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# Do Derivatives Instruments Ownership Decrease Firm Value in Indonesia?

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**ABSTRACT**

This research aims to examine the association between derivatives instruments and firm value. This research is quantitative research with multiple linear regression models and panel data. The sample employed in this research is non-financial companies listed on the Indonesia Stock Exchange (IDX). The type of data used in this study is secondary data sourced from financial statements, stock price information, and annual reports from 2012 to 2017. The sample selection using a purposive sampling method with the number of samples amounted to 246 firm-year.

The result of this study suggests that a derivatives instrument is not associated with firm value. Investors in Indonesia do not consider ownership of derivative instruments by companies whether those are harmful or not for the investment impact. Also, derivatives do not have an official market in Indonesia as well as investors also do not understand the purpose of derivative ownership by companies.

## INTRODUCTION

The company's market performance, which is reflected in the value of the company, is considered necessary because the significant firm value can reflect the high level of shareholder prosperity (Brigham & Ehrhardt, 2013). Company value is strongly influenced by the company's stock market price (Nuswandari, 2009). Fluctuations or fluctuations in the stock market price are influenced by several factors, both internal and external. This information is a means of communication between investors and companies in terms of decision making by investors (Nurwandari, 2009). The concept of firm value is much associated with the actual value per share that will be received if all company assets are sold at market prices (Gitman, 2006). Therefore, investors will react to information received related to company conditions that are reflected in stock prices. The company's market performance is different from the company's operating performance because the company's market performance can be influenced by internal factors related to the company's fundamental conditions and external factors related to investor sentiment.

In the framework of agency theory, investors do not necessarily trust the information provided by companies in the form of financial statements. Therefore, the quality of information reflected in the financial statements can affect investors' responses to policies taken either reflected in disclosures or based on other information. In this regard, one of the information disclosed by companies through financial statements is information on the ownership of derivative instruments. Ownership of derivative instruments can be used for hedging purposes or speculative purposes. Derivatives with the purpose of hedging are generally carried out by companies for risk management related to the company's business activities. Many companies have implemented a risk management system through the use of derivative instruments accurately to hedge intensively to manage the company's financial risk (Ayturk et al., 2016).

In previous studies, the use of derivative instruments has been associated with risk management carried out by companies (Ayturk et al., 2016). Therefore, it is essential to know about testing the effect of derivative instruments on firm

value. So far, studies that have examined derivative instruments on firm value have used many developed countries (Ayturk, 2016). Allayannis & Weston (2001) tested derivative instruments on firm value and found that derivative ownership had a positive effect on firm value. Meanwhile, Khediri (2010) tested derivative instruments for foreign exchange hedges and interest rate hedges not including commodity price risk hedges. The test results found that the use of derivatives does not affect firm value. Bartram et al. (2011) examined the impact of the use of derivatives on firm value using a collection of non-financial company data from 47 countries. The study found that the use of derivatives affects firm value. Mackay & Moeller (2007) found that risk management with derivatives can increase company value.

Research examining the effect of derivative instruments in developing countries is very limited because it is possible because of limited data. Berrospide et al. (2008) found that the use of derivative instruments had a positive effect on firm value in Brazil. Aretz & Bartram (2010) found that operational hedges and hedges on foreign currency debt have a positive effect on firm value. Magee (2009) reexamined the use of foreign currency derivatives and company value for U.S. non-financial companies. The study found that the use of derivatives did not affect firm value. Ayturk et al. (2016) found that the use of derivative instruments did not affect firm value.

Testing the ownership of derivative instruments on firm value using company data in Indonesia has been carried out in previous studies, but is still relatively rare. Oktavia (2011) concluded that ownership of derivatives did not affect the value tested against the firm value. The study uses the financial statements of telecommunications sub-sector companies. Test results in the study prove that hedging does not affect firm value. Also, Frensidy & Mardhaniaty (2019) uses derivative instruments for hedging company value. The study divides derivatives to hedge for foreign currency risk, interest rate risk and risk for commodity prices. The results of the study prove that only hedges for foreign currency risk have a positive effect on firm value, but hedges for interest rate risk and risks for commodity prices do not affect company value. Meanwhile, Ahmad et al. (2018) tested a derivative instrument with the aim of hedging as a moderating variable in testing

the effect of profitability, company size, growth, leverage, dividends, and liquidity. The test results prove that the derivative instrument reduces the positive effect of profitability on firm value, but it does not succeed in moderating other independent variables on firm value.

