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The Effect of Microeconomic and Macroeconomic Variables on Stock Returns with Stock Liquidity as a Mediating Variable in Banking Companies Listed on the Indonesia Stock Exchange

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A B S T R A C T

The purpose of this study is to study how microeconomic variables (ROA and LDR) and macroeconomic variables (exchange rate and interest rate) impact stock returns with stock liquidity, represented by trading volume activity (TVA) as a mediating variable in banking companies listed on the Indonesia Stock Exchange. Purposive sampling method was used to obtain research samples from one hundred companies. The results showed that ROA had a significant positive effect on TVA and stock returns. In contrast, LDR and interest rates did not have a significant effect. TVA and stock returns were both positively affected by exchange rates. Sobel's mediation test showed that TVA mediated the relationship between ROA and stock returns and LDR and stock returns, but did not mediate the effect of interest rates and exchange rates on stock returns.

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INTRODUCTION

The capital market plays an important role in a country's economy, including Indonesia, by bridging companies in need of funding and investors seeking profit. One of the main sectors in the Indonesian capital market is the banking sector, which significantly contributes to the stability of the financial system and economic growth through its intermediary function. Therefore, the financial performance of the banking sector is often the main focus for investors in making decisions in the capital market.

Investors are always faced with the challenge of choosing securities that offer returns commensurate with the risks they take. Return is an important consideration in investment decisions, both in the short and long term, because it represents the profit obtained from investment activities (Jakhub & Kristanti, 2022). In the banking industry, microeconomic variables such as profitability and liquidity play a significant role in determining stock performance. These indicators reflect the operational success of banks and are commonly used by investors as part of their financial analysis. Macroeconomic factors such as interest rates and exchange rates should also be considered, as they shape the broader financial environment. Exchange rate fluctuations create uncertainty, while rising interest rates can reduce stock returns by increasing the cost of funding. Previous studies have shown inconsistent effects of these macroeconomic factors on stock returns, highlighting the need for further exploration.

Stock liquidity is measured by trading volume activity (TVA) can act as a mediating variable between micro and macroeconomic influences on stock returns. High liquidity is often associated with lower risk perception and greater investor interest, as it reflects the ease with which stocks can be traded without significantly affecting prices. This study uses stock liquidity as a mediating factor because of its central role in linking various determinants of stock performance (Reny et al., 2019).

By sampling the Indonesian banking sector a sector that is critical to economic intermediation and national development this study contributes to the body of knowledge by providing insights into how these variables interact to influence stock returns. Focusing on banking stocks also fills a gap by highlighting the dynamics of a sector that not only drives market capitalization but also supports real sector growth and social welfare.

LITERATURE REVIEW

Signaling Theory

Michael Spence introduced the Signal Theory (also known as Signaling Theory) in 1973. This theory explains how the sender of information can communicate with the receiver by providing useful information from the owner of the information. The signal theory developed by business management that informs investors about how management should review the company's prospects. This theory provides an explanation of why companies have the ability to communicate about their financial condition to external parties. The urge to explain to provide information about financial transactions to external

parties is based on the existence of information symmetry between business management and external parties (Bergh et al., 2014).

Stock Return

Investors always expect a profit or return on the funds they invest before investing in stocks. The level of profit obtained by investors from investments is called stock returns based on Ang's opinion in (Laura Millenia, 2022). Although the stock market does not always promise certain profits for investors, investing in the stock market allows investors to gain profits such as dividends, bonus shares, and capital gains.

Microeconomic Theory

Economic factors referred to as "microeconomics" relate to the internal circumstances of a company and impact its performance. Whether a business is performing well or poorly is reflected in its financial statements and in its routinely published financial ratios. Bapepam regulations require public companies to publish quarterly, semi-annual, and annual financial statements, both audited and unaudited.

