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The Role of Non-Fundamental Information in Significant Stock Returns: an Empirical Analysis of Non-Lq45 Stocks on the Indonesian Stock Exchange for the Period 2021–2025

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Abstract
This study aimed to analyze the effects of nonfundamental factors on the returns of non-LQ45 stocks listed on the Indonesia Stock Exchange (IDX) during the 2021–2025 period. The nonfundamental factors examined in this study were investor sentiment, investor literacy, and stock volatility, with firm size included as a control variable. The background of this research was the significant increase in the number of investors on the IDX and the dominance of retail investor transactions following the COVID-19 pandemic. This condition was considered to provide greater opportunities for nonfundamental factors to influence stock return formation. This research was grounded in the Capital Asset Pricing Model (CAPM), supported by the Fama–French Three-Factor Model, Efficient Market Hypothesis (EMH), information asymmetry theory, and market microstructure theory. This study employed a quantitative approach with an explanatory research design and panel data regression analysis using the Ordinary Least Squares (OLS) method. The research sample consisted of 105 non-LQ45 stock observations selected proportionally based on market capitalization. The results of this study were expected to provide empirical evidence regarding the relevance of nonfundamental factors in explaining the formation of non-LQ45 stock returns in the Indonesian capital market.

INTRODUCTION

The capital market plays an important role in supporting economic activities through its intermediation function between companies seeking funding and investors pursuing returns through capital gains and dividends. In Indonesia, the Indonesia Stock Exchange (IDX) classifies stocks based on specific characteristics, one of which is the LQ45 index, which consists of 45 stocks with the highest liquidity and market capitalization (Indra et al. 2025; Malini 2019; Mujib et al. 2021; Rudianto 2023). Meanwhile, more than 900 other listed stocks are categorized as non-LQ45 stocks, which generally have lower liquidity and market capitalization levels, making them more vulnerable to the influence of nonfundamental factors in stock price formation (KSEI, 2025).

In recent years, the Indonesian stock market has exhibited a phenomenon in which stock price increases have not always corresponded with companies' fundamental conditions. Several non-LQ45 stocks experienced price increases of hundreds or even thousands of percent during the 2021–2025 period despite relatively low profitability levels (Megasyara 2021). For example,

DAAZ shares increased by 2,082% with a return on equity (ROE) of only 2.01%, while BUVA shares increased by 2,796% with an ROE of 0.97%. These conditions indicate potential deviations between market prices and intrinsic values, suggesting that stock price formation cannot be fully explained by assumptions of market rationality alone (Biondi et al. 2015; Charron 2017; Leins 2022; Ndrecaj et al. 2025).

This phenomenon has become increasingly relevant following changes in investor composition after the COVID-19 pandemic. Based on KSEI data (2025), the number of stock investors in Indonesia increased to 8.6 million, with retail investors accounting for 49.9% of total IDX transaction activity. However, asset ownership remains dominated by institutional investors. This condition creates information asymmetry, in which retail investors have a substantial influence on trading activity but remain more vulnerable to limitations in financial literacy and behavioral biases (Tan et al., 2024). Consequently, investor sentiment may influence stock price movements and cause prices to deviate from their fundamental values (Yulianto et al., 2023).

In addition to investor sentiment, the characteristics of non-LQ45 stocks make liquidity and volatility important factors in explaining stock returns. Stocks with smaller market capitalization tend to have lower liquidity levels and higher information asymmetry (Widianingsih & Setiawan, 2022). These conditions may generate abnormal returns as compensation for liquidity risk exposure (Budiarso & Pontoh, 2025). On the other hand, increased market volatility does not necessarily produce higher returns, as suggested by the Capital Asset Pricing Model (CAPM), but may instead have a negative relationship with stock returns in emerging markets (Saraf & Kayal, 2023; Çam et al., 2024).

Theoretically, CAPM explains that stock returns are influenced by systematic risk measured through beta. However, several studies have shown that CAPM does not fully explain variations in stock returns, particularly in emerging markets characterized by high uncertainty and information asymmetry (Jimenez et al., 2025; Beyaztas et al., 2025). Therefore, incorporating nonfundamental factors, such as investor sentiment, illiquidity, and volatility, is important for achieving a more comprehensive understanding of stock return dynamics (Gao et al. 2025; Maurya et al. 2026; Sakariyahu et al. 2024). Previous studies have examined these factors individually; however, limited research has integrated all three factors within a single research model, particularly in the context of non-LQ45 stocks listed on the IDX.

Based on these research gaps, this study aimed to analyze the effects of investor sentiment, illiquidity, and stock volatility on the returns of non-LQ45 stocks listed on the Indonesia Stock Exchange during the 2021–2025 period, with firm size included as a control variable. This research contributes empirically by expanding the study of stock return determinants in emerging markets and providing insights into how behavioral factors and market characteristics influence stock price formation beyond traditional fundamental explanations. The findings are expected to provide empirical evidence regarding the relevance of nonfundamental factors in explaining non-LQ45 stock returns in the Indonesian capital market, thereby contributing to academic literature and practical investment decision-making in emerging market contexts.

METHOD

Types of Research

This study employed a quantitative research approach with an explanatory research design. The study aimed to examine the causal relationships between nonfundamental factors, namely investor sentiment, illiquidity, and volatility, and stock returns in the Indonesian capital market. The quantitative approach was selected because it enabled the analysis of relationships among variables using measurable financial data. This approach was also appropriate for examining financial market dynamics through empirical data analysis.

