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The Determinants of Corporate Hedging Policy: A Survey of Mining Firms on the Indonesia Stock Exchange

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Abstract

The purpose of this study is to determine the effect of leverage, liquidity, growth opportunity, and financial distress on hedging policy decisions. The population in this study are mining companies listed on the Indonesia Stock Exchange (IDX) in 2015-2020. The research sample was 39 companies using purposive sampling technique. The leverage variable is proxied by the ratio of total debt and total capital, liquidity is proxied by the ratio of current assets and current debt, growth opportunity is proxied by market to book, financial distress is proxied by Altman's Z-Score specifically for non-manufacturing companies, and hedging policy is proxied by the variable dummy, where companies that hedged were given a score of 1, and those that did not hedge were assigned a score of 0. The data analysis method used descriptive statistical analysis and logistic regression analysis using the logit model using the Eviews 12 Student Version software. The results showed that leverage and financial distress had a significant positive effect on the probability of hedging policy, liquidity had a significant negative effect on the probability of hedging policy, growth opportunity had a significant positive effect on the probability of hedging policy

INTRODUCTION

The existence of globalization and technological developments has a great influence on various aspects of people's lives. The economic sector is one of the largest sectors affected by technological developments and globalization, including international trade transactions or commonly referred to as trade between countries which is currently growing rapidly and is very easy to do (Dharmiyanti & Darmayanti, 2020). International trade is an activity related to buying and selling transactions carried out by a country with foreign parties (Pyeman et al., 2019).

International trade is very important for a company because by conducting international trade transactions, the company can develop more broadly than just conducting business activities in the domestic market. International trade can also improve company performance by increasing revenue or reducing expenses in order to obtain maximum profit.

Increased international trade can occur, because it is caused by several factors such as differences in mastery of science, differences in technology in processing natural resources, and differences in economic levels. In addition, international trade is also useful for meeting each other's needs for domestic goods and services, the desire to make profits and have product advantages, so as to create new markets to market products.

International trade can occur due to differences in circumstances such as natural resour-

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ces, climate, labor, culture, and population that cause differences in production results, production limitations, common tastes for an item, there is a desire to open cooperation, political relations and support from other countries, as well as the era of globalization, so that no single country in the world can live alone (Ball et al., 2004).

According to Jeff Madura, (2000) international trade is a conservative approach that can be used by companies to expand markets abroad by conducting export transactions or obtaining raw materials at more affordable prices from abroad by importing. However, international trade poses the risk of fluctuations in foreign exchange rates which causes uncertainty in the value of assets and liabilities (Paranita & Aditya, 2020). International trade will lead to increased competition and fluctuations in market prices, thereby causing an increase in business risk that must be borne by a company (Jiwandhana & Triaryati, 2016).

Companies that carry out international trading activities are potentially exposed to the risk of fluctuations in interest rates, foreign exchange rates, and commodity prices which can have a negative impact on cash flows and company value, thus affecting the viability of the company. The impact that occurs with international trade is increased competition and market price fluctuations, which result in increased risk that must be borne by the company, this risk will be even greater when the exchange rate of the currency concerned fluctuates in value (Guniarti, 2014).

Losses caused by price movements such as stock prices, exchange rates or interest rates are categorized as market risk. This risk needs to be considered by the company because it can harm the company in the future, so this risk must be minimized and avoided by the company (Pyeman et al., 2019). In this regard, the company needs to carry out risk management.

Risk management is one thing that is needed by companies to minimize various risks that can occur in a company (Mediana & Muharam, 2016). According to Djojosoedarso, (2003) risk management is the implementation of management functions in risk management by identifying, analyzing, assessing, controlling, and trying to avoid, minimize or even eliminate risks that are unacceptable to the organization or company.

According to Atmaja, (2008) in Riyantina & Ardiansari, (2017) business risk is uncertainty in the estimated future operating income of the company. Risk can arise intentionally or unintentionally. Risk management is one of the important elements in the company. This is related in an effort to minimize the various risks that occur in running the company.

According to Nurcahyono & Sudharma, (2014) a company must be able to improve and strengthen management fundamentals to anticipate global developments that occur. Given the current situation of globalization, operational activities and external funding sources are no longer borderless. The company also faces financial risks such as foreign exchange and interest rate risks. The biggest risk arising from international trade transactions is the risk of fluctuations in foreign exchange rates. The risk of fluctuations in foreign currency exchange rates due to international trade transactions can be managed by risk management using hedging policies.

The use of hedging policies in multinational companies is expected to reduce the company's risk in dealing with fluctuations in foreign exchange rates caused by international trade transactions (Saraswati & Suryantini, 2019).

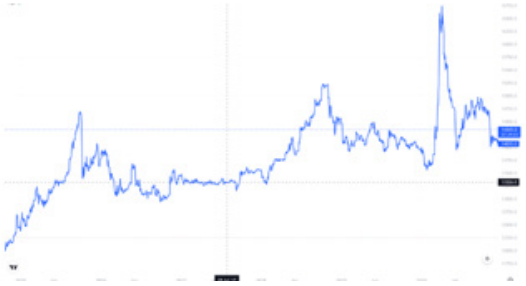
Hedging is the optimal choice because hedging can help companies in international trade, especially to reduce risk, changes in exchange rates, and interest rates. Hedging can be done using derivative instruments. A derivative instrument is a contract agreement between two parties to sell or buy a number of goods (both financial assets and commodities) at a certain date in the future at an agreed price (Utomo, 2000). Various kinds of derivative instruments such as forward contracts, futures contracts, options, and swaps.

