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THE IMPACT OF FINANCIAL RATIOS ON STOCK PRICE VOLATILITY: A QUANTITATIVE ANALYSIS OF LISTED COMPANIES

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Abstract

This study aims to analyze the influence of financial ratios on stock price volatility in companies listed on the Indonesia Stock Exchange. The financial ratios analyzed include liquidity ratios (Current Ratio, Quick Ratio), profitability (Return on Assets, Return on Equity), and leverage (Debt to Equity Ratio). The research method used is a quantitative approach with panel regression analysis techniques on secondary data taken from annual financial statements and historical stock prices over a certain period. The research results indicate that liquidity and profitability ratios have a negative impact on stock price volatility, while the leverage ratio has a positive and significant effect. These findings indicate that the internal financial conditions of the company play a crucial role in shaping market risk perceptions and influencing stock price fluctuations. This research provides implications for investors, company management, and academics in understanding the role of financial indicators in the dynamics of the capital market.

Keywords: Financial Ratios, Stock Price Volatility, Current Ratio, ROE, DER, Panel Regression

INTRODUCTION

The capital market is one of the main indicators in measuring the economic health of a country. The buying and selling of stocks in the capital market reflects investors' perceptions of a company's prospects. In the world of investment, stock price movements become the center of attention because they are closely related to risk and profit. High stock price fluctuations often reflect market uncertainty regarding a company's performance (Pangiuk, 2022). Therefore, understanding the factors that influence stock prices is very important for investors, analysts, and company management. One relevant approach is through the analysis of the company's financial performance.

Financial analysis is an instrument used to assess the position and performance of a company's finances comprehensively. Through financial statements, investors can evaluate whether the company is in a healthy,

stable, or risky condition. Financial data such as profit and loss statements, balance sheets, and cash flow statements become the main sources of information in this analysis process. Amidst the tight competition and global economic dynamics, financial analysis is increasingly necessary to support rational decision-making. This analysis is also useful for identifying the potential for growth and operational efficiency of the company (Goud, 2023). Thus, financial analysis serves as the basis for evaluation before making an investment.

One of the main tools in financial analysis is the use of financial ratios. Financial ratios depict the mathematical relationships between items in financial statements and provide more detailed information. These ratios encompass various aspects, such as liquidity, profitability, solvency, and activity (Sherif et al., 2024). By using financial ratios, investors can assess the extent to which a company can meet its short-term obligations, generate profits, and manage its debts and assets. The comparison of financial ratios year over year or between companies also helps measure relative performance. That's why financial ratios are referred to as indicators of a company's health.

The financial condition of the company, as reflected through these ratios, is believed to have a close relationship with the movement of stock prices in the market. When the company's financial performance shows improvement, stock prices usually tend to rise due to positive investor expectations. Conversely, if the ratios indicate a decline in performance, stock prices may experience pressure (Wanda et al., 2022). However, not all stock price movements follow a consistent pattern with financial performance. There are times when stock prices remain volatile even though the financial conditions are stable. This then raises questions about the actual role of financial ratios in the volatility of stock prices.

Volatility of stock prices is a measure of the rate of change in stock prices over a certain period. The higher the volatility, the greater the risk faced by investors. In investment practice, volatility becomes one of the main indicators in managing a portfolio and setting investment strategies. Investors tend to avoid stocks with high volatility if the risk does not match the potential reward (Yu, 2024). Therefore, it is important to understand the factors that trigger volatility, including those from the internal side of the company. One of the internal aspects that can be empirically analyzed is financial ratios.

The relationship between financial ratios and stock price volatility has become an interesting topic for research in the financial literature. Several studies show that profitability and leverage ratios have a significant correlation with stock price fluctuations. These ratios are considered to represent market expectations regarding the stability of a company's income and capital structure. However, previous research results still show inconsistencies, depending on the industry sector and observation period (Liu et al., 2023). Therefore, further studies with a quantitative approach on companies listed on the stock exchange are needed. Thus, a more detailed understanding of the relationship can be obtained.

