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The effect of foreign ownership on stock return volatility with financial ratio as control variables

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ABSTRACT

The capital market in Indonesia is an attractive investment destination for both domestic and foreign investors. It allows investors with excess funds to invest in various securities to obtain returns. However, volatility is a risk factor in investing, prompting investors to monitor volatility levels to make informed decisions. This study seeks to examine the impact of independent variables, particularly foreign ownership, in conjunction with control variables including company size, leverage, book to market ratio, and turnover on stock return volatility. The sample comprises 33 mining industry businesses listed on the Indonesia Stock Exchange from 2019 to 2023, harnessing secondary quantitative data. The study utilizes panel data regression analysis. The data was analyzed using Eviews software. The results demonstrate that foreign ownership and leverage exert a modest negative influence on stock return volatility, as does the book to market ratio. In contrast, business size and turnover positively enhance stock return volatility, with turnover exerting the most substantial influence. Investors will allocate their assets to a huge enterprise. The turnover variable exerts the most significant impact on stock return volatility. This is because investors typically examine patterns in a company's turnover rate while trading shares in the capital market.

1. Introduction

Investment is one of the driving forces in a country's economic life because it can lead to capital formation, which can increase production capacity, raise national income, and even create new jobs that will expand employment opportunities. Investors buy stocks to benefit from an increase in share value or accept dividends in the future as a reward for the time and risk involved in that investment. Investors in financial markets are customers or consumers. Exploring investors' behaviour is therefore important for financial institutions to devise appropriate strategies and market appropriate financial products or offer new financial

products to investors to better satisfy their needs. To study investor behaviour, researchers have largely adopted the concept of behavioural finance during the last decade (Rizvi & Fatima, 2014).

The increase in domestic investors started to appear in 2020 when the Covid-19 pandemic began to enter Indonesia. The government then applied mobility restriction rules to reduce the spread of Covid-19. The public was asked not to engage in activities outside by encouraging all employees to work from home. The Covid-19 pandemic has severely impacted all countries, including Indonesia (Wijaya & Nursanti, 2024). High levels of globalisation and modern technology can make the circulation of capital more expeditious. Investors are seeking investment-friendly destinations to invest sizeable amounts and collect large profits (Fernandez & Joseph, 2020). In the era of globalisation and a more open company, the country's economic policies, which previously tended to be closed, have become more liberal. Liberation can invite foreign capital to enter developing countries and influence the development of local capital markets and economies.

Foreign capital that enters the country not only brings financial capital, but also trade knowledge, managerial knowledge, and business connections, enhances the eventuality of humaneness, and enhances the information quality of the capital market. Foreign capital can also encourage a country's society to participate in the global economy. Foreign ownership can influence stock return volatility in developing countries' capital markets because of foreign capital's attention, which provides direction for the global risk premium. This can be interpreted as a systematic relationship between the domestic and global issues. Volatility is a risk factor in investments, and investors often monitor how volatility levels help them make better investment decisions. The higher the volatility, the higher the capital risk. An increase in foreign capital in the domestic market could weaken the local market.

This study used control variables, namely, firm size, leverage, book to market ratio, and turnover. Firm size may affect stock return variability. The study conducted by Fachrudin and Ihsan (2021) and Alabdulkarim et al. (2024) demonstrates that firm size exerts a beneficial influence on the volatility of stock return. Meanwhile, research conducted by Astakhov et al. (2019) states that firm size negatively affects stock return volatility. Leverage variables can affect stock return variability. Research conducted by research by Aharon and Yagil (2019) and Batra et al. (2024) shows that leverage has a positive effect on stock return volatility. Meanwhile, research conducted by Azizi et al. (2023) shows that leverage does not affect stock return variability.

