and means the model is able to predict the observed value (Ghozali, 2018).

2) Test the Whole Model

The G2 test or likelihood ratio (LR) statistic is a test that aims to test whether all explanatory variables jointly influence the dependent variable. Based on the probability value or what is usually called the p-value, the basis for decision making for the likelihood ratio statistical test is:

a) If $G^2 < \chi^2 (\alpha, k)$ or the p-value of the LR statistic < 0.05 then Ho is accepted and Ha is rejected;

b) If $G^2 > \chi^2 (\alpha, k)$ or the p-value of the LR statistic > 0.05 then Ho is rejected and Ha is accepted.

E. Parameter Significance Test

1) Coefficient of Determination Test

The Coefficient of Determination (R^2) value shows the percentage of influence of all independent variables on the dependent variable, either partially or simultaneously. According to Ghozali (2018), the higher the coefficient of determination, the better the ability of the independent variable to explain the dependent variable.

2) F Test

This test is to find out whether the independent variable simultaneously influences the dependent variable. If the probability level is smaller than 0.05, it can be said that all independent variables together have an effect on the dependent variable.

F. Hypothesis Testing

Partial hypothesis testing is intended to determine whether there is a significant influence between the independent variable and the dependent variable. Partial testing carried out by the author in this study used the Wald test. Based on the probability value or what is usually called the p-value, the basis for decision making for the Wald test is as follows:

1) If the p-value of the z-statistic is > 0.05 then Ho is accepted and Ha is rejected;

2) If the p-value of the z-statistic is <0.05 then Ho is rejected and Ha is accepted.

IV. RESULTS AND DISCUSSION

A. Result

1) Descriptive statistics

The following are the results of descriptive statistics for all research variables which are presented in the following table:

Table 4. Descriptive Statistics of Companies With Hedging Activities

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
LEVERAGE	322	.003	4.93	.3021	.51495
LIQUIDITY	322	.034	23.44	1.9545	1.54426
FINANCIAL DISTRESS	322	.040	165.18	4.8503	15.73706
GROWTH OPPORTUNITY	322	.001	5.10	.1491	.37450
FIRM SIZE	322	14.967	33.66	27.7898	3.25409
Valid N (listwise)	322				

Source : SPSS 23 Output.

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Table 5. Descriptive Statistics of Companies Without Hedging Activities

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
LEVERAGE	539	.0001	65.28	1.0681	4.94171
LIQUIDITY	539	.0846	13.04	3.0136	3.07608
FINANCIAL DISTRESS	539	.0029	479.82	18.9936	47.87500
GROWTH OPPORTUNITY	539	.0004	2.53	.1292	.22595
FIRM SIZE	539	17.6908	32.83	26.3144	3.98965
Valid N (listwise)	539				

Source : SPSS 23 Output.

Based on the results of descriptive statistical tests in Table 4 and Table 5, it shows that 322 of the total 861 observations or 37% of the sample companies are companies that carry out hedging activities. The remaining 539 observations or 63% of sample companies are companies that do not carry out hedging activities.

Based on the results of descriptive statistical tests in Table 4, overall it can be seen that the Leverage variable in companies that have hedging activities has an average value of 0.3021. This average value is smaller than the average leverage for companies that do not have hedging activities as shown in Table 5, namely 1.0681. This shows that in managing funding sources, companies that carry out hedging activities tend to have a lower proportion of debt use compared to the proportion of debt use in companies that do not carry out hedging activities.

Based on the results of descriptive statistical tests in Table 4, overall it can be seen that the Liquidity variable in companies that have hedging activities has an average value of 1.9545. This average value is smaller than the average liquidity for companies that do not have hedging activities as shown in Table 5, namely 3.0136. This shows that companies that carry out hedging activities tend to have low liquidity compared to companies that do not carry out hedging activities.

Based on the results of descriptive statistical tests in Table 4, overall it can be seen that the Financial distress variable in companies that have hedging activities has an average value of 4.8503. This average value is smaller than the average financial distress for companies that do not have hedging activities as shown in Table 5, namely 18.9936. This shows that the average manufacturing company in the research year, namely 2016-2022, was in a healthy condition, whether the company was hedging or not hedging.

