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**THE INFLUENCE OF RUPIAH EXCHANGE RATE, FIRM SIZE,  
LEVERAGE AND LIQUIDITY ON HEDGING DECISIONS**

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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 is to determine the effect of exchange rates, firm size, leverage and liquidity on hedging decision making using derivative instruments at state-owned banks 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 regression panel logistics. Based on research results obtained, that if the size of the company increases, the potential for hedging decisions through derivative instruments also increases. As for the level of leverage increases, the potential for hedging decisions through derivative instruments decreases. And if the level of liquidity increases, the potential for hedging decisions through derivative instruments decreases.

*Keywords: Hedging, Derivatives, Rupiah Exchange Rate, Firm Size, and Leverage.*

**1. Introduction**

The The more the economy of a country is opened, it will have an impact on the increasing volume of international trade. International trade transactions such as these will face the challenge of risk, namely the currency differences imposed by each state which causes changes currency exchange rates (Putong, 2013).

Companies face risk of fluctuations in foreign currency exchange rates, purchase of materials that use foreign currency and interest rate risks can hedge or hedging transactions Derivati f such as forward contracts, futures, options, and currency swaps. This hedging decision will help companies to be able to manage their business despite exchange rate volatility (Fahmi, 2014). Besides that, the turmoil caused by exchange rate movements can also affect internal conditions, including the company's fundamentals.

The company's decision to hedge through derivative instruments is influenced by external and internal company conditions. The external condition of the company under study is the effect of exchange rates. Kinasih and Mahardika (2019) stated that the effect of the exchange rate on hedging policies was not significant. Likewise Indawan et al (2005) explained that the role of hedging through derivative instruments is still lacking, meaning the company does not yet have a strong drive to do currency hedging.

Several driven by factors external companies that have foreign currency exposure is also driven to hedging as some internal factors, such as firm size, leverage and liquidity. The influence of firm size on the possibility

of hedging is positive (Fay, 2004), (Fitria, 2018), (Gatot et al, 2015), (Sofia and Yuneli, 2011) , while S yaputry (2019) believes that size firm has a negative effect against hedging decisions . The liquidity ratio also has a positive effect on hedging decisions (Fay, 2014), (Ahmad et al, 2015), while Chaudhury et al (2004) explains that liquidity has a negative effect on hedging decisions. While leverage negatively affects hedging decisions (Widyagoca, 2016).

The strengths of this research compared to previous research are filling in the shortcomings that there is no specific research related to the influence of external and internal factors on the hedging decision on state-owned companies, especially banks.

This research was conducted on state-owned banks listed on the Indonesia Stock Exchange in the period 2016-2018 with quarterly data. Quarterly exchange rate data is taken from the average value. For company size data the researcher uses a proxy for total assets. As for liquidity data, researchers used the Current Ratio data which is the ratio of current assets to current debt. As for leverage data, researchers use the ratio of debt to assets. And the data for hedging decisions, researchers use a dummy variable with proxy 1 for the decision to hedge and 0 for the decision not to hedge.

Based on the background explanation above, this study aims to examine the " Influence of Rupiah Exchange Rates, Firm Size, Leverage and Liquidity on Hedging Decision Making Using Derivative Instruments at Bank BUMN Listed on the Indonesia Stock Exchange in the Period of 2016-2018."

## **2. Literature Review**

### **Hedging**

Hedging is a term in the futures market that carries out the risk transfer function . Hedging is a strategy to reduce the risk of loss caused by price fluctuations, including the effect of exchange rate movements (Brigham and Houston, 2014). Or according to Darsono and Rahman (2018) hedging is a strategy to limit the risk of uncertainty in future foreign exchange price movements that will measure in a measurable way.