Hedging is a strategy created to protect the value of assets or debts owned against possible risks that arise, due to a decrease in asset value or an increase in debt through the use of derivative instruments. In Indonesia, the type of derivative instrument that is often used is futures contracts, because futures contracts work in a more organized system where the flow of cash flow values is adjusted daily according to changes in commodity market prices that occur every day.

Hedging activities using derivative instruments are very beneficial for companies that will conduct international trade transactions using foreign currencies, because this can reduce the possibility of bankruptcy, enable companies to get credit from creditors more easily, establish better cooperation with suppliers, and also allows companies to obtain loans at lower interest rates (because the risk perceived by lenders is lower). Hedging can also make it easier for companies to forecast future cash disbursements and receipts more accurately, so as to improve the quality of cash budgeting decisions (Weston & Copelan, 1997).

Hedging policy is also influenced by the company's external factors, one of the external factors that can influence the company's hedging policy is the exchange rate (Utomo, 2000). The following is a graph of fluctuations in the rupiah exchange rate against the US dollar in 2015-2020:

Figure 1. Graph of Fluctuations in the Rupiah Exchange Rate against the US Dollar 2015-2020



In figure 1 it can be seen that the graph of the movement of the rupiah against the dollar (USD) published by the Ministry of Trade of the Republic of Indonesia (Kemendag) always fluctuated during 2015 to 2020. During 2015-2020, the rupiah exchange rate tended to depreciate. or weaken against the US dollar. From the data displayed, it can be interpreted that when a company conducts international trade transactions using foreign currencies, the company will experience foreign exchange exposure risk. When the rupiah depreciates or when the USD appreciates, the price of imported goods will certainly be more expensive so that it can have an impact on increasing product prices in the domestic market, this can cause a lot of losses for companies that carry out international trade transactions caused by differences in exchange rates. money.

When the value of the rupiah depreciates, the company must issue more local currency for the transaction. To minimize the risk of changes in currency exchange rates, the company can implement a hedging policy.

Indonesia is one of the developing countries that always tries to develop its economy every year with various policies carried out (Saraswati & Suryantini, 2019). Of the 9 corporate sectors listed on the Indonesia Stock Exchange (IDX), the mining sector is considered a sector that has a high risk, because it is influenced by production, prices, costs, and taxes so that a higher risk certainly also requires a high rate of return. Based on data from Bank Indonesia (BI), Indonesia's foreign debt in the mining sector in January 2015 was US$26.07 billion, in the previous year in January, foreign debt in the mining sector was US$21.86 billion. The increase in debt in the mining sector needs to be questioned because the prices of mining commodities such as raw minerals and coal are falling and are not expected to increase for the next two years.

In 2015 could be said to be a bad year for mining companies in Indonesia. Based on the annual report published by PricewaterhouseCoopers (PwC) that the 40 largest mining companies in the world recorded a loss of US$27 billion (Mahasari & Rahyuda, 2020). This event is the first time in history to experience a 37% decline in market capitalization. There are 2 factors that are believed to have a bad influence on the mining industry. First, the price of mining commodities, especially coal, has decreased significantly. Second, reduced export demand for minerals and coal. According to data released by the Statistics Indonesia (BPS), in 2018 the mining industry experienced the smallest growth of 0.74%. Mining companies that carry out debt in foreign currency will suffer losses due to fluctuations in foreign exchange rates, so they must issue more local currency (Ariani et al., 2017).

Data released by the Statistics Indonesia (BPS) stated that the mining sector experienced a 0.49% decline in revenue, this was due to a decrease in production by PT Freeport Indonesia. So starting from 2015 to 2020, companies in the mining sector began to implement hedging policies as a risk management measure to protect companies from fluctuations in foreign exchange exposure.

Research conducted by Nguyen & Faff, (2010) states that companies prefer to carry out hedging policies if the company has a higher debt level in its capital structure. Research conducted by Brown et al., (2009) states that hedging policies and corporate debt are simultaneously determined, meaning that the use of debt motivates companies to carry out hedging policies. Research conducted by Giraldo et al., (2017) states that leverage has a significant positive effect on hedging policies.

Research conducted by Guniarti, (2014) states that liquidity, leverage, firm size have a significant positive effect on hedging policies, while financial distress and growth opportunity have a significant negative effect on hedging policies. Research conducted by George, (2012) states that liquidity has a significant positive effect on hedging policies, while research by de Jong et al., (2011) gives results showing that liquidity has a significant negative effect on hedging policies.

Research conducted by Carbonneau, (2021) states that growth opportunity has a significant positive effect on hedging policies, while

research by Brown et al., (2009) provides results showing that growth opportunity has a significant negative effect on hedging policies. Research conducted by Griffiths et al., (2021) states that financial distress has a significant positive effect on hedging policies, while research by Clark & Judge, (2017) gives results showing that financial distress has a significant negative effect on hedging policies.

Based on the phenomena that occur and the inconsistencies in previous studies, there are several different results, so further research is needed on the effect of leverage, liquidity, growth opportunity, and financial distress on hedging policies.

There are various factors that influence companies to carry out hedging policies. In this study, observations will be made on factors that are thought to influence hedging policies in companies such as leverage, liquidity, growth opportunity, and financial distress in mining companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2020 period.

Leverage is a ratio that measures the level of use of debt by the company as a source of funding (Brigham & Houston, 2006). Leverage can show the proportion of the company's total debt to its total assets.

This is very important for the company because it can show the company's financial position. The smaller the leverage ratio owned by the company, the smaller the risk that will be experienced by the company in facing financial difficulties. The impact of the large amount of debt owned by the company results in increased risk for a company that leads to financial difficulties and bankruptcy (Martono et al., 2020). To increase the value of the company, the company can refer to the level of debt in the optimal source of funding. Therefore, the company must adjust the optimal level of debt (Yulianto et al., 2016).

