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THE EFFECT OF STOCK RETURNS, TRADING VOLUME, AND STOCK PRICE VOLATILITY ON THE BID-ASK SPREAD

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Abstract

Stocks are the most popular investment instruments in the capital market. Investors use various types of information in their investment activities to gain maximum profit. One such piece of information is the bid-ask spread. Trading activities on the Indonesia Stock Exchange are inseparable from the movement of the distance between the bid and ask (offer), yet in general, investors tend to pay little attention to the stock bid-ask spread. Therefore, this study aims to analyze the effect of stock returns, stock trading volume, and stock price volatility on the bid-ask spread. This research was conducted on companies listed on the Indonesia Stock Exchange for the 2018–2022 period by accessing data through the official website of the Indonesia Stock Exchange (IDX). This is a quantitative study with a sample of 274 companies using probability sampling with the proportionated stratified random sampling technique. The analysis method used is multiple linear regression. The results of this study show that stock returns have a significant positive effect on the bid-ask spread, stock trading volume has a significant positive effect on the bid-ask spread, and stock price volatility also has a significant positive effect on the bid-ask spread in companies listed on the Indonesia Stock Exchange during the 2018–2022 period. This study can serve as a benchmark for determining which company stocks to invest in by analyzing variables supported by signaling theory and capital market theory, in which a liquid or efficient capital market encourages investors to participate in investment activities.

Keywords: Stock Return, Stock Trading Volume, Stock Price Volatility, Bid-Ask Spread

INTRODUCTION

In meeting long-term needs, individuals must have better financial capabilities, one of which is through investment. Investment has long been known to the public, yet it is often perceived negatively due to its association with large capital requirements and high risk. This perception arises because the public lacks sufficient knowledge about investment. Investment refers to the effort of holding current assets with the expectation of gaining greater economic value in the future (Hartono, 2015:5). With the development of technology and information, the public has become more informed about investment and has entrusted their wealth to be invested in the capital market. The capital market is a meeting place between parties with excess

funds and those in need of funds through the trading of securities (Doni and Mayar, 2019). The growth of the capital market in recent years proves that the public has become more familiar with it and its various instruments.

In the capital market, the term "securities" refers to tradable financial instruments. Among them, stocks are the most popular. Stocks are proof of capital ownership by an individual or entity also referred to as a business entity in a company or corporation (Zakiyah and Nurweni, 2018). Before investing, one must accurately assess the stock, as stock investment involves relatively high risk and offers potentially large returns. In this assessment, investors require information regarding stock liquidity and price movement. Liquidity reflects the ability to conduct large transactions at low costs and in a short amount of time (Blau, Griffith, and Whitby, 2018). Stock liquidity and transaction costs are measured by the bid-ask spread. In securities trading, there are two key prices: the bid price and the ask price.

The bid price or offer price is the highest price offered by market participants to buy a stock, while the ask price is the lowest price at which market participants are willing to sell. A narrower spread indicates a more liquid stock, whereas a wider spread indicates lower liquidity (Fatikhah & Puryandani, 2020). By determining the optimal level of the bid-ask spread, market participants strive to gain the expected profit while keeping the stock actively traded (Doni and Mayar, 2019). Investors tend to hold stocks for the long term with the expectation of selling them at a higher price in the future. Conversely, if a stock is expected to decline, investors will sell it (Wahyuliantini and Suarjaya, 2015). A high stock price indicates intense competition among market participants, leading to a narrowing spread due to a tendency for the ask price to fall and the bid price to rise.

Market participants aim to find the optimal bid-ask spread level one that allows them to earn the expected return while maintaining active stock trading. The stock return level is a component that affects stock demand and supply. The higher the risk of the invested security, the higher the expected return, and vice versa. Stock returns are influenced by trading patterns or daily trading volume by individual investors. Daily trading volume can be seen from the queue of lots being traded; a large queue indicates high trading activity (Erlinda et al., 2019). Higher stock trading volume suggests greater investor interest in a company's stock, reinforcing confidence in current price trends. Conversely, low trading volume indicates a lack of investor interest (Rahmat et al., 2023). High trading volume reduces ownership costs, thereby narrowing the bid-ask spread. Trading volume has a negative and significant effect on the bid-ask spread (Nainggolan & Silalahi, 2017).

