

# Influence of Important Factors in Hedging Decisions Using Derivative Instruments (Case Study on Automotive Industry Companies Listed on the IDX)

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## Abstract

*The purpose of this study is to analyze the effect of Liquidity, Growth Opportunity, Firm Size, and Managerial Ownership as factors that influence hedging activities using derivatives in automotive companies listed on the Indonesia Stock Exchange. The sampling technique used was purposive sampling. The sample in this study amounted to 12 automotive companies that met the criteria. This study uses secondary data sourced from the annual financial statements of automotive companies listed on the Indonesia Stock Exchange for the period 2015 to 2019. Data analysis uses logistic regression because the data used are metric and non-metric. Results show liquidity (Liquidity), Managerial Ownership and Size (Firm Size) has a negative and significant effect on hedging activities while the Company's Growth Opportunity has a positive and significant effect on hedging activities using derivatives.*

## Keywords

hedging; liquidity; growth opportunity; firm size; managerial ownership



## I. Introduction

Risk management is needed by the company in order to minimize the various risks that occur within the company. Various alternative types of risk management of a company, especially financial risk, one of which is using hedging. A company needs to hedge (hedging) to avoid the impact of fluctuations in systematic risks such as interest rates, exchange rates and even commodity prices that tend to be detrimental, reduce the possibility of default (bankruptcy) or reduce the cost of bankruptcy (cost of financial distress) using claims. hedging. Hedging activities are carried out by companies that are active in international trade such as export-import using certain foreign currency exchange rates. So that the company has the potential to be affected by exposure to transactions, operations, and translations in the business. Hedging using derivative instruments is almost the same as buying insurance. The instrument provides a protection.

The success of leadership is partly determined by the ability of leaders to develop their organizational culture (Arif, 2019). According to Putro and Chabachib (2012), "hedging is an alternative that companies can use to minimize potential losses caused by foreign currency transactions. Hedging is a method for anticipating risk in futures trading and trading between countries. In conclusion, hedging aims to protect the company's assets from losses from price fluctuations that cannot be predicted by using derivative instruments. The types of derivative instruments used in hedging activities are forward contracts, futures, options, and swaps. Apart from the company's external factors, companies with foreign exchange ownership have an incentive from the company's internal factors to hedge. As in previous studies, hedging is influenced by growth opportunity (Putro and Chabachib, 2012), firm size (Ahmad and Haris, 2012; Putro and Chabachib,

2012), liquidity (Guniarti, 2014), and managerial ownership (Matthias Arnold, 2014). ". Also research conducted by Afza and Alam (2011), "other variables such as growth options, managerial ownership, liquidity, financial distress, firm size, profitability, interest coverage ratio, foreign sales are other factors that influence the company's hedging activities. This study aims to analyze the factors that influence hedging decisions such as *Liquidity, Growth Opportunity, Firm Size, and Managerial Ownership*. The contribution of this research is taken into consideration for implementing hedging strategies in order to protect the company's assets from the risk of transactions between countries so as to maximize investment returns.

## II. Research Method

This research is a type of quantitative research to examine the effect of liquidity, growth opportunity, firm size, and managerial ownership on hedging activities with derivative instruments in the automotive industry for the 2017-2019 period. This study uses secondary data, namely data obtained in the form of annual financial statements of automotive industry companies for 2017 - 2019 obtained from the Indonesia Stock Exchange website, namely <https://www.idx.co.id/>. The sampling technique used is purposive sampling, namely companies that have met the criteria and there are 12 companies that meet the research criteria.

The operational variables in this study are:

### 2.1 Liquidity

Liquidity is the company's ability to meet the company's short-term ability and can be proxied by the current ratio. Current Ratio can be formulated as

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liability}$$

### 2.2 Firm Size

The size of the company reflects the number of assets owned by the company and companies with a larger scale will have stricter risk management policies than small companies. From previous research, company size can be formulated as follows in this study (Putro, 2012):

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

### 2.3 Growth Opportunity

Growth opportunities describe the company's ability to expand and enlarge the company. The proxy for growth opportunity is "the comparison between MVE (market value of equity) and BVE (book value of equity) where MVE is the result of a comparison between EAT (earnings after tax) and EPS (earnings per share) times the closing price.

