

The Effect of Stock Profitability and Liquidity on Stock Volatility in Technology Companies Listed on the IDX

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ABSTRACT

This research examines how profitability and stock liquidity impact price fluctuations for technology companies on the Indonesia Stock Exchange from the first to the fourth quarter of 2024. Researchers utilized secondary data documentation methods to evaluate a sample of 16 corporate entities. The t-test results indicate that profitability exerts a significant influence on stock volatility with a significance value of 0.019, which identifies corporate earnings as a primary driver for price movements in the tech industry. In contrast, stock liquidity shows no significant effect on volatility, as evidenced by a significance value of 0.418. Additionally, simultaneous testing reveals that profitability and liquidity do not work together to affect stock volatility within the technology sector during this period. Consequently,

profitability remains the most influential factor on stock price volatility compared to liquidity for technology firms on the Indonesia Stock Exchange.

A. INTRODUCTION

The rapid development of Indonesia's capital market, particularly in the technology industry, has drawn the interest of investors due to the speed up of digital transformation. However, the performance of the technology sector on the Indonesia Stock Exchange (IDX) shows high price volatility, reflected in the decline in the IDXTECHNO index by 9.9% in 2024, which surpasses the decline in the JCI by 2.7%. This volatility is a major concern because it reflects risks and uncertainties for investors, so a deep understanding of the factors that affect it is crucial.

The study highlights two main factors that are thought to influence stock price volatility: profitability and stock liquidity. Profitability, as an indicator of a company's ability to generate profits, is seen as a signal of a stable future prospect for investors. On the other hand, stock liquidity reflects the ease of trading stocks in the market without causing extreme price fluctuations.

There is a research gap related to the consistency of the influence of the two variables on stock price volatility. Some studies indicate that profitability has a negative effect on volatility because profit stability reduces uncertainty, while other studies, such as those conducted by Putra and Tumirin (2024), have found that profitability has no significant influence. Similarly, there are different findings regarding the relationship between liquidity and stock volatility, such as in Dewi's (2025) research which found a negative relationship. The complexity of this market response motivated this study to re-examine "The Influence of Profitability and Stock Liquidity on Stock Volatility in Technology Sector Companies Listed on the IDX".

B. THEORETICAL STUDY

Grand Theory



Efficient Market Theory

The Efficient Market Theory or also the *Efficient Market Hypothesis* theory is a theory put forward in 1965 by (Fama, 1965). An Efficient Market is a market where all existing information has been reflected in the price of each securities traded. The Eeffian market is divided into three levels, namely weak, half-strong, and strong (Tandelilin, 2020).

Signal Theory

Signal theory suggests that information from a company can be captured in different ways by investors, either with positive or negative reactions, which affect changes in stock prices. When management signals show good news, this can encourage an increase in the stock price. On the other hand, if a signal from management gives an indication of bad news, it can lead to a decline in the company's stock price (Sigar and Kalangi, 2021).

Definition of Profitability

Profitability ratio is a measure of evaluating how profitable and efficient a company is in making profits, according to Kasmir (2021). Regarding the capital market, the degree of profitability becomes an indicator of the financial well-being of the firm that will become the basis of investor decisions in choosing the right investment steps.

Profitability Indicators

The Profitability Ratio is the *Return On Asset* (ROA) which measures a company's ability to make a profit by using all the assets it owns. According to Kasmir (2021), ROA is a ratio that provides an overview of the effectiveness of management at work, which can be seen from the profits generated from asset investments achieved by the company and the company's position is increasing in terms of asset utilization.

$$ROA = \frac{\text{LABA BERSIH SETELAH PAJAK}}{\text{TOTAL ASET}}$$

Definition of Stock Liquidity

According to Calon & Sugijanto (2022), it is said that stock liquidity is the frequency of stock transactions in a certain period where intensive stock trading activities in the secondary market will increase the number of transactions where a large number of transactions indicates good market conditions.