The following ratios are used in conducting research:

a. Profitability (Return on Assets – ROA)
   Investors usually look at a company's financial performance through various ratios. One important indicator that is often used by investors to assess the level of profitability of a company before making an investment is Profitability (Alipudin, 2016).
   H1: Profitability has a significant effect on Stock Liquidity
   H2: Profitability has a significant effect on stock returns
   H3: Profitability has a significant effect on Stock Returns through Stock Liquidity as a mediating variable.
b. Liquidity (Loan to Deposit Ratio- LDR)
   Liquidity generally shows the overall financial condition of a company and shows the company's ability to pay all short-term financial obligations when they fall due using available current assets (Salsabila & Putri, 2023).
   H4: Liquidity has a significant effect on Stock Liquidity
   H5: Liquidity has a significant effect on stock returns
   H6: Liquidity has a significant effect on Stock Returns through Stock Liquidity as a mediating variable.

Macroeconomic Theory

In short, macroeconomics refers to the relationship between labor, the movement of goods, and economic assets, which causes trade around the world. Macroeconomic effects can affect stock prices directly or gradually over the long term.

a. SBI Interest Rate
   Securities issued by Bank Indonesia as a recognition of short-term debt with a discount system are known as Bank Indonesia certificates (SBI). Bank Indonesia certificates are issued when Bank Indonesia wants to

withdraw primary money circulating in the community to prevent continuous inflation.

H7: Interest rates have a significant effect on stock liquidity

H8: Interest rates have a significant effect on stock returns

H9: Interest rates have a significant effect on stock returns through stock liquidity as a mediating variable.

b. Exchange rate

The rupiah exchange rate is the price or value of the rupiah against another country's currency, such as the rupiah exchange rate against one US dollar (Haeronisa et al., 2022).

H10: Exchange Rate has a significant effect on Stock Liquidity

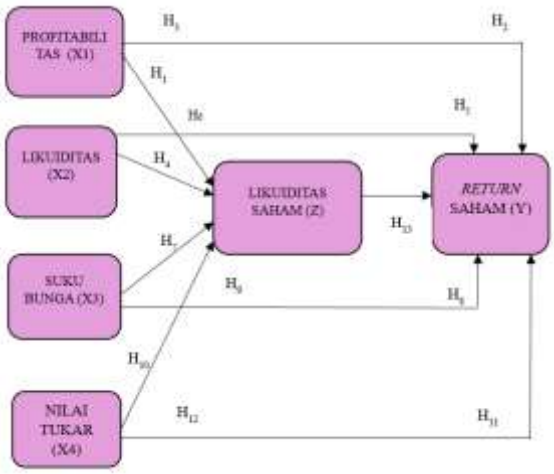
H11: Exchange Rate has a significant effect on Stock Returns

H12: Exchange Rate has a significant effect on Stock Returns through Stock Liquidity as a mediating variable.

Stock Liquidity

Liquidity is a market measure that shows how easily a stock can be traded without significantly affecting the price. The variable used is Trading Volume Activity. The number of shares traded is the result of the interaction between the demand and supply of shares, and trading volume is the result of changes in investor demand.(Reny et al., 2019).

H13: Stock liquidity has a significant effect on stock returns.



METHODOLOGY

This study uses a descriptive approach with quantitative methods to test the effect of microeconomic and macroeconomic variables on stock returns, with stock liquidity as a mediating variable. The population of this study consists of banking companies listed on the Indonesia Stock Exchange (IDX). Purposive sampling technique was used to select 20 banking companies as research samples. The sample selection criteria include: (1) companies listed on the IDX during the 2020-2024 period, (2) availability of complete financial data for five consecutive years, and (3) publication of financial reports until 2024.

This study uses secondary data, including stock prices, SBI interest rates, exchange rates, profitability (Return on Assets/ROA), and liquidity (Loan to

Deposit Ratio/LDR). The data were obtained from the Indonesia Stock Exchange (IDX) and Bank Indonesia's Economic and Financial Statistics. To analyze the data and answer the research questions, multiple linear regression analysis was conducted using SPSS software.

