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The Impact of Firm Size, Stock Liquidity, and Institutional Ownership on Stock Price Volatility: Evidence from State-Owned Enterprises Listed on the Indonesia Stock Exchange

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Abstract: The purpose of this study is to examine the impact of institutional ownership, firm size, and stock liquidity on the stock fluctuations of state-owned enterprises (SOEs) in the Indonesian power sector, listed on the Indonesia Stock Exchange (IDX) during the period from 2022 to 2024. The dependent variable of this study is stock volatility, and the independent variables are firm size (log of total assets, market capitalization, total sales), stock liquidity (turnover rate, bid-ask spread, trading frequency, trading activity), and the ownership ratio of institutional investors (percentage of shares held by institutional investors, number of institutional investors, and ownership ratio of the largest institutional investor). This study employs a quantitative approach using the Partial Least Squares (SmartPLS) method. The results indicate that firm size has no significant effect on stock volatility, suggesting that the magnitude of corporate assets is not sufficient to significantly explain fluctuations in SOE stock prices. In contrast, stock liquidity has a significant effect on stock volatility, where high trading activity drives increased stock price fluctuations. In addition, institutional ownership also has a significant effect on stock volatility, indicating that the role of institutional investors can influence the dynamics of stock price movements. The low coefficient of determination indicates that SOE stock volatility is largely influenced by external factors outside the research model. This study is expected to serve as a consideration for investors and regulators in managing the risks of investing in SOE stocks.

Keywords: Firm Size, Stock Liquidity, Institutional Ownership, Stock Volatility

Introduction

Indonesian state-owned enterprises (SOEs) play a strategic role in the national economy by promoting development and providing public services in key sectors, including energy. SOE stocks listed on the Indonesia Stock Exchange (IDX) are considered an important investment instrument for both domestic and international investors due to perceived government support and long-term business stability. Nevertheless, SOE stocks remain exposed to market risk, which is reflected in stock price volatility. Stock volatility represents an important indicator of investment risk, as it reflects the degree of price fluctuations within a certain period and may influence investors' decisions in the capital market. During the 2022–2024 period, the Indonesian capital market experienced considerable dynamics due to the prolonged impact of the COVID-19 pandemic, global economic uncertainty, geopolitical tensions, inflationary pressures, and the ongoing energy transition. These conditions potentially affected the stability of SOE stock prices, particularly in the energy sector, which is highly sensitive to policy changes and commodity price movements (Sari & Wijaya, 2022).

According to efficient market theory, stock price volatility reflects market responses to new information available to investors (Fama, 1970). Such information arises not only from external macroeconomic conditions but also from internal firm characteristics. Therefore, firm size, stock liquidity, and ownership structure, particularly institutional ownership, are considered important internal factors that may influence stock volatility. Firm size, measured by total assets, market capitalization, and total sales, reflects the scale of a firm's operations and its ability to absorb external shocks. Large SOEs are theoretically expected to exhibit lower stock volatility due to diversified business operations and better access to financing. However, SOEs are also subject to a high degree of government regulation and intervention, which in certain circumstances may increase market uncertainty and contribute to stock price fluctuations (Putri et al., 2023).

In addition to firm size, stock liquidity plays a crucial role in determining stock volatility. Stock liquidity reflects the ease with which shares can be traded in the market and the speed at which prices respond to new information. SOE stocks listed on the IDX generally exhibit relatively high liquidity due to strong investor interest, particularly from institutional investors. While high liquidity facilitates efficient price discovery, it may also intensify price fluctuations during periods of heightened trading activity, such as those resulting from government divestment policies or shifts in market sentiment (Al-Hadi et al., 2019).

Another factor that may influence stock volatility is institutional ownership. Institutional investors, including pension funds, banks, and other financial institutions, are generally expected to stabilize stock prices through effective monitoring of management and a long-term investment orientation. In SOEs, institutional ownership levels tend to be relatively high due to the involvement of the government and state-related institutions. However, changes in ownership policies or investment strategies by large institutional shareholders may instead trigger significant stock price movements (Wijaya & Sari, 2021).

Previous studies suggest that stock volatility in state-owned enterprises is influenced by the interaction between firm size and stock liquidity, where large firms with high liquidity tend to exhibit lower volatility due to operational stability and greater market efficiency (Sari et al., 2020). Nevertheless, empirical findings remain mixed, particularly in the context of SOEs and during the post-pandemic economic recovery period. The relevance of this study is further strengthened by ongoing SOE reforms initiated by the Ministry of SOEs, which emphasize professionalism, transparency, and performance improvement. At the same time, SOE stock volatility is often influenced by political sentiment, such as general elections or changes in government policies, which may cause extreme stock price fluctuations (Putri & Sari, 2021). Therefore, the aim of this study is to examine how the stock prices of state-owned enterprises listed on the Indonesia Stock Exchange from 2022 to 2024 are influenced by factors such as company size, stock liquidity, and institutional ownership. The results of this study are intended to provide empirical evidence in the financial literature and offer practical insights for investors, company management, and regulators on how to manage the risks associated with investing in state-owned enterprise stocks.

