THE DETERMINANTS OF HEDGING AND FIRM VALUE: An Empirical Study in Mining Companies Listed on Indonesia Stock Exchange

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ABSTRACT

This study aims to determine the determinant factors in the company's hedging decisions and to determine whether the activities of corporate hedging decisions through derivative instruments provide increased value for the company. The sample consisted of 33 mining companies listed on Indonesia Stock Exchange during 2011-2015 period. The method used in this study is logistic regression and independent sample t-test. The result of logistic regression by using variable of financial distress, underinvestment cost, and size showed a positive correlation to corporate hedging decision. Meanwhile, by using an independent sample t-test found that the company's hedging decisions significantly affect the value of firms and the companies with hedging decision activity through derivative instruments have more superior value than companies by using natural hedging decisions.

KEYWORDS: Determinants hedging, Derivative instruments, Firm value.

INTRODUCTION

One characteristic of globalization today is the existence of free trade. Free trade is characterized by increasing competition and market price fluctuations that make business uncertainty increasing both for companies and countries involved in inter-country trade (Nur, 2013). The extent of free trade in Indonesia resulting from the existence of globalization occurred in several sectors of both export and import business (Husnan and Pudjiastuti, 2012). The mining sector is one of the companies in Indonesia that conduct free trade. Mining companies conducting international trade will have substantial risks to foreign exchange risk, political risk, interest rate risk and even country risk (Megawati et al., 2016). This is because international trade transactions will be influenced by changes in exchange rates, interest rates and inflation that will create risks. The number of risks experienced by Indonesian mining companies can affect the viability of the company's business. Thus, companies need to prepare risk mitigation measures through risk management. One way to mitigate this risk of uncertainty is by hedging (Biro Analisa Anggaran dan Pelaksanaan APBN, 2014).

Hedging as a tool of risk management has provided the best benefits for them to the company. Hedging activities are called hedging decisions. Company hedging decisions are made using derivative instruments. In the world futures market, derivative contracts are

traded at 25 billion in 2011 and always increase every year (Shaari et al., 2013). While in Indonesia it happens otherwise, that the total derivative transactions in Indonesia is still limited about 7% of total transactions in the forex (foreign exchange) market. The small number of transactions in Indonesia is based on the low perception of the company on the exchange rate (Indrawan et al., 2015). The low perception of mining companies to use derivative instruments in hedging decisions is also based on the tendency of companies in using natural hedging for example from the funding process or company operations. Unfortunately, the risk based on the exchange rate has a very high risk if it is not protected through hedging activities. Therefore, some research on hedging more highlights the determinants of corporate hedging decisions.

The current development of hedging practices is considered quite rapid, but the theories that discuss about hedging are still not comparable with the rapid development of hedging practices undertaken by the company. This is evidenced by the theory that hedging was first introduced by Stiles in 1922. In 1985, Smith and Stulz developed a hedging theory called positive hedging theory. Based on the positive hedging theory argument built by Smith and Stulz (1985) states that hedging is not used by the company suddenly, but the company implements hedging decisions on the grounds of determinants affecting such hedging, such as taxes, financial distress and managerial risk aversion.

Based on the firm's determinants of hedging developed by Smith and Stulz in 1985, it raises a new argument that underinvestment costs are considered to have an effect on hedging decisions. Froot, Scharfstein, and Stein (1993) developed a model of optimal hedging with investment opportunities. The optimal hedging model of Froot, Scharfstein, and Stein (1993) shows that underinvestment costs have a positive effect on corporate hedging decisions. The results of Froot, Scharfstein, and Stein (1993) research were supported by Gay and Nam (1998), Nur (2013), Graham and Rogers (2002), Carter, Rogers and Simkins (2006). Meanwhile, in some studies it was shown that the underinvestment cost had no effect on hedging decisions (Liu, 2003; Mseddi and Abid, 2010; Lawrance, 2014; Raghavendra and Velmurugan, 2014; and Bartram, 2009; and Mian, 1996). In the development of research on subsequent hedging decisions, size is considered to have a positive influence on corporate hedging decisions (Mian 1996, Caprisiana, 2015; Dionne and Garand, 2002; Afza and Alam, 2016; Allayannis and Weston, 2011). However, some studies have also found that Size has no effect on hedging decisions (Ahmad and Haris, 2012; Allayannis and Ofek, 2001; Omar, Muhammad and Ahmad, 2017).