### **Exchange Rate**

The rupiah exchange rate or exchange rate is a ratio of the price of currencies between countries, for example the exchange rate of the rupiah against the US dollar. Exchange rate movements can be divided into two, namely depreciation and appreciation. Depreciation reflects the amount of domestic currency exchanged against foreign currencies more. For example a change in the exchange rate of the rupiah against the dollar from Rp 13,000 / US \$ to Rp 14,000 / US \$ or in other terms the exchange rate of the rupiah against the dollar has weakened. The appreciation is the opposite of depreciation when the rupiah exchange rate against the dollar has strengthened from Rp 13,000 / US \$ to Rp 12,000 / US \$ (Darsono and Rahman, 2018).

### **Firm Size**

Company size is the size of a company based on several variables including total assets, total sales, total profits, tax burden and others (Brigham and Houston, 2014). The size of the company can affect the company's fundamental conditions, the company's decision in carrying out policies including implementing hedging policies.

### **Leverage**

In running its business operations, companies need funds that are not only sourced from their own capital, but can also be sourced from external parties, namely debt. Kasmir (2015) explains Leve Rage is the company's ability to meet long - term obligations due to debt. While long-term obligations are usually in the form of corporate debt with a maturity of more than one year, such as bank loans or bonds.

### **Liquidity**

The liquidity ratio explains how to measure a company's ability to meet its short-term needs. Namely obligations that must be fulfilled in a span of less than one year or obligations that are due, such as bank loans, trade debts, and other debts (Kashmir, 2015).

**Framework**

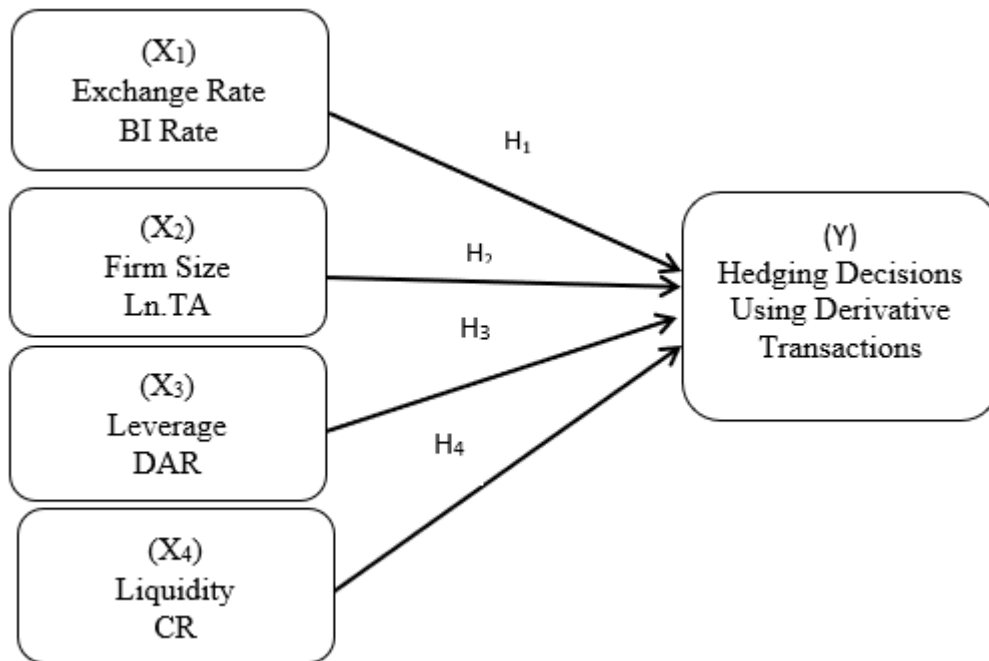


Figure 1. Research Framework

**Hypothesis:**

Based on the research objectives, the theoretical basis and framework of thought can be proposed as follows:

1. First hypothesis : determined that weakened (depreciation ) of the rupiah against one unit of foreign currencies will affect the decision of conduct hedging with derivatives transactions
2. Second Hypothesis : determined that the bigger companies (FRIM size) will have an effect on decisions do hedging using instrumen derivatives .
3. Third Hypothesis : it is stated that the higher the level of corporate leverage, it will affect the decision to hedge with derivative transactions .
4. Fourth Hypothesis : stated that increasing the level of liquidity of the company, it will affect the decision to not undertake hedging transactions of derivatives.