Book to market ratio can affect stock return variability. In addition, Sasikirono et al. (2020) and Batra et al. (2024) states that the book to market ratio positively affects stock return volatility. Meanwhile, an investigation carried out by Araújo and Machado (2018) stated that the book to market ratio does not significantly influence the variability of stock returns. The last control variable that affects stock return variability is turnover. In addition, Sasikirono et al. (2020), Lin et al. (2022), and Batra et al. (2024) indicate that turnover positively affects stock return volatility. Meanwhile, research conducted by Candraningrat et al. (2018) states that turnover does not affect stock return variability.

Foreign investors are often the primary drivers of capital markets. Owing to their strong investment traits, they can engage in substantial transactions and tend to commence trading. The Indonesian capital market is always developing, and is one of the goals of interesting investments for both local and foreign investors. The Indonesian market is classified as an emerging market category in the world that offers the potential for high results. The Indonesian Stock Exchange has several sectoral indices, one of which is the mining sector. The development of the sector, which has become superior over several

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decades in several regions of Indonesia, has become an important indicator of national economic development (Hertina, 2018).

The mining sector is an Indonesian stock exchange sector affected by the Covid-19 pandemic. This can influence the mining production in Indonesia. With a decrease in mining production, the financial performance of companies also declines, impacting company profits. Better financial performance of companies can lead to better profits. This leads to an improvement in stock prices due to the high demand for stocks. Much research has been conducted on foreign ownership, especially when compared to stock return volatility. Various results have been reported. According to Lee et al. (2015), foreign ownership has a positive and significant effect on stock return volatility. Furthermore, Naufa et al. (2019) and Thanatawee (2021) find that foreign ownership has a negative impact on stock return volatility. In light of this information, the author is interested in conducting research on the connection between ownership by foreign entities and the degree of volatility in stock returns. This is because foreign ownership substantially impacts stock return volatility. In other words, the economic stability of a country is affected by the contributions of foreign parties, which are achieved through external exposure and high transaction intensity.

2. Literatur Review and Hypothesis Development

2.1. Literatur Review

2.1.1. Signaling Theory

Signalling theory is exceptionally helpful when describing behaviour in situations where two parties (individuals or organisations) have access to different information. According to Connelly et al. (2011), in most cases, the sender is responsible for determining whether to convey (or signal) information and how to do so. On the other hand, the receiver is an individual who can be held accountable for determining how the signal should be interpreted. According to Brigham and Houston (2019), the term signal theory describes the actions carried out by the management of a company to provide signals regarding the future of the organisation's perspective. Investors need information to assess the level of risk associated with each company so that they can diversify their portfolios and choose an investment combination according to the risk level. If a company wants its stock to be purchased by investors, it must disclose its financial reports openly and transparently.

2.1.2. Agency Theory

Given the ongoing discussions on the performance of businesses and the compensation of their chief executive officers, it is necessary to reconsider this theory, which explains the relationship between owners and managers (Zogwing, 2017). Information asymmetry can arise in the relationship between the principal and the agent because the agent has more information about companies than the principal. The term agency arises when there is a separation between the company's proprietors and administration, where the owners of the company or shareholders are the owners, while the management is responsible for running the company. This separation aims to ensure that the owner can achieve maximum profits with efficient costs through the management of the company by a professional agent. However, according to (Khandelwal et al., 2023), this problem usually arises when both entities maximize their interests. When agents focus on their own gains before the principal's gains, this is called an agency problem. The emergence of agency theory and the associated problems is rooted in the complexities arising from the separation of ownership and control within organizations.

2.1.3. Stock Return

Stock returns are one of the most important aspects of investment analysis. Stock return is the level of profit that investors enjoy for the investment they make. The amount of stock returns can be seen from the abnormal return obtained by investors in connection with the occurrence of stock split events (Bintara & Tanjung, 2019). Investors receive a higher return on their investment if there is a wider disparity between the price at which the stock is purchased and the price at which it is sold. If investors want to earn high returns, they are willing to take greater risks. Conversely, if investors want to obtain low risk, they will also obtain low returns. Two distinct types of returns can be attributed to stock returns: realized and expected returns. Realized return is calculated using historical data and is used to assess company performance. Realized returns can also be used to calculate expected returns, which are expected in future.