Based on the development of the presented hedging theory, the research on hedging still focuses on the influence of the determinants of hedging decisions made by the company. However, according to Triki (2005) that some studies begin to explain how corporate hedging decision activity can create firm value. The firm's hedging decisions are considered capable of affecting firm value if there is asymmetric information (Ahmed et al., 2012). This refers to the classical propositions of Modigliani and Miller (1958 and 1963) on capital structure. So the company's hedging decision is considered to add value to the company if there is asymmetric information, taxes, or transaction costs (Liu, 2003). For example, in the research of Nguyen and Faff (2003), Liu (2003), Aretz, Bartram and Dufey (2009), Afza and Alam (2016), Daka and Basu (2016), Allyannis and Wetson (2001), Nur (2013) Certer, Rogers and Simkins (2006) that corporate hedging decisions have a positive effect on firm value. In contrast to Bartram's (2011), Magee (2009) and Caprisiana (2015) results, hedging decisions have no effect on corporate value.

This study aims to determine the determinants of hedging decisions on corporate value. This topic, that hedging decisions affect the value of the company, especially in the mining industry in Indonesia, is rarely found in Indonesia. In fact, for some studies found very little

research on hedging decisions and cor porate value in developing countries, this study more commonly found in the US (Liu, 2003). Thus, the topic of hedging decisions on mining companies in Indonesia is interesting to study.

LITERATURE REVIEW AND OR HYPOTESHIS

Determinants of Hedging
Triki (2005) collect a study of various research literature on hedging theory and concluded that many research on hedging theory discusses the determinants of hedging decisions. The reason behind that conclusion that many researcher wants to find out the motives behind companies decision to do hedging. According to Triki (2005) the theory of determinants hedging was first developed by Smith and Stulz (1985) better known as the hedging positive theory. In the Smith and Stulz (1985) study there are three reasons why companies use hedging decisions: tax, managerial risk averson and financial distress.

Financial Distress
Smith and Stulz (1985) argue that financial distress provides the company's reason for applying hedging decisions in the company's business operations, this is because risk management can reduce the probability of the company's financial distress costs by reducing cash flow volatility. How much profit can be gained by reducing this cost from corporate hedging decision making, then it depends on two factors; First through debt the company may be able to experience distress (if the company does not hedge), and both financial distress costs will be experienced by the company (in case of financial distress). The greater the probability of financial distress happening, the greater the benefits of corporate hedging decisions. Smith and Stulz (1985) argue that with less financial distress possibilities then the cost of financial distress also can be reduced. This increases the company's tendency to increase higher leverage that eventually results in the advantages of a larger tax shield, which in turn increases the value of the company. The relationship between financial distress to hedging decision is also shown in the results of research Zhu (2010) shows companies that apply hedging decisions as risk management will avoid financial distress. Based on previous research and explanation, the relationship between financial distress variables on hedging decisions hypothesized as follows:
H1 = Financial Distress (X) affects corporate hedging decisions (Y).

Underinvestment Cost
Froot, Scharfstein and Stein (1993) developed the optimal model of hedging viewed from the firm's investment perspective. The first idea comes from underinvestment problems, companies will experience investment problems viewed from the perspective of investment funding and investment decisions that occur in the company's management, so that allows companies to take advantage of hedging decisions. The importance of investment funding can lead to underinvestment costs because according to Gay and Nam (1998) and Tufano (1996) companies with good investment opportunities will pay attention to internal funding for investment in order to avoid underinvestment cost problem so that to fulfil the internal funding the company will use hedging decisions, cause investment opportunities will expand the risk faced by the company, so that it will allow the company to conduct hedging activities. Based on previous research and explanation, then the relationship between variables underinvestment cost correlated to corporate hedging decisions hypothesized as follows:
H2 = Underinvestment Cost (X) affects corporate hedging decisions (Y).