**3. Methods**

The sampling technique in this study uses a purposive sampling method or sample selection based on predetermined criteria , namely banks whose listings on the Stock Exchange and Financial Report are published in the 2016-2018 period. Data collection techniques used by researchers are literature studies and documentation. This study uses logistic regression because the dependent variable used is a dummy variable consisting of 1 for companies that do hedging and 0 for companies that do not do hedging .

This analysis model can be stated as follows:

$$\text{Ln} \frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n$$

Information:

Ln = Variable hedging decision , if the company applies a hedging decision then a score of "1" is given if it does not apply a hedging policy then a score of "0"

$\beta_0$  = Regression Constants

$\beta_1, \beta_2, \beta_3, \beta_4 \dots \beta_n$  = Regression coefficient for each independent variable

$X_1, X_2, X_3, X_4 \dots X_n$  = Coefficient regression of rupiah exchange rate, firm size , leverage and liquidity.

**4. Results and Discussion**

**Hosmer and Lemeshow’s Goodness of Fit**

The Hosmer-Lemeshow test shows a Chi-square value of 9,971 at a significant level of 0.267 at a value of 0.05. a significance level of > 0.05 means that the model in this study is acceptable. The results of calculations in this study indicate that the regression model used is feasible for use in subsequent studies.

**Table 1  
Hosmer and Lemeshow Test**

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

Source: Processed research data, 2019

**Overall Fit Model**

Overall fit model test shows a comparison between the value of -2 log likelihood in the initial block and the number of -2 log likelihood in the final block. The results of the calculation of the value of -2 log likelihood in the initial block ( block 0 ) amounted to 199,626 and the value of -2 log likelihood in the final block ( block 1) decreased by 40,338 to 159,288, indicating that the overall logistic regression model used was a good regression model. In this study it can be said that the regression model is feasible

**Table 2.  
Overall Fit Model**

Block number	-2 Log likelihood
Awal ( <i>block number =0</i> )	199,626
Akhir ( <i>block number =1</i> )	159,288

Source: Processed research data, 2019

**Value McFadden R-Square**

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

**Table 3**  
**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R square
1	156,868 <sup>a</sup>	,257	,343

Source: Processed research data, 2019

**Logistic Regression**

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

**Table 4**  
**Logistic Regression Equations**

Variable	Coefficients	Sig
Exchange Rate	0,000	Not significant
Firm Size	0,453	Significant
Leverage	-0,110	Significant
Liquidity	-0,017	Significant

Source: Processed research data, 2019

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

$$\ln p/(1-p) = -4,139 + 0,000NTR + 0,453FS - 0,110LEV - 0,017LIK$$

The logistic regression equation can be described as follows:

Firm size variable has a regression coefficient of 0.453 which means that for every 1 percent increase in firm size, the hedging contract will experience an increase of 0.453 percent, assuming the 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 hedging contract will decrease by 0.110 percent, assuming the other variables are constant.

The liquidity variable which is 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 hedging contract will decrease by 0.017 percent assuming the other variables are constant.

**5. Conclusion**

From the results of research on the effect of the exchange rate, firm size, leverage and liquidity of the decision-making hedging using derivative instruments on the Bank SOE Year 2016-2018, can be summed up

as follows: (1) Firm size positive and significant impact on decision hedging decisions using derivative instruments . (2) Leverage has a negative and significant effect on hedging decision making using derivative instruments in state-owned companies listed on the Indonesia Stock Exchange. (3) Liquidity influential negative and significant impact on the decision-making hedging menggunakan derivative instruments on Integration SOEs listed in the Indonesia Stock Exchange. Based on the results and keterbatasan research, then there bebe rapa advice from the author, that is increasing the number of the study period, the study sample, and study variables. Apart from that, it can also replace the dependent variable with a hedging strategy.

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