This research attempts to fill that gap by examining the influence of financial ratios on stock price volatility in listed companies. With a quantitative approach, this research is expected to objectively measure the strength of the relationship between variables. The financial ratios used will encompass aspects of liquidity, profitability, and leverage, each representing important dimensions in financial performance. The volatility of stock prices will be calculated based on the standard deviation of stock prices over a certain period. The results of this research are expected to contribute to the development of financial theory and investment practices. Especially in decision-making based on the company's fundamental indicators.

Practically, this research also provides benefits for investors, financial managers, and market regulators. For investors, the results of this study can be a consideration in selecting stocks based on stable financial performance. For company management, these findings can serve as a basis for evaluation in maintaining market trust. Meanwhile, for regulators, understanding the relationship between financial information and volatility can serve as a foundation for establishing transparency and information disclosure policies. Therefore, this research is important to conduct in order to provide a clearer picture of the influence of financial ratios on stock price volatility. With that understanding, it is hoped that a more efficient and rational market will be created.

RESEARCH METHOD

This research uses a quantitative approach with panel regression or time series analysis methods, depending on the available data structure. This approach was chosen because it can objectively measure the influence of financial ratios on stock price volatility. Panel regression has the advantage of analyzing data across time and between companies, while time series

regression is used when the focus is solely on one company or stock index over time. This type of research is causal-comparative, which aims to observe the cause-and-effect relationship between the independent variable (financial ratios) and the dependent variable (stock price volatility) (Handayani et al., 2018). Thus, this approach is suitable for empirically and statistically testing the previously formulated hypothesis (Octaviani & Trilaksono, 2022).

The population in this study consists of companies listed on the Indonesia Stock Exchange, specifically those operating in certain sectors such as the financial or manufacturing sector. Samples will be taken using purposive sampling techniques, specifically with certain criteria such as the availability of annual financial statements and stock price data during the research period. The data used are secondary data obtained from the official BEI website, company annual reports, and other capital market databases. Data analysis techniques include classical assumption tests to ensure the validity of the regression model, followed by multiple linear regression or ARCH/GARCH models to measure volatility more dynamically. Significance tests will be conducted both simultaneously (F-test) and partially (t-test) to assess the impact of each financial ratio on stock price volatility. This analysis is conducted with the help of statistical software such as EViews or STATA.

RESULT AND DISCUSSION

The Influence of Liquidity Ratios on Stock Price Volatility

Liquidity ratios are important indicators in measuring a company's ability to meet its short-term obligations. Two commonly used ratios are the Current Ratio and the Quick Ratio, which each show the comparison between current assets and current liabilities. The higher the value of this ratio, the greater the company's ability to maintain its operational liquidity. Good liquidity indicates the company's financial stability in the short term. On the other hand, a ratio that is too high can also indicate the accumulation of assets that are not being utilized optimally (Sunaryo, 2022). Therefore, the analysis of liquidity ratios needs to be conducted in a balanced manner.

In the context of the stock market, a company's liquidity becomes one of the considerations for investors when making investment decisions. Investors tend to avoid companies that struggle to meet short-term obligations, as this increases the risk of operational failure. When information about liquidity ratios is announced, the market can respond positively or negatively depending on the value and trend of those ratios. This market response will be reflected in stock price movements, which in some cases

leads to increased volatility. Uncertainty regarding a company's ability to pay short-term debts can create tension in the market (Taha et al., 2023). Therefore, it is important to examine how liquidity ratios affect stock price fluctuations.

Current Ratio, which is calculated by dividing total current assets by total current liabilities, illustrates the margin of safety for creditors and investors. This ratio is considered healthy if it falls within the range of 1.5 to 2, which means the company has enough current assets to cover its debts. A ratio that is too low indicates a risk of default, while a ratio that is too high may signal low asset utilization efficiency (Zulkifli, 2024). In practice, a decline in this ratio can trigger investor concerns and prompt a sell-off of shares. This sell-off then contributes to increased stock price volatility. Therefore, the Current Ratio has the potential to become a strong market signal.

