

Analysis of Factors Influencing the Risk of Investing in Stocks on the Indonesia Stock Exchange in the Energy Sector the Coal Production Sub-Sector

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ABSTRACT

This study aims to determine the effect of macro factors such as interest rates, inflation, and foreign exchange rates and micro factors such as earnings per share, return on assets, the current ratio, and the debt-to-equity ratio on investment risk in issuers in the coal producer sub-sector on the Stock Exchange. Indonesian Securities (IDX).

The population of this study was 18 companies in the energy sector in the coal production sub-sector, with a total sampling of 6 companies obtained by the purposive sampling method during the 7-year research period from 2015–2021. The analytical method used in this study is multiple linear regression analysis.

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The results showed that interest rates and return on assets had a significant negative effect on investment risk, while earnings per share had a significant positive effect. Inflation variables, foreign exchange rates, the current ratio, and the debt-to-equity ratio have no effect on investment risk.

KEYWORDS: Interest Rates, Inflation, Foreign Exchange Rates, Earnings Per Share, Return On Assets, Current Ratio, Debt To Equity Ratio, and Investment Risk

INTRODUCTION

The territory of Indonesia is part of a series of world volcanoes, namely the Pacific Circumference. This resulted in Indonesia having abundant natural wealth. In addition, Indonesia is also a confluence of tectonic plates such as the Eurasian, Pacific, and Indo-Australian. These conditions make Indonesia geologically and geomorphologically rich in minerals and mining products. (Niken, 2020). Natural wealth is indeed one of Indonesia's advantages, because the country has abundant natural resource potential, both above and below the earth's surface. These natural resources can be utilized to improve the welfare of all Indonesians. So Indonesia is expected to be able to process these resources well. One of the natural resources owned by Indonesia is coal. Mining processing can be done in the private sector or by state-owned enterprises (Siburian, 2012). The coal mining sector is a leading commodity and one of the country's largest foreign exchange earners. Based on a study of data from the Central Bureau of Statistics, coal mining commodities have experienced fluctuations in export volumes since 2015. Where in 2015 the volume of mining was exported as much as 328,387,000 tons, in 2016 it decreased to 311,330,000 tons, in 2017 it experienced two increases with a total export volume of 319,098,000 tons, in 2018 it increased to

343,124,000 tons, in 2019 it was 374,935,000 tons, in 2020 it was 341,547,000 tons, and in 2021 it was 345,453,000 tons (BPS data, 2021). This shows that the mining sector has received attention because of uncertain changes that have resulted in fluctuations in its performance.

This makes the mining sector an attractive sector to serve as an investment alternative. Investments that occur in this sector are increasing from time to time. The investment can be in the form of an investment or an investment in the secondary market. (Suseno, 2013). Investment activities in the capital market are conducted by conducting transactions between investors with the aim of gaining profit. Therefore, the secondary market provides liquidity to investors, not companies. Stock investment in the capital market is one of the tools available to investors for profit. Analysts and investors realize that investing in stocks is inseparable from risks related to uncertainty about the level of return on investment. The variability of stock returns, both individual income (by company) and overall income (market return), in the capital market reflects stock investment risk. The size of the investment risk in a stock can be measured by the variance or standard deviation of the stock's income. This risk is called total risk, which consists of systematic risk and unsystematic risk. (Adnyana, 2020).

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According to Veronica & Pebriani (2020), investors need to pay attention to macro and micro conditions before carrying out investment activities. There are several macro- and micro-variables and factors that affect investment risk in coal-producing companies. The macro factors are interest rates, inflation rates, and foreign exchange rates, while the micro factors are earnings per share (EPS), return on assets (ROA), current ratio (CR), and debt-to-equity ratio (DER).

Interest rates influence a person's economic decisions, such as whether to spend money or save it. Interest rates also influence economic decisions for entrepreneurs, such as whether to invest in new projects, expand capacity, or postpone them. Interest rates are one of the most observed variables in the economy. This is because interest rates directly affect our lives and have important consequences for the health of the economy. High interest rates can depress stock prices, whereas low interest rates tend to push up stock prices. The pressure on stock prices caused by high interest rates increases the risk of stock investment (Nasir, 2016). Various studies have been conducted to measure the effect of interest rates on the level of investment risk. Research conducted by Ningsih et al. (2019) and Dewi (2017) shows that interest rates have a positive and significant effect on investment risk. While Suhardi (2009) and Makaryanawati & Ulum (2009) found that interest rates have a negative impact on investment risk.

In addition to interest rates, another factor affecting investment risk is the inflation rate. At a low and stable level, inflation has a positive effect on the economy. Consumers will find it easier to plan expenses. Low inflation also encourages increased investment due to low interest rates. However, when high inflation results in uncertainty, thereby reducing the intensity of investment (Utari et al., 2015) and increasing the risk of investment, The research conducted on inflation also showed mixed results, as was done by Dewi (2017) and Al-Qaisi (2011). The research he conducted concluded that the inflation rate has a positive and significant effect on investment risk. However, research conducted by Sarumaha (2017) and Arfaoui & Abaoub (2010) found that inflation has a negative effect on investment risk.