Research Time and Place

This research aims to examine stocks that are listed on the Indonesia Stock Exchange (IDX) during the 2021-2025 period, and are not listed in the LQ45 index. IDX was chosen as a research place, because as a capital market in developing countries there is a tendency for inefficient information (Indra et al., 2025; Widianingsih and Setyawan, 2022). This makes stocks listed on the IDX potentially more influenced by non-fundamental factors.

This research period was chosen by the researcher to be able to represent market conditions after the COVID-19 pandemic which was characterized by an increase in the number of retail investors and sharply increased stock trading activities. This is supported by information obtained from the IDX on December 30, 2025. The reason for choosing non-LQ45 stocks for this study is due to their characteristics that tend to have lower liquidity and market capitalization than stocks listed in the LQ-45 index, making them more susceptible to the influence of non-fundamental factors such as investor sentiment, illicitism, and price volatility that occur on the IDX. This research will use secondary data, for 105 non-LQ45 stocks during the 2021-2025 period.

Sample Collection Techniques and Research Samples

The sample collection technique used is *purposive sampling* based on the population of stocks listed on the Indonesia Stock Exchange during the 2021-2025 period, and is not listed in the LQ45 index. The size of the company is used as a control variable, and is calculated based on the market capitalization of the stock, so that sampling will be carried out proportionally to stocks with large, medium, and small stock capitalization. The criteria used for the determination of samples in this study include the following:

1) The company was listed on the Indonesia Stock Exchange (IDX) for the period 2021-2025 consecutively and did not undergo *delisting*.
2) The company's shares are actively traded on the Indonesia Stock Exchange during the 2021-2025 period.
3) The company's shares are not included in the LQ45 index for the period 2021-2025.
4) The company has complete daily stock price data for the period 2021-2025.
5) The company has complete available trading volume data for the period 2021-2025.

The data used for this research is secondary data, obtained from verifiable sources such as the IDX, capital market data platforms, and other official financial data providers. The data collected includes information related to stock *returns* calculated from the daily closing price of shares, daily trading volume, stock volatility measured by measuring stock return deviation

standards , trading frequency, *advance* and *decline* ratios, and the size of the stock issuer will be measured through market capitalization.

The market capitalization grouping consists of stocks with *large-cap* caps above IDR 10 trillion, stocks with *mid-caps* between IDR 1 trillion to IDR 10 trillion, and stocks with *small-cap (small-cap*) below IDR 1 trillion. From the population of stocks that meet the set criteria, a sample of 105 stocks will be selected proportionally, consisting of 35 *large-cap* stocks, 35 *mid-cap* stocks, and 35 *small-cap* stocks. The reason for choosing such a large number of samples is to consider that these stocks have complete data available during the research period and are sourced from various sectors so that they can provide a more general picture.

All the data needed for the sampling process will be taken from verifiable sources such as Yahoo Finance or IDX Data Center. Through the sample collection method carried out, this study is expected to represent the relationship between the selected independent variables to the *return* of stocks outside the LQ45 index selected as the sample, to show the influence of non-fundamental variables that occur on the IDX.

Data Analysis Techniques

The data analysis method used in this study is the quantitative data analysis method. This method is used because the variables in this study are in the form of values that can be measured on a numerical scale (Hossain, S., 2024:12). The statistical tests used for this study include descriptive statistical tests, stationarity tests, panel data regression model selection, classical assumption tests (multicollinearity, normality, heteroscedasticity, and autocorrelation), and hypothesis tests.

Descriptive Statistical Test

Descriptive statistical tests were used in this study to provide an overview of the distribution of data from each variable to be tested. This test includes mean values, maximum values, minimum values, and standard deviations. Data processing in this test will be carried out using the EViews application.

Stationarity Test

The stationarity test was carried out with the aim of ensuring that the data used for this study had a constant mean and variance to avoid pseudo-regression. Since the research was conducted using panel data, the test was carried out using the root test of the panel unit (Hossain, 2024:682). This test was applied to all research variables, with criteria based on probability values. If the probability value is less than 0.05, then the data used is stated to be stationary. On the other hand, if the probability value is greater than 0.05, then the data is not stationary and needs to be adjusted. This test was carried out with the EViews application.

RESULTS AND DISCUSSION

Descriptive Statistical Test

Descriptive statistical tests were conducted to provide a general overview of the characteristics of the data used for this study. Descriptive statistics include the mean value, median value, maximum value, minimum value, and standard deviation of each research variable, namely

stock *return*, investor sentiment, ilequity, stock volatility, and company size. The details of the descriptive statistics obtained through the EViews application, are as follows:

Table 1 Descriptive statistics of the study (population = 6,300).

Variabel	*Red*	*Median*	Max	Min	*Std. Dev.*
Return	0,000991	0,000000	0,298855	-0,285447	0,036194
Sentiment	0,000000	0,157182	3,571510	-4,497047	1,364374
Illicit	0,005001	0,000066	0,778132	0,000000	0,024542
Volatilitas	0,027561	0,021969	0,164673	0,000982	0,020083
Size	28,492674	28,437349	34,205632	23,745395	1,977038

Source: Data processed by the author, 2026.

The dependent variable of stock return has an average value that is close to zero (0.000991) with an exact median of zero. This indicates that the majority of stocks selected as samples experience relatively small monthly price changes. However, the range between the maximum value (0.298855) and the minimum value of the samples (-0.285447) also indicates that in certain months there are extreme price movements for some stocks.