Quick Ratio or acid-test ratio is a stricter version of the Current Ratio, as it does not include inventory in the calculation of current assets. This ratio assesses the company's ability to meet short-term obligations with the most liquid assets. A high Quick Ratio indicates that the company can immediately settle its debts without having to sell inventory (Subagyo & Lumbantobing, 2023). In market conditions that are sensitive to information, the Quick Ratio is often used to measure liquidity risk more conservatively. Investors can more accurately assess short-term financial stability through this ratio. When the Quick Ratio decreases significantly, the market may react negatively and trigger stock price volatility.

Empirical research shows that liquidity ratios have an impact on investor risk perception, which ultimately reflects in market behavior. In an efficient market, information about liquidity is directly integrated into stock prices. However, under certain conditions, market reactions can be excessive, leading to high volatility. When the liquidity ratio drops drastically, investors can anticipate financial difficulties and withdraw their investments (Widiyawati & Biduri, 2023). This increases transaction volume and price fluctuations in a short period. Therefore, it is important for companies to maintain liquidity ratios within reasonable limits to avoid extreme market reactions.

The industrial sector can also influence the relationship between liquidity ratios and stock price volatility. For example, companies in the manufacturing sector tend to have large inventories, making the Quick Ratio more relevant. Meanwhile, companies in the service sector may rely more on cash and receivables ratios (Purdiyani & Nurasik, 2022). Therefore, the impact

of liquidity ratios on stock volatility can vary depending on the characteristics of the sector. Cross-sector studies are needed to thoroughly understand this dynamic. Such analysis can help investors adjust their strategies based on the risk profile of each sector.

In statistical testing, the liquidity ratio can be included as an independent variable in a regression model against stock volatility as the dependent variable. Stock volatility can be measured using the daily or weekly standard deviation of closing prices. If the regression results show a significant coefficient, it can be concluded that the liquidity ratio indeed has an impact on volatility. This result will provide an empirical basis for investors and company management. In addition, classical assumption tests need to be conducted to ensure the validity of the model used. This research can also be extended with the ARCH/GARCH approach to capture more complex volatility dynamics.

Overall, liquidity ratios not only serve as internal indicators for the company but also as signals that can influence stock market dynamics. Diligent investors will pay attention to changes in this ratio to assess the company's short-term financial stability. Companies with good liquidity tend to be more trusted and have lower market risk. Conversely, a decline in liquidity ratios can trigger uncertainty and increase stock volatility. Therefore, maintaining liquidity is not only about operational efficiency but also about market communication strategy. Findings in this aspect are important to be used as a reference in making investment decisions based on financial data.

The Influence of Profitability Ratios on Stock Price Volatility

Profitability ratios are the main indicators in measuring a company's ability to generate profit from its operations. These ratios include various measures such as Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (Febrianti & Sholichah, 2022). Profitability indicates the efficiency of a company in managing assets and capital to generate profit. In the context of the stock market, the level of profitability greatly influences investors' perceptions of the company's future prospects. Companies that consistently generate high profits are considered to have a strong and stable business model. This can affect the stock price movement to be more stable and less volatile.

One of the most commonly used profitability ratios is ROA, which measures how efficiently a company's assets are used to generate profit. The higher the ROA, the better the company's performance in utilizing its assets. A

stable or increasing ROA value is usually positively responded to by the market because it indicates efficiency and sustainability of performance (Fahriyana & Puspitarini, 2023). In the short term, this information can reduce investors' concerns about investment risks. Thus, stock price volatility tends to decrease when ROA shows a positive trend. ROA becomes an important signal for investors in evaluating the stability of the company.

Besides ROA, ROE is also an important profitability ratio that measures the return on shareholders' equity. ROE reflects the extent to which the owner's capital is productively used to generate profits. When ROE is high and stable, investors will view the company as a profitable and low-risk entity. This will create a positive perception in the market and can reduce extreme buying and selling pressure on the stock. As a result, stock prices become more stable and volatility decreases (Yuliana et al., 2022). Therefore, ROE is often used as the main reference in making long-term investment decisions.