2.1.4. Stock Return Volatility

Volatility can be defined as the magnitude of price changes that reflects market fluctuations over a specific period (Lin et al., 2018). According to Li and Zakamulin (2020), there are five volatilities: First, future volatility. Investors hope to determine the volatility level in the future. However, there is no certainty regarding the measurement of future volatility. Second, we examine the historical volatility. Although future volatility cannot be known with certainty, this does not mean that it cannot be predicted. Historical volatility is a relevant factor for predicting future volatility. Historical volatility can be described as the volatility that occurred previously. Third, we consider the forecast volatility. Forecast volatility is the result of predictions of future volatility, based on historical volatility. Fourth, implied volatility. This type of volatility is often used to determine the prices of European options. The implied volatility concept is similar to the expected return on volatility concept. Fifth, seasonal volatility exists. This volatility is due to seasonal conditions, such as commodity prices.

2.1.5. Foreign Ownership

Foreign ownership is defined as the existence of foreign investors in companies stock ownership structure. According to Yi et al. (2024), external shareholders are necessary for the stock market. This is because the structure of company governance can increase security in every decision and action taken by the manager. However, according to Putri and Setiawan (2023), foreign ownership will put more pressure on companies to improve firm performance.

2.1.6. Leverage

Financial leverage entails companies borrowing money to support their operational activities (Arhinful & Radmehr, 2023). Thus, financial leverage is an investment strategy that promotes business expansion and growth. Financial leverage is borrowing debt to expand one’s asset base (Arhinful & Radmehr, 2023).

2.1.7. Firm Size

According to Brigham and Houston (2019), firm size can be described as the scale of a company's size, which can be classified in various ways such as total revenue, total assets, and total equity. According to Alabdulkarim et al. (2024), firm size is calculated as the total assets or the value of the company's assets using the logarithmic calculation of total assets.

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2.1.8. Book to Market Ratio

According to Nugroho (2020), book to market ratio is a comparison between the book value of a company's stock with its market value in the capital market. The book to market ratio relates to both the firm's book value and market value. For this reason, it allows for the identification of future perspectives from both the internal context and investors' views. In the fundamental perspective, the book to market ratio is positively related to the stock returns, considering the book value as a proxy for the firm's future cash flows (Araújo & Machado, 2018).

2.1.9. Turnover

The term turnover is used in the context of evaluating the liquidity of a company's stock. When discussing the market, the term stock liquidity refers to the ease with which a company's shares can be bought and sold. Stock turnover is a financial measure that indicates the frequency of stock turnover during a specific period. This ratio reflects how quickly the money invested in stock is transferred or converted annually (Batra et al., 2024).

2.2. Hypothesis Development

2.2.1. Positive Effect of Foreign Ownership on Stock Return Volatility

Foreign ownership refers to ownership by individuals or groups from abroad that invest in domestic capital. According to Vo (2016), institutional investors in other countries can accelerate asset returns variability. Venture capitalists from other countries create the largest trading volume, which is the primary factor that drives the growing number of shares exchanged. A high trading volume leads to a greater frequency of price fluctuations, which in turn leads to an increase in the volatility of returns, including both total and idiosyncratic volatility. Studies by Thanatawee (2021) and Vo and Mazur (2023) show that foreign ownership positively affects stock return volatility.

H_1: Foreign Ownership Has a Positive Effect on Stock Return Volatility

2.2.2. Positive Effect of Firm Size on Stock Return Volatility

Firm size can be measured by total assets, the logarithm of total assets, or market value, all of which play key roles in determining a company's capacity to bear risk. It is simpler for businesses to access the capital market when they have a large corporate size. Companies have an easier time to acquire additional funding for their operations. The larger the firm size, the more financial resources are available for business operations, making firm size a considered indicator of the company's future stability. When financial reports present information on a company, investors are more likely to invest in larger companies. Research by Fachrudin and Ihsan (2021) and Alabdulkarim et al. (2024) demonstrates that firm size positively affects stock return volatility.