The first independent variable, namely investor sentiment, has a *mean* amount close to zero. This happens because the numbers used for sentiment measurement are the result of the *Principal Component Analysis* (PCA) method which is mathematically standardized so that it has an average of zero, with a maximum value range of 3.571510 and a minimum value of -4.497047. These conditions reflect the variation in market sentiment conditions during the 2021-2025 period, where there are periods with low to high trade intensity.

The second independent variable, namely illicit has a *mean* value (0.005001) that is greater than the *median* value (0.000066). This condition indicates a very *right-skewed* distribution, where a small percentage of stocks with a very high level of illiquidity pull the overall average upwards, while the majority of stocks selected as samples, have relatively good liquidity levels. The volatility variable has a *mean* value (0.027561) and *a median value* (0.021969) that are relatively close to each other or not much different. This shows that the distribution of stock volatility on a monthly basis is not too extreme, with a range between a minimum value of 0.000982 and a maximum value of 0.164673.

Finally, the control variable, namely the size of the company, as measured by the natural logarithm of market capitalization, has a *mean* value (28.49) and *a median* value (28.44) that are close to each other. As with the volatility variable, it indicates a relatively symmetrical distribution, with a range between a minimum value of 23.75 to a maximum value of 34.21. This condition reflects the diversity of the size scale of the company in the selected samples. This is consistent with the *stratified sampling design* based on three market capitalization categories, namely *big cap*, *mid cap*, and *small cap*.

Analysis Prerequisites Test

Root *Test*

The stationarity test is carried out to ensure that the *time series* data on each variable does not contain a unit *root*, as a prerequisite for the panel data to be estimated without the risk of *spurious regression*, which is a condition in which the regression results show a significant coefficient and a high determination coefficient, even though there is no cause-and-effect relationship between these variables and resulting in incorrect conclusions (Hossain, S., 2024:493). This test was conducted using four methods using the EViews application, namely Levin, Lin and Chu (LLC), Im, Pesaran and Shin (IPS), ADF-Fisher Chi-square, and PP-Fisher Chi-square:

Table 2 Stationariness test results.

Variabel	LLC	Prob.	IPS	Prob.	ADF-Fisher	PP-Fisher
Return	-74,69	0,000	-71,03	0,000	0,000	0,000
Sentiment	-18,26	0,000	-22,21	0,000	0,000	0,000
Illicit	644,77*	1,000*	-39,20	0,000	0,000	0,000
Volatilitas	-2,51	0,006	-3,69	0,0001	0,000	0,000
Size	-42,24	0,000	-42,20	0,000	0,000	0,000

Source: Data processed by the author, 2026.

Table 2 shows that in general, the research variables used are stationary at the level (I(0)). This is reflected in the probability value being below 0.05 in the majority of test methods, so that the data can be directly entered into the regression model without the *differentiating* process. Illicit was the only study variable that showed slightly different results. Its LLC test deviates from the other three methods. This deviation can be explained methodologically, as the LLC test assumes a homogeneous autoregressive coefficient between cross-sections (Levin, Lin, & Chu, 2002), an assumption that is not fulfilled in this variable because the degree of illicit between stocks in the selected sample varies greatly. In contrast, IPS, ADF-Fisher, and PP-Fisher tests can accommodate the heterogeneity of *root unit processes* between individuals (Im, Pesaran, & Shin, 2003), so that these three tests are more appropriate for data with characteristics such as illicit and remain consistent in stating that these variables are stationary. On the basis of these results, the conclusion of stationariness of illicit is maintained based on three of the four test methods that are methodologically more appropriate for these data conditions.

Multicollinearity Test

A multicollinearity test was performed in this study to ensure that there is no high correlation between the three independent variables (sentiment, illicity, and volatility) and the control variable (firm size) that can cause instability in the estimated regression coefficient estimate. Multicollinearity testing was carried out through two stages, namely Pearson correlation matrix analysis and *Variance Inflation Factor* (VIF). Both tests were carried out using the EViews application. The test results obtained are as follows:

Table 3 Pearson correlation matrix between independent variables.

Variabel	Sentiment	Illicit	Volatilitas	Size
Sentiment	1,000	0,302	-0,264	-0,036
Illicit	0,302	1,000	0,096	-0,191
Volatilitas	-0,264	0,096	1,000	-0,174
Size	-0,036	-0,191	-0,174	1,000

Source: Data processed by the author, 2026.

Table 4 Results of *the Variance Inflation Factor* (VIF) test.

Variabel	*R-squared*	VIF = 1/(1-R²)	Conclusion
Sentiment	0,1787	1,22	Secure
Illicit	0,1267	1,15	Secure
Volatilitas	0,1465	1,17	Secure
Size	0,0614	1,07	Secure

Source: Data processed by the author, 2026.

Table 4 shows that the entire correlation value between the three independent variables and the control variable was below the 0.31 mark, well below the general threshold of 0.8. This means that there is no indication of serious multicollinearity in pairs between the four variables. This conclusion is also strengthened by the results of the VIF test in Table 4.6, where all test values range from 1.07 to 1.22, well below the thresholds of 5 and 10 which are signs of multicollinearity (Hossain, S., 2024:300). These two test results together confirm that the regression model for this study is free from the problem of multicollinearity, both in pairs and in multiple linear combinations between the three independent variables and the control variables.