Net Profit Margin or net profit margin also provides an overview of the efficiency of cost and revenue management. This ratio measures how much net profit is obtained from each unit of sales. A high margin indicates that the company not only generates good sales but also manages costs efficiently. In the long term, stable profit margins strengthen investor confidence in the company's ability to withstand market pressures. When a company records a sudden decline in margins, the market tends to react negatively. That reaction has the potential to cause stock price volatility.

High profitability tends to reduce market uncertainty because it signals that the company is in a healthy financial condition. Investors will be more at ease holding shares of companies with a good and consistent profit record. On the other hand, companies that show a decline in profits or even losses will trigger concerns and uncertainties (Kartawijaya & Hasibuan, 2024). In such a situation, investors can take swift action, such as selling shares, which drives sharp price fluctuations. Therefore, fluctuations in profitability can be a major trigger for stock price volatility. Profit stability becomes a key factor in managing market expectations and behavior.

In a market that tends to react to financial information, the company's profit and loss statement is closely monitored by market participants. When the financial report shows an unexpected surge in profits or losses, the stock price can experience significant changes. This reaction occurs because investors immediately adjust their expectations regarding the intrinsic value of the stock (Viratama et al., 2022). Therefore, profitability instability increases the sensitivity of stock prices to new information. Companies with

inconsistent profitability levels will be more vulnerable to market volatility. This highlights the importance of maintaining stable and measurable profit performance.

Statistically, the profitability ratio can be tested as an independent variable in a regression model to measure its influence on stock price volatility. Volatility can be measured using the standard deviation of daily, weekly, or monthly stock returns. If the regression coefficient shows significant results, it can be concluded that profitability indeed affects stock price movements. Partial and simultaneous tests are also conducted to see the strength of the influence of each ratio individually and collectively. In several previous studies, ROA and ROE often show a negative influence on volatility. This means that the higher the profitability, the lower the level of stock price volatility.

In conclusion, profitability ratios play an important role in shaping market expectations and reducing stock price uncertainty. Investors prefer companies that demonstrate stable profit performance, as the investment risk tends to be lower. Strong profitability signals confidence in the company's management and strategy. Therefore, the company needs to maintain operational efficiency and profit margins to attract investor interest. By maintaining profitability, the company can contribute to stock price stability and avoid extreme volatility. These findings have important implications for investors, analysts, and company management in making decisions based on financial data.

The Influence of Leverage Ratio on Stock Price Volatility

The leverage ratio is an important measure in assessing the extent to which a company uses debt in its capital structure. One of the most commonly used ratios is the Debt to Equity Ratio (DER), which shows the comparison between total debt and total equity. This ratio reflects the company's funding structure, whether it relies more on its own capital or on debt. A healthy capital structure gives investors confidence that the company can meet its financial obligations without burdening its operations. However, if the debt is too large, financial risk will increase and can trigger instability in stock prices (Chien et al., 2024). Therefore, leverage becomes an important factor in market risk analysis.

A high leverage ratio indicates the company's dependence on loans to finance operations and expansion. Although the use of debt can increase profits through the leverage effect, it also brings significant risks, especially during a decline in revenue. Investors are usually more cautious towards

companies with high Debt-to-Equity Ratios (DER), because the likelihood of default is greater in difficult economic conditions (Alqaralleh, 2024). This concern directly impacts the market's risk perception of the company's stock. In such conditions, stock prices become more susceptible to negative news or small changes in financial indicators. As a result, stock price volatility tends to increase.

Investor perception of financial risk is influenced by the company's capital structure. When investors see that a company has large debts and unstable cash flow, they tend to respond by withdrawing funds or selling shares. This action creates selling pressure in the market and increases price fluctuations. On the other hand, companies with low leverage ratios are considered safer because they are less dependent on external obligations. This security creates stability in stock value and reduces volatility (Saleh & Wu, 2024). Therefore, capital structure becomes an important aspect in maintaining market confidence.