The next factor is the foreign exchange rate. Exchange rate fluctuations can affect a company's income and operational costs, which can ultimately affect its stock price (Maisaroh, 2017). This is because the strengthening of the rupiah exchange rate will reduce the cost of importing raw materials. so that the income earned by the company will decrease. On the other hand, companies that export when the exchange rate strengthens will increase their income. so that when the rupiah's exchange rate against foreign currencies weakens, it will increase investment risk. Research on the effect of the exchange rate has also been carried out, including by Coryaina (2013) and Sunaryo (2019) which shows that the exchange rate has a significant positive effect on investment risk. Meanwhile, research conducted by Ningsih et al. (2019)

and Sarumaha (2017) shows that the exchange rate has a negative and significant effect on investment risk.

In addition to these factors, there are also micro-factors that influence investment risk, namely earnings per share (EPS), return on assets (ROA), current ratio (CR), and debt-to-equity ratio (DER). Earnings per share (EPS), or income per share, is a form of profit sharing given to shareholders from each share owned by a shareholder. This ratio indicates how much profit investors or outstanding shareholders receive in a given period (Fatihudin & Irfan, 2021). This means that if EPS increases, this will affect the income provided to shareholders, so that shareholders tend to buy shares that have a large rate of return. Therefore, a high or low EPS has an effect on investment risk. Based on research conducted by Tandy et al. (2010), they concluded that EPS has a positive and significant effect on investment risk. Meanwhile, the research conducted Chairiyah (2013) shows that EPS has a negative and significant effect on stock investment risk.

Apart from EPS, return on assets (ROA) is a factor selected as an independent variable. This is because ROA shows the results (return) on the total assets used by the company. This ratio is also a measure of management effectiveness in managing its investments (Kasmir, 2012). If the company is effective in managing its assets, it will get an increase in profits, whereas if the company is not effective in managing its assets, its profits will decrease, which results in a decrease in investor interest in investing in the company. The decrease in investment results in a decrease in the company's stock price, which has an impact on increasing investment risk in the company. Previous research conducted by Sarumaha (2017) and Ranti & Damayanti (2020) concluded that ROA has a positive and significant effect on investment risk. In contrast, the results of research conducted by Rachmawati (2008) and Bui et al. (2017) found that ROA has a negative and significant effect on investment risk.

The next factor is the current ratio (CR); this ratio is used to see how the ability of current assets can guarantee the company's current liabilities (Jusuf, 2014). If the CR increases, the company's ability to pay its debts will improve, while a low CR will result in difficulties for the company to pay its short-term debts. Difficulty in paying this debt will affect investors' interest in investing in the company because investors will be worried if the company faces failure to pay debts. Therefore, if the CR is low, it will increase the risk of the investment. Research has been conducted on this factor, including by Witiastuti & Jazuli (2016) and Abdurahim (2003) who concluded that CR has a significant positive effect on investment risk, while research conducted by Sarumaha (2017), Fatihudin & Irfan (2021), Ranti & Damayanti (2020) dan Laraswati et al. (2018) shows that CR has a significant negative effect on stock investment risk.

Apart from looking at the company's liquidity capacity, the investment assessment is also seen in the company's leverage ratio. The leverage ratio is a ratio that shows the composition

of the company's sources of funds, especially debt. This ratio shows an indication of the level of security held by lenders (creditors) (Jusuf, 2014). This ratio is seen from the level of the debt equity ratio (DER), namely the comparison between total liabilities and total equity. This is to show the ability of the company's capital to guarantee the debt owned by the company. As with CR, DER also refers to the company's ability to manage its debts. The high DER will result in an increase in investment risk for the company. (Ranti & Damayanti, 2020) and (Laraswati et al., 2018) conducted research to see how DER affects the risk of stock investment. The results of his research show that DER has a positive and significant effect on investment risk. Meanwhile, Fatihudin & Irfan (2021), Bui et al., (2017) and Soeroso (2013) show that DER has a negative and significant effect on investment risk. Based on this description, this study aims to determine the factors that influence investment risk in companies engaged in the energy sector, specifically the coal producer sub-sector.

HYPOTHESIS DEVELOPMENT AND FRAMEWORK FOR THINKING

The effect of Interest Rates on the Risk of Investing in Shares of Coal-producing Companies on the Indonesia Stock Exchange

Interest rates are prices that are determined by the level of demand and supply for a loan of money and the demand and supply to hold money. Interest rates determine whether a country's savings can function (Bottomley, 1975). Interest rates have a close relationship between supply and demand. The interest rate is a reflection of supply and demand conditions in the market. Interest rates are also used to ensure that prices and inflation remain under control and constant. (Alessandro Galesi, 2017) High interest rates are a negative signal for stock prices. Besides that, increased interest rates can also cause investors to withdraw their investments in stocks and transfer them to investments in the form of savings or deposits (Tandelilin, 2017). Therefore, high interest rates can depress stock prices. The pressure on stock prices caused by high interest rates increases the risk of investing in stocks. A similar opinion was expressed by Ocran (2010), who stated that due to rising interest rates, people do not invest in stocks because they have less money to spend due to increased savings, and those who do want to invest will do so in relatively safer instruments such as government bonds, which on average yield fixed and defined returns. According to Alena et al. (2017), interest rates make the highest contribution to the movement of the mining and infrastructure sector index. An increase in interest rates will have an adverse impact on companies whose corporate funding is dominated by loans from banks. An increase in interest rates will be followed by an increase in company expenses and a decrease in profits with declining company performance. Research conducted by Ningsih et al. (2019) dan Dewi (2017) dan Caecilia & Cahyadi (2015) shows that interest rates have a

positive and significant effect on investment risk. This means that an increase in interest rates will increase investment risk. Thus, the hypothesis that can be made is:

H1 : The interest rate has a positive and significant effect on the risk of investing in shares of coal-producing companies on the Indonesia Stock Exchange.

The effect of the Inflation Rate on the Risk of Investing in Shares of Coal Producing Companies on the Indonesia Stock Exchange

Inflation is defined as a process of continuously increasing prices and decreasing purchasing power. In other words, a general and broad-based increase in the price of goods and services over an extended period. (Hoflmayr, 2022) According to Muhayatsyah (2012) Basically, an unanticipated increase in the inflation rate will increase the prices of goods and services, so that consumption will decrease. In addition, an increase in the price of factors of production will also increase the company's cost of capital. As a result, an increase in the unanticipated inflation rate will lower stock prices. Thus, the higher the inflation, the higher the stock investment risk (beta). Research conducted by Dewi (2017) and Al-qaisi (2011) and Pambudi (2006) concluded that the inflation rate has a positive and significant effect on investment risk. Thus, the hypothesis is:

H2 : The inflation rate has a positive and significant effect on the risk of investing in shares of coal-producing companies on the Indonesia Stock Exchange.

The Effect of Foreign Exchange Rates on the Risk of Investing in Shares of Coal Producing Companies on the Indonesia Stock Exchange

The exchange rate is the main variable balancing a country's international trade and payments. If a country imposes import limits, the demand for foreign currency will decrease and prices will also fall (Harberger, 2004). Coal trading is always valued in foreign currencies, especially US dollars. Therefore, investors are very concerned about the exchange rate of the rupiah against the dollar (USD). This coal-producing company will be more at risk of incurring losses if there is an increase in the Rupiah exchange rate against the USD, and vice versa, if there is a decrease in the Rupiah exchange rate against the dollar, the price of coal will increase and affect the company's profit. so that when the rupiah's exchange rate against foreign currencies weakens, it will increase investment risk. Research conducted by Ningsih et al. (2019), Pangemanan, (2013), Sadeli (2010) and Sarumaha (2017) shows that the exchange rate has a negative and significant effect on investment risk (). Thus, the research hypothesis is:

H3: Foreign exchange rates have a negative and significant effect on the risk of investing in shares of coal-producing companies on the Indonesia Stock Exchange.

The Effect of Earnings Per Share (EPS) on the Risk of Investing in Shares of Coal-producing Companies on the Indonesia Stock Exchange

According to Tandelilin (2017) earnings per share (EPS) is one of the market valuation ratios that forms the basis of company goals and is also a consideration for potential investors in making decisions. The first important component that must be considered in a company's analysis is earnings per share, which shows the amount of the company's net profit that is ready to be distributed to all company shareholders. The profits earned by investors will be reflected in the amount of income earned by the EPS of a company. This is also the basis on which investors calculate the possible profits they will get from investment activities. However, the higher the profit, the higher the level of risk that will be faced. This is in accordance with the risk and return theory, which states that the higher the rate of return, the greater the risk faced. This is shown by research conducted by Kusuma (2016), Felicia (2019), Armin (2009) and Tandy et al., (2010) showing that EPS has a positive and significant effect on stock investment risk. So the research hypothesis is:

H4 : Earnings per share (EPS) has a positive and significant effect on the risk of investing in shares of coal-producing companies on the Indonesia Stock Exchange.

The Effect of Return On Assets (ROA) on the Risk of Investing in Shares Of Coal-Producing Companies on the Indonesia Stock Exchange

ROA is a ratio that assesses the effectiveness of using company assets to generate profits. The higher the profit generated, the higher the ROA, which means that the company is more effective in using its assets to generate profits. ROA is calculated based on a comparison of profit before tax and average total assets (Prasnugraha, 2007). For investors, an increase in company profits indicates that the company is effective in managing its assets. Conversely, if the company is not effective in managing its assets, its profits will decrease, which results in a decrease in investor interest in investing in the company. The decrease in investment results in a decrease in the company's stock price, which has an impact on increasing investment risk in the company. This is in accordance with research conducted by Saleh & Sudiyatno (2013), Bui et al., (2017), Jaafar et al., (2020), and J. Lee & Shawn, (2007), which concluded that ROA has a negative effect and is significant for investment risk. Thus, the research hypothesis is:

H5 : Return on assets (ROA) has a negative and significant effect on the risk of investing in shares of coal-producing companies on the Indonesia Stock Exchange.