Based on the inconsistency of the results of previous studies, this study aims to test the derivative instruments on firm value. The difference between this research and Oktavia (2011) is that the proxy used by Oktavia uses a notional amount proxy, while this study uses derivative instruments conducted by Oktavia & Martani (2013) by using the fair value of the absolute value of the difference in the value of derivative assets to the value of derivative liabilities. However, in this study Oktavia & Martani (2013) examined the effect of disclosure of derivative transactions on tax avoidance. Ayturk et al. (2016) state that according to the hedge accounting rules in IFRS, companies must recognize changes in the fair value of derivatives as assets, liabilities or equity in each financial reporting period. It is relevant to PSAK 55 (IAI, 2017) and PSAK 60 (IAI, 2017).

The data used in this study uses data sourced from the financial statements of non-financial companies listed on the Indonesia Stock Exchange starting in 2012, which is the year of adoption of IFRS in Indonesia until 2017. Non-financial companies use derivatives with the purpose of hedging due to the existence of high potential risk exposure associated with commodity prices, interest rates and exchange rates (Bartram et al., 2011). Therefore, non-financial companies that use derivative instruments with the aim of hedging should have a motive in reducing company risk. On the other hand, Kwong (2016) and Huang et al. (2017) states that derivative instruments with hedging purposes are only successful in developed countries, so the use of derivative instruments in developing countries can increase risk. Therefore, research that examines the use of derivatives on company value by using company data in Indonesia as a developing country is fundamental to do. Also, derivative testing of firm value uses Indonesian data because there is still rarely research in Indonesia. Meanwhile, research examining the value of companies conducted in Indonesia uses profitability (Ahmad et al., 2018; Arifianto & Chabachib, 2016; Dhani & Utama, 2017; Hartina, 2019; Hidayat, 2018; Indriyani, 2017; Kholis et al., 2018; Lubis et al., 2018; Lumoly et al., 2018; Rahayu & Sari, 2018;

Riny, 2018; Suroto, 2018; Utomo, 2016), Company Size (Ahmad et al., 2018; Arifianto & Chabachib, 2016; Hartina, 2019; Hidayat, 2018; Indriyani, 2017; Lumoly et al., 2018; Rahayu & Sari, 2018; Riny, 2018; Suroto, 2018; Utomo, 2016), Growth (Ahmad et al., 2018; Dhani & Utama, 2017; Suryandani, 2018), Leverage (Ahmad et al., 2018; Arifianto & Chabachib, 2016; Dhani & Utama, 2017; Haryono et al., 2015; Hartina, 2019; Hidayat, 2018; Kholis et al., 2018; Lubis et al., 2018; Rahayu & Sari, 2018; Riny, 2018; Suroto, 2018; Utomo, 2016), Dividends (Ahmad et al., 2018; Suroto, 2018), Price Earnings Ratio (Arifianto & Chabachib, 2016), CSR Disclosures (Utomo, 2016), Liquidity (Ahmad et al., 2018; Lubis et al., 2018; Lumoly et al., 2018; Riny, 2018), Earnings Quality (Oktavia, 2011; Rahayu & Sari, 2018), Institutional Ownership (Haryono et al., 2015).

Furthermore, this study also includes control variables, namely financial leverage, liquidity, the book to market ratio, and company size. Financial leverage is closely related to company policy in choosing capital structure using debt. Financial leverage testing of the company's value has been carried out, among others, by Ahmad et al. (2018), Dhani & Utama, (2017), Hertina (2019), Hidayat (2018), Kholis et al. (2018), Lubis et al. (2018), Rahayu & Sari (2018), Riny (2018) and Suroto (2018). Liquidity The liquidity ratio is related to the company's operating performance which measures the extent to which cash flow from operating activities can guarantee the company's current liabilities (Rajgopal & Venkatachalam, 2011). The higher cash flow from operating activities can guarantee the company's current liabilities that are due. Liquidity testing of company value has been carried out by Ahmad et al. (2018), Lubis et al. (2018), Lumoly et al. (2018), and Riny (2018), but in this study using a proxy used by Khan & Bradbury (2015). Book to market ratio relates to the ratio of the book value of equity compared to the market value of equity or market capitalization of equity. The higher the book to market ratio, the lower the value of the company and the increased risk of the company. The use of the book to market ratio follows the testing of Kumari et al. (2017) although this research examines the book to market ratio of company risk. Company size is related to the size of the company which is usually seen from the total assets owned by the company. Testing company size on firm value has been done by Ahmad et al. (2018), Arifianto & Chabachib (2016), Hartina (2019),

Hidayat (2018), Lumoly et al. (2018), Rahayu & Sari (2018), Riny (2018), and Suroto (2018).