Size
Size as the determinant of hedging is still ambiguous empirically. For example in the research of Allaynnis and Ofek (2001), Allaynnis and Wetson (2001) as well as in studies that use size as a determinant variable of hedging decisions. This is certainly reasonable,

as most researchers point out that to reduce the variability of equity prices and cash flow, smaller firms have a greater incentive to hedge. In addition, Caprisiana (2015) large companies are more likely to use hedging decisions based on broad business scope and greater risk exposure. In previous empirical studies of hedging decisions with derivatives, such as Smith and Stulz (1985) suggest that smaller firms benefit more from hedging decisions than large firms if the cost of bankruptcy is less proportional to firm size. Thus, it can be said to be based on previous research evidence that firm size and hedging usage should be interrelated. Various studies support this view. For example, Nance, Smith and Smithson (1993) and Géczy et al. (1997) argue that size is closely related to substantial information and cost of economies of scale of transactions to make hedging decisions for speculation or risk management. In contrast, smaller firms have lesser resources to protect their risks, making it difficult for small firms to fulfill hedging costs, therefore small firms tend to not hedge on the risks through derivatives. The uniqueness of the size motive becomes the determinant of hedging, a reason in this study to use the size as one of the independent variables. In addition to many studies still put the size as the motive of ambiguous corporate hedging decisions, other things because the size also includes the determinants of hedging set in recent studies. Based on the explanation, the relationship between the size variables on hedging decisions hypothesized as follows:
H3 = Size (X) effect on corporate hedging decisions (Y).

Firm size and Hedging Decisions
Capital structure theory Modigliani and Miller (1958 and 1963) suggested that, in the perfect market, hedging decisions should not add value to the firm. In the perfect stock market, shareholders have access to basic information about the company's risk exposure and even any tools are needed to create the desired diversification portfolio (Mseddi and Abid, 2010). However, based on the positive hedging theory developed by Smith and Stulz (1985) indicate that corporate hedging decision will add value to the company if asymmetric information found and agency costs as well as financial distress costs on imperfect markets. Therefore, corporate hedging decisions are said to affect the firm's value if there is asymmetric information (Ahmed et al., 2012). So the company's hedging decision is considered to add value to the company if there is asymmetric information, taxes, or transaction costs (Liu, 2003). For example, in the research of Nguyen and Faff (2003), Liu (2003), Aretz, Bartram and Dufey (2009), Afza and Alam (2016), Daka and Basu (2016), Allyannis and Wetson (2001), Nur (2013) Certer, Rogers and Simkins (2006) that corporate hedging decisions have a positive effect on firm value. Based on the explanation and the results of previous research, then the relationship between the variables of corporate hedging decisions on corporate value hypothesized as follows:
H4 = The hedging decision (X) affects the firm's value (Y).

METHODS
This research uses a quantitative approach and is included in explanatory research. The population used is all mining companies listed on the Indonesia Stock Exchange during 2011-2015. The samples used are all mining companies that meet the criteria of the population (33 companies), so it can be said that the sampling technique is saturated sample (census). Data were taken from the financial statements of Indonesian mining companies obtained from (www.idx.go.id) during 2011 to 2015. Meanwhile, for data analysis, this study used two stages of test; first, use logistic regression test to test the variable of financial distress, underinvestment cost and size to corporate hedging decision. The logistic regression formula used is as follows:

Figure 1. Logistic Regression Formula

$$p = \frac{1}{1 + e^{(b_0 + b_1 + X_1 + b_1 + X_1 + b_2 X_2 + \cdots + b_n X_n)}}$$

(Source: Hair, et al.1995)

second, using independent sample T-test to examine the effect of hedging decisions on firm value. It will lead to the superior group company used hedging decision. The formula used is as follows:

Figure 2. T-test Formula

$$t = \frac{x_1 - x_2}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \qquad S^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

(Source: Sudjana, 2005)

RESULTS

As shown in Table 1, in all of 165 observations, 42 companies are grouped as hedging decisions groups through derivative instruments, while 123 companies are called natural hedging decisions--did not report the use of derivative instruments in their financial statements.

Table 1. Mining Companies' Hedging Decision Activities 2011-2015

Hedging Decision Activities	2011	2012	2013	2014	2015	Total
Natural Hedging	25	26	24	24	24	123
Hedging with derivative instruments	8	7	9	9	9	42
Number of company	33	33	33	33	33	165
Percentage of Hedging with derivative instruments	24,24%	21,21%	27,27%	27,27%	27,27%	25,45%

Table 2. Comparison of Natural Hedging and Hedging with derivative instruments 2011-2015

Variable	Min		Max		Mean		Stdv
	NH	DH	NH	DH	NH	DH	
FD	0,1780	0,3120	0,6420	1,0320	0,4034	0,6296	0,207
UC	-1,9181	0,2914	7,3166	10,1495	2,1262	5,4229	3,426
Size	22,365	24,982	29,828	31,0369	27,016	28,171	2,254
FV	0,2344	1,209	4,2308	4,5546	1,716	2,5214	0,988