H_2: Firm Size Has a Positive Effect on Stock Return Volatility

2.2.3. Positive Effect of Leverage on Stock Return Volatility

Leverage in the financial markets occurs when a borrower uses borrowed funds to purchase an asset, expecting a larger return than the cost of the loan itself (Adenugba et al., 2016). Thus, financial leverage is an investment strategy that promotes business expansion and growth. Financial leverage refers to borrowing debt to expand the asset base. Leverage is a way to get a higher rate of return on money that has been invested (Demiraj et al., 2023). Solvency and leverage ratios are used to measure a company's

ability to meet its long-term obligations. In this study, leverage is proxied by the debt-to-equity ratio, and a low debt-to-equity ratio value indicates that the company is in a better position, as it demonstrates its ability to meet its obligations without borrowing from external parties. Aharon and Yagil (2019) and Batra et al. (2024) shows that leverage has a positive effect on stock return volatility.

H_3: Leverage Has a Positive Effect on Stock Return Volatility

2.2.4. Positive Effect of Book to Market Ratio on Stock Return Volatility

Book to market ratio can be defined as the ratio of stock prices to the book value of the company. A higher price or book ratio indicates that a firm will generate higher future earnings with its own assets. However, a lower price or book ratio indicates that the firm will not create financial value for investors that would cover their return on equity, as they require (Akhtar, 2021). The dividend discount model is a stock valuation model applied in valuation theory. This model asserts that the intrinsic value of a stock is equal to the present value of the sum of future cash dividend payments anticipated to be received by shareholders from a single share of shares (Bodie et al., 2024). The higher the book to market value, the greater the investors' assessment of a company. If the book to market ratio is high, investor confidence in the company increases. Sasikirono et al. (2020) and Batra et al. (2024) state that the book to market ratio positively affects stock return volatility.

H_4: Book to Market Ratio Has a Positive Effect on Stock Return Volatility

2.2.5. Positive Effect of Turnover on Stock Return Volatility

Turnover is used to assess the frequency of stocks traded within a specific period. The higher the turnover, the greater is the return volatility of the stock. Turnover value can be obtained by calculating the average annual trading volume divided by the number of shares outstanding in the public market. Therefore, the previous research by Sasikirono et al. (2020), Lin et al. (2022), and Batra et al. (2024) indicates that turnover positively affects stock return volatility.

H_5: Turnover Has a Positive Effect on Stock Return Volatility

2.3. Research Framework

Using the research framework model shown in Figure 1, this study investigates whether there is a correlation between foreign ownership firm size, leverage, book to market ratio, and turnover on stock return volatility.