### Literature Review and Hypothesis Development

The existence of a conflict of interest between agents and principals as in agency theory results in investors not too trusting the information provided by the company to the public. Disclosure of company policies about derivative ownership allows the chosen policy to be unknown to investors as the owner of company funds. Although some of the literature states that derivative ownership is closely related to corporate strategy management, according to Pincus & Rajgopal (2002) and Oktavia & Martani (2013), derivative transactions are strongly related to earnings management actions. If investors understand this. As a result, investors will respond negatively to the information so that these actions can reduce the value of the company.

Ayturk et al. (2016) prove that derivative ownership cannot increase firm value. In that study, derivatives are closely related to those used for hedging purposes. However, Bartram et al. (2011) proved that ownership of derivatives with the purpose of hedging could increase the value of the company. The study states that non-financial companies that use derivative instruments with the aim of hedging should have a motive in reducing company risk. On the other hand, Kwong (2016) and Huang et al. (2017) states that derivative instruments with hedging purposes are only successful in developed countries, so the use of derivative instruments in developing countries can increase risk. Testing of derivative transactions carried out by companies in reducing or increasing the risk of companies in developing countries becomes interesting to do.

Kwong (2016) states that the use of derivatives in developing countries tends to result in a decline in the value of the company. It is due to weak institutions and governance in developing countries and derivative markets in less liquid developing countries. This condition resulted in a lack of effectiveness of the derivatives used by the company. It is in line with the findings of Huang et al. (2017) that the use of derivatives by companies in developed countries can reduce company risk. However, these findings do not apply to developing countries. Huang et al. (2017) also found that developed countries use financial

derivative transactions more for risk management than for trading purposes. Companies in developed countries are trying to reduce financial exposure which can reduce the possibility of financial distress and mitigate the problem of under-investment. Furthermore, Cao et al. (2018) state that derivative instruments used by companies even for hedging purposes, but in reality, companies that have derivatives with hedging purposes tend to have shares that are valued too low by investors. Therefore, derivative transactions with the purpose of hedging are closely related to the degree of error in the imposition of stock prices.

The use of derivative instruments in developing countries is becoming less effective for hedging purposes not only caused by the company itself. Weak institutions and governance in developing countries and derivative markets in less liquid developing countries are external factors that result in less effective derivative instruments if companies use them for hedging purposes. Also, the lack of investor understanding of derivative instruments supports information on ownership of derivative instruments by companies which results in investment decisions that are harmful to the company. Therefore, the use of derivative transactions by companies in developing countries tends to be used as ordinary investment or tends to be used for speculative purposes even though there are derivatives applied by companies with hedging purposes. Therefore, the use of derivative transactions by companies in Indonesia can reduce firm value.

**H<sub>1</sub>:** Derivative instruments is negatively associated with firm value.

### RESEARCH METHODS

This study uses a quantitative method approach, which is to test the effect of ownership of derivative instruments on firm value. In this study, the object of research uses companies listed on the Indonesia Stock Exchange. The population used in this study is non-financial companies listed on the Indonesia Stock Exchange. According to Bartram et al. (2011), derivative transactions for hedging purposes are usually used by non-financial companies. On the other hand, Kwong (2016) and Huang et al. (2017) states that derivatives with hedging purposes are only successful in developed



countries. Also, the ownership of derivatives by non-financial companies in Indonesia is more than the ownership of derivatives by financial companies, so the use of data in non-financial companies allows them to obtain a larger sample.

Data was collected using the documentation method through the official website of the Indonesia Stock Exchange, namely [www.idx.co.id](http://www.idx.co.id) and [finance.yahoo.com](http://finance.yahoo.com). Information data from the financial statements used in this study uses annual data. The technique in sample selection used is to use non-random sample selection techniques (purposive sampling). First, the companies used in the sample are non-financial companies that have listed their shares on the Indonesia Stock Exchange before January 1, 2012. Second, exclude financial companies from the sample because their asset structure and liability characteristics produce high leverage. Third, issuing non-financial companies have incomplete financial statements, including information on comprehensive income components and data needed in this study from the period January 1, 2012, to December 31, 2017. Fourth, non-financial companies have disclosure data of at least 1 type of derivative transactions either for hedging purposes or for speculative purposes (trading) or which have both during the period January 1, 2012, to December 31, 2017. The reason is to capture accounting information from companies both persistently and not persistently in using derivatives both for hedging purposes and for speculative purposes. Based on the purposive sampling that has been done, the amount of data that can be used in this study amounted to 41 companies using 2012 to 2017, so the sample used in this study amounted to 246 observations (firm-year).