Stock Liquidity Indicator

TVA refers to the relationship between the number of shares traded during a certain period and the number of shares outstanding during the same period. Trading Volume Activity (TVA) measures the liquidity of a stock in the market and how intense it is to trade stocks in the market through the ratio of shares traded and shares outstanding (Hartono, 2021).

$$TVA = \frac{\text{Volume saham yang diperdagangkan}}{\text{Jumlah saham beredar}}$$

Definition of Stock Volatility

Volatility is a statistical measure that describes how much the price of a commodity or security has changed over a period of time. Since volatility can be indicated by *standard deviation*, the general public also considers volatility as a risk. Stock price volatility is a measure of uncertainty or fluctuations in stock movements in the future (Fatikhah & Puryandani, 2020).

Stock Volatility Indicator

Stock volatility is the upward and downward movement of stock prices in the stock market, it can be measured statistically as a measure of changes in stock prices over a given

period of time. (Lukma Karina, 2022). Increased volatility means that stock prices move up and down rapidly. Investors often provide support and continue to play a role in determining investment decisions for foreign investors (Supramono, 2022). Therefore, stock volatility can be calculated with the following formula:

$$\text{Price Volatility (PV)} = \frac{Hp - Lp}{0,5 (Hp + Lp)}$$

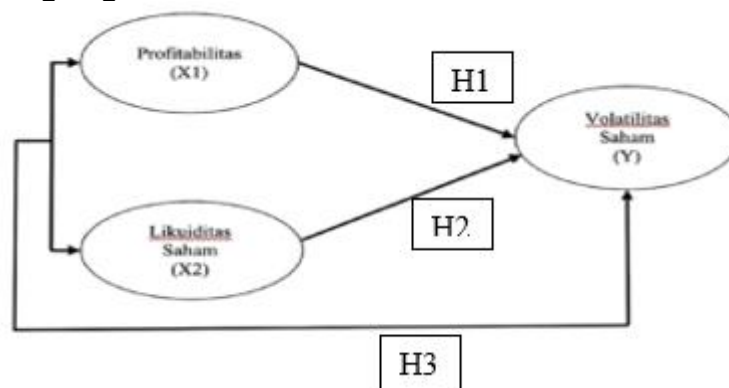
Description:

PV : Price Volatility

Hp : High Price

Lp : Low Price

Framework Of Thingking



Research Hypothesis

From the framework of thinking above and according to Sugiyono (2022), it is described that the hypothesis is a temporary solution to the problem formulation of the research, where the problem formulation of the research has already been formulated using the question sentence. The research that conducts the hypothesis development is the research that applies or adopts the method called "quantitative". Thus, the hypothesis of this research is:

H1 : Profitability affects stock volatility in technology sector companies Listed on the IDX

H2: Stock liquidity affects stock volatility in technology sector companies listed on the IDX

H3 : Profitability and Liquidity of stocks have a simultaneous effect on stock volatility in technology sector companies listed on the IDX

Population

Population can be defined as a general region comprised of things/substances with features/characteristics that have been identified and chosen for study purposes. In this case, the population is made up of 47 technology companies listed on the IDX.

Sample

A sample is a portion of the number and features possessed by the population. (Sugiyono, 2022). In this study, the sample refers to the data gathered based on specific criteria that fit the objectives of the study. The specific criteria used in this study include:

- 1.) Technological firms that are listed in the Indonesia Stock Exchange and throughout the research period, specifically Quarter 1 – Quarter 4 in 2024
- 2.) The firm was not delisted throughout the research period
- 3.) Active shares that were transacted throughout the research period
- 4.) The firm possesses stock price and trading volume data throughout the research period

The number of samples obtained in this study is based on predetermined criteria, namely 16 companies.



Sample Table

NO	Stock Code	Company Name	Main Types of Businesses
1	LUCK	PT Sentral Mitra Informatika Tbk	IT Solution
2	OPEN	PT Bukalapak.com Tbk	E-commerce
3	EMTK	PT Elang Mahkota Teknologi Tbk	Digital Media
4	MTDL	PT Metrodata Electronics Tbk	IT Distribution
5	EDGE	PT Indointernet Tbk	Internet connectivity
6	WIRG	PT WIR Asia Tbk	Digital marketing
7	WIFI	PT Solusi Sinergi Digital Tbk	Digital connectivity
8	CRANE	PT Qantum Clovera Investama Tbk	Digital services
9	HDIT	PT Hensel Davest Indonesia Tbk.	Digital platform
10	ATIC	PT Anabatic Technologies Tbk.	Technology services
11	DIVA	PT Distribusi Voucher Nusantara Tbk	Digital services
12	CLOUD	PT Era Digital Media Tbk	Digital services
13	IRSX	PT Folago Global Nusantara Tbk	Digital Media
14	IOTF	PT Sumber Sinergi Makmur Tbk	Software
15	MSTI	PT Mastersystem Infotama Tbk	IT Service
16	MENN	PT Menn Teknologi Indonesia	Digital Technology

