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THE EFFECT OF RUPIAH EXCHANGE RATE, FIRM SIZE, LEVERAGE AND LIQUIDITY ON HEDGING DECISION MAKING USING DERIVATIVE INSTRUMENTS

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Abstract

Companies facing the risk of fluctuations in foreign exchange rates can hedge with derivative instruments such as forward, future, swap and option contracts. The purpose of this study was to determine the effect of exchange rates, firm size, leverage and liquidity on hedging decision making using derivative instruments in BUMN companies listed on the Indonesia Stock Exchange for the period of 2016-2018. The method of determining the sample using purpose sampling technique and obtained 12 samples that meet the criteria and 144 firm-quarter observation. The analysis technique used is descriptive statistics and logistic regression. The test results show that the rupiah exchange rate has positive no significant effect on hedging decision making using derivative instruments. Firm size variable has a positive significant effect on hedging decision making using derivative instruments. The leverage variable which is proxied by debt to ratio has a negative significant effect on hedging decision making using derivative instruments. Liquidity which is proxied by current ratio has a negative significant effect on hedging decision making using derivative instruments.

Keywords: risk; hedging; derivatives; rupiah exchange rate; firm size; leverage; liquidity.

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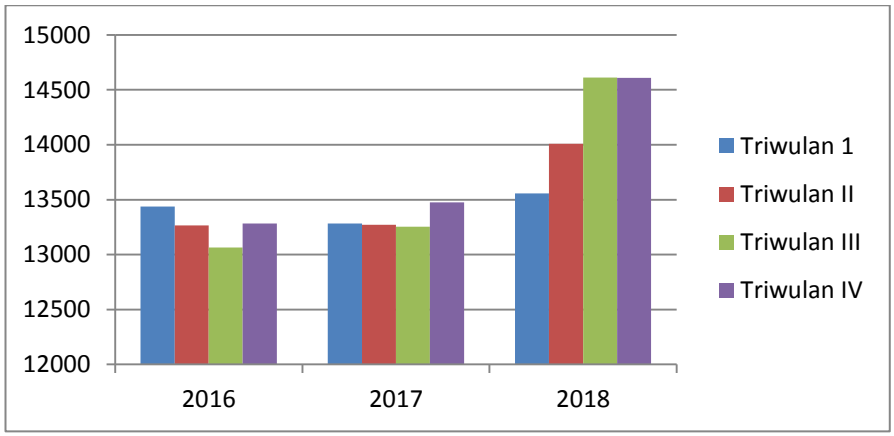
INTRODUCTION

Today's international trade has grown rapidly. This development is known from the increasing number of business transactions carried out between countries, for example making transactions to purchase goods from one country and send them to another country. Transactions in international trade certainly cannot be separated from risk, one of the risks faced is the difference in the currency used from each country, so that it can cause the risk of changes in currency exchange rates (Putong, 2013).

Since 1970 until now, there have been three changes in the exchange rate system in Indonesia, namely the fixed exchange rate system, controlled floating exchange rate system, and finally the free floating exchange rate system. The free expanding exchange rate is a system in which the government does not interfere with the exchange rate at all, the exchange rate is left to the government and the supply of foreign exchange. The implementation of this system is intended to achieve a more sustainable adjustment to the external equilibrium position and in order to secure the diminishing foreign exchange reserves. However, the implementation of this system raises problems due exchange rates to fluctuating, especially because the economic characteristics and institutional structure in developing countries are still simple (Darsono & Rahman, 2020).

Companies face the risk of fluctuations in foreign currency exchange rates, purchasing materials using foreign currencies and interest rate risk can be hedging or

hedging with derivative transactions such as currency forwards, currency futures, currency swaps, and currency options. Thus the company has the availability offunds hedging that can be used at any time and when the company needs thefunds hedging. The positive impact is that companies that carry out hedging are still able to carry out their operational activities even when economic conditions are less stable or fluctuating, even during economic crisis conditions. Then when economic conditions return to stable or normal, the company will slowly raise funds that can be re-allocated in the form of hedging or hedging (Irham, 2014). Conditions of exchange rate fluctuations that occur can affect the company's cash flow value. The value of cash flows received by the company in various units of currency can be affected by the exchange rate or exchange rate of each of these currencies when converted into domestic currency or rupiah, as well as the value of cash outflows depending on the value of each of these currencies. The effect of exchange rate fluctuations on the company's cash value in the future is called transactions exposure. The transaction's exposure themselves can have a significant impact on the company's profits or profits. The development of the graph of the rupiah against the dollar can be seen in the following figure:



Source: Processed research data, 2021

Graph 1. Development of the Rupiah against the Dollar 2016-2018

In Graph 1. shows the fluctuation of the dollar exchange rate in the 2016-2018 period, the rupiah exchange rate against the dollar tends to fluctuate and continues to weaken from the first quarter to the fourth quarter of 2018, this will affect the value of the dollar debt owed by the company, with a greater depreciation. , then the value of the company's debt also increases, this has an impact on the losses experienced by the company. To reduce this risk, the company can hedge.

Bank Indonesia recommends all State-Owned Enterprises (BUMN) to carry out hedging or hedging, when making loans or debts in dollars. Because, he stated that the risk of big losses would occur if SOEs did not hedge. Most of the private and state-owned debts are short-term debt, and 74% of the debt is also not hedged. The bad impact, if the rupiah exchange rate continues to decline and the dollar is getting stronger (increasing), then the debt can be affected by currency fluctuations. This will result in a crisis like in 1998.

The factors that affect activities hedging come from external and internal companies. External factor exchange rate. Research conducted by (Kinasih & Mahardika, 2019) shows that the rupiah exchange rate partially does not have the effect of policies hedging.

Apart from being driven by external factors, companies with foreign exchange exposure are also encouraged to hedge due to several internal factors, including firm size, leverage and liquidity. Research conducted by (Guniarti, 2014) shows that liquidity and firm size have a positive effect on the prediction of the probability of activity hedging. In another study, (Gatot Nazir Ahmad, Mardiyati, & Nashrin, 2015) found that firm size and liquidity had a significant positive effect on decisions hedging using derivative transactions.

Based on the background explanation above, this study was conducted to examine "Influence Of Rupiah Exchange Rate, Firm Size, Leverage And Liquidity On Decision-Making Hedging Using Derivative Instruments On Soe Companies Listed On The Indonesia Stock Exchange Period 2016-2018".

METHOD

1. Type of Research

This research is research explanatory because it examines the effect of an independent variable on the dependent variable and formulates hypotheses to be tested. The variable that is influenced in this study is the decision-making hedging using derivative instruments, while the influencing variable is the rupiah exchange rate, firm size leverage, and liquidity. Based on the description of the dependent and independent variables, a study will be conducted with the title "Influence Of Rupiah Exchange Rate, Firm Size, Leverage, And Liquidity On Decision-Making Hedging Using Derivative Instruments" (empirical study on state-owned companies listed on the IDX for the period 2016-2018).

2. Place and Time of Research

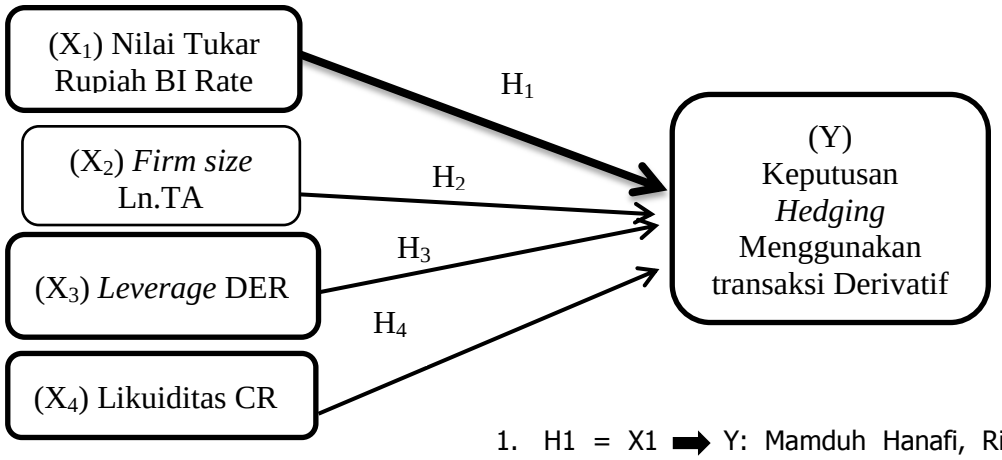
This research was conducted on state-owned companies listed on the Indonesia Stock Exchange for the period 2016-2018 through the website www.idx.co.id. The research activity agenda, as follows:

3. Concept Framework

1) Research Design

Research Design The Effect of Rupiah Exchange Rate (X1), Firm Size(X2), Leverage (X3), and Liquidity (X4) On Decision Making Hedging Using Derivative Instruments (Y), are as follows:

Figure 1. Framework Draft



Explanation:

The operational hypotheses in this study are as follows:

1. H1 = X1 ➡ Y: Mamduh Hanafi, Risk Management, 2016.

Renny Sofia and Mirza Hedismarlina Yuneli, ISEI Journal Business Management Review Vol III.No.1, 2019

2. H2 = X2➡ Y: Tri Bodroastuti, Ekayana Sangkasari Paranta et al, Journal Scientific, Volume 16 No.1,2019.

Gatot Nazir Ahmad et al, Indonesian Journal of Science Management Research Volume 16, No. 2, 2015.

3. H3 = X3 ➡ Y : I Gusti Putu Agung Widyagoca et al, Journal of Management Unud Vol.5, Mo.2, 2016, Noryati Ahmad and Balkis Haris, Research Journal of Finance and Accounting Vol.3, No.9, 2012.
4. H4 = X4 ➡ Y: Ni Nengah Novi Ariani and Gede Merta Sudi Artha, Ejurnal Unud Management Vol.6, No.1, 2017.

Dr. Naveed Iqbal Chaudhry et al, MPRA Paper No. 57562, 2014.

2) Operational Description of Research Variables

Basically, a research variable is material in any form that is determined by the researcher himself to obtain the data that the researcher wants, then a conclusion can be drawn from that data. The variables in this study consisted of the dependent variable and the variable independent as follows:

Table 1
List of Variable Descriptions

Variable Description	Decomposition Formulation	Variable Explanation
$X_{1,}$ Rupiah Exchange Rate, is a comparison of currency prices between countries, for example the exchange rate of the rupiah against the US dollar	BI Rate The exchange rate in effect during the study period	Exchange rate is the amount of domestic currency to be able to obtain one unit of another country's currency
X2. *Firm Size* is a scale where the size of the company can be classified according to various ways, including: log total assets, log total sales and market capitalization	Firm size = ln.TA Note: in = TA = total assets	Assessment of company size can use the total assets as a benchmark.
X_3, *Leverage* is the company's ability to meet long-term obligations.	DAR = $\frac{TL}{TA}$ Information: DAR = *Debt asset ratio* TL = Total liabilities TA = Total assets	How much a company is funded by debt for its business operations.
X_4, Liquidity is a term used to indicate the stock of cash and other assets that are easily converted into cash.	CR= $\frac{CA}{CL}$ Note: CR = *Current ratio* *CA = Current assets* *CL = Current Liabilities*	The ability of a company to meet the short-term debt.
Y Decision is *Hedging* or	proxy *Dummy*	In the study, the dependent variable,

hedging is the establishment of a transaction structure to reduce risks that occur naturally as part of most business activities. Derivative securities are financial assets that represent claims to other financial assets.	Company has to hedge policy = 1 Company does not apply to hedge policy = 0	namely the hedging policy or hedging can be measured by a dummy proxy. If the company implements a hedging policy, it is given a score of "1" and if the company does not implement a hedging policy, it is given a score of "0".

Source: data processed from literature literacy, 2021

4. Population and Sample

1) Population

The population in this study are all state-owned companies listed on the Indonesia Stock Exchange for the 2016-2018 period. The population in this study amounted to 20 companies.