The Effect of the Current Ratio (CR) on the Risk of Investing in Shares Of Coal-Producing Companies on the Indonesia Stock Exchange

The current ratio, otherwise known as the working capital ratio, measures a business' ability to meet its short-term

obligations that mature within one year. This ratio compares total current assets with total current liabilities. The current ratio looks at how a company can maximize the liquidity of its current assets to settle its debt obligations. (Institute, n.d.) This ratio provides an indication of the company's cash needs in the future. A high current ratio provides a good indication of collateral for short-term creditors, meaning that at any time the company has the ability to pay off its short-term obligations. The higher this ratio, the healthier the company, because the company is able to meet its short-term obligations and, for investors, is free from default on debt payments. Meanwhile, difficulty paying debts will affect investors' interest in investing in the company because investors will be worried if the company fails to pay debts. Therefore, if the CR is low, it will increase the risk of the investment. According to research by J. Lee & Shawn (2007), Jaafar et al. (2020), Ardwita (2018) and Sadeli (2010), CR has a significant negative effect on stock investment risk (). Thus, the research hypothesis is:

H6 : The current ratio (CR) has a negative and significant effect on the risk of investing in shares of coal-producing companies on the Indonesia Stock Exchange.

The Effect of the Debt-To-Equity Ratio (DER) on the Risk of Investing in Shares of Coal-Producing Companies on the Indonesia Stock Exchange

DER is a ratio that is commonly used to analyze a company's ability to pay its long-term debt. If the DER of a company increases, it means that the company is receiving funding from lenders. The high DER will result in an increase in the risk of default. Therefore, investor interest in the company will decrease, which will result in an increase in investment risk company increases, it means that the company is receiving funding from lenders. The high DER will result in an increase in the risk of default. Therefore, investor interest in the company will decrease, which will result in an increase in investment risk. Lenders or investors will usually be more likely to choose a company with a smaller debt-to-equity ratio. This means that the assets of the lender or investor remain safe in the event of a loss. The higher the ratio of debt to capital, the higher the amount of debt or the company's obligation to pay off debts that must be paid both in the short and long term. This is consistent with research conducted by Ranti & Damayanti (2020) dan Laraswati et al., (2018) and Sadeli (2010), which shows that DER has a positive and significant effect on investment risk. Thus, the research hypothesis is:

H7 : The debt-to ratio (DER) has a positive and significant effect on the risk of investing in shares of coal-producing companies on the Indonesia Stock Exchange

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MODEL

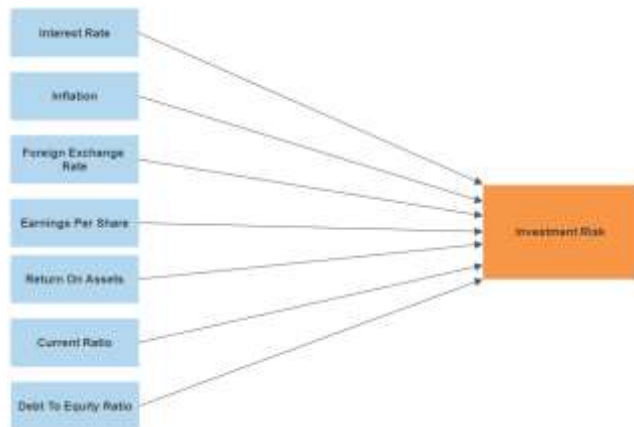


Figure 1. Framework

METHODOLOGY

Population and Sample

The population in this study are companies in the energy sector, the coal production sub-sector, which are listed on the IDX for the period 2015–2021, totaling 18 companies. The sampling technique used in this study was purposive sampling. The criteria for determining the sample are: (1) companies in the energy sector in the coal production sub-sector; (2) these companies are listed consecutively during the period 2015–2021; (3) companies whose trading has not been suspended for more than 12 consecutive months; (4) companies that still have business prospects for coal; and (5) companies that record profits. Based on the above criteria, of the 18 companies in the energy sector in the coal production sub-sector that were listed on the IDX during the 2015–2021 period, there were 6 that would be sampled.

Variable Operational Definitions

1. Investment risk is measured using stock beta. Beta shows the sensitivity of stock returns to market changes (Taliawo et al., 2007). In this study, stock beta is calculated by regressing stock returns on market returns (IHSG) as follows:

$$R_{it} = \frac{(P_{it} - P_{it-1})}{P_{it-1}} \quad R_{mt} = \frac{(IHSG_{it} - IHSG_{it-1})}{IHSG_{it-1}}$$

Where:

- R_{it} = Stock return i week t
- R_{mt} = Market return i week t
- P_{it} = Stock price i week t
- P_{it-1} = Stock price i week t-1
- $IHSG_{it}$ = Composite Stock Price Index week t
- $IHSG_{it-1}$ = Composite Stock Price Index week t-1

In this study, the stock return regression with market return (IHSG) obtained was calculated using the Excel

application with the regression calculation formula = $SLOPE(R_{it}, R_{mt})$.

