

Abnormal Return and Trading Volume Activity Analysis of the National Demonstration Event Using the Mean Adjusted Model (a Study of Lq-45 Index Stocks)

Dinda Alia Rahma Dwi Kurnia¹, Eka Yulianti²

^{1,2}Jenderal Achmad Yani University, Cimahi, Indonesia

Email: dindaalia_22p235@mn.unjani.ac.id¹, eka.yulianti@lecture.unjani.ac.id²

Abstract

Keywords:

Study of events, abnormal returns, trading volume activity, national demonstrations, capital market reactions.

This study aims to investigate the Indonesian capital market response to the national demonstration held on August 29, 2025 by examining abnormal return and trading volume activity (TVA) among LQ45 constituent firms listed on the Indonesia Stock Exchange. An event study approach was applied using an 11-trading-day event window, consisting of August 22, 25, 26, 27, and 28, 2025 as the pre-event period ($t-5$ to $t-1$), August 29, 2025 as the event date (t_0), and September 1, 2, 3, 4, and 8, 2025 as the post-event period ($t+1$ to $t+5$). Expected return was estimated through the Mean Adjusted Model using a 30-trading-day estimation period preceding the event window. The analysis employed a one-sample t -test to assess abnormal return during the event window and a paired-sample t -test to compare abnormal return and TVA between the pre-event and post-event periods. The results demonstrate that abnormal return did not reach statistical significance throughout the event window. Furthermore, the pre-event and post-event comparisons revealed no statistically significant differences in either abnormal return or TVA. While negative abnormal return values were observed during the observation period, their magnitude was insufficient to indicate a significant market response. The findings suggest that the national demonstration did not generate sufficiently strong information to induce measurable changes in stock prices or trading activity among LQ45 constituent firms.

INTRODUCTION

The capital market serves as a key component of the financial system by facilitating the flow of funds between entities seeking financing and investors seeking investment opportunities. Through this mechanism, investors allocate their capital with the expectation of earning *returns* that are commensurate with the level of risk they undertake. Therefore, investment decisions cannot be made based solely on profit expectations, but also require an analysis of risk characteristics as well as information available in the market (Fakhirah & Komara, 2024). This information is one of the main considerations in assessing investment prospects so that it can influence investor decisions (Dewi & Komara, 2024). In addition, the investor's ability to interpret information also determines the quality of investment decisions taken (Simatupang & Purnamasari, 2024). The information received by market participants also has the potential to affect stock trading activities because investors will adjust their buying and selling decisions according to information that is believed to be relevant (Abdurohim, 2021).

According to the *Efficient Market Hypothesis*, movements in security prices are influenced by information accessible to market participants, as new information is rapidly absorbed into the market and incorporated into the prices of traded securities (Fama, 1970). Information that affects the market comes not only from the economic or fundamental conditions of a company, but can also be sourced from non-economic events that increase uncertainty. One of the events that received widespread attention was the nationwide demonstration on August 29, 2025. On August 29, 2025, the Jakarta Composite Index (JCI) fell by over 2.5%, marking its sharpest one-day decline in the third quarter of 2025. Foreign investors also recorded a notable increase in net selling, particularly across LQ45 constituent stocks. The simultaneous occurrence of these market movements and the national demonstration indicates heightened market pressure, supporting the selection of August 29, 2025 as the *peak market reaction*. Within an *event study* framework, market responses are commonly assessed using *abnormal return* and *trading volume activity*, as these measures capture changes in stock performance and trading behavior following information arrival (Jogiyanto, 2017).

Some previous studies have shown that market reactions to non-economic events still produce mixed findings. Laksana (2023) found that the announcement by the World Health Organization regarding the classification of COVID-19 as a pandemic was not accompanied by statistically significant movements in either *abnormal return* or *trading volume activity*. Consistent results were also reported by Nafisa (2023) on the announcement of the case *Fraud* state-owned companies that do not generate significant market reactions. Instead, Dara and Lestari (2023) show that a corporate event is capable of influencing *abnormal return*, which indicates that the market response is influenced by the informational content of an event. The variation of these findings shows that investors' responses to non-economic information are not always the same because they are influenced by the characteristics of events, the level of uncertainty, and investors' perceptions of the information received. To date, research examining national demonstrations as socio-political events and their relationship with the response observed in Indonesia's capital market, particularly for securities comprising the LQ45 index, remained comparatively subdued.