Research Method

Research Design

In this study, we adopt a quantitative correlational research design to analyze the impact of company size, stock liquidity, and institutional ownership ratio on stock price fluctuations. The design is intended to analyze causal relationships among variables using secondary data obtained from publicly available sources. The analysis is conducted using Partial Least Squares (PLS), which is considered appropriate for examining complex relationships among latent variables and handling multiple indicators simultaneously.

Population, Sample, Sampling

The subjects of this study are all state-owned enterprises (SOEs) operating in the energy sector that are listed on the Indonesia Stock Exchange (IDX) during the period from 2022 to 2024. Using purposive sampling, we verified the relevance and completeness of the data for this study. The selection for this study was conducted based on the following criteria: (1) state-owned enterprises belonging to the energy industry and listed on the IDX during the observation period; (2) companies that have published both financial statements and annual reports from 2022 to 2024; (3) companies that have the data necessary to measure all variables for the study. Companies that did not meet these criteria, such as those with incomplete financial data or delisted during the observation period, were excluded from the sample. The final sample consists of SOEs that fully satisfied the predetermined criteria and were deemed suitable for further analysis.

Intervention Procedure

This study does not involve an experimental design, so no intervention procedures are applied. The research is based on observational secondary data collected from official published materials and financial reports. Without changing the research subjects or conditions, this analysis focuses on examining the relationships between variables.

Instrument

The instruments used in this study are secondary data indicators derived from financial statements, annual reports, and publications of the Indonesia Stock Exchange. Firm size is measured using total assets, market capitalization, and total sales. Stock liquidity is measured using turnover ratio, bid-ask spread, trading frequency, and trading volume activity. The proportion of ownership by institutional investors, the number of shareholders, and the ownership ratio of the largest institutional investor help determine the ownership ratio of institutional investors. High-low volatility, daily return standard deviation, and weekly return standard deviation are used to calculate stock price volatility. All indicators are adopted from established empirical studies and adjusted to fit the context of SOEs in the energy sector. The convergence validity, discriminant validity, and composite reliability of the measurement model are evaluated using the partial least squares method. SmartPLS conducts data analysis at a 5% significance level.

Results and Discussion

This study uses data from 30 state-owned enterprises (SOEs) listed on the Indonesia Stock Exchange (IDX) over the observation period from 2022 to 2024. Therefore, this analysis uses SmartPLS software to apply partial least squares (PLS). Hypothesis testing is conducted using path coefficient analysis with the bootstrap method to examine the effects of institutional investors' ownership, size, and stock liquidity on the stock price fluctuations of state-owned enterprises in the energy sector listed on the Indonesia Stock Exchange.

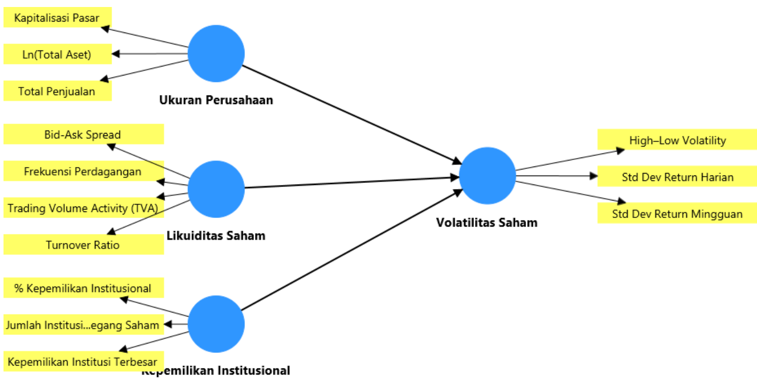

Figure 1. Conceptual Framework

The variables of this study are shown in Figure 1. Firm size, the variable X1, is calculated using market capitalization, the natural logarithm of total assets, and total sales.

The bid-ask spread, trading frequency, trading volume activity (TVA), and turnover rate are used to calculate stock liquidity, the variable X2. The ownership ratio of institutional investors, represented by variable X3, is calculated based on the ownership rate of institutional investors, the number of institutional investors, and the ownership ratio of the largest institutional investor. High-low volatility, daily return standard deviation, and weekly return standard deviation are used to calculate stock price volatility. The direction and type of relationships between variables are indicated by the connecting lines in the diagram. The next stage of the SmartPLS analysis will be conducted based on this model.