2) Sample

The sampling technique in this study uses purposive sampling or sample selection based on predetermined criteria, while the criteria that must be possessed by this research sample are:

Table 2
Research sampling process

No	Sample Characteristics	Number of Companies
1	State-owned companies listed on the IDX in 2018	20
2	State-owned companies that do not publish 2016 – 2018 financial statements	(4)
3	BUMN which is a bank	(4)
Number of last samples		12
Number of samples (12 Companies x 2 years x 4 Quarters)		144

Source: data processed from www.idx.co.id, 2021

The research sample obtained was 12 companies from 20 populations of BUMN companies that entered the research criteria. The following is a list of sample companies that are the research sample:

RESULTS AND DISCUSSION

1. Data Analysis

The data processed in this study are the rupiah exchange rate, firm size, leverage and liquidity for a period of 2 years, data taken per quarter, from 2016 to 2018 with a sample of 12 state-owned companies that meet the criteria.

1) Descriptive Statistics

Descriptive statistics provide an overview of the distribution of the processed data, namely the mean, median, maximum, minimum and standard deviation. The results are shown in the following table:

Table 3
Descriptive Statistics

	Mean	**Median**	***Max***	***Min***	**Std.Dev**	**Sum**	**Obs.**
Hedging	0,50	0,50	1,00	0,00	0,502	72,0	144
Rupiah Exchange Rate	13676,13	13453	14929	12998	576,31	1969362	144
Firm Size	27,07	25,53	32,37	21,95	3,475	3899,03	144

Leverage	55,67	53,93	80,97	12,74	15,81	8017,16	144
Likuiditas	158,05	146.76	482,84	38,01	87,01	22759,06	144

Source: research data processed 2021

The results of the descriptive statistics in table 3. show that the data used in this research is 144. It is known that the rupiah exchange rate variable has a minimum value of 12998 and a maximum value of 14929 with a standard deviation of 576.31 and an average value of 13676.13, which means that all samples used has an average of 13676.13. variable Firm size has a minimum value of 21.95 and a maximum value of 32.37 with a standard deviation of 3.475 and an average value of 27.07, which means that all samples used have an average of 27.07. The Variable leverage has a minimum value of 12.74 and a maximum value of 80.97 with a standard deviation of 15.81 and an average value of 55.67, which means that all samples used have an average of 55.67. The liquidity variable has a minimum value of 38.01 and a maximum value of 482.84 with a standard deviation of 87.01 and an average value of 158.05, which means that all samples used have an average of 158.05.

2) Model Feasibility Test (Hosmer and Lemeshow's Goodness of Fit).

Table 4
Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9,971	8	,267

Source: research data processed 2021

In table 4. the Hosmer Lemeshow test shows a Chi-square value of 9.971 at a significant level of 0.267, the value is above 0.05. a significance level of > 0.05 means that the model in this study can accepted. The results of the calculations in this study indicate that the regression model used is suitable for future research.

3) Test Overall Fit Model

Table 5

Dependent Variable: Hedging (Y)	
Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)	
Sample: 2016Q1 2018Q4	
Included observations: 144	
Block number	-2 Log likelihood
Beginning (*block number* =0)	199,626
End (*block number* =1)	159,288

Source: research data processed 2021

Table 5. shows the comparison between the value of -2 log likelihood in the initial block and the number -2 log likelihood in the final block. The result of calculating the value of -2 log likelihood in the initial(blockblock 0) is 199.626 and the value of -2 log likelihood in the final (block 1) has decreased by 40.338 to 159.288, indicating that the overall logistic regression model used is a good regression model. In this study it can be said that the regression model is feasible.

4) Coefficient of Determination Test (McFadden R-Square Value)

Table 6
Model Summary

Step	*-2 Log likelihood*	*Cox & Snell R Square*	*Negelkerke R square*
1	156,868[a]	,257	,343

Source: research data processed 2021

The coefficient of determination is used to determine how much the independent variable explains the dependent variation. In table 6. it can be seen that the Cox & Snell R Square value is 0.257 and the value is Negelkerke R Square 0.343, which means that the combination of the rupiah exchange rate, firm size, leverage, and liquidity is able to explain 34.3% and the rest is explained by other variables not tested in this research.

5) Logistics Regression Coefficient Test and Hypothesis Testing

This study uses logistic regression analysis method, because the dependent variable used is a categorical variable, which will be given a value of 1 if the company carries out activities hedging using derivative transactions and 0 if the company does not carry out activities hedging using derivative transactions. Logistic regression is a form of regression that is formulated to predict and explain a categorical dependent variable of two groups (binary two groups).