RESEARCH RESULTS

Descriptive Analysis

Table 1 Descriptive Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	100	-412.00	1208.00	8.4172	128.13855
LDR	100	30.29	373.61	92.5350	41.43920
Exchange rate	100	14312.0	15846.9	14971.356	541.4701
Interest rate	100	.04	.06	.0477	.00986
TVA	100	.00	9193.09	2513.8193	2609.48704
Return	100	-27.46	15.31	.2223	5.23841

Based on the descriptive statistics table, it is known that the highest Return on Assets (ROA) value is 1208.00, the lowest is -412.00, and the average ROA is 8.4172. The highest Loan to Deposit Ratio (LDR) is 373.61, the lowest is 30.29, and the average LDR is 92.54. The highest exchange rate is Rp 15,846.9, the lowest is Rp 14,312, and the average exchange rate is Rp 14,971.36. The interest rate has the highest value of 0.0477, the lowest is 0.0477, and the average interest rate is 0.0477 or around 4.77%. The highest Trading Volume Activity (TVA) is 9,193.09, the lowest is 0.00, and the average TVA is 2,513.82. Stock Return as a dependent variable has the highest value of 15.31, the lowest is -27.46, and the average Stock Return is 0.2223.

Classical Assumption Test

a. Normality Test

Table 2. Normality Test

	Asymp. Sig (2-Tailed)
ROA	.089
LDR	.088
Interest Rate	.081
Exchange Rate	.096

Because the significance value is greater than 0.05, it can be concluded that the residual data is normally distributed, indicating that the regression model meets the normality assumption.

b. Multicollinearity Test

Table 3. Multicollinearity Test

		Tolerance	VIF
	ROA	.959	1,043
	LDR	.957	1,045
	Exchange rate	.180	5,561
	Interest rate	.176	5,678
	TVA	.939	1,065

Based on the table above, the ROA variable has a tolerance of 0.959 and a VIF of 1.043, indicating that it is free from multicollinearity. The LDR variable has a tolerance of 0.957 and a VIF of 1.045. The exchange rate has a tolerance of 0.180 and a VIF of 5.561, while the interest rate has a tolerance of 0.176 and a VIF of 5.678; both are still below the general tolerance limit (VIF < 10, tolerance > 0.10). The TVA variable also shows a tolerance of 0.939 and a VIF of 1.065, indicating that there is no multicollinearity.

c. Heteroscedasticity Test

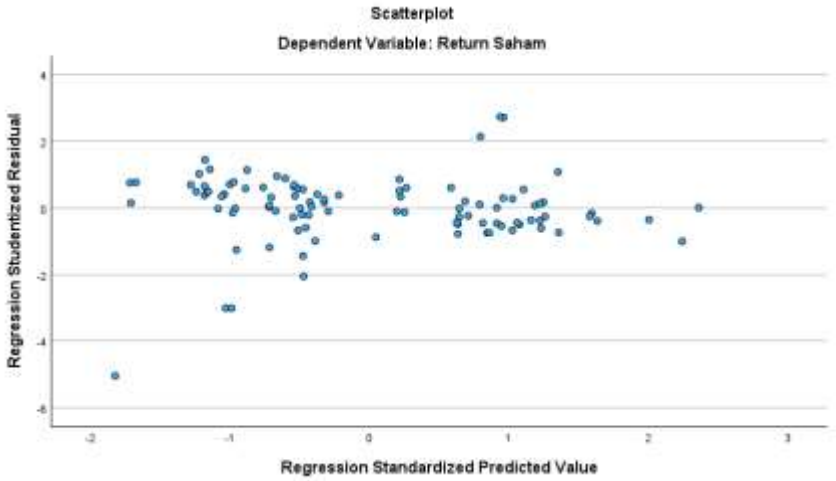


Figure 1. Heteroscedasticity Test

The heteroscedasticity assumption is met by this regression model which means that the residual variance remains constant at each prediction level.

d. Autocorrelation Test

Table 4. Autocorrelation Test

Model	Durbin-Watson
1	1,926

Based on the results of the Durbin-Watson test, the value obtained is 1.926, which is greater than the upper limit (du) of 1.7657 and less than the lower limit (4-du) of 2.2343 for n = 100 and k = 5 at a significance level of 5%. This indicates that there is no autocorrelation, so the regression model meets the assumption of being free of autocorrelation.