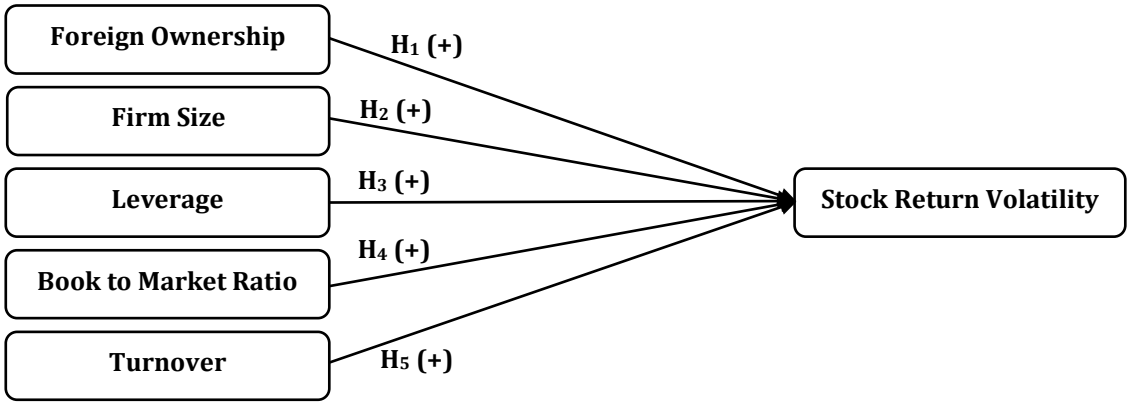

Figure 1. Research Framework

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3. Research Method

3.1. Population and Sampling Method

This population comprises of 87 mining sector companies listed on the Indonesia Stock Exchange from 2019 to 2023. This study employs a quantitative methodology that features a descriptive analysis. Purposive sampling was used in this study. The sample selection criteria encompassed mining businesses registered on the Indonesia Stock Exchange companies that published complete annual reports from 2019 to 2023, and companies that reported foreign ownership in their annual reports consecutively from 2019 to 2023. Based on established criteria, 33 companies met these requirements. There are 23 companies that were not listed on the Indonesia Stock Exchange from 2019 to 2023, 11 companies that did not publish complete annual reports from 2019 to 2023, and 20 companies that did not have foreign ownership in their annual reports.

3.2. Data Collection Method

This study used a literature review and documentation as data collection methodologies. The objective of this literature review was to compile the diverse theories necessary to support this research. The documentation referred to here includes the company's annual reports. Additionally, the author conducted online searches to facilitate obtaining data and information through websites such as www.idx.co.id, www.yahoo.finance.co.id, and other sites that contribute to the research.

3.3. Data Analysis Method

Data processing in this study employed quantitative descriptive analysis using Eviews 12. Data research falls into the category of panel data, making Eviews a suitable program because it can handle issues involving time series, cross-section, and panel data (Gujarati, 2021). This study used two methods for data analysis: descriptive statistical testing and quantitative testing with panel data. There are three approaches to conducting tests on panel data: common, fixed, and random effects. To test these three approaches, Chow, Hausman, and Lagrange Multiplier (LM) tests were performed. If the Chow test yielded a p-value > 0.05, the fixed-effects model was used, followed by the Hausman Test. If the p-value was < 0.05, the fixed-effects model was applied and the LM test was not performed.

After testing the panel data model, several classical assumption tests were conducted, namely normality, multicollinearity, heteroscedasticity, and autocorrelation. The Normality test checks whether the probability is greater than 5% (0.05) to confirm a normal distribution. The Multicollinearity test examines the correlation between dependent and independent variables, and a correlation above 0.8 indicates multicollinearity. The Heteroskedasticity test assesses whether the probability is less than 0.05, suggesting heteroskedasticity. Finally, the autocorrelation test identifies correlations between disturbances in current and previous periods (Gujarati, 2021). After these tests were performed, hypothesis testing was performed. The t-test examined whether the independent variables had an impact on the dependent variable.

4. Results and Discussion

4.1. Descriptive Characteristics

Based on the calculation results in Table 1, the findings can be summarised as follows: First, Stock Return Volatility (VOL). The results of the descriptive statistical analysis for VOL in mining sector companies listed on the Indonesia Stock Exchange from 2019 to 2023 show a mean of 0.031731 with a standard deviation of 0.012567. The

highest VOL was 0.080396 and the lowest was 0. Foreign Ownership (FOWN). The results of FOWN in mining sector companies listed on the Indonesia Stock Exchange from 2019 to 2023 indicate a mean of 0.249164 with a standard deviation of 0.251558. The highest and lowest FOWN values were 0.991696 and 0.00014, respectively. Third, Firm Size (SIZE). The SIZE results for mining sector companies on the Indonesia Stock Exchange from 2019 to 2023 show a mean of 28.99071 with a standard deviation of 2.174971. The highest SIZE was 32.37710 and the lowest was 22.08088.