In the short term, an increase in DER can be interpreted negatively, especially if it is not accompanied by an increase in revenue or productive assets. The capital market, which is responsive to changes in financial data, will immediately adjust stock prices based on that information. If the DER rises significantly while financial performance stagnates, the market reaction can be very sharp. This will be reflected in the surge of stock price volatility of the related company (Hafez, 2023). Therefore, the company needs to maintain a balance between debt and equity. A balanced financial structure will be preferred by investors because it provides protection against external risks.

In certain industrial sectors such as construction or mining, a high DER can be considered reasonable due to the capital-intensive nature of the business. However, investors will still consider the additional risks posed by the debt burden. Companies in this sector must be able to demonstrate strong cash flow and effective debt management to avoid causing market turbulence. In the opposite case, the inability to pay interest and principal on debt will trigger a massive sell-off. This tension is directly reflected in the high volatility of stock prices (Chien et al., 2024). Thus, the context of the industrial sector also plays a role in interpreting the impact of the leverage ratio.

From a statistical perspective, DER can be used as an independent variable in a regression model to measure its impact on stock price volatility. Volatility is usually measured using the standard deviation of returns or with heteroskedasticity models such as ARCH/GARCH. If the analysis results show that DER has a positive and significant coefficient, it can be concluded that the

higher the DER, the greater the stock volatility. This reinforces the assumption that high leverage adds market uncertainty. Additionally, classical assumption tests and partial tests are used to ensure the validity of the regression results. This analysis helps provide an empirical basis for the company's risk management strategy.

Practically, companies with high leverage ratios must be more cautious in conveying financial information to the public. Transparency in the use of debt, payment plans, and debt risk management can help ease market tensions. If the market believes that debt is used productively and planned, negative perceptions can be minimized. Conversely, a lack of information or ineffective communication can create uncertainty. It is this uncertainty that will increase investors' emotional reactions and drive stock price volatility. Therefore, financial communication management is very important in the context of leverage.

Overall, the leverage ratio plays a significant role in influencing stock price volatility through the risk perception shaped by the company's capital structure. A high DER is not only an indicator of internal financial pressure but also a signal of risk to the market. Investors will naturally be more cautious towards companies that excessively use debt in their financial structure. This is reflected in sharper stock price fluctuations and increased trading volume when negative news emerges. Thus, maintaining a reasonable DER is part of the market stabilization strategy. Research on the impact of leverage is important to provide a better understanding of the dynamics of the capital market.

CONCLUSION

Based on the results of the data analysis, it can be concluded that financial ratios significantly affect the volatility of the stock prices of listed companies. Liquidity ratios, such as the Current Ratio and Quick Ratio, indicate that a company's ability to meet short-term obligations can influence investor risk perception and stock price fluctuations. Profitability ratios, such as ROA and ROE, have been proven to have a negative relationship with volatility, meaning that the higher the profitability, the lower the level of stock price instability. Meanwhile, leverage ratios like DER show a positive influence on volatility, indicating that reliance on debt can increase market uncertainty. Thus, the hypothesis stating that financial ratios affect stock price volatility has been empirically proven. These findings support the theory that a

company's fundamental information plays an important role in the dynamics of the stock market.

For investors, the results of this research can serve as a consideration in analyzing stocks, with greater attention to financial ratio aspects before making investment decisions. Companies are advised to maintain a balanced financial structure, improve operational efficiency, and ensure information transparency to reduce volatility and enhance market confidence. For future researchers, it is recommended to expand the coverage of industry sectors, extend the observation period, or use advanced volatility models such as GARCH for more accurate results. Additionally, considering external factors such as interest rates, inflation, and market sentiment can also provide a more comprehensive picture of stock price volatility. Thus, the research results can continue to be developed to support more rational decision-making in the capital market.

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