Hypothesis Testing Results

a. Multiple Linear Analysis

Equations I

	B
ROA	.010
LDR	.002
Exchange rate	100,871
Interest rate	-275,194

$$Z = a_1 + \mathrm{b}X_1 + \mathrm{b}X_2 + \mathrm{b}X_3 + \mathrm{b}X_4 + \mathrm{e}$$
$$TVA = -956.557 + 0{,}010ROA + 0{,}002\mathrm{LDR} + 100{,}871NT + (-275{,}194)\mathrm{SB}$$

The results of the regression analysis show that the constant -956.557 indicates that TVA is predicted to decrease if all independent variables are constant. The ROA regression coefficient of 0.10 shows a positive effect on TVA with a significance of 0.011, while LDR has a coefficient of 0.002 and a significance of 0.0885, which means it has no significant effect. The exchange rate with a coefficient of 100.871 has a positive impact on TVA and is significant (0.002), while the interest rate with a coefficient of -275.194 has a negative impact and is also significant (0.019).

Equation II

	B
ROA	.009
LDR	.008
Exchange rate	80,259
Interest rate	-189,048

$$Y = a_1 + \mathrm{b}X_1 + \mathrm{b}X_2 + \mathrm{b}X_3 + \mathrm{b}X_4 + \mathrm{bZ} + \mathrm{e}$$
$$Return = -760{,}026 + 0{,}009ROA + 0{,}008\mathrm{LDR} + 80{,}259NT + (-189{,}048)\ \mathrm{SB} + 0{,}312\ \mathrm{TVA}$$

The results of the regression analysis show that the constant -956.557 indicates a decrease in TVA if all independent variables are constant. ROA has a positive effect on TVA with a coefficient of 0.10 and a significance of 0.011, while LDR has no significant effect with a coefficient of 0.002 and a significance of 0.0885. The exchange rate has a positive impact on TVA with a coefficient of 100.871 and a significance of 0.002, while the interest rate has a negative impact with a coefficient of -275.194 and a significance of 0.019.

b. F Test

Equation I

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	490,753	4	122,688	5.253	<,001b
	Residual	2218.688	95	23.355		
	Total	2709.440	99			
a. Dependent Variable: TVA b. Predictors: (Constant), Interest Rates, ROA, LDR, Exchange Rates						

From the table above, the Fcount value is 5.253 with a significance of 0.00 compared to Ftable of around 2.47 at a significance level of 0.05 (df1 = 4 and df2 = 95). Because Fcount is greater than Ftable (5.253 > 2.47), H1 is accepted, which indicates that independent variables such as interest rates, ROA, LDR, and exchange rates simultaneously affect TVA. Thus, the regression model used is considered feasible in this study.

Equation II

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	880,744	5	176,149	9.019	<,001b
	Residual	1835.905	94	19,531		
	Total	2716.649	99			
a. Dependent Variable: Return b. Predictors: (Constant), TVA, Exchange Rate, ROA, LDR, Interest Rate						

F count value of 9.019 with significance <0.001 indicates that H1 is accepted because F count is greater than F table of around 2.30 (df1 = 5 and df2 = 94) at a significance level of 0.05. This indicates that the variables TVA, exchange rate, ROA, LDR, and interest rates simultaneously influence stock returns, and indicate that the regression model used in this study is feasible.

c. R2 Test

Equation I

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.426a	.181	.147	4.83266
a. Predictors: (Constant), Interest Rates, ROA, LDR, Exchange Rates				

Based on the determination coefficient test used in the regression equation, it shows that the independent variables (interest rates, ROA, LDR, and exchange rates) are able to explain the dependent variable (stock returns) by 14.7%. Other variables not included in this regression model leave 85.3%.