Logistic regression analysis obtained the results as shown in the following table. Variables that have a significant effect are variables that have a sig value <0.05 and a value wald statistic 3.841 >(chi-square table).

Table 7
Variables in the Equation

		B	S.E.	Wald	df	Sig	Exp (B)
Step 1[a]	rupiah exchange rate	,000	,000	,023	1	,879	1,000
	Firm size	,453	,093	23,957	1	,000	1,573
	Leverage	-,110	,025	19,877	1	,000	,896
	Likuiditas	-,017	,004	21,495	1	,000	,983
	Constant	-4,139	4,976	,692	1	,406	,016

Source: research data processed 2021

Based on the results of the analysis, it can be seen that the logistic regression model can be formulated as follows:

$$\text{Ln } \frac{p}{1-p} = -4{,}139+0.000\text{NTR} + 0{,}453\text{FS} - 0{,}110\text{LEV} - 0{,}017\text{LIK} + \varepsilon i$$

Each positive (+) and negative (-) sign indicates the direction of change (increase or decrease) of the dependent variable or decision making hedging using derivative instruments, if one of the independent variables changes. Each regression coefficient value in this study is a partial regression coefficient value and calculates changes in the value of the variable (assuming the other independent variables are constant). This interpretation will be more meaningful if it is only in the form of probability, which is obtained by calculating the antilog of the coefficients slope.

The logistic regression equation can be described as follows: The rupiah exchange rate variable has a regression coefficient of 0.000, meaning that for every 1 percent increase in the rupiah exchange rate, the company in making

decisions hedging will be 0.000 percent assuming other variables are constant.

Variable firm size has a regression coefficient of 0.453, which means that for every 1 percent increase in firm size, the contract hedging will increase by 0.453 percent assuming other variables are constant.

The variable leverage has a regression coefficient of -0.110 which means that for every 1 percent increase in DAR, the contract hedging will decrease by 0.110 percent assuming the other variables are constant.

The liquidity variable proxied by using the current ratio has a regression coefficient of -0.017, which means that for every 1 percent increase in the current ratio, the contract hedging will decrease by 0.017 percent assuming the other variables are constant.

From the logistic regression equation, it can be seen that the rupiah exchange rate variable (X1), firm size (X2) has a positive effect, meaning that the higher the value of the independent variable, the higher the probability of hedging. As for the variable leverage (X3), liquidity (X4) has a negative effect on the dependent variable (activity hedging), which means that the higher the value of the independent variable, the probability of activity hedging the lower.

Based on the results of the logistic regression analysis, hypothesis testing can be carried out. Testing the first hypothesis (H1) shows that the rupiah exchange rate variable has a regression coefficient (β) of 0.000 with a probability value (sig) of 0.879 which is greater than the value of 0.05 (α) and the value wald statistic of 0.023 which is smaller than the chi-square table (3.841). This means that H1 which states that the rupiah exchange rate has a positive and significant effect on activities hedging using derivative transactions in BUMN companies is rejected.

The results of the logistic regression test show that the rupiah exchange rate variable consistently has a positive regression coefficient sign with a significant value greater than 0.05 (α) which means that the rupiah exchange rate has a positive but not significant effect on decisions hedging using derivative instruments in state-owned companies listed on the Indonesia Stock Exchange.

Furthermore, testing the second hypothesis (H2) shows that the variable firm size has a regression coefficient (β) of 0.453 with a probability value (sig) of 0.000 which is smaller than 0.05 (α) and the value of the Wald statistic is 23.957 which is bigger than the chi-square table (3.841). This means that H2 which states that firm size has a positive and significant effect on activities hedging using derivative transactions in state-owned companies is accepted.

The results of the logistic regression test show that the variable firm size consistently has a positive regression coefficient sign with a significant value smaller than 0.05 (α) which means that firm size has a positive and significant effect on the probability of activities hedging in BUMN companies using derivative instruments.

Then the third hypothesis testing (H3) shows that the variable leverage has a regression coefficient (β) of -0.110 with a probability value of 0.000 which is smaller than 0.05 (α) and the value of the wald statistic is 19.877, which means it is bigger than the chi-square table (3.841). This means that H3 which states that leverage has a significant effect on decisions hedging with derivative transactions is accepted.