Panel Data Estimation Model Selection

Chow Test

The Chow test was carried out to determine a more precise panel data estimation model between *the Common Effect Model* (CEM) and *the Fixed Effect Model* (FEM) (Baltagi, B.H., 2021:79). The probability value of *Cross-section F* of 0.0027 and the probability value of *Cross-section Chi-square* of 0.0021 in Table 4.7 are both below 0.05. This means that there is only a probability between 0.21% and 0.27% that all stocks have the same starting point (intercept). The research model needs to provide space for each sample stock to have its own characteristics that do not change over time, which have the potential to affect stock *returns* but are not measured by independent variables in the model, such as differences in business structure or corporate governance. FEM is designed to accommodate these differences (Hossain, S., 2024:644), so it is more appropriate to use it than CEM in this study.

Table 5 Chow test results.

Statistical Test	Value	D.F.	Probability
Cross-section F	1,4343	(104, 6191)	0,0027
Cross-section Chi-square	149,99	104	0,0021

Source: Data processed by the author, 2026.

Hausman Test

The Hausman test was carried out to determine a more precise estimation model between *the Fixed Effect Model* (FEM) and *the Random Effect Model* (REM) (Baltagi, B.H., 2021:99 and Hossain, S., 2024). The Hausman test aims to test whether the unique characteristics of each stock correlate with the three independent variables and control variables used in the research model. If there is no correlation, then REM is considered sufficient, because individual effects can be treated as part of a random *error*. However, if it turns out that there is a correlation between variables, then REM will produce a biased estimate, so FEM will be the chosen model, because the model directly takes into account the individual effects of each stock selected as a sample.

Based on the results of the test conducted using the Eviews application, the probability value in Table 4.6 was obtained as 0.0171. The value is less than 0.05, so H0 is again rejected. This means that the individual effects between stocks selected as samples do correlate with independent variables in the model, so FEM is confirmed as a more appropriate model to be used in this study than REM. This is in line with the results of the Chow Test that has been carried out previously. Based on the results of both tests, FEM is more appropriate to use for this study as an estimation model.

Table 6 Hausman test results.

Statistical Test	**Chi-Sq. *Statistic***	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	12,0398	4	0,0171

Source: Data processed by the author, 2026.

Regression Model Estimation Results

The panel data regression model used for this study is formulated as follows, with sentiment, illicit and volatility as the main independent variables hypothesized to affect *stock returns, and the size of the company acting as the control variable.*

$$\textbf{RETURNit} = \beta 0 + \beta 1 SENTit + \beta 2 ILLIQit + \beta 3 VOLTit + \beta 4 SIZEit + \varepsilon i$$

Testing on the EViews application was carried out using *the Fixed Effect Model* (FEM) with *White diagonal standard errors*, which functions to correct the standard *error* level for each coefficient without changing the value of the coefficient itself. Thus the results of the significance of the research model obtained are more reliable.

Table 7 FEM estimation results with *White diagonal standard errors*.

Variabel	**Coeficin**	***Std. Error***	**t-*Statistic***	**Probability**
C	-0,08728	0,02954	-2,9545	0,0031
Sentiment	-0,00311	0,000817	-3,8007	0,0001
Illicit	-0,01794	0,02532	-0,7089	0,4784
Volatilitas	0,14017	0,05282	2,6536	0,0080
Size	0,00297	0,001036	2,8616	0,0042

Source: Data processed by the author, 2026.

Based on Table 4.9, the constant is at -0.08728. Every increase in one unit of sentiment (SENT), is associated with a decrease in *return* of 0.00311. Every increase in one unit of illiquidity (ILLIQ) can reduce *the return* by 0.01794. Meanwhile, an increase in volatility (VOLT), can increase *returns* by 0.14017. For the control variable, namely company size (SIZE), the increase was associated with an increase in stock return of 0.0297.

To find out which variables, whose influence can be statistically trusted, the information is presented in the probability column. Based on the information obtained in the column from the test results, two independent variables and a control variable were below the significance threshold of 5% (0.05) and one independent variable exceeded the threshold. For variables that are below the threshold, it is sentiment with a figure of 0.001, volatility of 0.0080, and company size of 0.0042. Therefore, these three variables are confirmed to have a significant influence. Meanwhile, the ilprobability variable with a figure of 0.4784 is far above the 5% threshold, so it has not been proven to have a significant influence.

Table 8 Model feasibility statistics.

Statistics Model	Value
R-squared	0,0301
Adjusted R-squared	0,0132
F-statistic	1,7789
Prob(F-statistic)	0,0000016
Durbin-Watson stat	2,0387

Source: Data processed by the author, 2026.

Testing was also carried out to ascertain how the research model used could explain the overall movement *of stock returns*. Based on the model statistics shown in Table 4.10, the *R-squared* value of 0.0301 indicates that sentiment, illicit and volatility, with company size as the control variables, were only able to explain 3.01% of the variation in stock returns, while the other 96.99% were driven by other factors not included in the scope of this study. Meanwhile, the *F-statistic* test result of 0.0000016 is well below the 5% threshold. This means that overall this model remains significant overall. Lastly, the *Durbin-Watson stat* value was obtained at 2.0387. This number is used to find out if there is an indication of autocorrelation between variables, which can result in the test's statistical value being invalid or biased. Because this value, very close to the number 2 which is the ideal reference for the existence or absence of autocorrelation, (Hossain, S., 2024:253), it can be concluded that the research model used is free from autocorrelation problems.

Classic Assumption Test on Selected Models

Normality Test

The results of the normality test presented in Table 4.11 show that the value of Jarque-Bera is 38,545.02 with a probability of 0.000000. This value is well below the threshold of 0.05, so H0 is rejected and the residual is declared not to be normally distributed. To understand the cause, it can be seen from two supporting measures, namely *skewness* of 1.476 which indicates a residual distribution that tends to be right-skewed, while kurtosis of 14.753, far above the value of

3 which is the reference for the normal distribution, indicates the presence of a *fat tail*, which is a condition in which there are more extreme values than should occur in the normal distribution.