Table 1. Results of SmartPLS Outer Loading Analysis

	Institutional Ownership	Stock Liquidity	Firm Size	Stock Price Volatility
Percentage of Institutional Ownership	0.160			
Bid-Ask Spread		-0.631		
Trading Frequency		-0.371		
High–Low Volatility				0.732
Number of Institutional Shareholders	0.997			
Market Capitalization			0.927	
Largest Institutional Ownership	0.040			
Ln (Total Assets)			0.866	
Standard Deviation of Daily Returns				0.681
Standard Deviation of Weekly Returns				0.652
Total Sales			0.935	
Trading Volume Activity (TVA)		0.898		
Turnover Ratio		0.882		

Table 1 aims to examine the validity and reliability of the indicators through outer loading values. Indicators with outer loading values below the minimum threshold of 0.70 are considered unable to optimally represent the latent variables. Therefore, this stage serves as the basis for evaluating which indicators should be eliminated in order to improve the quality of the measurement model.

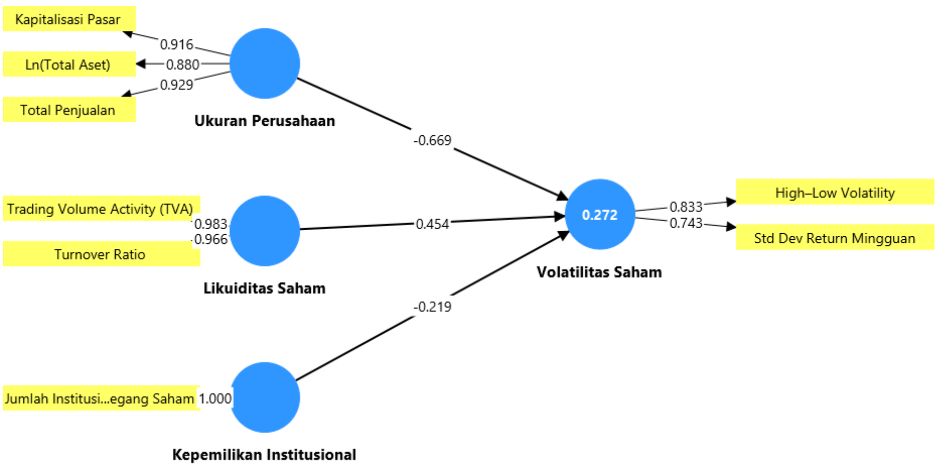

Figure 2. Results of SmartPLS Outer Loading Analysis After Indicator Elimination

Figure 2 presents the measurement model after indicator elimination, showing an improved model structure by removing indicators with low outer loading values. After the elimination process, all remaining indicators meet the convergent validity criterion, with outer loading values exceeding 0.70. This model indicates that the retained indicators are able to represent each latent variable adequately and consistently. Therefore, the measurement model after elimination is considered valid and appropriate for use in the subsequent stage of structural model (inner model) testing.

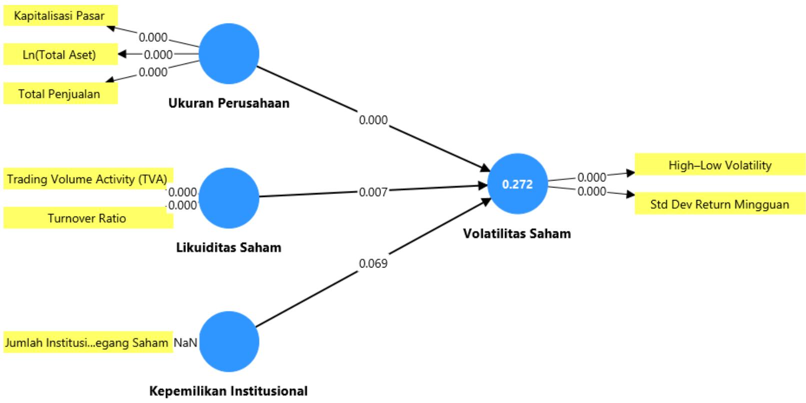

Figure 3. Results of SmartPLS Bootstrapping Analysis

The figure of the bootstrap results shows the causal relationship between the independent variables (company size, stock liquidity, institutional ownership ratio) and the dependent variable (stock price volatility). The bootstrapping procedure is conducted to obtain t-statistic and p-value values in order to test the significance of the relationships among variables. The figure displays the path coefficient values for each structural relationship. Positive path coefficient values indicate a direct relationship, while the level of significance is determined based on the t-statistic and p-value values. These bootstrapping results serve as the basis for deciding whether to accept or reject the research hypotheses.