Meanwhile, BVE is the result of the reduction between total assets and total long-term liabilities". This study uses a proxy in accordance with previous research to formulate the company's growth opportunities as follows (Guniarti, 2014);

$$\text{Growth Opportunity} = \frac{\text{market value of equity}}{\text{book value of equity}}$$

## 2.4 Managerial Ownership

Managerial ownership is the number of shares owned by the company's board of directors or company managers and is indicated by "percentage of company shares owned by managers of the total outstanding shares outside". Based on previous research, managerial ownership in this study can be formulated as follows (Sianturi, 2015):

$$\text{Managerial Ownership} = \frac{\text{Manager's Shares}}{\text{Total Shares Outstanding}} \times 100 \%$$

The method of analysis in this study is logistic regression because the dependent variable in the study has a dichotomy nature (comparing companies that carry out hedging activities with derivative instruments and companies that do not carry out hedging activities with derivative instruments). The regression model in this study is formulated as follows:

$$\ln \left( \frac{p}{1-p} \right) = B_0 + B_1 X \quad \text{atau} \quad e^{(B_0 + B_1 X)} = \frac{p}{(1-p)}$$

Information:

P: Probability of dependent variable

Ln: Natural logarithm

$\beta_0$ : Regression Constant

$\beta_1, \beta_2, \dots, \beta_n$ : Regression Coefficient

$X_1, X_2, \dots, X_n$ : Independent variables

## III. Results and Discussion

### 3.1 Logistics Regression Analysis Results

Based on the results of the logistic regression analysis in the study, the following conclusions can be drawn:

**Table 1.** Summary of Hypothesis Testing Results

Hypothesis	Results
<b>H1:</b> Liquidity effect on hedging activities with instruments derivative	<b>Hypothesis Accepted</b>
<b>H2:</b> Firm Sizetake effect against hedging activities with derivative instruments	<b>Hypothesis Rejected</b>

<b>H3:Growth Opportunity</b> affect activity <i>hedgingwith derivative instruments</i>	<b>Hypothesis Accepted</b>
<b>H4:Managerial Ownership</b> affect activity <i>hedgingwith derivative instruments</i>	<b>Hypothesis Rejected</b>

**Table 2.** Logistics Regression Analysis Results

Variable	Coefficient	Std. Error	z-Statistics	Prob.
X1	-1.440136	0.676176	-2.129822	0.0322
X2	-0.133994	0.097876	-1.369025	0.1610
X3	1.130176	0.532943	2.120632	0.0240
X4	-8.227112	4.999007	-1.645749	0.0988
C	4.766917	3.203134	1.488204	0.1467
McFadden R-squared	0.209681	Mean dependent var		.444444
SD dependent var	0.503953	SE of regression		.467826
Akaike info criterion	1.377355	Sum squared resid		.784696
Schwarz criterion	1.597288	Likelihood logs		9.79239
Hannan-Quinn Criter.	1.454117	Deviance		9.58478
rest. deviance	49.46123	rest. likelihood log		4.73062
LR statistics	9.876457	Avg. likelihood log		.549789
Prob(LR statistic)	0.042561			
Obs with Dep=0	20	Total obs		36
Obs with Dep=1	16			

Based on the results of the logistic regression analysis, then a regression model can be made as follows:

$$\text{Aktivitas Hedging} = 4,766917 \text{ (Konstanta)} - 1,440136 \text{ (Liquidity)} - 0,133994 \text{ (Firm Size)} + 1,130176 \text{ (Growth Opportunity)} - 8,227112 \text{ (Managerial Ownership)}$$

Based on the above equation, the following can be explained regarding the results of the hypothesis testing above:

- a. Effect of Liquidity on Hedging Activities with Derivatives in Automotive Industry Companies Listed on the IDX

The first hypothesis in this study is to examine the effect of Liquidity on hedging activities using derivatives in automotive industry companies on the IDX. The test was carried out using the logistic regression analysis method which had a significance value of 5% (0.05). In testing the Liquidity variable measured using the Current Ratio, a significance value of 0.03. was obtained  $22 < 0.05$  which means Liquidity has a negative and significant effect on hedging activities using derivatives. Based on these results, the first alternative hypothesis is accepted.

b. Effect of Firm Size on Hedging Activities with Derivatives in Automotive Industry Companies Listed on the IDX

The second hypothesis in this study is to examine the effect of Firm Size on hedging activities using derivatives in automotive industry companies on the IDX. The test was carried out using the logistic regression analysis method which had a significance value of 5% (0.05). In testing the Firm Size variable, a significance value of  $0.1701 > 0.05$  was found, which means Firm Size has no negative and insignificant effect on hedging activities using derivatives. Based on these results, the second alternative hypothesis is rejected.

c. The Effect of Growth Opportunity on Hedging Activities with Derivatives in Automotive Industry Companies Listed on the IDX