These findings are in line with the results of the identification *of outliers* in the research data with the Eviews application, where 114 out of 6,300 observations (1.81%) had standard residual that was outside the range ±3, and these conditions were spread across 62 of the 105 stocks selected for the sample. In other words, this residual abnormality reflects the presence of a number of extreme observations spread across the various stocks that were the study sample, and not just concentrated on a few specific stocks.

Although the assumption of normality is not met, this does not mean that the results of the study are unreliable. The principle *of the Central Limit Theorem*, which states that the greater the amount of data used, the closer the resulting estimate will be to the ideal condition (Hossain, S., 2024:253 and Baltagi, B.H., 2021:366), regardless of the form of data distribution itself. This study used 6,300 observations throughout the 2021-2025 period, which is relatively large for panel data, so based on this principle, the results of the estimated coefficient are still statistically reliable even though the residue is not normally distributed. In other words, this violation of the assumption of normality is more due to the large-scale financial data used, and does not reduce the validity of the research conclusions.

Table 9 Normality test results.

Statistics	**Value**
Jarque-Bera	38.545,02
Probability	0,000000
Skewness	1,476
Kurtosis	14,753

Source: Data processed by the author, 2026.

Heteroscedasticity Test

The heteroscedasticity test for this study uses the Glejser Test which is run on the EViews application, which is a method that regresses the absolute value of the residual to each independent variable in the research model (Hossain, S., 2024:188). If the residual variation can be significantly explained by one of the independent variables, it is a sign that the error variance in this research model is not constant (heteroscedastic), and the variable is the main source of driving the dependent variable. If a model that assumes constant variance remains run on data containing heteroscedastis, the conclusions produced by the research model become unreliable (Hossain, S., 2024:410).

Based on the results obtained in Table 9, of the five variables tested, only volatility had a probability number well below 0.05 ($p<0.001$), while sentiment (0.4022), illiquidity (0.7699), company size (0.2239), and constant (0.9029) were all above these thresholds. From these results, it can be concluded that of all the independent variables and one control variable in the model, only volatility can significantly explain the absolute residual variation, so that heteroscedasticity in this model can be concluded to be sourced from these variables.

This condition is due to the nature of stock volatility which is naturally a large prediction deviation compared to stocks that tend to be stable. This finding is in line with the nature of the variable. To overcome the heterokedasticity condition found from the tests carried out, this study has applied *White diagonal robust standard errors* to the final model estimation. The purpose of this application is so that *standard errors* (uncertainty of the value of the coefficient) and *p-value* (probability that determines the significance of a variable) can be corrected more accurately, without changing the value of the coefficient that determines the direction of the influence of independent variables on the dependent variables in this study.

Table 10 Results of heteroscedasticity test (Glejser test).

Variabel	Coeficin	Prob.	Signifikan?
C	0,000505	0,9029	No
Sentiment	-0,000184	0,4022	No
Illicit	0,003461	0,7699	No
Volatilitas	0,544959	0,000	Ya
Size	0,000172	0,2239	No

Source: Data processed by the author, 2026.

Autocorrelation Test

The autocorrelation test was carried out using the EViews application. In general, a result is considered ideal when it is close to 2, while a value far from 2 (close to 0 or close to 4) indicates a positive or negative autocorrelation. Based on the results of the model estimation test in Table 4.10, a Durbin-Watson value of 2.0387 was obtained, which is very close to the value of 2. This shows that there are no significant indications of positive or negative autocorrelation in the residual model. Therefore the assumption of non-autocorrelation has been fulfilled (Hossain, S., 2024:231).

Uji *Robustness*

Due to the extreme observations identified in the normality test, this study conducted a *robustness* test to ensure that the estimated results obtained were not driven by a small amount of data with unreasonable values. This test is done by *winsorizing*, which is a process that converts extreme values, both at the upper and lower end of the distribution, into values at a specific percentile limit (in this study the 1% and 99% percentiles), so that extreme observations are not removed from the data, but are adjusted so that they do not become too extreme, and still retain the information that the observations are among the highest or lowest in the sample (Reifman & Garrett, 2022). *Winsorizing* was chosen as a *robustness method* for two reasons, the first is to prevent the disproportionate influence *of outliers* on the results of statistical analysis, and the second is to keep parameter estimation (such as regression coefficients) stable and consistent when the study is repeated with other samples. Before conducting *the winsorizing* process, this study first ensured that the extreme observations identified (114 out of 6,300 observations and spread across 62 out of 105 stocks taken as samples) were not created due to data recording errors, but real representations of the phenomenon of stock price movements that can produce extreme values.

Table 11 Comparison of the results of the estimation of the winsorizing *process*.

Variabel	Koef. Original	Koef. *Winsorized*	Prob. Original	Prob. *Winsorized*
Sentiment	-0,00311	-0,00261	0,00015	0,00023
Illicit	-0,01794	-0,01939	0,4784	0,3946
Volatilitas	0,14017	0,10407	0,00798	0,01265
Size	0,00297	0,00283	0,00423	0,00322

Source: Data processed by the author, 2026.