Source : Bursa Efek Indonesia (2024)

C. RESEARCH METHODS

Data collection methods are the methods or techniques applied to collect data. The technique is an extremely important aspect of the research process, as the goal of conducting the research is to collect data (Sugiyono, 2022). The data collected in this research is secondary data. According to Uma Sekaran (2020), secondary data includes records or documentation of government publications, media analysis, websites and so on. In this study, the secondary data collected is the data extracted from the financial reports of companies operating in the technology industry listed at the Indonesia Stock Exchange for the period of Q1 – Q4, 2024. This will facilitate the variables Profitability (X1) and stock liquidity (X2) and stock volatility (Y).

D. RESULTS AND DISCUSSION

The objectives of the results and discussion section are as follows: 1) To examine whether profitability affects the volatility of stocks. 2) To examine whether stock liquidity has an effect on stock volatility. 3) To examine whether the Profitability and Liquidity of the stock have a simultaneous effect on the volatility of the stock.

Descriptive Statistical Test

Descriptive Statistics are those statistics which are used to conduct analysis of the collected data through its description, i.e., it describes the data as it is without making any relevant inference, mostly in the form of minimum values, maximum values, average values. (Scott, 2022) The Descriptive Statistical Test is shown in the following table:

Descriptive Statistical Test

Variable	Minimum	Maximum	Red	Std. Deviation
Profitability	0.0003	1.3261	0.066147	0.1728205
Stock liquidity	0.0001	0.5666	0.075791	0.1268628
Stock volatility	0.0559	1.5429	0.514957	0.3608633

Source : SPSS data processing results version 26

Normality Test

The normality test is the test that is conducted to ascertain whether the data that is collected follows the normally distributed curve. This assumption forms the main basis of application of parametric statistics where the data must originate from a normally distributed population." (Sugiyono, 2022). The test can be illustrated in the table below:

Normality Test

	Sig (2-tailed)	$\alpha = 0,05$	Remarks
Residual	0.200	0,05	Normally Distributed

Source : SPSS data processing results version 26

As per the result of normality test, the data was able to have a normal distribution at a significant value of 0.200 that was more than 0.05.

Multicollinearity Test

Multicollinearity test was done to determine the relationship between independent variables within the regression model. The regression model must not show any correlation between independent variables (Imam Ghazali, 2021). The tolerance value or cutoff value that is used for identifying the presence of multicollinearity is when Tolerance < 0.10 or VIF Value > 10.

Multicollinearity Test

Variable	Tolerance	VIVID	Remarks
Profitability	0.878	1.139	Non-occurrence of Multicolony
Stock liquidity	0.878	1.139	Non-occurrence of Multicolony

Source : SPSS data processing results version 26

The results obtained from the results of the multicollinearity test are that each variable does not have multicollinearity, this is because the data obtained has a tolerance value of < 0.10 and a VIF value of > 10.

Heteroscedasticity Test

Purpose of the heteroscedasticity test is to test and examine whether in the regression model there is variance differences between one residual observation to another observation. If the variance between one residual observation to another observation remains constant, then it is said to be homoskedastisitas or absence of heteroscedasticity. (Imam Ghazali, 2021). The method of heteros test is done using the white test, which means that if significance value between independent variables > 0.05, it indicates no symptom of heteroscedasticity.

Heteroscedasticity Test

Variable	Sig	$\alpha = 0,05$	Remarks
Profitability	0.455	0,05	Heteroskepticism does not occur
Stock liquidity	0.897	0,05	Heteroskepticism does not occur

Source : SPSS data processing results version 26

According to the result of Heteroskedasticity Test which is higher than 0.05, it indicates that the each variable does not suffer from or does not suffer from heteroskepticism.