The third hypothesis in this study is to examine the effect of Growth Opportunity on hedging activities using derivatives in automotive industry companies on the IDX. The test was carried out using the logistic regression analysis method which had a significance value of 5% (0.05). In testing the Growth Opportunity variable, a significance value of  $0.0 < 0.05$  was obtained which means that Growth Opportunity has a positive and significant effect on hedging activities using derivatives. Based on these results, the third alternative hypothesis is accepted

d. Effect of Managerial Ownership on Hedging Activities with Derivatives in Automotive Industry Companies Listed in B

The fourth hypothesis in this study is to examine the effect of Managerial Ownership on hedging activities using derivatives in automotive industry companies on the IDX. The test was carried out using the logistic regression analysis method which had a significance value of 5% (0.05). In testing the Managerial Ownership variable, a significance value of  $0.0998 > 0.05$  was found, which means that Managerial Ownership has a negative and insignificant effect on hedging activities using derivatives. Based on these results, the fourth alternative hypothesis is rejected.

### 3.2 Macfadden R-Square Test Results

**Table 3.** Macfadden R-Square Test Results

McFadden R-squared	0.209681
SD dependent var	0.503953
Akaike info criterion	1.377355
Schwarz criterion	1.597288
Hannan-Quinn Criter.	1.454117
rest. Deviance	49.46123
LR statistics	9.876457
Prob(LR statistic)	0.042561

In the results of the regression analysis, the R-square value of 0.199681 was obtained. This figure shows that the dependent variable is influenced by the independent variable by 20,9%, while the remaining 80,1% can be influenced by other variables outside this research.

### 3.3 Hosmer and Lemeshow's Goodness of Fit Test Results

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

	Quantile of Risk		Dep=0		Dep=1		Total	HL
	Low	High	actual	Expect	actual	Expect	Obs	Value
1	0.0794	0.1090	3	2.71774	0	0.28226	3	0.31158
2	0.1152	0.2152	3	3.39818	1	0.60182	4	0.31009
3	0.2309	0.2411	2	2.29183	1	0.70817	3	0.15742
4	0.2594	0.3263	3	2.78017	1	1.21983	4	0.05700
5	0.3481	0.4187	2	2.44721	2	1.55279	4	0.21053
6	0.4326	0.4559	2	1.67064	1	1.32936	3	0.14653
7	0.5061	0.5347	3	1.90073	1	2.09927	4	1.21138
8	0.6003	0.6656	1	1.09421	2	1.90579	3	0.01277
9	0.6865	0.7229	1	1.20076	3	2.79924	4	0.04796
10	0.7468	1.0000	0	0.49853	4	3.50147	4	0.56951
Total			20	200000	16	16.0000	36	3.03478
HL Statistics			3.0348		Prob. Chi-Sq(8)		0.9322	
Andrews Statistics			9.8943		Prob. Chi-Sq(10)		0.4498	

If the statistical value of Hosmer and Lemeshow's Goodness of Fit Test is equal to or less than 0.05 then the null hypothesis is rejected, this indicates a significant difference between the model and the observed value so that the Goodness Fit Model is not good because the observed value cannot be predicted properly by the model. If the score is greater than 0.05 then the model can be accepted. In the table, the HL Statistic value is 3.0348 with a significance probability of 0.9322 which is greater than 0.05, which means that the model can be accepted.

## IV. Conclusion

Based on the test results obtained from the logistic regression analysis in this study, the following conclusions can be drawn:

1. Liquidity has a negative and significant effect, which means that the lower the level of liquidity in the company in the automotive industry, the higher the possibility of the company to hedge because it has a high risk of fulfilling the company's short-term obligations.
2. Firm Size has a negative and insignificant effect, because companies with larger assets have less motivation to hedge compared to companies with larger assets. Companies with smaller assets, although not all small companies mean the company does not hedge at all
3. Growth Opportunity has a positive and significant impact on hedging activities using derivatives because companies with high growth need to be kept away from market risk, therefore companies need to reduce these risks efficiently using hedging strategies, because the higher the company's growth causes higher risks. will be faced more and more in the future.

4. Managerial Ownership has a negative and insignificant effect on hedging activities using derivatives, because managerial ownership cannot be a definite cause for companies to hedge, because each board of directors who owns company shares has different characteristics in making decisions about the strategy used. company to minimize risk and cannot be investigated directly

### Suggestion

The independent variables used in this study are liquidity, firm size, growth opportunity, and managerial ownership only, where each of these independent variables can only affect the dependent variable, namely the hedging activity of 19.9% which causes there are still many other factors that can affect the company's hedging activity.

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