Another factor to consider is stock price fluctuation, or stock price volatility. Stock price volatility is also one of the factors that affects the bid-ask spread (Yuli & Munawaroh, 2022). It is formed from the gap between yesterday's closing price and today's closing price, whether showing an upward or downward trend. Stock prices traded are the result of supply and demand activities among investors, which cause prices to fluctuate, known as volatility (Erlinda et al., 2019). Market participants must pay attention to stock price volatility or the rate at which prices rise and fall in order to develop the right investment strategy and profit from the difference between buying and selling prices. Stock price fluctuation or volatility indicates that market

participants face high investment risk, leading them to widen the spread to cover potential losses. Investors can use information provided by companies to make investment decisions that align with their objectives, but such information may also alter their perspective. Volatility arises due to the entry of new information into the market (Sekar Andiani and Gayatri, 2018). Investors compete to obtain information about company performance, as fluctuating stock prices create information differences (information asymmetry), prompting them to optimize the spread due to the significant imbalance in information.

Information asymmetry refers to a situation in which some investors have information that others do not (Gustyas et al., 2023). It becomes difficult for investors to distinguish between high- and low-quality companies due to information asymmetry. Adequate information must be available to support transaction processes and prevent imbalances or asymmetries among market participants (Pebra et al., 2020). In this case, companies are expected to provide more transparent and complete financial reports to reduce information asymmetry. Experienced investors in the capital market have more knowledge than inexperienced ones because they always seek company information before investing. The more accurate and comprehensive the information obtained, the higher the investors' confidence, making the market more efficient. As information asymmetry decreases, the bid-ask spread narrows, thus increasing trading activity.

Several previous studies have examined the relationship between stock returns, stock trading volume, and stock price volatility with the bid-ask spread. Hamidah et al. (2018), in their study titled "The Effect of Stock Prices, Stock Price Volatility, and Stock Trading Volume on the Bid-Ask Spread in Mining Sector Companies Listed on ISSI for the Period June 2016 – June 2017", found that stock prices had a significant negative effect on the bid-ask spread, stock price volatility had an insignificant negative effect, and trading volume had a significant negative effect on the bid-ask spread. Dina Rosdiana (2019), in her study titled "The Effect of Stock Prices and Trading Volume on the Bid-Ask Spread", stated that stock prices had a negative effect on the bid-ask spread, while trading volume had no effect.

Farida et al. (2019), in their study "The Effect of Stock Prices, Return Variance, Trading Volume, and Abnormal Return on the Bid-Ask Spread Before and After Right Issues", found that stock prices had a significant negative effect, return variance had a significant positive effect, trading volume had a significant negative effect, and abnormal return had a significant negative effect on the bid-ask spread. According to Doni Kurniawan and Mayar Afriyenti (2019), in their study titled "The Effect of Stock Prices, Trading Volume, and Return Variance on the Bid-Ask Spread (An Empirical Study of Companies Conducting Stock Splits Listed on Southeast Asian Stock Exchanges in 2018)", stock prices had no effect on the bid-ask spread, trading volume had a significant negative effect, and return variance had a significant positive effect.

Ika Pratama and Aris Susetyo (2020), in their study titled "The Effect of Closing Price, Trading Volume Activity, and Stock Return Volatility on the Bid-Ask Spread in LQ45 Companies in 2017", concluded that closing price, trading volume activity, and stock return volatility each had a significant effect on the bid-ask spread. Fita Krisdayanti and Tuti Zakiyah (2021), in "The Effect of Stock Prices, Stock Returns,

Trading Volume, and Stock Return Risk on the Bid-Ask Spread in LQ45 Index Companies", found that stock prices had a significant positive effect, stock returns had no effect, trading volume had a significant negative effect, and stock return risk had a significant negative effect on the bid-ask spread. In the study by Yuli Lubis and Sri Munawaroh (2022), titled "The Effect of Stock Returns, Stock Trading Volume, and Stock Price Volatility on the Bid-Ask Spread", the results showed that stock returns had no effect on the bid-ask spread, trading volume had an effect, and stock price volatility had no effect.