Based on the results of descriptive statistical tests in Table 4, overall it can be seen that the Growth opportunity variable in companies that have hedging activities obtained an average value of 0.1491. This average value is greater than the average growth opportunity for companies that do not have hedging activities as shown in Table 5, namely 0.1292. This shows that on average manufacturing companies in the research year, namely 2016-2022, that carry out hedging have the potential to grow larger in the future when compared to companies that do not hedge.

Based on the results of descriptive statistical tests in Table 4, overall it can be seen that the firm size variable in companies that have hedging activities obtained an average value of 27.7898. This average value is greater than the average firm size in companies that do not have hedging activities as shown in Table 5, namely 26.3144. This shows that on average manufacturing companies in the research year, namely 2016-2022, that carry out hedging tend to have larger total assets compared to companies that do not hedge.

2) Model Fit Test
a) Model Fit Testing (Hosmer and Lemeshow's Goodness of Fit)

Table 6. Hosmer and Lemeshow's Goodness of Fit Test Results

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9.060	8	.337

Source: SPSS 23 output

Based on the Hosmer and Lemeshow's Goodness of Fit test results in Table 9, it can be seen that the significance value is 0.337 > 0.05. This shows that the binary logistic regression model is suitable for use for further data analysis because there is no real difference between the predicted probabilities and the observed classifications.

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b)   Overall Model Fit Test

Table 7. Results of the -2Log Likelihood Test without Independent Variables

Iteration History[a,b,c]

Iteration		-2 Log likelihood	Coefficients Constant
Step 0	1	1139.363	-.499
	2	1139.340	-.510
	3	1139.340	-.510

a. Constant is included in the model.

b. Initial -2 Log Likelihood: 1139.340

c. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Source: SPSS 23 output

Based on the statistical test results in Table 7, it can be seen that the -2 Log Likelihood value for the model that only includes constants produces a value of 1139.340. The $\chi2$ value at a=0.05, and df 860 (861-1) is 1074.679. The -2 Log Likelihood step 0 value is greater than the $\chi2$ value so that H0 is rejected and Ha is accepted, which means that the model with constants alone does not fit the data. The next stage, to improve the model so that it fits the data, a -2 Log Likelihood model value test was carried out with the independent variables which can be seen in Table 8 below.

Table 8. Results of the -2Log Likelihood Test with Independent Variables

Iteration History[a,b,c,d]

Iteration		-2 Log likelihood	Coefficients Constant	DER	CR	FD	GO	FS
Step 1	1	1032.915	-3.155	-.037	.159	-.008	.300	.089
	2	1014.226	-3.831	-.107	.192	-.016	.336	.113
	3	1006.876	-3.763	-.254	.178	-.020	.356	.114
	4	1005.300	-3.660	-.371	.171	-.021	.380	.113
	5	1005.224	-3.633	-.404	.170	-.021	.386	.112
	6	1005.223	-3.632	-.406	.170	-.021	.387	.112
	7	1005.223	-3.632	-.406	.170	-.021	.387	.112

Source: SPSS 23 output

Based on the statistical test results in Table 8, it can be seen that when the model includes independent variables, a -2Log Likelihood value of 1005.223 is obtained. The $\chi2$ value at a=0.05, and df 855 (861-5-1) is 1022.816. The -2 Log Likelihood step 1 value is smaller than the $\chi2$ value so that H0 is accepted and Ha is rejected, which means adding five independent variables to the model can improve model fit.

3) Parameter Significance Test

a)   Coefficient of Determination Test

Based on the data that has been processed, the Cox and Snell's R Square and Nagelkerke's R Square values are obtained as in Table 9 below.

Table 9. Coefficient of Determination Test Results

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	300.460[a]	.493	.727

a. Estimation terminated at iteration number 9 because parameter estimates changed by less than .001.

Source: SPSS 23 output

Based on the statistical test results in Table 9, the Nagelkerke's R Square value is 0.727. This shows that the variability of the dependent variable that can be explained by the independent variables in the model is 72.7% and the remaining 27.3% of the dependent variable is explained by other variables outside this research model.

b)   Uji F

According to Ghozali (2018), to test the influence of the independent variable on the dependent variable simultaneously, it can be seen based on the significance value in the following Omnibus Test of Model Coefficients table.