Table 11 shows that the direction coefficients and significance patterns for all variables remained consistent before and after the *winsorizing process*. Sentiment remained significantly negative, with the value of the coefficient falling from -0.00311 to -0.00261, a decrease of about 16%, with the probability number increasing from 0.00015 to 0.00023. Illequidity remained not significantly affected in either condition, although the coefficient slightly increased by 8%, from the initial value of -0.01794 to -0.01939, and the probability decreased from 0.4784 to 0.3946. Volatility also remained a significant positive effect with the value of the coefficient decreasing from 0.14017 to 0.10407, a decrease of about 26%, and the probability increasing from 0.00798 to 0.01265. Finally, the measure as a control variable still had a significant positive effect, with the value of the coefficient decreasing from 0.00297 to 0.00283, a decrease of about 5%, and the probability value increasing from 0.00423 to 0.00322. The consistency of direction and the level of significance for each variable showed that the estimation results obtained for this study were not only formed by the existence of observations of extreme value, but also reflected the pattern of relationships that were indeed present in the data. Thus, it can be concluded from the results of *the robustness* testing that has been carried out, this study can be said to remain stable despite the existence of extreme observations.

Hypothesis Testing

Simultaneous Test (F Test)

The simultaneous test (F test) was carried out to test the influence of the three independent variables (sentiment, illicide, and volatility), along with the control variable (company size), simultaneously on the dependent variable in this study, namely stock returns. Based on the results of the tests carried out with the EViews application, an *F-statistic* number of 1.7789 was obtained with a probability of 0.00000016. The probability value is well below the 5% threshold, so it can be concluded that H0, i.e. that the three independent variables and the control variable have no effect on returns, is rejected.

Table 12 Results of simultaneous test (F test).

Statistics Model	Value
F-statistic	1,7789
Prob(F-statistic)	0,0000016

Source: Data processed by the author, 2026.

Partial Test (t-test)

Partial testing was conducted using the EViews application on three main independent variables that are hypothesized to affect the *return of* non-LQ45 stocks for this study, namely sentiment, illicitability, and volatility. These three hypotheses are formulated in a specific direction. Sentiment and liquidity are predicted to have a positive effect on *the return* of non-LQ45 stocks, while volatility is predicted to have a negative effect on *the return of* non-LQ45 stocks. A hypothesis is acceptable if it meets two conditions at once, namely statistically significant (probability below 0.05) and the direction of the coefficient is in accordance with the predicted. If the direction of the coefficient turns out to be the opposite of the prediction, the hypothesis is declared rejected, even though it is statistically significant.

Table 13 Summary of partial hypothesis test results.

Hipotesis	Variabel	Results	Coeficin	Probability
H1	Sentiment	Negatives	-0,00311	0,0001
H2	Illicit	Negatives	-0,01794	0,4784
H3	Volatilitas	Positive	0,14017	0,0080

Source: Data processed by the author, 2026.

Table 4.15 shows that the three hypothesis test results turned out to be in the opposite direction from the prediction. Sentiment (H1) was predicted to be positive, but the results obtained were negative and significant (coefficient -0.00311; probability 0.0001), so H1 was rejected. Illicit (H2) was predicted to have a positive effect, but the test results obtained were also negative and even insignificant (coefficient -0.01794; probability 0.4784), so H2 was rejected. Volatility (H3) is predicted to have a negative influence on stock *returns*, but the test results obtained are positive and significant (coefficient 0.14017; probability 0.0080), so H3 is also rejected.

Table 14 Results of estimation of control variables.

Variable Control	Coeficin	Probability	Significance
Size	0,00297	0,0042	Significant (Positive)

Source: Data processed by the author, 2026.

In addition to the three independent variables that have been tested, company size is also included in the model, but it acts as a control variable, not an independent variable that is hypothesized to affect stock returns. The role of the control variables here is to ensure that the influence of sentiment, illicit and volatility on *the returns* of non-LQ45 stocks is not biased due to differences in company size between stocks, which are measured using market capitalization. Table 4.16 shows that the size of the firm has a positive and significant effect on *returns* (coefficient 0.00297; probability 0.0042).

The Effect of Sentiment on *Non-LQ45 Stock* Returns

Sentiment has proven to have a negative and significant effect on *the return* of non-LQ45 stocks with a coefficient value of -0.00311 and a probability value of 0.0001. Because H1 is formulated in a positive direction, the results obtained from this test make H1 rejected, even though it is statistically proven to have a significant effect. This H1 rejection does not completely

contradict the entire literature review in Chapter 2. Gebka (2025) found that high trading volumes, triggered by investor sentiment in stocks in the United States stock market, are consistently followed by price reversals in subsequent periods. Similar findings were also obtained through a study conducted by Li, Yin, and Zhao (2024) on stocks listed on the United States stock market in the period 1970-2020, which found that extreme abnormal trading volumes produced positive *returns* in the short term, but turned negative in the long term as *mispricing* was corrected. Krystyniak, Liu, and Hu (2025) based on their research on a number of stocks on the United States stock exchange for the period 2015 to 2017 also added that the reversal effect due to this sentiment is strongest precisely in small and young stocks that are difficult to assess, characteristics that are relevant to the non-LQ45 stocks targeted in this study. Since the sentiment variables used in this study are measured through the PCA composite of trading volume and stock turnover ratios, which are proxy for transaction intensity and not a direct indicator of the direction of market optimism, the spike in sentiment value in this study is more reflective of episodes of high trading activity that empirically tend to be followed by price corrections in the market. Thus, the negative relationship between sentiment and *the return* of non-LQ45 stocks found in the 2021-2025 period is a result consistent with the overreaction and price reversal mechanism, not with the *bull market condition argument* that underlies the hypothetical formulation of the positive direction hypothesized in H1.