Herma Wiharno and Dede Sri Rahayu (2018), in their study "Determinants of Bid-Ask Spread in Indonesia: More Evidence from LQ45 Index (2013–2016)", found that trading volume had no significant effect on the bid-ask spread, return variance had a significant effect, market value had a significant effect, and the independent board of commissioners had no significant effect. Hamidah and Sarah Maryadi (2018), in "The Effect of Stock Prices, Stock Price Volatility, and Stock Trading Volume on the Bid-Ask Spread in Mining Sector Companies Listed on ISSI for the Period June 2016 – June 2017", found that stock prices had a significant effect on the bid-ask spread, stock price volatility had an insignificant negative effect, and trading volume had a significant negative effect.

Previous studies have shown inconsistent results, which makes it necessary to re-examine this topic. In fact, investors must be more discerning when selecting stocks. This study differs from previous ones in terms of observation period and the number of companies examined. Based on the description above, the researcher chose the title "The Effect of Stock Returns, Stock Trading Volume, and Stock Price Volatility on the Bid-Ask Spread.."

RESEARCH METHOD

This study employs a quantitative approach with an associative design to examine the relationship between stock return, trading volume, and stock price volatility on bid-ask spread in companies listed on the Indonesia Stock Exchange (IDX) during the 2018–2022 period. Data were collected through documentation studies from the official IDX website and the companies' annual financial reports. Stock return is calculated based on stock price changes, trading volume is measured by the ratio between traded shares and outstanding shares, while volatility is measured by the difference between the highest and lowest stock prices. Bid-ask spread is calculated as the difference between ask and bid prices relative to the average price. This study aims to provide insights into stock liquidity from the perspective of microstructure market theory (Fahmi, 2017; Tandelilin, 2010; Yuli & Munawaroh, 2022).

The population in this study comprises 868 companies listed on the IDX, with a sample of 274 companies selected using proportionate stratified random sampling based on 11 industry sectors. The sample was calculated using the Slovin formula with a 5% margin of error, and the sample distribution across sectors was proportionally adjusted to fairly represent the characteristics of the population. The data type used is secondary data obtained from financial reports, while primary data were sourced from the official IDX website. The research instruments were developed based on indicators

of each variable and used a ratio scale to ensure measurement validity and reliability (Sugiyono, 2019; Hartono, 2010; Howe & Lin, 1992).

The data analysis techniques include descriptive analysis, classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation), multiple linear regression analysis, and hypothesis testing using F-test, t-test, and coefficient of determination (R^2). The regression model used is: $Y = a + b1X1 + b2X2 + b3X3 + e$, where Y is the bid-ask spread, X1 is stock return, X2 is trading volume, and X3 is stock price volatility. The F-test is conducted to determine the simultaneous effect of independent variables on the dependent variable, while the t-test assesses the partial effect. This analysis aims to provide empirical understanding regarding the factors affecting stock price spread as an indicator of market efficiency (Ghozali, 2018; Kurniawan, 2014; Gunawan, 2017).

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

The description of the research variables provides information regarding the characteristics of the research variables, which include the number of observations, minimum value, maximum value, mean, and standard deviation. Table 1 presents the results of the descriptive statistical analysis.

Table 1. Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Stock Returns	1370	-1.00	34.49	1865	1.40108
Stock Trading Volume	1370	00	137.94	1,1633	6,09416
Stock Price Volatility	1370	-1.63	7.34	0516	24667
Bid-Ask Spread	1370	-159.28	150.37	4,4098	8.87307
Valid N (listwise)	1370				

Source: Processed data, 2023

Based on the descriptive statistical test results in Table 1, the number of observations (N) is 1,370. This indicates that 1,370 observation data points were analyzed, consisting of 274 companies over a five-year research period from 2018 to 2022.

Classical Assumption Test Results

1. **Normality Test**

   The normality test aims to assess whether the residual or disturbance variable in the regression model is normally distributed. A good regression model has residuals that are normally or approximately normally distributed (Ghozali, 2012:116). To detect data normality, the Kolmogorov-Smirnov test was used. If the Asymp. Sig. (2-tailed) is greater than the 5 percent significance level, it can be concluded that the residuals are normally distributed. Conversely, if the Asymp. Sig. (2-tailed) is less than 5 percent, then the data do not follow a normal distribution.