Autocorrelation Test

The autocorrelation test intends to test whether in the linear regression model there is a correlation between the interference error in the t period and the interference error in the t-1 period (previous). The cause of the autocorrelation problem occurs because the observations sequentially over the time are related to each other. The cause of this problem is due to residual (interference error) is not free between one observation to another observation. (Imam Ghozali, 2021). The autocorrelation test that conducted in this research is done using the Run test. According to Ghozali (2021), run test that belongs to non-parametric statistics also can be used to examine whether there is a strong correlation among the residuals. If there is a correlation among the residuals, it means that the data of residuals is considered random or not (systematic). If the value of Asymp sig (2-tailed) is higher than 0.05, it can be concluded that there is no autocorrelation, and if the value of Asymp sig (2-tailed)

Autocorrelation Test

Test Value ^a	-.04698
Cases < Test Value	32
Cases >= Test Value	32
Total Cases	64
Number of Runs	27
Z	-1.512
Asymp. Sig. (2-tailed)	.131

Source : SPSS data processing results version 26

Since the value obtained by autocorrelation testing through runtest test of 0.131 and passed the requirement value of niali of 0.05, it could be concluded that there is no autocorrelation symptom.

Multiple Linear Regression Test

Multiple Regression Analysis is employed by researchers whenever there is a need for prediction of how the condition of a dependent variable/criterion fluctuates, when two or more variables act as predictors change (increase or decrease). Therefore, Multiple Regression Analysis would be conducted if there are at least two independent variables (Sugiyono, 2022).

Multiple Linear Regression Test Table

Variable	B	Std. Error	Beta
(Constant)	-1.130	0.257	
Profitability	-0.148	0.061	-0.315
Stock liquidity	0.035	0.043	0.107

Source : SPSS data processing results version 26

$$Y = -1.330 + -0.148 X1 + 0.035 X2 + e$$

Based on the table above, Profitability has or has an influence of -0.148, so it can be interpreted that if profitability increases by 1%, then the dependent variable is expected to decrease by 0.148. In the stock liquidity, it gets a value of 0.035, which can be interpreted that if the stock liquidity increases by 1%, the dependent variable will increase by 0.035.

Coefficient Determination Test

Coefficient determination generally measures the efficiency of a model in predicting the variation in the dependent variable. The coefficient of determination whose value is closer to

one indicates that the independent variable is very useful in predicting the variation of the dependent variable. (Ghozali Imam, 2021)

Determination Coefficient Test Table

Variable	R	R Square	Adjusted Squares	Std. Error Of The Estimate
Profitability				
Stock liquidity	0.296	0.087	0.057	0.70793
Stock volatility				

Source : SPSS data processing results version 26

Based on the table above, it shows that the coefficient value of determination shown with R Square together has an influence of 0.087 or 8.7%. These results show that the profitability and liquidity of stocks explain and affect stock volatility by 8.7%.

T test (Partial)

As explained by Ghozali (2021), the t-test is used to test the regression coefficient of each variable regarding the dependent variable, which helps in measuring the level of influence that each variable has on the dependent variable. This can be done by observing the threshold level, that is, if the significance level is < 0.05 .

Test Table t (Partial)

Variable	$\alpha = 0,05$	t-count	sig
Profitability	0.05	-2.416	0.019
Stock liquidity	0.05	0.816	0.418

Source : SPSS data processing results version 26

Considering the results of the t-test presented in the table, the significance value for profitability is $0.019 < 0.05$ meaning that profitability significantly affects the volatility of stock. On the other hand, the significance value for stock liquidity is $0.418 > 0.05$ meaning that the stock liquidity does not significantly affect the volatility of stock.

F Test (Simultaneous)

As explained by Ghozali (2021), the purpose of conducting an F test is to determine whether all the independent variables used in the model have an overall effect on the dependent variable. If the significance value in the results of the F test is less than the predetermined significance level ($\alpha = 0.05$), then the regression model is feasible and the independent variable has an effect on the dependent variable. In this case, the significance value is less than 0.05 and hence the independent variable has an effect on the dependent variable.