Next, Leverage (LEV). The results of the LEV in mining sector companies on the Indonesia Stock Exchange from 2019 to 2023 indicate a mean of 1.222407 with a standard deviation of 2.106782. The highest recorded LEV was 24.84892 and the lowest was 0.050454. Fifth, Book to Market Ratio (BTM). The results of the BTM for mining sector companies listed on the Indonesia Stock Exchange from 2019 to 2023 show a mean of 1.264229, with a standard deviation of 0.999619. The highest BTM was 4.605608 and the lowest was 0.009622. Finally, there is a Turnover (TURN). The results of TURN for mining sector companies on the Indonesia Stock Exchange from 2019 to 2023 indicate a mean of 0.002619 and a standard deviation of 0.003826. The highest recorded TURN was 0.024099, whereas the lowest was 0.

Table 1. Descriptive Statistic

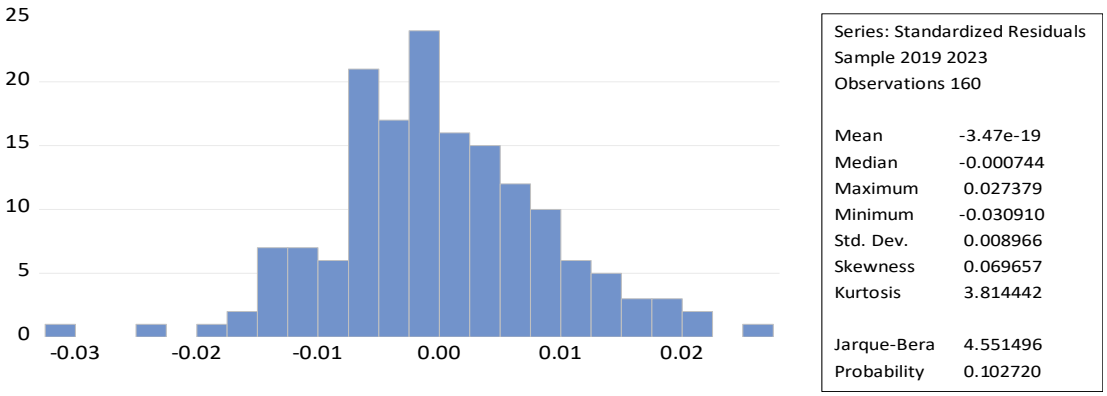
	VOL	FOWN	SIZE	LEV	BTM	TURN
Mean	0.031731	0.249164	28.99071	1.222407	1.264229	0.002619
Median	0.031726	0.159707	29.11095	0.873133	1.074550	0.001256
Maximum	0.080396	0.991696	32.37710	24.84892	4.605608	0.024099
Minimum	0.000000	0.000114	22.08088	0.050454	0.009622	0.000000
Std. Dev.	0.012567	0.251558	2.174971	2.106782	0.999619	0.003826
Observations	160	160	160	160	160	160

Source: Secondary Data Processed (2024)

4.2. Classical Assumption Test

4.2.1. Normality Test

The normality test results shown in Figure 2 were obtained using the Jarque-Bera test. The probability value for the Jarque-Bera test was 0.102720. It can be concluded that the Jarque-Bera probability value is greater than or equal to the significance level (0.05). Consequently, the residual data were normally distributed.



Source: Secondary Data Processed (2024)

Figure 2. Normality Test Result

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4.2.2. Multicollinearity Test

Based on the results presented in Table 2, it can be observed that the variables FOWN, SIZE, LEV, BTM, and TURN all have correlation coefficients less than or equal to 0.80. Therefore, it was concluded that there was no multicollinearity, indicating that the model passed the test.