Note: NH = Hedging Natural
DH = Hedging Derivative

Logistic Regression
Testing the Regression Model Eligibility
The feasibility of the regression model was assessed using Hosmer and Lemeshow's Goodness of Fit Test. The result is as follows:

Table 3. Hosmer and Lemeshow Test

Step	Chi-Square	df	Sig.
1	10.356	8	.241

Based on the results in Table 3, it is shown that Chi-square value of 10.356 with significance (p) of 0.241. Based on these results, because the value of significance greater than 0.05, it can be concluded that the model is able to predict the value of observation.

Assessing the Overall Model Fit
The overall model fit test is formed by comparing the value between -2 Log Likelihood (-2LL) minimun (Block Number = 0) with the value -2 Log-Likelihood (-2LL) maximum (Block Number = 1). The comparative results between -2LL minimum with end-2L maximum are as follow:

Table 4. The comparison value of -2LL Min and value of -2LL Max

-2LL	Value
1. Minimum (blok 0)	38,673
2. Maximum (blok 1)	19,490

Based on Table 4, the value of -2LL min is 38.673. After inserted the six independent variables, the value of -2LL max decreases to 19,490. This decrease of likelihood (-2LL) shows a better regression model. In other words, the model fit to the data. Meanwhile, the probability results of each respondent and the distribution of opportunity results to show the tendency of variables are as follows:

Table 5. Classification Table[a]

Observed			Predicated		
				Y	Percentage Correct
			Natural	Derivative	
Step 1	Y	Natural	122	1	95.8
		Derivative	2	40	77.8
	Overall Percentage				90.9

a. the cut value is 5.00

The classification matrix shown in Table 5 is used to assess the strength of the regression model to predict the probability of hedging decision activity. Based on the results of the analysis, in general, the model is reliable in predicting the respondents by 90.9%.

Coefficient of Determination (R2)
The value of the coefficient of determination on the logistic regression model is shown by the value of Nagelkerke R Square. The value of Nagelkerke R Square can be interpreted as R Square value in multiple regression.

Tabel 6. *Negelkerke R Square*

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
19.490	0.441	0.639

Based   on   the

results of Table 6, logistic regression test, Nagelkerke R Square value obtained for 0.639, which means variability of dependent variables that can be explained by independent variables is equal to 63.9%. While the rest of 36.1% is explained by other variables outside the research model. This shows that the independent variable gives the effect of 63,9% to the dependent variable.

Hypothesis Testing

To test the hypothesis used significance test. It was tested by comparing the Omnibus Test of Model Coefficients value, the chi square probability value was calculated with the alpha value of 5% (0.05).

Tabel 7. The result of Hypothesis Test

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.439	4	.004
	Block	15.439	4	.004
	Model	15.439	4	.004

Table 7 shows that chi square value is 0.004 <α = 0.05. It means that the variables of financial distress, underinvestment cost and size have significant effect simultaneously on hedging decision or the hypothesis is accepted.

Testing Regression Coefficients (Wald Test) To Test the Significance of Each Variable

Logistic regression model is presented in the following table.

Tabel 8. The result of Logistic Regression Coeficient

Independent variable	B	S.E.	Wald	df	Sig.	Exp(B)
X1	8.2267	3.9084	4.4305	1	0.0353	3739.655
X2	0.5167	0.2182	5.6057	1	0.0179	1.6764
X3	0.5817	0.2762	4.4351	1	0.0352	1.7891
Constant	-22.9767	9.0942	6.3833	1	0.0115	0.0000

Based on Table 8, the test results produce the following regression model:

$$Y= -22,9767 + 8.2267X1 + 0.5167X2 + 0.5817X3$$

Based on the regression model, the results of testing on the hypothesis shows that financial distress variable has a positive regression coefficient of 8, 2267 with significance (p) of 0,035, and Underinvestment cost variable has positive regression coefficient of 0, 5167 with the significance value (p) of 0, 0179. In addition, the value of regression coefficient for Size variable is 0, 5817 with the significance value (p) of 0,035. It shows that the value of regression coefficient for all variables are positive and the significant value (p) of all variables are smaller than α = 5%. This means that the hypothesis H_o is rejected and it also indicates that the financial distress, underinvestment cost, and size have a significant effect on hedging decision, and the H_1, H_2, and H_3 are accepted.