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Table 10. F Test Results

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	134.116	5	.000
	Block	134.116	5	.000
	Model	134.116	5	.000

Source: SPSS 23 output

Based on the F test results in Table 10, a significance value of 0.000 is obtained, which means this value is smaller than 0.05. Based on these results, it can be stated that the variables Leverage, Liquidity, Financial distress, Growth opportunity, and Firm size influence hedging decision making simultaneously.

4) Uji Hipotesis

The final step in data analysis in this research is testing the research hypothesis using logistic regression analysis. The results of this research are said to be influential if the significance value is < α = 5%.

Table 11. Hypothesis Test Results

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ᵃ	DER	-.406	.129	9.899	1	.002	.666
	CR	-.170	.040	17.866	1	.000	1.185
	FD	-.021	.004	23.793	1	.000	.979
	GO	.387	.256	2.286	1	.131	1.472
	FS	.112	.023	24.403	1	.000	1.119
	Constant	-3.632	.636	32.637	1	.000	.026

a. Variable(s) entered on step 1: DER, CR, FD, GO, FS.

DER : Debt to Equity Ratio

CR : Current Ratio

FD : Financial Distress menggunakan s-Score

GO : Asset Growth Opportunity

FS : Firm Size

Source: SPSS 23 output

Based on the results of the hypothesis test in Table 11, the logistic regression equation can be written as follows:

$$\text{Ln}\frac{\text{p (Hedging)}}{1 - \text{p (Hedging)}} = -3{,}632 - 0{,}406X1 - 0{,}170X2 - 0{,}021X3 + 0{,}387X4 + 0{,}112X5$$

Based on the logistic regression equation above, it can be explained as follows:

a) The constant value is -3.632 with a significance of 0.000. This shows that the manufacturing companies sampled in this study still have a very small tendency to carry out hedging activities;

b) The leverage coefficient value proxied by the Debt to Equity Ratio (DER) is -0.406 with a significance of 0.002 which is smaller than α 0.05. This shows that every increase in DER will have a negative effect on hedging decisions;

c) The liquidity coefficient value proxied by the Current Ratio (CR) is -0.170 with a significance of 0.000 which is smaller than α 0.05. This shows that every increase in CR will have a negative effect on hedging decisions;

d) The financial distress coefficient value is -0.021 with a significance of 0.000 which is smaller than α 0.05. This shows that any increase in financial distress will have a negative effect on hedging decisions;

e) The Growth opportunity coefficient value is 0.387 with a significance of 0.131 which is greater than α 0.05. This shows that growth opportunity has no influence on the company's hedging decisions;

f) The firm size coefficient value is 0.112 with a significance of 0.000 which is smaller than α 0.05. This shows that every increase in firm size will have a positive effect on hedging decisions.

B. Discussion

1) The Effect of Leverage on Hedging Decisions

Based on the results of the hypothesis test that was carried out previously, the result was that the leverage variable had a negative effect on hedging decisions or the first hypothesis in this research was rejected. The negative influence in this research shows that when leverage as proxied by the Debt to Equity Ratio (DER) increases, the company's decision to hedge will decrease or vice versa. Risk management theory states that additional debt will carry risks because this instrument is very sensitive to changes in interest rates. Therefore, a hedging strategy that involves the use of derivative instruments should be able to reduce the impact of losses originating from increased interest rates due to debt. However, in contrast to the results of this study, it does

not support the risk management theory. This is because using a hedging strategy in this condition is not a viable alternative because companies with a high level of leverage do not necessarily have a higher proportion of foreign debt denominated in foreign currency compared to the company's debt denominated in domestic currency. If most of the company's debt is debt denominated in domestic currency, then this is why the company does not need to hedge.

2) The Influence of Liquidity on Hedging Decisions

Based on the results of previous hypothesis testing, the results obtained show that the liquidity variable has a negative effect on hedging decisions or the second hypothesis in this research is accepted. The negative influence in this research shows that when liquidity as proxied by the Current Ratio (CR) increases, the company's decision to hedge will decrease or vice versa. A higher current ratio indicates that the company is more liquid so the company tends to be able to meet its short-term debts without requiring more external funding in foreign currency which will create a risk of default due to fluctuations in currency exchange rates, so the higher the current ratio owned by the company, the smaller the company's decision to hedge.