Table 2. Multicollinearity Test

	FOWN	SIZE	LEV	BTM	TURN
FOWN	1.000000	-0.030982	0.057379	-0.153503	-0.186905
SIZE	-0.030982	1.000000	0.212591	0.234718	-0.046646
LEV	0.057379	0.212591	1.000000	-0.037727	0.022525
BTM	-0.153503	0.234718	-0.037727	1.000000	0.107787
TURN	-0.186905	-0.046646	0.022525	0.107787	1.000000

Source: Secondary Data Processed (2024)

4.2.3. Heteroskedasticity Test

The results presented in Table 3 show that the p-values for each independent variable are greater than or equal to 0.05. Therefore, we conclude that there are no issues with heteroscedasticity in the regression model.

Table 3. Heteroskedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004277	0.013023	-0.328402	0.7432
FOWN	-0.001462	0.001813	-0.806547	0.4215
SIZE	0.000300	0.000449	0.667681	0.5056
LEV	-8.09E-05	0.000124	-0.653650	0.5146
BTM	-0.000335	0.000471	-0.710419	0.4788
TURN	-0.084428	0.074777	-1.129061	0.2611

Source: Secondary Data Processed (2024)

4.2.4. Autocorrelation Test

The autocorrelation test can be interpreted as the correlation between the residuals of one observation and those of another. This study employed an autocorrelation test by analyzing the Durbin-Watson (DW) values. From Table 4, it can be observed that the DW value is 2.175581. In this test, there are 5 (five) independent and control variables with a total of 160 observations. The dL and dU values were 1.6776 and 1.8063, respectively. The DW value was less than 4 dU, whereas 2.175581 < 2.1937. Therefore, it can be inferred that autocorrelation does not exist.

Table 4. Autocorrelation Test Result

Research Equation			
Durbin-Watson stat	2.175581		2.175581
N	K	dL	dU
160	5	1.6776	1.8063

Source: Secondary Data Processed (2024)

4.3. Reliability Test

4.3.1. Chow Test

The results of the Chow test are listed in Table 5. The Chow test is a panel data regression model used to determine whether a study will use common effects or fixed

effects if the cross-sectional chi-square value is 0.0000 < 0.05, leading to the conclusion that the model is a fixed-effect model.

Table 5. Chow Test Result

Effects Test	Statistic	Df	Prob.
Cross-section F	3.811995	(32.127)	0.0000
Cross-section Chi-square	111.078142	32	0.0000

Source: Secondary Data Processed (2024)

4.3.2. Hausman Test

Table 6 presents the results of the Hausman test. The Hausman test determines whether a fixed or random effects model is used. The cross-sectional random value was 0.0140 < 0.05, leading to the fixed-effect model.

Table 6. Hausman Test Result

Test Summary	Chi-Square Statistic	Chi-Square Df	Prob.
Cross-section random	14.263000	5	0.0140

Source: Secondary Data Processed (2024)

4.4. Hypothesis Test

Based on Table 7, a conclusion can be drawn from the results of the partial tests conducted in this study. First, foreign ownership does not affect stock return volatility. Second, firm size has a positive effect on stock return volatility. Third, leverage does not affect stock return volatility. Fourth, the book to market ratio does not affect stock return volatility. Finally, turnover will have a positive effect on stock return volatility.

Table 7. Hypothesis Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FOWN	-0.004484	0.006890	-0.650726	0.5164
SIZE	0.007624	0.001705	4.472340	0.0000
LEV	-0.000158	0.000470	-0.335168	0.7381
BTM	-0.004144	0.001790	-2.315483	0.0222
TURN	0.843935	0.284149	2.970040	0.0036

Source: Secondary Data Processed (2024)

4.5. Discussion

4.5.1. The Effect of Foreign Ownership on Stock Return Volatility

This study shows that foreign ownership does not positively affect stock return volatility. The simultaneous movement of indices from several global stock exchanges can occur because of the cooperation between countries, which affects a country's economic and investment conditions. If there are significant price differences between stocks in domestic and international markets, foreign investors may take advantage of this opportunity to buy or sell their stocks quickly, leading to price volatility. However, investors cannot consider foreign ownership indicators based on investment judgments, because foreign ownership does not result in higher stock returns. In addition, the findings of this investigation are identical to those obtained from the research conducted by Hunjra et al. (2020) and Batra et al. (2024), indicating that foreign ownership negatively affects stock return volatility.