   The results of the normality test for the entire sample are shown in Table 2 below:

Table 2. Normality Test Results
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		1375
Normal Parametersa,b	Mean	0000000
	Standard Deviation	79132292
Most Extreme Differences	Absolute	024
	Positive	024
	Negative	-020
Test Statistics		024
Asymp. Sig. (2-tailed)		065c

Source: Processed data, 2023

The results of the multiple linear regression model in Table 2 show that the value of Asymp. Sig. (2-tailed) is 0.065, which is greater than the 5 percent significance level (0.05). Therefore, it can be concluded that the residuals in the tested regression model are normally distributed.

2. Multicollinearity Test

The purpose of the multicollinearity test is to determine whether there is a correlation among the independent variables in the regression model. To detect the presence of multicollinearity in the regression model, the tolerance value and the variance inflation factor (VIF) are examined. If the tolerance value is greater than 10 percent or the VIF is less than 10, then the model is considered free from multicollinearity. The results of the multicollinearity test are presented in Table 3.

Table 3. Multicollinearity Test Results

Variables	Tolerance	VIF	Information
Stock return (X1)	0.718	10,394	Multicollinearity Free
Stock Trading Volume (X2)	0.939	10,065	Multicollinearity Free
Stock Price Volatility (X3)	0.720	10,389	Multicollinearity Free

Source: Processed data, 2022

Based on Table 3, the tolerance and VIF values indicate that there is no tolerance value below 0.1 (10 percent) or VIF value above 10. Therefore, based on the tolerance and VIF values, the regression model shows no indication of multicollinearity.

3. Heteroscedasticity Test

The heteroskedasticity test is conducted to examine whether there is a variance inequality in the residuals across observations in the regression model. This study employed the Glejser test to assess heteroskedasticity. The Glejser test is performed by regressing the absolute residual values of the estimated model against the independent variables. If the significance values are greater than 0.05, it indicates the absence of heteroskedasticity. The results of the Glejser test are shown in Table 4.

Table 4. Results of Heteroscedasticity Test

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Error	Beta	t	Sig.
1	(Constant)	.626	.013		46,632	.000
	ReturnShare	-.008	.009	-.024	-.894	.371
	Stock Trading Volume	.003	.002	.039	1,443	.149
	Stock Price Volatility	.015	.052	.008	.297	.767

a. Dependent Variable: ABS_RESIDUAL

Source: Processed data, 2023

Table 4 shows that the significance values for Stock Return (X1) is 0.371, Stock Trading Volume (X2) is 0.149, and Stock Price Volatility (X3) is 0.767. All these values are greater than α = 0.05. Therefore, it can be concluded that there is no heteroskedasticity in the model.

4. Autocorrelation Test

A regression model that exhibits autocorrelation issues may produce poor or biased predictive results. In this study, the autocorrelation test was conducted using the Durbin-Watson (DW) statistic, which tests for the presence of autocorrelation in the disturbance error term.

Table 5. Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson
1	.585a	.342	.341	.79219	1,738

Source: Processed data, 2023

The DW value is 1.738. When compared to the significance level of 5%, with a sample size of 1,375 (n) and the number of independent variables (K=3), the upper bound value (du) is 1.9536. Since the DW value of 1.738 is less than the upper bound (du = 1.9536) and also less than (4 - du = 2.0464), it can be concluded that the data does not pass the Durbin-Watson autocorrelation test. As the Durbin-Watson test does not meet the required criteria, a Run Test was conducted to examine the presence of autocorrelation. A regression model is considered free from autocorrelation if the Asymp. Sig. (2-tailed) value in the Run Test is greater than 0.05. The results of the Run Test are shown in Table 6 below:

Table 6. Autocorrelation Test Results Using Run Test

	Unstandardized Residual
Test Valuea	0.01868
Cases < Test Value	687
Cases >= Test Value	688
Total Cases	1375

Number of Runs	634
Z	-2,941
Asymp. Sig. (2-tailed)	0.063

Table 6 shows that the Asymp. Sig. (2-tailed) value in the Run Test is 0.063, which is greater than 0.05. Therefore, it can be concluded that there is no autocorrelation among the residual values.