The results of the logistic regression test show that the variable leverage consistently has a regression

coefficient sign (β) negative with a significant value less than 0.05 (α) which means that leverage has a negative but significant effect on the probability of activities hedging with derivative instruments.

Testing the fourth hypothesis (H4) shows that the liquidity variable has a logistic regression coefficient (β) of -0.017 with a probability value (sig) of 0.000 which is smaller than 0.05 (α) and the value of the wald statistic is 21.495, which means it is bigger than the chi-square table (3.841). This means H4 which states that liquidity has a negative and significant effect on decisions hedging with derivative transactions is accepted.

Based on the results of the logistic regression test, it shows that the liquidity variable consistently has a negative regression coefficient sign with a significant value smaller than 0.05 (α) which means that liquidity has a negative and significant effect on the probability of decisions hedging using derivative instruments.

Each positive (+) and negative (-) sign indicates the direction of change (increase or decrease) of the dependent variable or decision making hedging using derivative instruments if one of the independent variables changes. Each regression coefficient value in this study is a partial regression coefficient value and calculates changes in the value of the variable (assuming the other independent variables are constant). This interpretation will be more meaningful if it is only in the form of probability, which is obtained by calculating the antilog of the slope of the coefficient.

The logistic regression equation can be described as follows: The rupiah exchange rate variable has a regression coefficient of 0.000, meaning that for every 1 percent increase in the rupiah exchange rate, the company in making decisions hedging will be 0.000 percent assuming other variables are constant.

Variable Firm size has a regression coefficient of 0.453, which means that for every 1 percent increase in firm size, the contract hedging will increase by 0.453 percent assuming other variables are constant.

The variable leverage has a regression coefficient of -0.110 which means that for every 1 percent increase in DAR, the contract hedging will decrease by 0.110 percent assuming the other variables are constant.

The liquidity variable proxied by using the current ratio has a regression coefficient of -0.017, which means that for every 1 percent increase in the current ratio, the contract hedging will decrease by 0.017 percent assuming the other variables are constant.

From the logistic regression equation, it can be seen that the rupiah exchange rate variable (X1), firm size (X2) has a positive effect, meaning that the higher the value of the independent variable, the higher the probability of hedging. As for the variable leverage (X3), liquidity (X4) has a negative effect on the dependent variable (activity hedging), which means that the higher the value of the independent variable, the probability of activity hedging the lower.

Based on the results of the logistic regression analysis, hypothesis testing can be carried out. Testing the first hypothesis (H1), shows that the rupiah exchange rate variable has a regression coefficient (β) of 0.000 with a probability value (sig) of 0.879 which is greater than the value of 0.05 (α) and the value wald statistic of 0.023 which is smaller than the chi-square table (3.841). This means that H1 which states that the rupiah exchange rate has a positive and significant effect on activities hedging

using derivative transactions in BUMN companies is rejected.

The results of the logistic regression test show that the rupiah exchange rate variable consistently has a positive regression coefficient sign with a significant value greater than 0.05 (α) which means that the rupiah exchange rate has a positive but not significant effect on decisions hedging using derivative instruments in state-owned companies listed on the Indonesia Stock Exchange.

Furthermore, testing the second hypothesis (H2) shows that the variable firm size has a regression coefficient (β) of 0.453 with a probability value (sig) of 0.000 which is smaller than 0.05 (α) and the value of the wald statistic is 23.957 which is bigger than the chi-square table (3.841). This means that H2 which states that firm size has a positive and significant effect on activities hedging using derivative transactions in state-owned companies is accepted.

The results of the logistic regression test show that the variable firm size consistently has a positive regression coefficient sign with a significant value smaller than 0.05 (α) which means that firm size has a positive and significant effect on the probability of activities hedging in BUMN companies using derivative instruments.

Then the third hypothesis testing (H3) shows that the variable leverage has a regression coefficient (β) of -0.110 with a probability value of 0.000 which is smaller than 0.05 (α) and the value of the wald statistic is 19.877, which means it is bigger than the chi-square table (3.841). This means that H3 which states that leverage has a significant effect on decisions hedging with derivative transactions is accepted.