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4.5.2. The Effect of Firm Size on Stock Return Volatility

These findings demonstrate that business size positively influences stock returns volatility. This suggests that larger firms lead investors to trust their investments in these firms. Investors believe that companies with larger firms perform well, resulting in maximum returns. Therefore, investors can consider firm size an indicator of investment decisions. Consequently, the larger the firm, the easier it is for the company to obtain both internal and external funding sources. Increased investor interest in a stock drives its price, leading to higher returns (Rizqiyana & Arfianto, 2019). In addition, a large company size can illustrate that the company is highly committed to its performance, so that in the end, it will invite investors to invest because they are sure they will earn a large profit from a company with high performance (Alamsyah et al., 2023). The results of this study are also consistent with the research conducted by Fachrudin and Ihsan (2021) and Alabdulkarim et al. (2024), who found that firm size positively affects stock return volatility.

4.5.3. The Effect of Leverage on Stock Return Volatility

Leverage does not affect stock return volatility. This means that a lower debt-to-equity ratio is more favourable for companies, as it indicates a greater ability to invest in equity rather than relying on external loans. Investors do not use the leverage indicator, the debt-to-equity ratio, as a decision-making tool for investments because high leverage tends to result in lower stock returns. Therefore, companies experience lower stock return volatility because of reduced financial risk. This study was similar to those conducted by El-Masry et al. (2024) and Nugrahani et al. (2024).

4.5.4. The Effect of Book to Market Ratio on Stock Return Volatility

Book to market ratio does not have a positive effect on stock return volatility. This study indicates that a low book to market ratio reflects poor company fundamentals, leading many investors to sell their shares and resulting in decreased stock price volatility. Investors do not consider the book to market variable when making investment decisions, because low book to market values in the mining sector lead to lower stock returns. Investors' low valuations affect the demand for shares, causing changes in stock prices that can influence stock returns (Rizqiyana & Arfianto, 2019). This result is the same as that of Liu (2024), who states that the book to market ratio does not affect stock return volatility.

4.5.5. The Effect of Turnover on Stock Return Volatility

The findings of this study indicate that turnover has a beneficial impact on stock return volatility. Based on this conclusion, we can deduce that the volatility of stock returns grows in tandem with an organization's turnover and profitability. This is because investors tend to observe trends in a company's turnover when trading stocks in the capital market. The significant influence of the turnover variable and stock return volatility suggests that high liquidity can lead to larger price changes owing to ongoing transactions, thereby affecting stock return volatility. Therefore, investors may consider turnover as an indicator when making investment decisions. The results of this study are similar to those of Sasikirono et al. (2020) and Batra et al. (2024), indicating that turnover positively affects stock return volatility.

5. Conclusion

The following conclusions were drawn from the results of the research: Foreign ownership does not affect stock return volatility. Firm size positively affects stock return volatility. Leverage does not affect stock return volatility. The book to market ratio does not affect stock return volatility. Turnover significantly affects stock return volatility.

The limitations of this study are as follows: The research conducted in this study is only on companies in the mining sector on the Indonesia Stock Exchange. The study period was 2019 to 2023. During that period, the Covid-19 pandemic event that caused major changes in the economy, so several variables produced insignificant results. The coefficient of determination in this study was only 34.2019%, which proves that the independent variable does not have an influence or a strong enough relationship with the dependent variable, namely, stock return volatility. Further research should use monthly time-series data to observe the volatility behaviour and foreign ownership more clearly. Additionally, it can add the variables of domestic individual ownership, trading volume, interest rates, and foreign exchange rate movements to the model.

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