2. Interest Rate: The interest rate is the price of using money, or it can also be seen as a rental for using money for a certain period of time. or the price of borrowing money to use its purchasing power, and is usually expressed in percent (%) (Nasir, 2016). In this study, the interest rate measure used is the BI 7-Day Reverse Repo Rate (BI7DRR).
3. Inflation: According to Sarumaha (2017), inflation is the process of continuously increasing the general price of goods. Inflation is measured through the Consumer Price Index (CPI), which is obtained on a monthly basis and calculated based on the annual average (BPS data, 2021). The calculation is done in the following way:

$$L_i = \frac{IHK_t - IHK_{t-1}}{IHK_{t-1}} \times 100\%$$

Where :

- L_i = Inflation rate
- IHK_t = Consumer Price Index month t
- IHK_{t-1} = Consumer Price Index month t-1

4. Foreign Exchange Rates: Foreign Exchange Rates are defined as an agreement known as "currency exchange rates" against present or future payments between the currencies of two different countries (Kennedy, 2018). The exchange rate used in this study is the middle rate. The calculation of the middle rate is obtained by:

$$K_t = \frac{K_j + K_b}{2}$$

Dimana :

- K_t = Middle Rate
- K_j = Sell Rate
- K_b = Buy Rate

5. Earnings per share (EPS): EPS is a ratio that shows how much profit (return) investors and common stockholders get per share (Tandy et al., 2010). The formula for calculating EPS is:

$$EPS = \frac{\text{Net Profit} : \text{Outstanding shares}}{100\%}$$

6. Return on Assets (ROA): ROA is a ratio that measures how much a company can utilize its assets to generate profits for the company (Ranti & Damayanti, 2020). The formula for calculating ROA is:

$$ROA = \frac{\text{Net Profit} : \text{Total Assets}}{100\%}$$

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7. Current Ratio (CR): The CR shows a company's ability to pay its short-term liabilities using its current assets (Fatihudin & Irfan, 2021). The formula for calculating CR is:

$$CR = \frac{\text{Current Assets} : \text{Current Liability}}{100\%} \times 100\%$$

8. Debt-to-Equity Ratio (DER): DER is a ratio that measures how much a company's assets are funded by debt, or the amount of debt burden borne by the company with the assets owned by the company. The formula for calculating DER is:

$$DER = \frac{\text{Total Liability} : \text{Equity}}{100\%} \times 100\%$$

Regression Equation

The form of the formulation of multiple linear equations in this study is:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + \varepsilon$$

Where:

Y = Investment Risk

a = Constanta

X1 = Interest Rate

X2 = Inflation

X3 = Foreign Exchange Rate

X4 = Earnings per Share

X5 = Return on Asset

X6 = Current Ratio

X7 = Debt to Equity Ratio

b1,b2,b3,b4,b5,b6,b7 = Regression Coefficient

ε = Error term

OUTPUTS

Descriptive Statistical Analysis

By using the Excel program, descriptive statistics for the sample company variables that are the object of research are obtained as follows:

Table 1. Descriptive Statistical

Var.	Min	Max.	Mean	Std. Dev
IR	3.52	7.52	5.23	1.23
INF	1.56	6.38	3.36	1.46
KURS	13353.48	14595.00	13931.06	482.64
EPS	18.69	6154.73	734.10	1148.61
ROA	2.50	47.13	16.11	10.95
CR	73.00	398.00	202.52	78.51
DER	24.00	170.00	60.34	33.36
BETA	-0.62	2.48	0.92	0.83

Based on the interest rate, the highest rate is 7.52%; this interest rate is the 2015 interest rate, and the lowest is 3.52% in 2021. The average interest rate is 5.23%. This average value illustrates the overall level of interest rate data so that interest rates from 2017 to 2021 are below the average interest rate, while in 2015 and 2016 they are above the average value, which means the investment risk that occurred in 2015 and 2016 is higher compared to the investment risk that occurs from 2017 to 2021. The standard deviation value of 1.23 is below the average value, which illustrates that the interest rate data is not varied because the standard deviation is smaller than the average.

Based on the highest inflation rate, it was 6.38 in 2015, and the lowest was 1.56 in 2021. The average inflation rate was 3.36. This average value illustrates the overall level of inflation data so that the inflation rate for 2018 to 2021 is below the average interest rate, while from 2015 to 2017, it was above the average value, which means the investment risk that occurs in 2018 to 2021 is higher than the investment risk that occurred from 2015 to 2017. The standard deviation value of 1.46 is below the average value, which illustrates that the inflation data is not varied because the standard deviation is smaller than the average.

Based on the highest exchange rate, it was 14,595.00 in 2020, and the lowest was 13,353.48, namely in 2016. The average exchange rate was 13,931.06. This average value describes the overall level of exchange rate data so that the exchange rate from 2018 to 2021 is above the average exchange rate, while from 2015 to 2017, it is below the average value, which means the investment risk that occurs from 2018 to 2021 is lower than the investment risk that occurs from 2015 to 2017. The standard deviation value of 482.64 is below the average value, which illustrates that the data values are not varied because the standard deviation is smaller than the average.