The leverage ratio can show the risks faced by the company, because the greater the risk faced by the company, the uncertainty to generate future profits will also increase. A company with higher leverage indicates that the company is at risk of financial distress. In other words, companies will tend to default on loans when they borrow more from creditors. Therefore, hedging can make a very important contribution in helping companies to deal with the competitive financial environment. Current assets must be large enough to cover current liabilities in such a way that it illustrates a satisfactory margin of safety (Wibowo & Wartini, 2012).

The proxy for measuring leverage in this study is the comparison between total debt and total capital (Guniarti, 2014). According to Guniarti, (2014) research results state that leverage has a significant positive effect on hedging policies. It can be systematically formulated as follows:

Debt to Equity Ratio = (Total Debt)/(Total Capital) x100%

A company with higher leverage indicates that the company is at risk of financial distress. If the company has a large leverage ratio, then the company will tend to carry out hedging policies, because companies with a large level of leverage can increase the amount of their debt, which can lead to the risk of bankruptcy. Large companies will have high assets, with high assets the company will place them as the main operational source, so that they can reduce the number of debt they have (Nugroho, 2014). According to Nguyen & Faff, (2002) states that hedging policies can reduce the possibility of financial distress risk because hedging policies can reduce cash flow fluctuations in foreign currencies. The company will try to maintain a low leverage ratio to avoid the company from the potential risk of financial distress (Sprcic & Sevic, 2012). So that leverage has a significant positive effect on hedging policies.

The proxy for measuring liquidity in this study is the comparison between current assets and current liabilities (Carbonneau, 2021). According to Carbonneau, (2021) research results state that liquidity has a significant negative effect on hedging policies. It can be systematically formulated as follows:

Current Ratio = (Current Assets)/(Current Debt)

According to Fahmi, (2013) explains that liquidity is a financial analysis that shows the ability of a company to meet its financial obligations that must be paid immediately before maturity. Liquidity problems in a company are related to the ability to meet its financial obligations that must be met immediately (Riyanto, 2001). Research conducted by Ameer (2010) shows that liquidity has a negative influence on hedging policies, because a high level of liquidity ratio will reduce the potential for financial difficulties.

If the company has current assets that are greater than current liabilities, it is certain that the company will always be in a liquid condition to fulfill its obligations (Giraldo et al., 2017). So companies that have a high level of liquidity will be lower in carrying out hedging policies, because

the potential risk of financial difficulties faced by companies tends to be low. So that liquidity has a significant negative effect on hedging policies.

Market to book is a proxy used to determine the level of growth opportunity of a company. Growth opportunity is a picture of a company's ability to develop in the future. According to Guniarti, (2014) explains that growth opportunity is a condition in which a company will develop well if it is supported by the need for funds that are quite large. According to Erfiana & Ardiansari, (2016) growth opportunity is an important factor in seeing the company's prospects in the future. A high growth opportunity value will project the company to have a high probability of investing by generating profits in the future (Rianawati & Setiawan, 2015).

Market to book proxy used to determine the level of growth opportunity in this study is the comparison between share price per share and book value per share. It is systematically formulated as follows:

MTB = (Share Price per Share)/(Book Value per Share)

According to Brown et al., (2009) states that the higher the value of growth opportunity, the lower the opportunity for a company to hedge.

Companies that have a high level of growth opportunity do not have a large level of debt as a source of funding, so the company does not have a high level of risk of financial distress, therefore companies with a high level of growth opportunity tend to be lower in hedging policies. According to Ridloah, (2010) company size is the size of a company. So that growth opportunity has a significant negative effect on hedging policies.

The proxy for measuring financial distress in this study is using Altman's Z-Score (Chernenko & Faulkender, 2011). According to Griffiths et al., (2021) the results of the study state that financial distress has a significant positive effect on hedging policies. It can be systematically formulated as follows:

Z-Score = 6,56X1 + 3,26X2 + 6,72X3 + 1,05X4

Z-Score= (Working Capital)/(Total Assets)+ (Retained Earning)/(Total Assets)+ (Earning Before Tax)/(Total Assets)+ (Market Value of Equity)/(Book Value of Total Liabilities)

According to Altman, (1993) explains that financial distress is a condition in which a company experiences an inability to pay its debts (insolvency) which can lead to bankruptcy. Financial distress is defined as the stage of decline in a company's financial condition that occurred before the company was liquidated or went bankrupt (Piatt & Piatt, 2002). Financial distress can measure the prospect of financial difficulties in returning obligations to creditors. Every company basically has the potential to experience financial difficulties if the company does not have good management skills (Khoiruddin & Rahmawati, 2017). This factor can be an indicator of a company's bankruptcy.

The term Z-Score began to be used by companies to detect bankruptcy. Z-Score is a score that is analyzed using 4 (four) financial ratios that indicate the level of probability of bankruptcy in the company. A company will go bankrupt if it has a score of less than 1.10. If the score of a company is more than 2.60, then the possibility of the company going bankrupt is small.

Companies that have a low Z-Score have the potential to have high financial risk which can lead to bankruptcy. When the company has a high level of financial risk, the company will be more careful in managing its finances. Financial distress is a very severe liquidity problem that cannot be solved without changing the size of the company's operations or structure. Financial distress is a condition where the company's finances are in an unhealthy or crisis state (Hapsari, 2012).

Companies that are experiencing financial distress (financial distress) have the possibility to carry out hedging policies. According to Judge, (2006) and Aretz et al., (2007) hedging policies in companies experiencing financial distress can reduce the costs of bankruptcy (financial distress costs).