Independent Sample t-test

To know the influence of hedging decisions on the value of the company, this study used t-test Independent Sample. This is because the sample characteristics are divided into two groups, natural hedging decisions and hedging decisions through derivative instruments. In addition, based on data characteristics and hypotheses "hedging decisions have an effect on firm value", unpaired independent t-test is used to determine which groups are superior. It departs from the assumption that the natural hedging decision group and the hedging decision group through the derivative instruments do not affect each other.

Tabel 9. Statistik Deskriptif

Y		N	Mean	Std. Deviation	Std.Error Mean
Firm Value	Natural Hedging	123	1.716000	.9537398	.1946813
	Derivative Hedging	42	2.521400	.8689957	.2896652

Based on descriptive statistics, it is known that the average group of hedging decisions through derivative instruments has a higher value than the natural hedging decision group. Furthermore, independent t-test using SPSS software version 20.00 obtained the following results:

Tabel 10. Independent Sample t-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Nilai Perusahaan	Equal variances assumed	.193	.664	-2.209	31	.035
	Equal variances not assumed			-2.308	15.742	.035

Before performing unpaired T-tests, it is necessary to test the F-test first to ensure that the samples are from the same or different populations. Table 10 shows that the firm value parameter (FV) has a significance value of F greater than α = 0.05 (5%). It can be concluded that the natural hedging decision group and the hedging decision group through the derivative instrument are derived from the equal variances assumed. Table 10 also shows that the t-count value for equal variances assumed is 2,209 sig. and the value of t is 0.035. Since the value of sig. t smaller than 0, 005 (0,035 <α = 5% (0, 005)), then H_0 is rejected. It can be concluded that the natural hedging decision group and the hedging decision group through the derivative instrument are both different significantly. It indicates that the natural hedging decision group has lower corporate value or differentiated value with the hedging decision group through derivative instruments.

DISCUSSION

The Effect of Financial Distress on Hedging Decisions

Financial distress is a company condition that shows that the results of the company's business operations are not enough to meet the current corporate liabilities. One of the conditions of the existence of financial distress can occur when companies use more financing with debt. The company will face the possibility of high financial pressure in the future. Financial pressures can lead to a decrease in sales, EBIT, stock value, debt value and result in bankruptcy costs, even companies that do not make hedging decisions will experience extreme financial distress conditions compared to those using hedging decisions (Zhu, 2010). On the basis of these financial distress conditions, Smith and Stulz

(1985) in hedging positive theory outline that financial distress provides an explanation of why firms apply hedging decisions in their business operations. This can reduce the probability of the company's financial distress costs by reducing the volatility of cash flows. The argument leads to two factors about why firms apply hedging decisions to reduce financial distress costs; first, through debt, a company can experience distress if it does not take a hedging policy. Second, the cost of financial distress will occur if the potential debt of the company is high and the company does not make a hedging decision.

Smith and Stulz (1985) describe that when firms make hedging decisions to reduce the potential for financial distress in their business operations. This will increase a company's tendency to increase higher leverage that can generate profits from avoiding tax payments due to larger debt. Thus, it can increase the value of the company. In accordance with the opinion of Smith and Stulz (1985), as shown in the data presented in table 2, that mining companies with debts above 1 number, that is 1.0320, are groups of mining companies that use hedging decisions through derivative instruments.

This study confirms that there is a significant influence between financial distresses on corporate hedging decisions. The condition of a mining company that has a debt burden and in international business operating conditions requires the company to initiate a series of hedging decisions naturally as well as through derivative instruments in an effort to deal with corporate risk. The results of this study support the findings of Smith and Stulz (1985), Mian (1996), Liu (2003), Aretz and Bartram Gunter Dufey (2009), Zhu (2010), Afza and Alam (2011 and 2016), Graham and Rogers (2002) and Nur (2013) which proves that financial distress influences policy of hedging decision made by company.

The Effect of Underinvestment Cost on Hedging Decision
This study shows that underinvestment cost has significant effect to mining company hedging decision. This shows that mining companies in Indonesia are trying to avoid underinvestment costs by making hedging decisions resulting from the unavailability of internal funding for investment.