Based on the earnings per share (EPS) of coal producing companies listed on the Indonesia Stock Exchange with the highest ratio value of 6154.73% in 2021 and the lowest EPS ratio of 18.69%, namely TOBA in 2016, The average earnings per share (EPS) of coal-producing companies listed on the Indonesia Stock Exchange is 734.10%. This average value illustrates the overall level of EPS value data so that the investment risk in companies with EPS values below the average value is lower than the investment risk that occurs in companies with EPS values above the average value. The standard deviation value of 1148.61 is above the average value, which illustrates that the EPS data varies because the standard deviation is greater than the average.

According to the return on assets (ROA) ratio values of coal producing companies listed on the Indonesia Stock Exchange, the 2021 BSSR company had the highest ROA ratio value of 47.13% and the ADRO company had the lowest ROA ratio value of 2.50%. The average ROA value of coal-

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producing companies listed on the Indonesia Stock Exchange is 16.11%. This average value describes the overall level of ROA value data so that the investment risk in companies with ROA values above the average value is lower than the investment risk that occurs in companies with ROA values below the average value. The standard deviation value of 10.95 is below the average value, which illustrates that the ROA data is not varied because the standard deviation is smaller than the average.

Based on the current ratio (CR) of coal-producing companies listed on the Indonesia Stock Exchange, the highest ratio value of 398.00% occurs in 2021 at MBAP and the lowest CR ratio of 73.00%, namely FFB, in 2020. The average CR value of coal-producing companies listed on the Indonesia Stock Exchange is 202.52%. This average value illustrates the overall level of CR value data so that the investment risk in companies with a CR value above the average value is lower than the investment risk that occurs in companies with a CR value below the average value. The standard deviation value of 78.51 is below the average value, which illustrates that the CR data is not varied because the standard deviation is smaller than the average.

Based on the debt-to-equity ratio (DER) of coal producing companies listed on the Indonesia Stock Exchange, the highest ratio value was 170.00%, namely TOBA in 2020, and the lowest DER ratio was 24.00%, namely BSSR in 2015. The average value of the company's DER coal producers listed on the Indonesia Stock Exchange is 60.34%. This average value illustrates the overall level of DER value data so that the investment risk in companies whose DER value is above the average value is higher than the investment risk that occurs in companies whose DER value is below the average value. The standard deviation value of 33.36 is below the average value, which illustrates that the DER data is not varied because the standard deviation is smaller than the average.

Beta Shares of coal producing companies listed on the Indonesia Stock Exchange had the highest ratio value of 2.48, namely in ADRO in 2017, and the lowest Beta Shares were - 0.62, namely in TOBA in 2016. The average value of beta shares of coal producing companies listed on the Stock Exchange The Indonesian stock is 0.95. This average value describes the overall level of beta value data so that the investment risk in companies with beta values above the average value is higher than the investment risk that occurs in companies whose beta share values are below the average value. The standard deviation value of 0.83 is below the average value, which illustrates that the beta data is not varied because the standard deviation is smaller than the average.

Classic assumption test

a. Results of the Normality Test

The Kolmogorov-Smirnov test was used in this study to determine normality at a significance level of =

5%. Based on the results of the 5.10 normality test using the Kolmogorov-Smirnov method, a significant value was obtained above 0.05, namely 0.200. This shows that the data in this study are normally distributed, and the regression model meets the assumptions of normality.

b. Result of the Autocorrelation Test

Proving that there is no correlation is done by the Durbin-Watson test (DW test) (Ghozali, 2016). If the value of $4 - DW$ is greater than dL and dU , it is decided whether there is autocorrelation. Based on the DW test, it is known that the DW value is 1.440, and from the DW table, it is known that the dL value is 0.9497 and the dU is 2.0688. Based on the value of $4DW$, it is found that the number is greater than dL and dU , so it can be concluded that there is no autocorrelation in the regression model.

c. Results of the Multicollinearity Test

To detect whether or not multicollinearity exists, it can be seen from the variance inflation factor (VIF). If the VIF value is greater than 10, it indicates multicollinearity. If, on the other hand, VIF 10 is used, multicollinearity does not occur (Ghozali, 2016). From the calculation results of each independent variable, the VIF value is less than 10, so the assumption that multicollinearity does not occur has been fulfilled.

d. Results of the Heteroscedasticity Test

The Spearman Rank correlation test is used for heteroscedasticity testing, and if the Spearman Rank correlation between each independent variable and the residual has a significant value greater than (5% / 0.05), there is no heteroscedasticity. Based on the results of the Spearman rank correlation test of the 7 independent variables above, a significance value was obtained that was above alpha 0.05, so this could mean that there was no heteroscedasticity.