If a company is facing financial distress, then the company tends to carry out a hedging policy, but as long as the costs incurred by the company for the policy are not too large. So that financial distress has a significant positive effect on hedging policies.

Based on the background, gap phenomenon and research gap, the researcher aims to determine the effect of leverage, liquidity, growth opportunity, and financial distress on the probability of hedging policies.

According to Rustam, (2013) risk is the potential loss due to the occurrence of a certain event, the risk of loss is the loss that occurs as a direct or indirect consequence of the risk event, the loss is in the form of financial or non-financial. Financial risks such as exchange rate fluctu-

ations faced by the company can also be avoided or reduced, one of which is by implementing hedging policies. Hedging can be done by transferring to third parties or providing reserves to avoid risk.

According to Faisal, (2001) hedging is a certain action that aims to protect companies to avoid or minimize the risk of loss of foreign exchange as a result of business transactions such as exports and imports.

Regardless of what will happen to the exchange rate in the future, hedging policy aims to lock the home currency value from exposure to exchange rate fluctuations. Thus, by establishing a hedging policy, the company can protect against foreign exchange rate risk, which is the risk of changes in value caused by unpredictable currency movements.

In making a decision to hedge, a company must pay attention to various external and internal factors. Internal factors that can influence hedging policies are leverage, liquidity, growth opportunity, and financial distress.

Leverage is a ratio used to measure the level of use of debt by the company as a source of funding (Brigham & Houston, 2006). Leverage can show the proportion of a company's debt to its total assets. Where the higher the debt borne by the company, the greater the hedging measures that need to be taken to reduce risk, so that the greater the opportunity for the company to implement hedging policies. This is supported by previous research which shows that leverage has a significant positive effect on hedging policies such as research conducted by (George, 2012; Giraldo et al., 2017; Brown et al., 2009; Carbonneau, 2021; Wang & Fan, 2011; Nguyen & Faff, 2010; Guniarti, 2014).

H1: Leverage has a significant positive effect on the probability of hedging decisions.

According to Fahmi, (2013) explains that liquidity is a financial analysis that shows the ability of a company to meet its financial obligations that must be paid immediately before maturity. Liquidity problems in a company are related to the ability to meet its financial obligations that must be met immediately (Riyanto, 2001). Research conducted by Ameer (2010) shows that liquidity has a negative influence on hedging policies, because a high level of liquidity ratio will reduce the potential for financial difficulties.

Thus, companies that have a high level of liquidity tend not to carry out hedging policies. This is supported by previous research showing that liquidity has a significant negative effect on hedging policies such as research conducted by (de Jong et al., 2009; Carbonneau, 2021; Lin et al., 2012; Ahmad & Haris, 2012; Mahasari & Rahyuda, 2020).

H2: Liquidity has a significant negative effect on the probability of hedging decisions.

Market to book is a measuring tool used to determine the level of company growth opportunity. Companies that have a high level of growth opportunity do not have a large level of debt as a source of funding, so the company does not have a high level of risk of financial distress, therefore companies with a high level of growth opportunity tend to be lower in hedging policies.

Thus, companies that have high growth opportunities tend not to carry out hedging policies. This is supported by previous research, namely research conducted by (Brown et al., 2009; Nguyen & Faff, 2010; Guniarti, 2014).

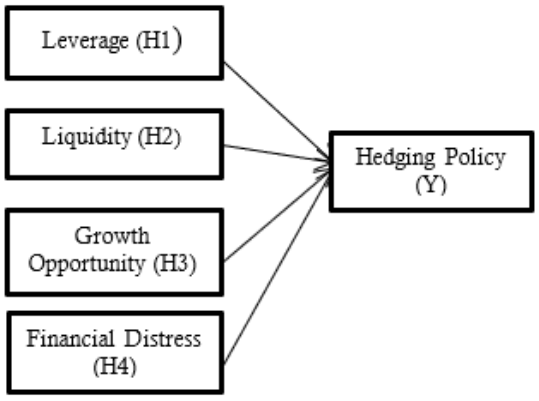
H3: Growth opportunity has a significant negative effect on the probability of hedging decisions.

According to Altman, (1993) explains that financial distress is a condition in which a company experiences an inability to pay its debts (insolvency) which can lead to bankruptcy. If a company is facing financial distress, the company will tend to carry out a hedging policy, but as long as the costs incurred by the company for the policy are not too large. One of the risks used to minimize this is using hedging decisions. This is supported by previous research, namely research conducted by (Magee, 2013), (Arnold et al., 2014), (Afza & Alam, 2011), (Griffiths et al., 2021).

H4: Financial distress has a significant positive effect on the probability of hedging decisions.

Based on the literature review and various sources of previous research, the framework of thinking in this research is as follows:

Picture 2. Research Model



METHOD

This type of research is quantitative research. The population of this study are mining companies listed on the Indonesia Stock Exchange (IDX) in 2015-2020. The number of mining companies listed on the IDX in 2015-2020 is 52 companies. The sample selection in this study used a purposive sampling technique. This technique is used with the aim of directing data collection to suit the needs and is carried out by investigating informants who really master the information and problems that exist and can be trusted (Khoiruddin et al., 2017). The number of research samples was 39 companies during the 2015-2020 period so that the number of observations was 234.

The data collection technique used in this research is documentation, namely by collecting data through the company's financial statements that have been published on the official website of the Indonesia Stock Exchange (IDX).