This study uses the firm value as a dependent variable. In this study, a proxy for measuring firm value follows Ayturk et al. (2016), Ahmad et al. (2018), Frensidy & Mardhaniaty (2019) using Tobin's Q are as follows:

$$Q_{it} = \frac{BV\ Assets_{it} - BV\ Equity_{it} + MV\ Equity_{it}}{BV\ Assets_{it}}$$

Where:  $Q_{it}$  is Tobin's Q,  $MV\ EQUITY_{it}$  is the market value of ordinary shares at the end of the company's fiscal year, calculated as the number of outstanding ordinary shares multiplied by the share price,  $BV\ EQUITY_{it}$  is the book value of equity at

the end of the company's fiscal year fiscal equity, and  $BV\ ASSETS_{it}$  is the value book total assets of the company's fiscal year-end. The independent variable in this study is a derivative instrument. Ayturk et al. (2016) state that according to the hedge accounting rules in IFRS, companies must recognize changes in the fair value of derivatives as assets, liabilities or equity in each financial reporting period. For testing the use of derivatives designed as hedges for accounting purposes, the fair value of derivative assets and liabilities of derivatives designed as hedges are used. It is in line to test the use of derivatives that are not hedged for accounting purposes, the fair value of derivative assets and liabilities of derivatives that are not hedged. PSAK 60 (IAI, 2017) requires that derivatives be recorded as assets or liabilities and reported in the statement of financial position at fair value. In this study, the proxy used to measure derivative transactions follows Oktavia & Martani (2013), namely the absolute value of the fair value of derivative assets reduced by derivative liabilities for both hedging and speculative purposes, which are described as follows:

$$DERIV_{it} = \frac{(\text{Nilai absolut dari nilai wajar derivatif})}{(\text{Total assets}_{it}-1)}$$

The control variables in this study are financial leverage, liquidity, book to market, and company size. In this study financial leverage as measured by total liabilities divided by total equity each year as used by Dhani & Utama (2017), Hidayat (2019), Kholis et al. (2018), and Rahayu & Sari (2018). Liquidity is measured by the ratio of operating cash flow to total current liabilities each year as used by Khan & Bradbury (2015), that is, cash flow from operations divided by total current liabilities. Book to market value ratio is measured by the book value of equity against its market capitalization as the proxy used by Kumari et al. (2017). Furthermore, the company size proxy in this study follows Ahmad et al. (2018), Hartina (2019), Hidayat (2018), Lumoly et al. (2018), Rahayu & Sari (2018), and Suroto (2018) as measured by the natural logarithm of total assets.

The Regression Equations in this study are as follows:

$$TOBIN'S\ Q_{it} = \beta_0 + \beta_1 DERIV_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 BTM_{it} + \beta_5 SIZE_{it}$$

## RESULTS AND DISCUSSION

Descriptive statistics in this study for all variables are as follows:

Table 1 Descriptive statistics

|           | TOBINS Q | DERIV  | FINLEV | LIQ     | BM     | SIZE   |
|-----------|----------|--------|--------|---------|--------|--------|
| Mean      | 2.4894   | 0.0061 | 1.6847 | 0.4452  | 0.9741 | 30.077 |
| Median    | 1.3630   | 0.0003 | 1.0510 | 0.3436  | 0.5826 | 30.147 |
| Maximum   | 23.285   | 0.0682 | 14.812 | 2.4673  | 6.8265 | 33.320 |
| Minimum   | 0.3181   | 0.0000 | 0.1872 | -0.5581 | 0.0121 | 27.589 |
| Std. Dev. | 3.4328   | 0.0134 | 1.9839 | 0.4599  | 1.1464 | 1.3404 |
| Obs.      | 246      | 246    | 246    | 246     | 246    | 246    |

Source: Result of Data Analysis 2019

The results of testing the hypothesis are as follows:

Table 2 Hypothesis Testing Results

| Variable       | Coefficient | t-Statistic | Prob.  |     |
|----------------|-------------|-------------|--------|-----|
| C              | 8.6571      | 1.5550      | 0.0606 | *   |
| DERIVATIVES    | 2.6094      | 0.3698      | 0.3559 |     |
| FINLEV         | -0.0246     | -0.5206     | 0.3015 |     |
| BM             | -0.2872     | -3.0076     | 0.0014 | *** |
| LIQ            | 0.3495      | 2.0790      | 0.0193 | **  |
| SIZE           | -0.2001     | -1.0820     | 0.1401 |     |
| R-squared      | 0.0682      |             |        |     |
| Adj. R-squared | 0.0488      |             |        |     |
| F-stat.        | 3.5175      |             |        |     |
| Prob(F-stat.)  | 0.0043      |             |        |     |