The results of the logistic regression test show that the variable leverage consistently has a regression coefficient sign (β) negative with a significant value less than 0.05 (α) which means that leverage has a negative but significant effect on the probability of activities hedging with derivative instruments.

Testing the fourth hypothesis (H4), shows that the liquidity variable has a logistic regression coefficient (β) of -0.017 with a probability value (sig) of 0.000 which is smaller than 0.05 (α) and the value of the wald statistic is 21.495, which means it is bigger than the chi-square table (3.841). This means H4 which states that liquidity has a negative and significant effect on decisions hedging with derivative transactions is accepted.

Based on the results of the logistic regression test, it shows that the liquidity variable consistently has a negative regression coefficient sign with a significant value smaller than 0.05 (α) which means that liquidity has a negative and significant effect on the probability of decisions hedging using derivative instruments.

2. Data Interpretation/Discussion

1) Effect of Rupiah Exchange Rate on Hedging or Decision Making Hedging

Based on the results of regression analysis, it can be seen that the rupiah exchange rate variable does not have a significant influence on decisions hedging using derivative instruments. This can be seen in table 5.6 where the regression coefficient value is 0.000 and the wald statistic is 0.023 with a significance value of 0.879. The significance value is greater than 0.05.

When the rupiah exchange rate against the US dollar experienced appreciation or depreciation in 2016-2018, it did not affect state-owned companies to

take decisions hedging using derivative instruments. Because state-owned companies can manage risk management against foreign exchange, interest rates with other alternatives such as risk containment, where rupiah exchange rate risk can be overcome by using or techniques hedging-hedging natural with transaction activities carried out in foreign exchange or foreign currency. In addition, the company applies reserve funds, namely by placing funds in productive assets.

In accordance with (Hanafi, 2016) which states that a company in overcoming risk can use several techniques, which are divided into four types: risk retention, risk avoidance, risk reduction and, risk transfer. It can be concluded that state-owned companies in dealing with the exchange rate of the rupiah against the US dollar are carried out with various risk management alternatives other than using hedging, such as one of them using risk retention with reserve funds and transaction activities such as sales made in foreign currencies so that companies can fulfill its foreign currency obligations from the proceeds of the sale. These results support the results of previous research conducted by (Kinasih & Mahardika, 2019). And contrary to the results of research conducted by (Sofia & Yuneline, 2019) which stated that the rupiah exchange rate had a significant effect on decision making hedging.

2) The Effect of Firm Size on decision Making

The Hedging results of the research obtained regarding the Effect of Firm Size on decision Making Hedging Using Derivative Instruments in BUMN Companies Listed on the IDX for the 2016-2018 period. Data analysis shows that firm size has a significant positive impact on the use of derivatives as a decision hedging. This can be seen from the hypothesis testing where the significant value of firm size is 0.000 which is less than 0.05 at the 5% significance level. Decision hedging to use derivatives will increase 0.435 times if the company is large.

State-owned companies with a larger size have the possibility to carry out wider and more risky transactions, such as exports and imports. If a state-owned company conducts transactions between countries with foreign debt, purchases raw materials, and sells products in foreign currencies, so the state-owned company has the risk of fluctuations in the exchange rate or exchange rate. Therefore, companies tend to do more activities hedging to protect their assets. In addition, the impact caused by risk to a large company is more significant, so the company will apply more stringent risk management compared to a small company, for example in practice the company will use different currencies in its activities. To reduce the exchange rate risk that may occur, the company can overcome it by hedging. Large companies are also more likely to use derivatives to hedge exposure risk than small companies because they have the resources and knowledge needed to do so.

Research data shows that most companies that have high total assets are part of a group of companies that make decisions to hedge or hedge.

The results of this study support the results of previous studies conducted by (Bodroastuti, Paranita, & Ratnasari, 2019) and (Gatot Nazir Ahmad et al., 2015) which resulted in firm size having a positive and significant effect on decisions hedging.