Table 2. Path Coeficient

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Firm Size → Stock Price Volatility	0.219	0.231	0.121	1.818	0.069
Stock Liquidity → Stock Price Volatility	0.454	0.457	0.170	2.678	0.007
Institutional Ownership → Stock Price Volatility	0.669	0.681	0.183	3.664	0.000

Hypothesis Testing

H1 : Firm size has no significant effect on the stock price volatility of State-Owned Enterprises (SOEs) listed on the Indonesia Stock Exchange (IDX)

H2 : Stock liquidity has a significant effect on the stock price volatility of State-Owned Enterprises (SOEs) listed on the Indonesia Stock Exchange (IDX)

H3 : Institutional ownership has a significant effect on the stock price volatility of State-Owned Enterprises (SOEs) listed on the Indonesia Stock Exchange (IDX)

Discussion

1) The Effect of Firm Size on Stock Price Volatility

According to the results of the PLS analysis using SmartPLS, the path coefficient was 0.219, the t-statistic was 1.818, and the p-value was 0.069. These results indicate that firm size does not have a significant effect on stock price fluctuations ($p > 0.05$). This finding suggests that the size of State-Owned Enterprises (SOEs) in the energy sector is not a dominant factor in determining stock price fluctuations. One possible explanation is the presence of government intervention and strict regulations that bind SOEs, which may limit the extent to which large firms can translate their ability to absorb external shocks into stock price stability. In addition, SOE stock volatility tends to be more strongly influenced by external factors such as macroeconomic conditions, global energy prices, and political sentiment. As a result, firm size is not a primary indicator in predicting stock price fluctuations. This finding is consistent with the studies conducted by Al-Hadi et al. (2019) and Wijaya and Sari (2021), which show that firm size in SOEs does not always serve as a significant determinant of stock price volatility, in contrast to private firms that are more responsive to internal operational scale.

2) The Effect of Stock Liquidity on Stock Price Volatility

According to the analysis results, the path coefficient is 0.454, the t-statistic is 2.678, and the p-value is 0.007. Therefore, the stock prices of state-owned enterprises engaged in the energy industry are greatly affected by the liquidity of the shares. This finding indicates that higher stock trading activity leads to greater stock price fluctuations. High stock liquidity reflects intensive trading activity, causing stock prices to respond more rapidly to new information or changes in market sentiment. This phenomenon is commonly observed in SOE energy sector stocks, as these stocks often attract strong attention from both institutional and retail investors. Consequently, significant market movements can trigger higher volatility. This result is consistent with the findings of Sari et al. (2020) and Al-Hadi et al. (2019), which state that stock liquidity can increase short-term volatility because high trading activity makes stock prices more sensitive to market information.

3) The Effect of Institutional Ownership on Stock Price Volatility

According to the results of the bootstrap, the path coefficient is 0.669, the t-statistic is 3.664, and the p-value is 0.000. These results indicate that institutional ownership has a significant impact on stock price fluctuations in state-owned enterprises in the energy industry. Institutional ownership can influence stock price volatility through monitoring mechanisms and investment management strategies. On one hand, institutional investors have the potential to stabilize stock prices due to their long-term investment orientation. However, in the context of SOEs in the energy sector, changes in institutional investment strategies or government policies involving large institutional investors may lead to sharp stock price movements, thereby increasing volatility. This finding supports the study by Putri and Sari (2021), which suggests that institutional ownership can increase stock price volatility when significant changes occur in ownership structure or institutional investment allocation.

Conclusion

We have concluded that the stock prices of state-owned enterprises (SOEs) in the energy industry are not significantly affected by the size of the company. Discussion and results from the study suggest that company size is not a primary indicator for determining stock price fluctuations. In contrast, stock liquidity has a significant effect on stock price volatility, where high trading activity increases price fluctuations, making liquidity an important factor in determining market risk. In addition, institutional ownership also has a significant effect on stock price volatility, as institutional investors may trigger stock price fluctuations through investment decisions or changes in ownership strategies, thereby influencing the dynamics of SOE stock price movements. The stock prices of state-owned companies in the energy industry are influenced by both internal factors, such as the holdings of institutional investors and stock liquidity, and external factors. This suggests that to effectively manage risks in stock investment, it is essential to have a thorough understanding of the market and government policies. This study provides practical implications for investors, corporate management, and regulators, where investors may consider liquidity and ownership structure in investment decision-making, management may enhance stock price stability by managing liquidity and maintaining transparent communication with institutional investors, and regulators may use these findings to formulate policies that support capital market stability, particularly for SOEs in the energy sector.

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