Source: Result of Data Analysis 2019

Also, this study examines derivative instruments both for hedging and speculative purposes for the value of the company. The test results are as follows:

Table 3 Hypothesis Testing Results by Decomposition of Derivative Instruments with Hedging Objectives and Speculative Objectives

| Variable           | Coeff.  | t-Statistic | Prob.  |     |
|--------------------|---------|-------------|--------|-----|
| C                  | 8.5913  | 1.5363      | 0.0629 | *   |
| DHEDGE             | -0.5527 | -0.0610     | 0.4756 |     |
| DTRADE             | 7.5362  | 0.6702      | 0.2517 |     |
| FINLEV             | -0.0200 | -0.4167     | 0.3386 |     |
| LIQ                | 0.3357  | 1.9749      | 0.0247 | **  |
| BM                 | -0.2875 | -3.0033     | 0.0015 | *** |
| SIZE               | -0.1977 | -1.0646     | 0.1440 |     |
| R-squared          |         | 0.0694      |        |     |
| Adjusted R-squared |         | 0.0461      |        |     |
| F-statistic        |         | 2.9734      |        |     |
| Prob(F-statistic)  |         | 0.0080      |        |     |

Source: Result of Data Analysis 2019

Based on the test, results show that the derivative instrument does not affect the value of the company. The results of this study are in line with the findings of Oktavia (2011) and Frensidy & Mardhaniaty (2019). The results of this test prove that there is no difference in investor responses to information on derivative transactions both before the adoption of IFRS and after the adoption of IFRS. Also, information on derivative transactions with hedging and speculative purposes is not responded to by investors. Investors might consider this information as information that is not useful for investors in making investment decisions. The results of this test are also in line with testing using other developing countries such as Magee (2009) and Ayturk et al. (2016).

The results of this study differ from testing conducted by Kwong (2016), which states that the use of derivatives in developing countries tends to cause a decline in the value of the company. Kwong (2016) states that weak institutions and governance in developing countries and derivative markets in less developed countries can result in a decline in company value, but this does not happen in Indonesia. Also, the test results in this study did not support the research results of Huang et al. (2017), which states that the use of derivatives in developing countries is generally used for trading purposes. Also, Cao et al. (2018) state that derivative instruments used by companies even for hedging purposes, but in reality, companies that have derivatives with hedging purposes tend to have shares that are valued too low by investors. Apart from derivatives with hedging and speculative purposes, information on the ownership of derivative instruments with any purpose is not responded by investors in influencing the value of the company.

Pincus & Rajgopal (2002) and Oktavia & Martani (2013) state that derivative transactions are strongly related to earnings management actions so that ownership of derivatives is relatively harmful to the company from the investor side. However, based on test results in this study, derivative transactions do not result in a decrease in the value of the company. This information is not enough to convince investors in making investment decisions on the capital market. There is more useful information for investors than information about derivatives conducted by the company.

The results of this test do not distinguish that the use of derivative instruments in developing countries is becoming less effective. Another

allegation is the level of investor understanding of derivative instruments also supports information on ownership of derivative instruments by companies, which results in unclear investment decisions on derivative instruments for companies. Although Huang et al. (2017) and Cao et al. (2018) states the use of derivative transactions by companies in developing countries tends to be used as ordinary investment or tends to be used for speculative purposes. Although this allegation might be proven, it has no impact on investment decision making by investors in the capital market. The results of this test can be understood that there is no formal derivatives market and there is an alleged lack of investor understanding of the derivative instruments owned by the company.

## CONCLUSION

The test results in this study stated that ownership of derivative instruments does not affect firm value. Information on ownership of derivative instruments disclosed in the financial statements is not strong enough to get a response from investors. Although in previous studies, ownership of derivative instruments can increase or decrease the value of the company, but based on this research does not affect the company's market performance or company value.

The results of this study only use the financial statement data of non-financial companies in Indonesia, so they cannot generalize the test results for all companies in Indonesia, especially for financial sector companies and in other developing countries. Also, the data used in this study are data on the financial statements of companies in Indonesia after the adoption of IFRS. Therefore, in subsequent studies, it can be reexamined by using financial companies or other developing country data to compare the results of research testing with this research. Future studies can also use data with a longer time horizon both before and after the adoption of IFRS.

Based on the results of this study, OJK can be used to monitor the use of derivative instruments by companies listed on the Indonesia Stock Exchange. Also, OJK needs to pay attention to investor protection in Indonesia. Regulatory disclosure arrangements by companies need to be regulated in more detail by the Indonesian Institute of Accountants through financial accounting standards so that users of financial statements more easily understand them.

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