Hedging decisions are used by mining companies in an effort to avoid underinvestment costs by meeting the availability of internal funding. Internal funding cannot be sufficient for investment because the company can get a lot of risk. Thus, when firms make hedging decisions to deal with risks, internal funding is more commonly owned by firms because the company's condition does not necessarily result in losses from risk handling activities through hedging decisions. This is supported by the arguments of Froot, Scharfstein and Stein (1993), who first introduced that underinvestment costs have a positive influence on corporate hedging decisions, as companies neglect investment projects with positive NPVs due to lack of internal funds due to risk conditions handled by firms.

Froot, Scharfstein and Stein (1993) found that two things were offered in his research to avoid underinvestment cost through hedging decisions. First, in order for a company to avoid underinvestment cost in its investment funding, the company must increase the number of shareholders by increasing shareholder value. Second, the Company can meet internal funding through a series of business operations that have handled the risks through hedging decisions.

Based on two points offered by Froot, Scharfstein and Stein (1993) can be seen in the descriptive data in Table 2, that the average of underinvestment cost variables in the two groups using hedging decisions has a high value, which is between 2.1262 and 5, 4229. This shows that the company's stock is valued and capitalized by investors with a very high

value. Thus, the higher the stock price in the market, the higher the profits earned by the company, which will meet internal funding for the company's investment.

In accordance with Froot's opinion, Scharfstein and Stein (1993), Gay and Nam (1998) also explain that firms are more likely to use internal funding to invest than external funding. This is because external funding has a greater risk than internal funding. This underlies why firms in taking investments tend to use internal funding. In this case, Gay and Nam (1998) further elaborate that companies using natural hedging decisions use more internal financing than firms that make hedging decisions through derivative instruments.

Table 2 explains that Indonesian mining companies use more natural hedging decisions than hedging decisions through derivative instruments. This departs from the assumption that the use of hedging decisions through derivative instruments is much more systematic, but there must be costs to be incurred by the company. Therefore, Indonesian mining companies use more natural hedging decisions to meet their internal funding in order to avoid underinvestment costs. In addition, it is due to the characteristics of mining companies in Indonesia are more funding investment projects, such as new oil drilling projects for oil companies or other investment projects.

The company's effort to avoid underinvestment cost through the fulfillment of internal funding as a fund for investment activity is an effort of the company to be able to welfare shareholders. This is because when the company lacks internal funds and prefers external funding, then shareholders will be very unhappy, because there will be a transfer of value to the creditor. However, if the company seeks to fund investments from internal funding then shareholders will be happy, as there is no transfer of value. Thus, according to Tufano (1996), the company's efforts to avoid underinvestment cost through hedging decision activities are included in the paradigm of maximizing shareholder wealth.

Based on the results of the research and the underlying assumptions, it can be stated that there is a significant influence between the underinvestment costs of the firm's hedging decision, which is caused by the company's desire to be able to take investment with positive NPV without being constrained by insufficient investment funding. Thus, the company encounters underinvestment cost. To be able to meet the investment funding required a series of good management performance, such as improving corporate profits through a good stock price based on the sales performance of the company. In fact, to increase high corporate profits is not in an easy way. Since the mining companies are in an imperfect market that can be exposed to risk exposure at any time. Thus, in order to increase its good profit and to be able to fund the company's investment activity, it needs hedging decision as a tool in risk management and can avoid underinvestment cost.

These findings support the research of Froot, Scharfstein and Stein (1993), Gay and Nam (1998), Afza and Nature (2011 and 2016), Aretz and Bartram Gunter Dufey (2009), and Graham and Rogers (2002), who found that company will take a hedging decision in order to take the expected investment to avoid underinvestment costs.

The effect of Company Size on Hedging Decision
Corporate sizes reflect the size of a company shown through total assets. The result of the research shows that firm size influences to corporate hedging decision. Based on the financial statements of mining companies listed on the Indonesia Stock Exchange, these companies have large size companies. According to Caprisiana (2015) large companies have systematic risk management, which will still be exposed to more frequent risks due to foreign investment activities. As a result, companies with large sizes tend to make hedging decisions. This is because large companies will tend to have easier access in the capital

market than small companies. The ease of access to the capital market can mean the flexibility and capability of the company to obtain funds and gain profit by looking at the growth of assets owned by the company. Thus, the larger the size of the company, the higher the transactions made to the international market, which can make the company make hedging decisions. The results of this study support the findings of Mian (1996), Caprisiana (2015), Dionne and Garand (2002), Afza and Alam (2016), and Allayannis and Weston (2011) stating that there is a positive and significant influence between firm size on decisions hedging.