Hypothetical Testing

a. Goodness Of Fit Model Test

The resulting F-statistics value is 3,613, with a significant value of 0.005. This shows that the factors of interest rates (X1), inflation (X2), foreign exchange rates (X3), earnings per share (X4), return on assets (X5), current ratio (X6), and debt-to-equity ratio (X7) jointly affect the risk of stock investment (Y). This is reviewed based on the F-statistics value, which is greater than the F-table value ($3.613 > 2.49$), and the significant value is lower than the standard alpha (0.05). Based on these results, the goodness of fit test is fulfilled, so the analysis model using multiple linear regression is feasible.

b. Determination Coefficient (R²) Test

Testing the coefficient of determination in this study shows that the influence of interest rates (X1), inflation (X2), foreign exchange rates (X3), earnings per share

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(X4), return on assets (X5), current ratio (X6), and debt to equity ratio (X7) leads to an R-square of 42.7%. while the remaining 57.3% is the contribution of other variables outside of the model used by researchers.

c. Partial Regression Test (t Test)

The t test is used to determine the effect of the independent variables on stock investment risk (Y) by using a level of confidence of 95% or = 5% and a t count that is greater than the t table. Based on research data and the output of the SPSS 25 program, the following results were found:

Table 2. T test calculation results

Variabel	Regression Coefficient	t-statistics	Sig.	Remark
IR	-.476	-2.146	.039	H1 denied
INF	.174	.867	.392	H2 denied
KURS	-0.000362	-1.112	.274	H3 denied
EPS	0.000281	2.733	.010	H4 accepted
ROA	-.040	-3.406	.002	H5 accepted
CR	.001	.624	.537	H6 denied
DER	-.006	-1.459	.154	H7 denied

Based on the table above, the regression equation can be made as follows:

$$Y = 8,498 - 0,476X_1 + 0,174X_2 - 0,000362X_3 + 0,000281X_4 - 0,040X_5 + 0,001X_6 - 0,006X_7$$

1. The effect of interest rates on the risk of investing in coal production sub-sector companies

The test results on the interest rate variable produced a t count = - (2.146) greater than a t table = 1.6909 with a significance level of 0.039, which is less than the 5% limit. These results indicate that interest rates have a significant negative effect on investment risk in coal production sub-sector companies. This is because the increase in the BI rate is not so significant that it causes investors to not be interested in investing in the money market, so it does not cause volatility in stock prices, and finally, stock risk decreases. The results of the research are in line with empirical studies that suggest a negative effect of interest rates on stock investment risk from Hussain et al., (2019), Muhayatsyah (2012) and Pramana & Badera (2017).

2. The effect of inflation on the risk of investing in coal-producing sub-sector companies

The inflation variable test results obtained a t value of 0.867, which is less than the t value of 1.6909 with a significance level of 0.392, which is greater than the significance level of = 5%. These results indicate that inflation has no significant positive effect on investment risk in coal production sub-sector companies. These results support research conducted by Ferranti & Yunita (2015),

Dewi (2017), Sunaryo (2019), Muhayatsyah (2012), Sadeli (2010) and Pramana & Badera (2017). Deteriorating economic conditions marked by too high inflation could result in a decrease in the real income earned by investors from investment, so this would be a negative signal, and in the end, the risk would increase. On the other hand, if a country's inflation decreases, this will be a positive signal for investors, along with a decrease in the risk of the purchasing power of money and the risk of decreasing real income (Atmadja, 1999). The results of this study did not produce a significant effect that could occur because the inflation had been anticipated beforehand. Basically, the unanticipated increase in the inflation rate will increase the price of goods and services, so that consumption will decrease. In addition, an increase in the price of factors of production will also increase the company's cost of capital. As a result, an increase in the unanticipated inflation rate will lower stock prices. Then what happened was that the inflation rate was still at a safe level. so that it is not affected by stock exchange activities that can affect investment risk. This insignificant result also occurred in research conducted by Ferranti & Yunita (2015), Caecilia & Cahyadi (2015), Muhayatsyah (2012), Pangemanan (2013), Pramana & Badera (2017) and Sadeli (2010).

3. The effect of foreign currency exchange rates on the risk of investing in coal production sub-sector companies

The results of the test on the foreign exchange rate variable were t counts = -(1.112) less than t tables = 1.6909 with a significance level of 0.274, which is greater than the = 5% significance level. These results indicate that foreign exchange rates have no significant negative effect on investment risk in coal production sub-sector companies. The orientation of coal-producing companies is the export market with local raw materials, so the strengthening of the dollar against the rupiah will benefit the company, which causes the risk to be low. Alternatively, if the local market is oriented toward importing raw materials from abroad, an increase in the dollar or strengthening of the dollar against the rupiah will harm the company and increase the risks faced by investors. This result is in line with the results of Ningsih et al. (2019), Pangemanan (2013) and Sadeli (2010), who found that the Rupiah/USD exchange rate has a negative effect on stock risk. Insignificant results were obtained because coal producing companies took action to hedge the dollar value that was denominated in coal trading prices so that changes in exchange rates did not affect the increase or decrease in the company's business activities. Then, because most coal sales to other countries use foreign currency transactions, especially US dollars, most of the company's operating income and expenses are denominated in US dollars, which indirectly acts as a natural hedge against fluctuations in foreign currency exchange rates. This insignificant result also

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occurred in research conducted by Sarumaha (2017) and Soraya & Lutfiati (2020).