The dependent variable in this study is hedging policy. To see whether a company has made a hedging decision or not, it can be done by looking at the consolidated annual financial statements of mining companies listed on the Indonesia Stock Exchange for the 2015-2020 period, measured using a dummy variable, if the company carries out a hedging policy it is given a number 1 (one) and a company that does not implement a policy hedging is numbered 0 (zero). The independent variables in this study are leverage, liquidity, growth opportunity, and financial distress.

Data analysis in this study used logistic regression analysis of the logit model which was processed using Eviews 12 Student Version software. The linear regression equations in this study are:

Hedging=Log Hedging/(1-Hedging)=□ + b_1 LEV+ b_2 LIQ+b_2 GOPP+ b_4 FD

Where:

α = Constant
LEV = Leverage
LIQ = Liquidity
GOPP = Growth Opportunity
FD = Financial Distress

RESULTS AND DISCUSSIONS

Tabel 1. Descriptive Statistics

	Hedge	LEV	LIQ	GOPP	FD
Mean	0.461	1.899	2.722	1.442	1.665
Median	0.000	1.040	1.465	0.925	1.030
Maximum	1.000	34.060	111.310	18.670	9.860
Minimum	0.000	-15.820	0.010	-7.980	-6.700
Std. Dev.	0.452	1.866	2.184	0.187	1.442
Observations	234	234	234	234	234

Based on table 1, the results of data processing show that the hedging policy variable is proxied by a dummy variable, which is 1 (one) for companies that do hedging, and 0 (zero) for companies that do not hedge. Based on descriptive statistical data, the mean value of the hedging decision variable is 0.461 with a standard deviation of 0.452. This value shows that companies that carry out hedging policies from 2015-2020 are 46% of the total research sample. The mean value is greater than the standard deviation value, namely 0.461> 0.452. It can be concluded that the deviation value of the data to the average value is quite low and indicates that the data distribution is good because there are no extreme data that can cause bias. This identifies that of the 39 sample companies there are 21 companies that hedge and 18 companies do not hedge.

Based on descriptive statistical data, it can be seen that the mean value of the leverage variable is 1.899 with a standard deviation of 1.866. The mean value is greater than the standard deviation value, which is 1.899>1.866. It can be concluded that the deviation value of the data to the average value is quite low and indicates that the data distribution is good because there are no extreme data that can cause bias. In addition, it can be seen that with a sample of 234 observations in 39 mining companies for the 2015-2020 period, the maximum and minimum values for the leverage variable are 34.060 and -15.820.

Based on descriptive statistical data, it can be seen that the mean value of the liquidity variable is 2.722 with a standard deviation of 2.184. The mean value is greater than the standard deviation value, which is 2.711>2.184. It can be concluded that the deviation value of the data to the average value is quite low and indicates that the data distribution is good because there are no extreme data that can cause bias. In addition, it can be seen that with a sample of 234 observations in 39 mining companies for the 2015-2020 period, the maximum and minimum values for the liquidity variable are 111.130 and 0.010.

Based on descriptive statistical data, it can be seen that the mean value of the growth opportunity variable is 1.422 with a standard deviation of 0.187. The mean is greater than the standard deviation value, namely 1.422> 0.187. It can be concluded that the deviation value of the data to the average value is quite low and indicates that the data distribution is good because there are no extreme data that can cause bias. In addition, it can be seen that with a sample of 234 observations in 39 mining companies for the 2015-2020 period, the maximum and minimum values for the growth opportunity variable are 18.670 and -7.980.

Based on descriptive statistical data, it can be seen that the mean value of the financial distress variable is 1.665 with a standard deviation of 1.442. The mean value is greater than the standard deviation value, which is 1.665>1.442. It can be concluded that the deviation value of the data to the average value is quite low and indicates that the data distribution is good because there are no extreme data that can cause bias. In addition, it can be seen that with an observation sample of 234 observations in 39 mining companies for the 2015-2020 period, the maximum and minimum values for the financial distress variable are 9,860 and -6,700.

Tabel 2. Hosmer Lemeshow's Test

H-L Statistic	5.6277	Prob. Chi-Sq(8)	0.6889
Andrews Statistic	48.1175	Prob. Chi-Sq(10)	0.0000

Based on table 2, the feasibility test of the model, the test using the Hosmer-Lemeshow's Test, where the basis for making the decision is if the Hosmer-Lemeshow's Test value is less than or equal to 0.05, then there is a significant difference between the model and the observed value, so Hosmer-Lemeshow's Test rejected. If the Hosmer-Lemeshow's Test value is greater than 0.05, it means that the model is in accordance with the observed values, so the Hosmer-Lemeshow's Test is accepted. Based on table 2, the probability value of Chi-Sq is 0.6889, which means it is greater than 0.05, so the model can be accepted, because there is no significant difference between the model and the observed value.

Tabel 3. Overall Model Fit

LR statistic	210.6274	Avg. log likelihood	-0.240127
Prob(LR statistic)	0.000423		

Based on the results of the overall model fit in table 3, it can be seen that the value of the probability (LR statistic) is 0.000423. Where the basis for making the decision is if the probability value (LR statistic) is less than 0.05, then the independent variable can simultaneously affect the dependent variable. It can be interpreted that the value of 0.000423 is smaller than the significance level of 0.05. The conclusion is that independent variables such as leverage, liquidity, growth opportunity, and financial distress simultaneously affect the dependent variable, namely hedging, in other words the model is declared fit.