Multiple Linear Regression Analysis

This multiple linear regression analysis is conducted to examine the effect of Stock Return (X1), Stock Trading Volume (X2), and Stock Price Volatility (X3) on the Bid-Ask Spread (Y). The analysis was performed using SPSS for Windows version 26.0, and the results are presented in Table 7 as follows:

Table 7. Results of Multiple Linear Regression Analysis

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1,563	.039		39,579	.000
	Return Saham	.224	.017	.347	13,405	.000
	Volume Perdagangan Saham	.078	.006	.296	13,083	.000
	Volatilitas Harga Saham	.130	.015	.219	8,469	.000

a. Dependent Variable: Bid-Ask Spread

Source: Processed data, 2023

Based on the multiple linear regression analysis in Table 7, the regression equation can be formulated as follows:

$Y = 1{,}563 + 0{,}224\ X1 + 0{,}078\ X2 + 0{,}130\ X3 + \varepsilon$

The regression coefficients of the Stock Return (X1), Stock Trading Volume (X2), and Stock Price Volatility (X3) variables are positive and have t-test significance values less than 0.05. This indicates that the variables—Stock Return, Stock Trading Volume, and Stock Price Volatility have a statistically significant positive effect on the Bid-Ask Spread.

Coefficient of Determination (R^2) Test

The coefficient of determination (R^2) is used to determine and measure the explanatory power of the model in accounting for variations in the independent variables. In this study, the adjusted R^2 value is used to evaluate the regression model, as unlike R^2, the adjusted R^2 can increase or decrease when an independent variable is added to the model. The results of the coefficient of determination test are shown in Table 8 below:

Table 8. Coefficient of Determination Test Results

Model	R	R Square	Adjusted R	Standard Error of

			Square	the Estimate
1	0.585a	0.342	0.341	0.79219

Source: Processed data, 2023

The results in Table 8 show that the adjusted R^2 value is 0.341. This means that 34.1% of the variation in the Bid-Ask Spread is significantly influenced by the variables Stock Return (X1), Stock Trading Volume (X2), and Stock Price Volatility (X3), while the remaining 65.9% is explained by other factors not included in the model.

Model Feasibility Test (Simultaneous/F-Test)

The F-test is used to examine whether there is a significant effect of the independent variables jointly on the dependent variable, assessing the feasibility of the model at a significance level of α = 5%. If the F-test significance value is less than 0.05, the model is considered feasible and can be used for subsequent analysis, and vice versa. The results of the F-test are presented in Table 9 below:

Table 9. F Test (ANNOVA) Results

Model		*Sum of Squares*	df	*Mean Square*	F	*Sig.*
1	Regression	447,603	3	149,201	237,747	.000b
	Residual	860,388	1371	.628		
	Total	1307,991	1374			

Source: Processed data, 2023

The F-test results show that the calculated F-value is 237.747 with a p-value of 0.000, which is less than the significance level of α = 0.05. This indicates that the model used in this study is feasible. These results imply that the three independent variables are able to predict or explain the Bid-Ask Spread phenomenon. In other words, Stock Return (X1), Stock Trading Volume (X2), and Stock Price Volatility (X3) simultaneously have a significant effect on the Bid-Ask Spread.

Hypothesis Test Results (t-test)

Partial testing of the effect between independent variables and the dependent variable is conducted using the t-test. The results of the t-test analysis are presented in Table 10 as follows:

Table 10. t-Test (Hypothesis Testing) Results

Variables	t-Value Coefficient arithmetic regression (B)		Sig.	Conclusion
Stock return (X1)	0.224	13,405	0,000	Significant Positive
Stock Trading Volume (X2)	0.078	13,083	0,000	Significant Positive
Stock Price Volatility (X3)	0.130	8,469	0,000	Significant Positive

Source: Processed data, 2023

Based on the t-test results shown in Table 10, the relationships between the variables can be explained as follows:

1) Effect of Stock Return on Bid-Ask Spread
   The t-test results in Table 10 indicate that the regression coefficient for X1 or Stock Return is 0.224, which is positive, with a significance level of 0.000, less than 0.050. This indicates that Stock Return has a significant positive effect on the Bid-Ask Spread. Therefore, the hypothesis stating that Stock Return has a significant positive effect on the Bid-Ask Spread is accepted.
2) Effect of Stock Trading Volume on Bid-Ask Spread
   The t-test results show that the regression coefficient for X2 or Stock Trading Volume is 0.078, which is positive, with a significance level of 0.000, less than 0.050. This indicates that Stock Trading Volume has a significant positive effect on the Bid-Ask Spread. Therefore, the hypothesis stating that Stock Trading Volume has a significant positive effect on the Bid-Ask Spread is accepted.
3) Effect of Stock Price Volatility on Bid-Ask Spread
   The t-test results indicate that the regression coefficient for X3 or Stock Price Volatility is 0.130, which is positive, with a significance level of 0.000, less than 0.050. This shows that Stock Price Volatility has a significant positive effect on the Bid-Ask Spread. Therefore, the hypothesis stating that Stock Price Volatility has a significant positive effect on the Bid-Ask Spread is accepted.

Discussion of Research Findings

The Effect of Stock Return on the Bid Ask Spread

Based on the analysis conducted, the stock return variable has a positive effect on the bid-ask spread. This implies that the higher the stock return of a company, the greater the bid-ask spread. In companies with high stock returns, dealers tend not to release the stocks immediately but hold them for a certain period. Consequently, the longer the stock is held by dealers, the larger the bid-ask spread becomes, as dealers incur higher costs for stock ownership. In other words, the bid-ask spread increases when stock returns rise, and vice versa. These findings are consistent with the results of Doni Kurniawan and Mayar Afriyenti (2019), who found that stock return variance has a significant positive effect on the bid-ask spread. However, this finding contradicts the study by Yuli Lubis and Sri Munawaroh (2022), which explained that stock return has no effect on the bid-ask spread.

Investors tend to invest when securities offer high returns with low risk, making return one of the motivating factors for investment decisions (Desi & Fitriyah, 2022). This research is supported by signalling theory, where returns can provide positive signals to investors to invest in the company, thereby increasing stock demand (Reyhan & Etna, 2021). The company's risk level can also serve as a signal to investors, as reflected in the amount of debt used to finance its operations. The more debt a company uses, the higher the associated risk, and investors perceive companies with lower risk as providing positive signals.

The Effect of Trading Volume on Bid-Ask Spread

Trading volume activity is an instrument that can be used to observe the capital market's reaction to information through the movement of trading volume in the market. When dealers notice that a particular stock is actively traded in the market,

they may exploit the opportunity to gain profit by utilizing the stock's spread level. High trading volume can lead investors to purchase stocks at higher prices, prompting dealers to increase the stock spread. This result is supported by the studies of Ika Pratama and Aris Susetyo (2020), as well as Yuli Lubis and Sri Munawaroh (2022), which found that stock trading volume has a significant positive effect on the bid-ask spread. Before deciding to purchase stocks, investors are advised to consider the trading frequency, as it significantly influences the bid-ask spread, reflecting how actively the stock is traded (Heny & Annisa, 2021). This finding is further supported by signalling theory, which asserts that every event or action related to a company carries information that can be utilized. Announcements perceived as positive signals by shareholders may alter the trading volume of the stock.

The Effect of Stock Price Volatility on Bid-Ask Spread

One way to assess the likelihood of stock price increases or decreases is by examining price volatility. This study supports the signalling theory, suggesting that stock price volatility affects the bid-ask spread, as volatility tends to fluctuate constantly, reducing the predictability of returns and prompting investors to hold stocks longer until they gain capital appreciation. When stock price volatility is high, investors may anticipate higher returns; however, if prices fall, they might not profit at all. Higher price volatility increases the uncertainty of stock prices, requiring dealers to bear greater investment risk, which leads to a wider spread. In other words, the greater the stock price volatility, the higher the bid-ask spread.

CONCLUSION

Based on the results of the analysis and the discussion presented in the previous chapter, the conclusions of this study are as follows:

1) Stock return has a positive and significant effect on bid-ask spread. This indicates that the higher the stock return, the greater the bid-ask spread.
2) Stock trading volume has a positive and significant effect on bid-ask spread. This shows that higher trading volume leads to an increase in the bid-ask spread.
3) Stock price volatility has a positive and significant effect on bid-ask spread. This means that the greater the stock price volatility, the higher the bid-ask spread will be.

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