Liquidity and risk management are closely related in the context of corporate finance. Liquidity refers to a company's ability to meet its short-term obligations using current assets, while risk management focuses on identifying, analyzing, and mitigating risks that may affect a company's financial health. One important aspect of risk management is ensuring the company has sufficient liquidity to meet its short-term obligations, such as debt payments and operational costs, to avoid serious problems including bankruptcy. Hedging strategies are used to protect companies from market risks, such as fluctuations in exchange rates and commodity prices, so as to stabilize cash flows and ensure adequate liquidity despite market volatility.

3) The Influence of Financial Distress on Hedging Decisions

Based on the results of the hypothesis test that was carried out previously, the results obtained were variable Financial distress negative effect on hedging decisions or the third hypothesis in this research is accepted. The negative influence in this research shows that when a company is in financial distress or can be said to be in an unhealthy financial condition, the company's motivation to hedge will increase or vice versa. Financial distress and hedging have a close relationship in the context of corporate risk management. Financial distress refers to a condition where a company experiences serious financial difficulties, which can lead to bankruptcy if not handled properly. Hedging as a risk management strategy aims to protect companies from unexpected market fluctuations, such as changes in exchange rates, commodity prices and interest rates. When a company is in a state of financial distress, the risk of bankruptcy increases, and the company's ability to meet its financial obligations becomes threatened. Hedging can help reduce this risk by stabilizing a company's cash flow and earnings.

4) The Influence of Growth Opportunity on Hedging Decisions

Based on the results of the hypothesis test that was carried out previously, the results obtained were that the Growth opportunity variable which is measured using asset growth has no effect on hedging decisions or the fourth hypothesis in this research is rejected. No effect in this research shows that an increase or decrease in growth opportunity will not affect the company in making hedging decisions. Based on risk management theory, the relationship between growth opportunities and hedging is often ineffective in reducing risk due to several factors. Growth opportunities often come with a high degree of uncertainty and market volatility that is difficult to predict. Hedging is intended to protect the Company from market fluctuations, but hedging cannot fully overcome the complex and difficult to measure risks associated with growth opportunities. Additionally, hedging costs can also be a drag, reducing resources that would otherwise be used to invest in growth. In a rapidly changing market environment, hedging strategies designed for current conditions become irrelevant when market conditions change, thereby reducing the effectiveness of such hedging against risk.

5) The Influence of Firm Size on Hedging Decisions

Based on the results of the hypothesis test that was carried out previously, the results obtained were that the Firm size variable has a positive effect on hedging decisions or the fifth hypothesis in this research is accepted. The positive influence in this research shows that when the company's firm size increases, the company's motivation to hedge will also increase. Firm size is a scale used to measure the size of a company. Companies that have a larger size certainly have extensive operational activities and are riskier because of their greater ability to transact in various countries. When a large company operates in various countries, the company will use different currencies, so that in carrying out its business activities, the company will encounter the risk of currency exchange rate fluctuations. To face this risk, companies can implement hedging policies.

V. CONCLUSIONS

Based on the results of research that has been carried out previously, it can be concluded that the variables Liquidity, Financial distress, and Firm size state that they accept the hypothesis proposed previously. The results of this research support the theory of risk management in international trade which states that the risk of foreign exchange rate fluctuations in international trade

carried out by companies needs to be managed so that large losses do not occur for the Company. This risk management is needed by companies to manage or optimize the risks that companies will face in carrying out international transactions. Companies that carry out international trade are expected to manage foreign exchange risk by using derivative instruments(Dewi & Purnawati, 2016). The use of derivative instruments can be useful for locking the price of an asset or product so that the company can avoid the risk of changes in the value of the asset in the future. This price locking activity can also be said to be hedging.

Based on the concept of risk management, the relationship between liquidity, financial risk, and company size and hedging in reducing risk is an important part of the company's risk management strategy. Sufficient liquidity allows companies to use hedging strategies to maintain cash flow stability and reduce operational risks, especially in the face of unexpected market fluctuations. On the other hand, financial risk, which can be indicated by the level of financial distress, can be managed by using appropriate hedging to protect the company from the risk of default or bankruptcy. In addition, company size also influences the ability and approach to hedging, where large companies tend to have better access to complex financial instruments, which allows them to implement more effective hedging strategies in the face of larger and more complex risks. Thus, the use of hedging in this context helps companies manage financial risks, maintain financial stability, and increase stakeholder confidence in overall company performance.

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