Tabel 4. Multikolinearitas Test

	LEV	LIQ	GOPP	FD
LEV	1.000000	-0.006336	0.573803	0.172596
LIQ	-0.006336	1.000000	0.015420	-0.042608
GOPP	0.573803	0.015420	1.000000	0.216551
FD	0.172596	-0.042608	0.216551	1.000000

Berdasarkan hasil uji moltikolinearitas pada tabel 4 dapat dilihat bahwa tidak terdapat variabel independen yang menunjukkan nilai koefisien di atas 0,90. Di mana dasar pengambilan keputusannya adalah apabila nilai koefisien korelasi antar variabel independen kurang dari 0,90, berarti tidak terjadi multikolinearitas.

Based on the results of the multikolinearitas test in table 4, it can be seen that there is no independent variable that shows a coefficient value above 0.90. Where the basis for decision making is if the correlation coefficient between the independent variables is less than 0.90, it means that there is no multikolinearitas.

The highest correlation value is shown by the leverage variable with growth opportunity, which is 0.573 or about 57.3%. This value is still below 0.90, so it can be concluded that there is no symptom of multicollinearity between the independent variables used.

Tabel 5. Precently Correctly Predicted Test

	Estimated Equation			Constant Probability		
	Dep=0	Dep=1	Total	Dep=0	Dep=1	Total
P(Dep=1)<=C	117	12	129	126	108	234
P(Dep=1)>C	9	96	105	0	0	0
Total	126	108	234	126	108	234
Correct	117	96	213	126	0	126
% Correct	92.86	88.89	91.03	100.00	0.00	91.03
% Incorrect	7.14	11.11	8.97	0.00	100.00	91.03
Total Gain*	-7.14	88.89	37.18			
Percent Gain**	NA	88.89	80.56			

Based on the results of the precently correctly predicted test in table 5, it can be seen that the total correct percentage value is 91.03%, which means that the magnitude of the influence of the leverage, liquidity, growth opportunity, and financial distress variables to predict the hedging

variable is 91.03%. The high value of the prediction percentage indicates that there is no significant difference between the predicted data and the observed data. So it can be concluded that the regression model used in this study is said to be good.

Tabel 6. Determination Coefficient Test

McFadden R-squared	0.652083	Mean dependent var	0.461538
S.D. dependent var	0.499587	S.E. of regression	0.266967
Akaike info criterion	0.522989	Sum squared resid	16.32119
Schwarz criterion	0.596821	Log likelihood	-56.18973
Hannan-Quinn criter.	0.552758	Deviance	112.3795
Restr. deviance	323.0069	Restr. log likelihood	-161.5034
LR statistic	210.6274	Avg. log likelihood	-0.240127
Prob(LR statistic)	0.000423		

Based on the results of the determination coefficient test in table 6, it can be seen that the value of McFadden R-squared is 0.652 or 65.2%, meaning that the ability of the independent variables in this study such as leverage, liquidity, growth opportunity, and financial distress has an influence of 65.2% in explaining the hedging variable, while the remaining 34.8% is influenced by other variables not included in the model.

Tabel 7. Hypothesis Testing

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-3.504702	0.619587	-5.656514	0.0000
LEV	0.405114	0.126977	3.190447	0.0014
LIQ	-0.398696	0.193973	-2.055416	0.0398
GOPP	0.221134	0.161873	1.366094	0.1719
FD	1.816286	0.237348	7.652421	0.0000

Based on the results of the logistic regression analysis with the logit model at a significance level of 0.05 or 5%, the regression coefficient value for the leverage variable is 0.4051 and the probability value is 0.0014, where the value is smaller than 0.05. In accordance with the results of the positive regression coefficient, the test results indicate that the leverage variable has a significant positive effect on the probability of hedging decisions.

The regression coefficient value for the liquidity variable is -0.3986 and the probability value is 0.0398, where the value is less than 0.05. In accordance with the results of the regression coefficient which is negative, the test results indicate that the liquidity variable has a significant negative effect on the probability of hedging decisions.

The regression coefficient value for the growth opportunity variable is 0.2211 and the probability value is 0.1719, where the value is more than 0.05. In accordance with the results of the regression coefficient which is positive, the test results indicate that the growth opportunity variable has a positive and insignificant effect on the probability of hedging decisions.

The regression coefficient value for the financial distress variable is 1.8162 and the probability value is 0.0000, where the value is less than 0.05. In accordance with the results of the positive regression coefficient, the test results indicate that the financial distress variable has a significant positive effect on the probability of hedging decisions.

Based on the results of the regression analysis test with the logit model, it is known that the independent variables that jointly influence the dependent variable are leverage, liquidity, growth opportunity, and financial distress. Based on table 7, it is known that the coefficient value of each variable can be seen from the coefficient value so that the following equation is obtained:

Hedging=LogHedging/(1-Hedging)=-3,504702+ 0,40511LEV– 0,398696LIQ+0,221134GOPP+ 1,816286FD

The constant is -3.504702 which indicates that if leverage, liquidity, growth opportunity, and financial distress have a constant value or equal to 0 (zero), it will reduce the probability of implementing hedging policies by 3.504702, because the resulting constant is negative.

The regression coefficient for the leverage variable is 0.405114, which means that for every one percent increase in the leverage variable, while other independent variables are assumed to be constant, the probability of implementing hedging policies will increase by 0.405114.

The regression coefficient for the liquidity variable is -0.398696, which means that each increase in the liquidity variable is one percent, while other independent variables are assumed to be constant, the probability of implementing hedging policies will decrease by 0.398696.

The regression coefficient for the growth opportunity variable is 0.221134, which means that for every one percent increase in the growth opportunity variable, while the other independent variables are assumed to be constant, the probability of implementing hedging policies will increase by 0.221134.

The regression coefficient for the financial distress variable is 1.816286, which means that for every one percent increase in the financial distress variable, while the other independent variables are assumed to be constant, the probability of implementing hedging policies will increase by 1.816286.