The Effect of Illicit on *Non-LQ45 Stock* Returns

In contrast to the results of the sentiment variable test, the volatility variable was not proven to have a significant effect on *the return* of non-LQ45 stocks, with a coefficient value of -0.01794 and a probability value of 0.4784. The results obtained from the test caused H2 to be rejected both in terms of significance and in the direction of the coefficient, which was also the opposite of what was hypothetical. Based on the theory put forward by Amihud (2002) which is the basis for the use of the illiteracy ratio as a proxy for this research, investors tend to demand higher compensation for the risk of illiteracy of a stock. However, a number of other studies show that this pattern is not always consistent across all markets and all stock groups. Lee et al. (2024), for their research on stocks in the Taiwanese stock market, found that the size of Amihud's illiquidity needs to be adjusted depending on the characteristics of the local market, so that different results between market contexts are often found. This condition is also relevant to the context of non-LQ45 stocks listed on the IDX, where research conducted by Widianingsih and Setiawan (2022) on 499 stocks listed on the IDX in the 2017-2019 period, which shows that high illiteracy in the Indonesian capital market is more related to the poor information environment in the market, and not solely liquidity risk factors that are compensated *linearly* through *returns* shares for investors.

In addition, this research period in 2021-2025 also covers different market conditions although generally tends to be *bullish*, from the post-pandemic recovery phase in early 2021 to sharp shocks such as those that occurred in April 2025. Paul et al. (2025), based on their research on stocks listed on the United States stock market from July 1999 to June 2022, found that the influence of illicit can be reversed depending on market conditions. The direction of the influence of illicide can be positive in the normal period, but it can also be negative when entering the crisis period, so that the mixing of these two conditions in one study period has the potential to make the

influence of the illicide variable nullify each other as a whole, and cause the results obtained from the influence of this variable on the *return* of non-LQ45 stocks to be insignificant.

The Effect of Volatility on Non-LQ45 Stock Returns

The volatility variable actually shows the opposite direction when compared to the previous two independent variables. Based on the tests carried out, volatility was found to have a positive and significant effect on stock *returns* with a coefficient value of 0.14017 and a probability value of 0.0080. Because H3 is formulated in a negative direction, the result makes H3 rejected, even though it is statistically proven to have a significant influence.

The H3 rejection of this study does not stand alone without a theoretical basis. Theoretical studies show that there are two opposite directions regarding volatility and returns, and the results of this study are in line with one of them. The results of Li, et al.'s (2024) research on stocks listed on the Chinese stock market (CSI 300) in the period 2010-2018, explain that volatility is not only exogenous, but also directly influenced by trading activities and market information flows, where trading volume has a positive effect on both volatility and return opportunities stock. Similar findings also appeared in another study conducted by Israeli, et al. (2021) on stocks listed on the United States stock market in the period 1986-2015, finding that the presence of high trading activity in a stock was actually associated with *abnormal returns* that were positive in the following period.

In a market with characteristics closer to Indonesia, Ali and Badhani (2023), based on their research on stocks listed on the Indian stock market, found that retail investors in these markets tend to hunt stocks with high volatility because they expect large *returns*, which drives the stock price to increase. Meanwhile, Han and Zhang (2024), based on their research on stocks in the Chinese capital market during 1998-2018, found a similar pattern in the Chinese market which is also dominated by retail investors, where high trading levels magnify the *mispricing* of a stock. Volatility in the context of this study can be seen as a reflection of the intensity of trading activities and information flows on non-LQ45 stocks selected as the research sample. In non-LQ45 stocks dominated by retail investor transactions, this condition is actually associated with higher *return* opportunities , and not just a risk indicator that suppresses *returns* as based on research conducted by Saraf and Kayal (2023) and Çam et al. (2024), which uses conditional volatility models (GARCH/EGARCH) in different market contexts.

The Glejser test (Table 4.10) identified volatility as the only variable that significantly explains the absolute residual variation of the model. This indicates volatility as the main source of heteroscedasticity in this study. In line with this, the significance of volatility is also the most sensitive to *robustness correction* compared to other variables. *Standard* error volatility increases most sharply when corrected with *the White diagonal method* in the EViews application. The coefficient experienced the largest decrease (26%) in the *winsorizing test* (Table 4.13) and the weakening of the probability value from 0.00798 to 0.01265.

The Role of Company Size as a Control Variable

Company size was included in this study model as a control variable, rather than as a major independent variable hypothesized to have an effect on non-LQ45 stock returns. The size of the

company in this study is proxied by using the market capitalization of the stocks that are sampled. The goal is to control the potential influence of company size on *stock returns, so that the estimation of the influence of sentiment, illicitability, and volatility is not biased due to differences in company size between stocks in the sample.*

The results of the estimation obtained from the test with the EViews application show that the size of the company has a positive and significant influence on the *return of* non-LQ45 stocks with a coefficient value of 0.00297 and a probability value of 0.0042. These findings are supported by a number of theoretical foundations that lead to similar results. Pasaribu and Nugroho (2023), in their research on 46 IDX issuers for the 2018-2021 period, found that there was a positive influence of company size on stock returns. Research conducted by Diantimala et al. (2021) also shows that on the IDX, the direction of the influence of company size on *stock returns* tends to be conditional. This depends on the market capitalization scale of each company. Ko et al. (2025), in their study of stocks listed on the Taiwan stock market in the period July 1982 – December 2024, found that the effect of the size of the company proxied by market capitalization tends to be weak and can experience a reversal of direction caused by ongoing market signals. Under certain conditions, stocks with large capitalizations actually outperform stocks with smaller market capitalization.