4. The effect of earnings per share on the risk of investing in coal production sub-sector companies

The test results on the earnings per share variable obtained a t count of = 2.733, which is greater than a t table of = 1.6909 with a significance level of 0.010, which is below the = 5% significance level. These results indicate that earnings per share has a significant positive effect on investment risk for companies in the coal production sub-sector. EPS information is considered the most basic and useful for investors because it can describe the company's earnings prospects in the future. By looking at EPS, investors can see the risks that will be accepted in the future and can make decisions about whether to buy, sell, or retain the shares (Tandelilin, 2017). The relationship between earnings per share and stock investment risk can be due to the fact that during the observation period, there was an increase in earnings per share, which was accompanied by profit sharing for coal producing companies on the Indonesian stock exchange. The results of this study are supported by research conducted by Kusuma (2016), Felicia (2019), Armin (2009) and Tandy et al. (2010).

5. The effect of return on assets on the risk of investing in coal production sub-sector companies

The test results on the variable return on assets obtained t count = -(3.406) greater than t table = 1.6909 with a significance level of 0.002, which is below the limit of the significance level = 5%. These results indicate that return on assets has a significant negative effect on investment risk in coal production sub-sector companies. The higher the return on assets, the more efficiently all assets are used to generate sales. This also shows how the company's assets have been properly utilized and that management's ability to manage the company is considered good. so that the assets can be used to increase company sales. So with increased sales, the profit that will be generated by the company will also increase. For investors, the company's profit gives the impression that the company will continue to be sustainable and healthy in the long term. The results of this study are in accordance with the results of research conducted by Saleh & Sudiyatno (2013), Bui et al. (2017) and Lee et al., (2015), which show that return on assets has a negative effect on stock investment risk.

6. The effect of the current ratio on the risk of investing in coal production sub-sector companies

The current ratio variable yielded a t count of 0.624, which is less than a t table of 1.6909 with a significance level of 0.537, which is greater than the = 5% significance level. These results indicate that the current ratio has no significant positive effect on investment risk in coal production sub-sector companies. The results of the study

show that it is a phenomenon where investors feel wary of the company's management's ability to manage its current assets. There is a tendency that management will use existing liquidity for non-urgent expenses or use existing funds to invest in projects that do not generate profits immediately. On the other hand, excess cash or inventories piled up in warehouses will lead to lower-quality investments made by management. These results are in line with research conducted by Abdurahim (2003), Makaryanawati & Ulum (2009), Witiastuti & Jazuli (2016), Deswira (2013), Ferranti & Yunita (2015) and Caecilia & Cahyadi (2015), who found that the current ratio has a positive effect on stock investment risk. Insignificant results can be caused by the long-term orientation of coal-producing companies. Therefore, the current ratio does not affect changes in stock prices or changes in returns, so it does not affect the investment risk of coal-producing companies. so that investors do not really consider current assets in making investment decisions. This insignificant result also occurred in research conducted by Deswira (2013), Fatihudin & Irfan (2021), Ferranti & Yunita (2015), Hutauruk et al., (2014), Putri (2019), Ranti & Damayanti (2020), Sarumaha (2017) and Julduha & Kusumawardhani (2013).

7. The effect of the debt-to-equity ratio on the risk of investing in coal production sub-sector companies

The test results on the debt-to-equity ratio variable obtained t count = -(1.459), which is smaller than t table = 1.6909 with a significance level of 0.154 above the = 5% significance level. These results indicate that the debt-to-equity ratio has no significant negative effect on investment risk in coal production sub-sector companies. The results of research point in a negative direction, which can be caused by the use of debt to finance infrastructure expansion in support of increasing mining production capacity and for long-term working capital, so it is hoped that increasing debt will increase company revenue. The results of this study are in accordance with the results of research conducted by Sarumaha (2017), Fatihudin & Irfan (2021), Bui et al., (2017), Saleh & Sudiyatno (2013), Soraya & Lutfiati (2020) and Gumay (2015), which shows that the debt-to-equity ratio has a negative effect on stock investment risk. The results are not significant, maybe because investors do not consider the proportion of debt to equity as an element that influences investment risk. The vigilance of debts that must be guaranteed by own capital means nothing if the company can still provide adequate profits to investors. In addition, it is possible that the debt level of coal-producing companies is still interpreted by investors as being at a safe level. This insignificant result also occurred in studies conducted by Bui et al., (2017), Deswira (2013), W. S. Lee et al., (2015) and Sarumaha (2017).

CONCLUSION

Based on the results of empirical data analysis, the following conclusions can be drawn: interest rates and return on assets have a significant negative effect on investment risk, and earnings per share have a significant positive effect on investment risk. Meanwhile, inflation, foreign exchange rates, the current ratio, and the debt-to-equity ratio have no effect on investment risk.

Issuers or companies should strengthen and balance their financial ratios. Because financial reports are a form of information about the conditions of a company, This can attract investors because it can strengthen the company's balance sheet position.

For investors who will invest their funds, it is advisable to consider the condition of interest rates, earnings per share, and return on assets in making their decision. Because interest rates, earnings per share, and return on assets have a significant influence on stock investment risk,

For further research, pay attention to the currently valid sectors, namely 11 sectors, so that the research object is in accordance with the expectations studied. Researchers can also consider the company's financial situation when selecting the variables, so that later there will be no biased data that makes the research difficult.

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