Risk is a loss due to an unwanted event occurring. Risk is identified based on the causative factor, namely the risk due to market price movements which are categorized as market risk, for example, stock prices, exchange rates or interest rates. The risks faced by a company can be done by doing good risk management.

A company in carrying out its operations will of course face various risks, to overcome the risks due to foreign exchange rates that may arise the company can protect it by hedging or hedging. According to Faisal, (2001) hedging is a certain action that aims to protect companies to avoid or minimize the risk of loss of foreign exchange as a result of business transactions such as exports and imports.

The decision to implement a hedging policy can be influenced by various factors. One of them is internal factors such as leverage, liquidity, growth opportunity, and financial distress.

Foreign exchange risk is the risk caused by changes in foreign exchange rates in the market that are no longer as expected, especially when converted into domestic currency (Muller & Verschoor, 2006). The magnitude of the impact due to changes in foreign exchange on a company is called foreign exchange exposure. Uncertainty that creates a possibility that is profitable for the company is called an opportunity, while the uncertainty that creates a possibility of harm to the company is known as risk.

Therefore, foreign exchange risk management is very important for companies conducting international trade transactions to overcome or minimize any risk of foreign exchange fluctuations. To overcome this risk, the company overcomes or minimizes foreign exchange risk by implementing a hedging policy. The higher risk due to increasing debt tends to reduce stock prices, but the increase in the expected rate of return will increase the stock price (Ridloah, 2010).

The results of testing the first hypothesis are the leverage variable which is calculated using the Debt to Equity Ratio (DER) proxy with the formula for total debt divided by total capital. Leverage is a ratio used by companies to measure the level of use of debt as a source of funding. Based on the results of the logistic regression analysis of the logit model, it is known that the value of the leverage regression coefficient is 0.405114 with a probability value of 0.0014<0.05. The probability value of less than 5% means that the leverage variable has a significant influence. From the coefficient value which is positive, it can be concluded that the leverage variable has a significant positive effect on the probability of hedging decisions, therefore Ha1 in this study is accepted. This indicates that of the 39 mining companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2020 period with a high level of leverage, the probability of implementing hedging decisions will increase.

Based on the foreign exchange risk management theory, companies with high levels of leverage have a higher tendency to make hedging decisions. Companies that increase debt capacity will increase protection against these debts by implementing hedging policies as risk management. This is because the company considers that hedging can reduce the company's risk of financial distress. The high level of leverage indicates that the company's financing or sources of capital through debt are also high (Giraldo et al., 2017). The higher the company's financing originating from debt, the higher the possibility of losses due to exchange rate fluctuations. The greater the level of company leverage indicates that the greater the use of sources of capital originating from debt that has a deficiency, which can increase the company's financial risk (Clark & Judge, 2017). So when the company has high debt, the risk faced by the company is also higher. When the risk faced by the company is high, the company will immediately implement a risk management policy by making hedging decisions.

The results of this study are consistent with the initial hypothesis that the leverage variable has a significant positive effect on the probability of hedging decisions which is in line with research (George, 2012; Nguyen & Faff, 2010; Wang & Fan, 2011; Guniarti, 2014; Giraldo et al., 2017; Brown et al., 2009; Carbonneau, 2021). This result is not in accordance with research conducted by (Magee, 2013; Khediri & Folus, 2010; Lin et al., 2012; Ahmad & Haris, 2012; Mahasari & Rahyuda, 2020) which found a negative effect on the leverage variable. on the probability of hedging decisions. The result of testing the second hypothesis is that the liquidity variable is calculated using the Current Ratio proxy with the formula for current assets divided by current liabilities. Liquidity is a ratio used to determine the level of the company's ability to pay off its short-term obligations. Based on the results of the logistic regression analysis of the logit model, it is known that the value of the liquidity regression coefficient is -0.398696 with a probability value of 0.0398<0.05. The probability value of less than 5% means that the liquidity variable has a significant influence. From the coefficient value which is negative, it can be concluded that the liquidity variable has a significant negative effect

on the probability of hedging decisions, therefore Ha2 in this study is accepted. This indicates that of the 39 mining companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2020 period with low liquidity levels, the probability of implementing hedging decisions will increase.

Based on the foreign exchange risk management theory, companies with low liquidity levels have a higher tendency to make hedging decisions. When the company is in an illiquid state or in other words the level of liquidity is low, it will encourage the company to carry out hedging policies as a risk management measure. Due to being in an illiquid state, the company is in a risky situation and is trying to reduce other risks such as fluctuations in exchange rates when the company has debt in foreign currency. The lower the company's liquidity level, the bigger the company will do external funding (Ameer, 2010). This is because companies that have low liquidity levels are unable to meet their short-term debts without requiring external funding, thus creating various risks that can complicate the company's financial position. When the risk faced by the company is high, the company will immediately implement a risk management policy by implementing a hedging policy.

The results of this study are consistent with the initial hypothesis that the liquidity variable has a significant negative effect on the probability of hedging decisions which is in line with research (de Jong et al., 2011; Lin et al., 2012; Ahmad & Haris, 2012; Mahasari & Rahyuda, 2020; Carbonneau , 2021). This result is not in accordance with the research conducted by (George, 2012; Ameer, 2010; Nguyen & Faff, 2010; Guniarti, 2014) which found a positive influence on the liquidity variable on the probability of hedging decisions.