3) Effect of Leverage Decision Against Hedging

The ratio leverage is the ratio between total debt and total assets owned by the company. The results of the logistic regression test on the variable leverage show that the probability value (sig) is 0.000 where the sig value is less than 0.05. The results of this study state that the variable leverage partially has an influence on decisions hedging using derivative instruments. However, the value of the regression coefficient (β) in this study showed a negative result of -0.110 so that the variable leverage had a significant negative effect on decisions hedging using derivative instruments. This means that the higher the level of leverage, the lower the implementation of decisions hedging.

Based on the results of the study that the possibility of a company making a decision to hedge when its debt decreases are 0.110 times compared to when its debt increases. An increase in leverage will result in a decrease inactivity hedging in BUMN companies, and vice versa if leverage decreases it will result in an increase in indecisions hedging for BUMN companies. If the debt-to-asset ratio is high, this will of course reduce the ability of state-owned enterprises to obtain additional loans from creditors because it is feared that state-owned enterprises will not be able to pay off their debts with the total assets they have. leverage A small indicates that at least the company's assets are financed by debt (in other words that most of the assets owned by state-owned companies are financed by capital).

The results of this study support the results of previous studies conducted by (Widyagoca & Lestari, 2016) and (Noryati Ahmad & Haris, 2012) which said that leverage had a significant negative effect on hedging policies.

4) The Effect of Liquidity on decision Making

The Hedging results of this study indicate that the regression coefficient value for the liquidity variable is -0.017 with a probability value (sig) of 0.000 which is smaller than 0.05 (α). This means that the liquidity variable has a negative and significant effect on decisions hedging with derivative transactions.

When the company's ability to meet its short-term obligations decreases, the possibility of the company to hedge is 0.017 times compared to when short-term liabilities increase. The high liquidity of a company indicates the company is able to meet its short-term obligations and the company has reserve funds to deal with risks so as to avoid the risk of financial difficulties. When the level of liquidity is high in a company, the company will avoid risk, therefore the possibility of the company taking decisions is hedging low. Meanwhile, when the company has a current ratio at a low, it indicates the company's inability to pay its short-term obligations and finance its operations so that the risk of

failure is higher, therefore the company needs to make a decision to hedge using derivative instruments to manage risk. The results of this study support the results that have been found by previous researchers, namely (Chaudhry, Iqbal, Mehmood, & Mehmood, 2014), (Dewi & Rahayu, 2016), (Ameer, 2010), (Raghavendra & Velmurugan, 2014), (Astyrianti & Sudiartha, 2017).

CONCLUSION

The rupiah exchange rate has a positive and insignificant effect on activities hedging using derivative transactions in state-owned companies. When the rupiah exchange rate against the dollar depreciated or appreciated in 2016-2018, it did not affect the company to take decisions hedging using derivative instruments. Because the company chooses to carry out risk management with other alternatives such as risk holding, where the risk of the rupiah exchange rate is overcome by using a reserve fund technique, namely by placing funds in productive assets and natural hedging, namely by transaction activities carried out in foreign exchange.

Firm size has a positive and significant effect on decisions hedging using derivative instruments in state-owned companies listed on the Indonesia Stock Exchange. This is because large companies have extensive operational activities and can be more risky. Therefore, they tend to do more activities hedging to protect their assets. In addition, the impact caused by a risk on large companies is greater, the company will implement a more stringent risk management compared to small companies.

Leverage has a negative and significant effect on decisions hedging using derivative instruments in state-owned companies listed on the Indonesia Stock Exchange. When the company has high debt to carry out its operational activities, the company will decrease to hedge by using derivative instruments, the company prefers to hedge naturally. In other words, how much the company's assets are financed by debt or how much the company's debt affects debt management. If the ratio is high, it means that funding with more debt will make it more difficult for the company to obtain additional loans because it is feared that the company will not be able to cover it.

Liquidity has a negative and significant effect on decisions hedging using derivative instruments in state-owned companies listed on the Indonesia Stock Exchange. The high liquidity of a company indicates the company is able to meet its short-term obligations and the company has reserve funds to deal with risks so as to avoid the risk of financial difficulties. When the level of liquidity is high in a company, the company will avoid risk, therefore the possibility of the company taking decisions is hedging low. Meanwhile, when the company has a current ratio at a low, it indicates the company's inability to pay its short-term obligations and finance its operations so that the risk of failure is higher, therefore the company needs to make a decision to hedge using derivative instruments to manage risk.

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