The Effect of Hedging Decision on Firm Value
Increasing value for the company is very important. Corporate value is a reflection of how the market perceives the company. This indicates that there is a correlation between the market value of the high or low stock prices circulating in the market that will affect shareholder wealth and the high participation of loans by creditors. Thus, if the stock price is valued by too low market capitalization or the creditor is reluctant to lend, signifying that the firm's value is low. The low market price of shares circulating in the market and the lack of loans from creditors can be caused by various risks that hamper the performance of the company. The risks are caused by imperfect market circumstances. Therefore, to overcome this required hedging decisions because the risks that occur can affect the value of the company (Nur, 2012).

According to Ahmed et al. (2012) hedging decisions can affect firm value if there is information asymmetry, taxes and other transaction costs such as financial distress costs referring to MM's capital structure theory (1985).

In other words, it can be said that hedging decisions made by the company as an attempt to eliminate some of the risks that will affect the value of the company. The risk is the result of an imperfect market. The classical theory of MM (1958) suggests that, if the market is perfect, hedging decisions should not add value to the firm. If the stock market is perfect, shareholders have access to basic information about the company's risk exposure, even to what tools are needed to create the desired diversification portfolio (Mseddi and Abid, 2010).

However, if we look at financial statement data and financial market behavior condition in Indonesia, Indonesian mining company has characteristic to be in imperfect market, that is having debt burden which can trigger financial distress condition as well as information asymmetry between managerial and shareholder caused by circumstance imperfect markets. The Independent Sample t-test results in this study indicate that hedging decisions have a significant effect on the mining companies' value in Indonesia.

Table 2, based on Tobins'Q calculations, indicates that the average book of total assets of companies using hedging decisions through derivative instruments is greater than those that use natural hedging decisions. It can be stated that the decision of hedging through derivative instruments has a positive effect on the value of the company's assets. The average market value of common equity firms using hedging decisions through derivative instruments is greater than those that use natural hedging decisions. Thus, firms that use hedging decisions through derivative instruments are positive to the value of the stock market. Based on the conditions in table 2, it can be concluded that the firm value using hedging decisions through derivative instruments is superior to the value of companies using natural hedging decisions. This is because, according to Allyannis and Weston (2001), there are several advantages for companies that make hedging decisions, one of which is to increase the value of the company, because the company has a more trusted risk management by shareholders and creditor in performing the company's performance.

It can be stated that there is a significant influence between corporate hedging decisions on corporate value. These results also support the findings of Liu (2003), Aretz and Bartram Gunter Dufey (2009), Nur (2012), Graham and Rogers (2002) and Allyannis and Wetson (2001) that corporate hedging decisions have a significant effect on firm value. Their research confirms that companies using hedging decisions through derivative instruments will respond better to the market, due to investor confidence in the firm.

CONCLUSION

This study confirms several important points about the correlation of financial distress, underinvestment cost, size, and hedging decision. First, it also justifies that financial distress significantly affects hedging decisions. This implies that through a hedging decision, a company's financial distress can avoid bankruptcy. One of the triggers of financial distress is that the amount of debt burden owned by the company will affect the company's hedging decision. The greater the debt burden the company exceeds the total assets owned, the more impact on the magnitude of risks that arise. Secondly, Underinvestment cost has significant effect to corporate hedging decision. The commitment of mining companies to finance targeted investments requires companies to implement hedging decisions to enable internal funding to meet investment costs and avoid underinvestment costs. Third, Size companies have a significant influence on hedging decisions. Large firms will tend to cope with vast business operations and a wider range of risks. Thus the company will take hedging decisions as a way of risk management. Fourth, corporate hedging decisions have a significant effect on the value of the company. This shows that the market gives more value to companies that make hedging decisions, especially those using derivative instruments.

Further research needs to add more determinants of hedging decisions in order to provide better and broader results. Meanwhile, for financial distress can be reflected by measurement Altman Z score. This is because the measurement of financial distress with Altman Z score is considered better to see the condition of corporate financial pressure caused by troubled business operations. In addition, further research also needs to investigate in depth about hedging decisions not only as one way in risk management or enhancement of corporate value, but also for the purposes of speculation.

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