The result of testing the third hypothesis is the growth opportunity variable which is calculated using the Market to Book proxy with the formula for the share price per share divided by the book value per share. Growth opportunity is a picture of a company's ability to develop in the future. Based on the results of the logistic regression analysis of the logit model, it is known that the regression coefficient of growth opportunity is 0.221134 with a probability value of 0.1719>0.05. A probability value of more than 5% means that the growth opportunity variable has an insignificant effect. From the positive value of the coefficient, it can be concluded that the growth opportunity variable has a positive and insignificant effect on the probability of hedging decisions, therefore Ha3 in this study is rejected. This indicates that of the 39 mining companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2020 period with a high level of growth opportunity, the probability of implementing hedging decisions will increase.

Based on the foreign exchange risk management theory, companies with a low level of growth opportunity have a higher tendency to make hedging decisions. This is because companies with low growth opportunity levels do not have funds in large enough quantities to finance the company's growth. Therefore, companies tend to carry out hedging policies as risk management (Guniarti, 2014). However, this study states the opposite result, namely companies with a high level of growth opportunity tend to carry out hedging policies. This is presumably because companies that have a high level of growth opportunity have a greater risk. Because companies with a high level of growth opportunity will require large amounts of funds, if the company's internal funds are insufficient, the company will use additional external funds, thereby increasing its financial risk (Carbonneau, 2021).

The results of this study are in line with research conducted (Ameer, 2010; George, 2012; Ahmad & Haris, 2012; Carbonneau, 2021) that the results show that the growth opportunity variable has a positive effect on the probability of hedging decisions. This result is different from the research conducted by (Brown et al., 2009; Nguyen & Faff, 2010; Guniarti, 2014) which found a negative influence on the growth opportunity variable on the probability of hedging decisions.

The results of testing the fourth hypothesis are the financial distress variable which is calculated using the Altman's Z-Score proxy for non-manufacturing companies. Financial distress is a condition in which the company experiences an inability to pay its debts (insolvency) which can lead to bankruptcy. Based on the results of the logistic regression analysis of the logit model, it is known that the regression coefficient of financial distress is 1.816286 with a probability value of 0.0000<0.05. A probability value of less than 5% means that the financial distress variable has a significant influence. From the positive value of the coefficient, it can be concluded that the financial distress variable has a significant positive effect on the probability of hedging decisions, therefore Ha4 in this study is accepted. This indicates that of the 39 mining companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2020 period which are in a state of financial distress, the probability of implementing hedging decisions will increase.

Based on foreign exchange risk management theory, companies in financial distress have a higher tendency to make hedging decisions. This is because the increase in the cost of bankruptcy (financial distress cost) in the company will cause an increase in the company's risk of bankruptcy. Therefore, the company will make hedging decisions to protect the risk from bankruptcy caused by the increase in financial distress costs. The step that must be overcome by the company when in financial distress is to reduce costs or expenses that are inefficient or unimportant (Griffiths et al., 2021). When the company is faced with the risk of bankruptcy (financial distress), the company will immediately implement a risk management policy by implementing a hedging policy.

The results of this study are consistent with the initial hypothesis, namely the financial distress variable has a significant positive effect on the probability of hedging decisions which is in line with research (Magee, 2013; Arnold et al., 2014; Afza & Alam, 2011; Griffiths et al., 2021). This result is not in accordance with the research conducted by (Sprcic & Sevic, 2012; Clark et al., 2006; Triki, 2005; Guniarti, 2014) which found a negative influence on the financial distress variable on the probability of hedging decisions.

CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis of research results and discussions that have been carried out regarding the effect of leverage, liquidity, growth opportunity, and financial distress on hedging decisions in mining companies listed on the Indonesia Stock Exchange (IDX) in 2015-2020, the conclusions that can be drawn from this study are as follows: as follows: Leverage has a significant positive effect on the probability of hedging decisions. Liquidity has a significant negative effect on the probability of hedging decisions. Growth opportunity has no significant positive effect on the probability of hedging decisions. Financial distress has a significant positive effect on the probability of hedging decisions.

Based on the results of the tests that have been carried out in this study, it shows that mining companies that carry out hedging policies are determined by leverage, liquidity, and financial distress. Meanwhile, the effect of growth opportunity on hedging policy decisions is positive and not significant. In addition, the McFadden R-squared value of 0.652 or 65.2% was obtained. This shows that the variables of leverage, liquidity, growth opportunity, and financial distress can explain the hedging decision by 65.2%, while the remaining 34.8% is explained by other variables outside the model in this study. Therefore, suggestions for further research are expected to consider other variables and other financial indicators to be able to better explain the factors that can influence hedging decisions and also use research objects in other sectors that have foreign exchange or assets abroad, so as to be able to clarify and strengthen the factors that can influence the company in carrying out hedging policies.

Managers are expected to be able to predict the factors that can influence hedging decisions. Judging from the results of this study, if the level of leverage, growth opportunity, and financial distress of the company increases, and the level of liquidity of the company decreases, then the company should immediately consider implementing a hedging policy to prevent the company from the risk of financial difficulties. And if the company has already hedged, the company should increase its financial proportion to the hedging policy to make it more secure. From the results of the percentage prediction of leverage, liquidity, growth opportunity, and financial distress variables of 91.03%, this indicates that the independent variables used in this study need to be considered by managers as the basis for company considerations to carry out hedging policies.

For potential investors, it is better to be more selective when investing in mining companies, because not all mining companies implement hedging policies. If the company does not implement a hedging policy, the risk of the company's financial difficulties will increase, because basically the hedging policy aims to protect the company's assets from fluctuations in the exchange rate against foreign exchange (forex). Hedging policy needs to be implemented in the long term, because as an investor you cannot predict how the exchange rate will fluctuate in the future, if the company implements a hedging policy, the security level of the company's financial position can be said to be good because it is not exposed to exchange rate fluctuations.

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