The *robustness* test carried out for this variable also strengthened the findings obtained. The *Winsorizing* process carried out in Table 4.13 does not change the direction or significance of the company size, even the probability number decreases slightly from 0.0042 to 0.0032. This indicates that there is a pattern that is indeed consistent in the data obtained. Because company size acts as a control, this consistency actually strengthens the validity of the model in isolating the influence of sentiment, illicitability, and volatility, as well as being a form of real observation about the impact of company size on non-LQ45 stocks during the selected research period (2021-2025).

Discussion of Simultaneous Results

The results of the F test presented in Table 4.14 show that sentiment, illicit and volatility, together with company size as control variables, simultaneously have a significant effect on the *return of* non-LQ45 stocks with a yield of 1.7789 and a probability value of 0.0000016. The significance of the simultaneous test that was maintained even though the partial results showed a pattern that did not match the prediction indicates that non-fundamental factors, as explained in Chapter 1 and Chapter 2, did play a role in shaping *the return of* non-LQ45 stocks on the IDX. This condition is consistent with the argument that the assumption of *the Efficient Market Hypothesis* does not fully apply on the IDX as stated by Faisal et al. (2022) and Budiarso and Pontoh (2022), so that the price movements of non-LQ45 stocks are influenced by a combination of several factors that are more complicated than can be explained by a few variables alone. The low *R-squared* value (3.01%) also confirms that although the three independent variables, namely sentiment, illicitability, and volatility, with company size as the control variable, do contribute to explaining the movement of non-LQ45 stock returns in the 2021-2025 period, but the portion of variation explained through these variables tends to be relatively small compared to other factors

outside the research model, such as conditions macroeconomics, market sentiment that was not fully captured by the SED proxy, or the specific characteristics of individual stocks that were not observed in this study.

Research Limitations

This research has several limitations that need to be considered in interpreting the findings that have been presented. First, the residual model of this study did not fully meet the assumption of normality, with 114 of the 6,300 observations (1.81%) identified as *outliers* (extreme data), spread across 62 of the 105 stocks in the sample. Although a considerable number of observations keep the coefficient estimates consistent, the existence of these extreme observations still indicates that some of the non-LQ45 stocks are experiencing price movements that are difficult to explain through simple linear models.

Second, the *R-squared* value obtained from this research model is relatively low, which is 3.01%. This means that most of the variation in non-LQ45 stock returns is explained by other factors that are outside the research model, such as macroeconomic conditions, government policies, *market maker decisions*, or the specific characteristics of individual companies that are not observed. This low *R-squared* is indeed commonly found in stock *return* studies over a monthly period, but it still limits the ability of this research model to explain the price movements of non-LQ45 stocks as a whole.

Third, the sample of this study was selected using an equal allocation method (35 shares per capitalization category) from 375 shares of the candidate population. Although this approach provides a balanced representation between the three market capitalization categories, namely *big cap*, *mid cap*, and *small cap*; the composition of the selected sample does not fully reflect the proportion of the overall non-LQ45 population, where *the mid cap category* tends to dominate the total population (54.7%). In addition, the selected sample also shows a concentration on the Finance sector (23.8% of the total sample), which is driven by the large number of non-LQ45 bank stocks listed on the IDX during the research period, so that the return behavior of stocks from this sector has the potential to contribute more to the estimated results obtained from the research model, when compared to other sectors with smaller representation.

Fourth, the sentiment variables in this study are only measured through a composite of trading volume and stock turnover ratio, so it does not include other sources of sentiment information that also affect stock movements, such as media reports or conversations on social media. These factors have the potential to help shape investor perception of non-LQ45 stocks. Similarly, the results for volatility, which although proven to be significant, still show a fairly high sensitivity to *correction of standard errors* and the presence of *outlier* data caused by extreme observations, so the findings obtained for these variables need to be understood as an initial indication that requires further research.

Lastly, the selected research period from 2021-2025 covers quite diverse market conditions. These conditions started from the beginning of 2021, which was the post-COVID-19 pandemic recovery phase to sharp shocks to the stability of the IDX as occurred in April 2025. Mixing various market conditions in a single research period has the potential to make the influence of a

number of variables, such as illicit availability, less specifically captured. The results obtained tend to reflect the average of different market conditions, and not just patterns that apply consistently to the specific conditions that the market is currently facing.

CONCLUSION

Based on the results of the testing and discussion, this study concluded that nonfundamental factors played a role in influencing the returns of non-LQ45 stocks listed on the Indonesia Stock Exchange during the 2021–2025 period, although the direction of influence was not entirely consistent with the initial hypotheses. Investor sentiment (SENT) was found to have a negative and significant effect on stock returns, indicating the possibility of investor overreaction and price reversal mechanisms driven by increased trading activity. Meanwhile, illiquidity (ILLIQ) did not show a significant effect on stock returns, suggesting that the liquidity risk premium was not evident in the study sample. In contrast, stock volatility (VOLT) had a positive and significant effect on stock returns, indicating that volatility in non-LQ45 stocks may reflect trading intensity and potential profit opportunities for investors. Simultaneously, investor sentiment, illiquidity, stock volatility, and firm size as a control variable significantly influenced stock returns. These findings demonstrate that the formation of non-LQ45 stock returns was influenced not only by fundamental factors and systematic risks but also by investor behavior dynamics and market characteristics specific to the Indonesian capital market.

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