Test Table F (Simultaneous)

Variable	$\alpha = 0,05$	F-count	sig
Profitability Liquidity Stocks	0.05	2.919	0.062

Source : SPSS data processing results version 26

Based on the results of the F test in the table above, a significance result of $0.062 > 0.05$ is obtained, which means that the profitability and liquidity of the stock do not have a simultaneous effect on the volatility of the stock.

Discussion

The Effect of Profitability on Stock Volatility

Based on the results of this research, it can be said that the level of profitability does not affect significantly the stock price volatility. According to the hypothesis testing that was



conducted, it can be noted that profitability has no negative and significant impact on stock volatility. It can be seen from the value of statistical test, specifically from t-test value which is equal to $0.019 < 0.05$. This means that the impact of profitability on the stock volatility is shown for companies that belong to technology sector and are listed at Indonesia Stock Exchange.

The findings of this research are also confirmed by the research conducted by Emilia Nur Rahma (2025) who found in her results that profitability has a negative and significant impact on stock volatility. This shows that the efficient utilization of assets can be one of the factors that influence the stock price stability. If the company is able to use its assets productively, then it can be noted that it has good operation quality.

The Effect of Stock Liquidity on Stock Volatility

From the results of this research, it can be said that there is no significant impact of stock liquidity on stock volatility. This conclusion can be drawn from the result of the hypothesis test, where it is found that stock liquidity does not significantly affect stock volatility, this is evidenced by the result of the test obtained from the t-test, with the significance value of $0.418 > 0.05$, thus it means that stock liquidity has no significant impact on volatility of technology firms listed on Indonesian Stock Exchange.

The findings of this result are also supported by the research of Rosita Firda Sari (2025) who explains that stock liquidity or stock trading volume does not have a significant effect on stock volatility but gets a positive coefficient value, this shows that the increase in activity is not the main factor and is not followed by sharp price fluctuations in technology sector companies, in other words the stock market restores trading activities moderately so that the volume High transactions are not the main trigger. This condition also shows that investors tend to trade stocks on the basis of information that is already visible, so that the increased transaction volume does not create market panic that can widen stock price volatility.

The Effect of Profitability and Liquidity on Stock Volatility

The results of this research indicate that the ability and liquidity of shares do not have any significant effects at the same time on stock volatility. This is proved by the results of the f test, which provides a value of significance of $0.062 > 0.05$, indicating that all the variables may be considered independent from having any significant impact on the bounded variable. The results of the f test also provide an R² value of 0.087 or 8.7%. This means that the capability of the variables shareability and liquidity can only explain the volatility of the stocks prices by 8.7%, while 91.3% of the variance could be attributed to other factors.

E. CONCLUSION AND SUGGESTIONS

Conclusion

1. The impact of profitability on stock volatility in the technology sector firms listed at the IDX in the period from Q1-Q4 2024.
2. Liquidity does not have an effect on stock volatility in the technology sector firms listed at the IDX in the period from Q1 to Q4 2024.
3. Profitability and liquidity do not influence stock volatility simultaneously in the technology sector firms listed at the IDX in the period from Q1-Q4 2024

Suggestions

1. For companies, it is expected to pay more attention and increase profitability because profitability has been proven to have an influence on stock volatility. Good profitability performance can be a positive signal for investors so that it can overcome stock trading activities.
2. The profitability is anticipated to be the most important criterion in the investment decision-making for investors. This is due to the fact that profitability will indicate the ability of the business to make the maximum profit and has the potential to exert its influence on the stock price movement. However, the findings of this research demonstrate that there is no

correlation between the stock liquidity and the stock volatility; therefore, investors should not pay any attention to stock liquidity.

3. For the next researcher, it is recommended to add to the observation period, increase the number of samples, and consider other variable variables that can affect stock volatility, in addition to that the next researcher can also use more complex methods and it is recommended to conduct comparative research with other sectors that have opposite characteristics, such as the primary consumer goods sector) more stable, or the banking sector. This comparison will give an idea of whether profitability and liquidity have the same impact in different sectors.

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