Equation II

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.569a	.324	.288	4.41938
a. Predictors: (Constant), TVA, Exchange Rate, ROA, LDR, Interest Rate				

Based on the determination coefficient test used in the regression equation, it shows that the independent variables (TVA, Exchange Rate, ROA, LDR, and Interest Rate) are able to explain the dependent variable (Stock Return) by 28.8%. Other variables not included in this regression model leave 71.2%.

d. Sobel Test

Variables	T count	One-Tailed Probability	Two-Tailed Probability
ROA	2,732	0.0031	0.0062
LDR	2,704	0.0034	0.0068
Exchange rate	0.220	0.4911	0.9823
Interest rate	-0.004	0.4981	0.9963

The results of the analysis show that the TVA variable significantly mediates the relationship between Return on Asset (ROA) and Stock Return

(Tcount = 2.733; p = 0.0063), as well as between Loan to Deposit Ratio (LDR) and Stock Return (Tcount = 2.704; p = 0.0068), because the p-value < 0.05. However, TVA does not mediate the relationship between Interest Rate and Stock Return (Tcount = -0.004; p = 0.996) or between Exchange Rate and Stock Return (Tcount = 0.022; p = 0.982), because the p-value > 0.05.

DISCUSSION

This study confirms that profitability (ROA) significantly increases stock liquidity (TVA) and stock returns. In line with signaling theory, high profitability sends a positive signal to investors, encouraging trading activity and increasing returns. Liquidity (LDR), however, does not significantly affect liquidity or stock returns. This suggests that investors may place more weight on external macroeconomic signals than on internal bank efficiency metrics when making stock purchase decisions.

Interest rates do not show a significant effect on stock liquidity or stock returns. Despite being a key macroeconomic variable, investors appear to consider other factors - such as profitability and market sentiment - that are more relevant to their investment decisions. In contrast, exchange rates significantly affect stock liquidity and returns. Investors view exchange rate movements as economic signals that can change expectations about a company's competitiveness and profitability.

Stock liquidity (TVA) itself positively affects stock returns, reflecting investors' preference for more liquid assets, which are more easily traded and perceived as less risky. Mediation analysis shows that TVA mediates the relationship between ROA and stock returns, as well as between LDR and stock returns. However, TVA does not mediate the effects of interest rates or exchange rates on returns, suggesting that these macroeconomic influences may have a more direct effect on investor expectations and firm valuations.

Overall, these findings emphasize that internal corporate performance (especially ROA) and external economic conditions (especially exchange rates) shape investor behavior in the Indonesian banking sector. Meanwhile, stock liquidity serves as a signal and a mechanism through which these factors can affect returns.

CONCLUSIONS AND RECOMMENDATIONS

Profitability (ROA) is a microeconomic variable that has a positive and significant impact on stock returns and stock liquidity (TVA), while liquidity (LDR) has no significant impact on either. On the macroeconomic side, the exchange rate is proven to have a positive impact on TVA and stock returns, while interest rates have no significant impact.

In addition, TVA is proven to have a positive effect on stock returns. It functions as a mediating variable in the relationship between ROA and stock returns and LDR and stock returns. However, TVA does not mediate the effect of stock returns on interest rates or exchange rates.

Overall, these results indicate that investment decisions in the banking sector are heavily influenced by the company's internal performance, particularly

profitability, and external elements, such as exchange rates. However, as a link between financial variables and stock returns, stock liquidity is very important.

Implications

It is expected that investors will consider more profitability and stock liquidity indicators when making investment decisions. These two factors will affect stock returns directly and through mediation mechanisms.

ADVANCED RESEARCH

For further researchers, it is expected to expand the industrial sector, extend the observation period, or by using techniques such as panel data to improve the research. The addition of other relevant variables can also improve our understanding of the components that affect stock returns.

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