Earlier empirical studies have reported mixed evidence on whether non-economic events are capable of generating a measurable response in capital markets. Although from the perspective of the *Efficient Market Hypothesis*, information available to investors with relevant value should be reflected promptly in security prices (Fama, 1970), empirical findings suggest that information originating from non-economic events does not always produce statistically significant changes in market behavior. This inconsistency provides the basis for examining the market response to the national demonstration held on August 29, 2025 through an *event study* approach. This study examines how the Indonesian capital market responds to the national demonstration by observing changes in *abnormal return* and *trading volume activity* of companies listed in the LQ45 index on the Indonesia Stock Exchange. The study offers a distinct contribution by examining a socio-political event that has received limited attention in previous Indonesian capital market research. In addition, the analysis combines two market reaction indicators, namely *abnormal return* and *trading volume activity*, while employing the *Mean Adjusted Model* to estimate *expected return*. The findings are intended to broaden the empirical understanding of how the Indonesian capital market responds to socio-political events and to provide a useful reference for future studies employing the *event study* methodology.

METHODS

This study employs a quantitative methodology and utilizes an *event study* design to examine the Indonesian capital market's response to the national demonstration that took place on August 29, 2025. This approach examines the informational impact of the event by tracing stock price movements and trading activity around the designated event date (Jogiyanto, 2017). The research population covers companies that were included in the LQ45 index on the Indonesia Stock Exchange (IDX). Sample selection follows a *purposive sampling* procedure, with one of the eligibility requirements being continuous inclusion in the LQ45 index throughout the research period, did not conduct *corporate actions* during the observation period, and had complete data required for the analysis (Sugiyono, 2022). Applying these requirements resulted in a final sample of 45 firms.

The study uses secondary data consisting of daily closing stock prices, trading volume, and outstanding shares obtained from the Indonesia Stock Exchange and Yahoo Finance. The observation period is divided into an 11-day *event window*, covering five trading days before the event ($t-5$ to $t-1$), the event day (t_0), and five trading days afterward ($t+1$ to $t+5$). Before this period, a 30-trading-day estimation period was applied, extending from 9 July 2025 to 22 August 2025, to provide the basis for calculating the expected return. During this period, the *expected return* was determined through the *Mean Adjusted Model* by referring to the average stock *return* recorded over the estimation period (Jogiyanto, 2017; MacKinlay, 1997).

The *actual return* is calculated using the following equation.

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}}$$

Description:

$R_{i,t}$ = denotes the *actual return* earned by company i 's stock during period t .

$P_{i,t}$ = the market closing price recorded for company i at time t .

$P_{i,t-1}$ = the closing market price of company i 's shares recorded in the preceding period.

The *expected return* is then obtained through the *Mean Adjusted Model*, with its calculation specified in the equation below.

$$E(R_{i,t}) = \frac{\sum_{j=1}^T R_{i,j}}{T}$$

Description:

$E(R_{i,t})$ = *Expected return* on company shares i .

$R_{i,j}$ = *actual stock return* during the estimated period.

T = number of days in the estimated period (30 trading days).

Abnormal returns are calculated using the following equation.

$$AR_{i,t} = R_{i,t} - E(R_{i,t})$$

Description:

$AR_{i,t}$ = *abnormal return* of shares of company i in period t .

$R_{i,t}$ = *Actual return* of shares of Company I in period t .

$E(R_{i,t})$ = *Expected return* of shares of company I in period t .

The level of stock trading activity is quantified through *Trading Volume Activity (TVA)*, calculated using the equation below.

$$TVA_{i,t} = \frac{\text{Number of shares traded}}{\text{Number of shares outstanding}}$$

Description:

$TVA_{i,t}$ = Trading volume of company I shares in period t .

The analysis begins by calculating the *actual return*, *expected return*, *abnormal return*, and *trading volume activity* for each company in the sample. The resulting observations are then summarized into daily Average Abnormal Return (AAR) and Average Trading Volume Activity (ATVA) for the 11-day *event window* to identify potential market responses surrounding the national demonstration. Prior to hypothesis testing, data distribution is assessed using the Kolmogorov–Smirnov normality test. A *one-sample t-test* is applied to determine whether *abnormal return* differs significantly from zero during the *event window*. Meanwhile, differences in *abnormal return* and *trading volume activity* between the periods before and after the event are examined using a *paired-sample t-test*. All statistical tests are conducted at a 5% significance level ($\alpha = 0.05$).

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics were used to summarize the main characteristics and distribution patterns of the variables examined in this study, particularly *abnormal return* and *trading volume activity* throughout the observation period.

Table 1. Summary Statistics for the Research Variables

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Variabel	N	MIN	MAX	MEAN	STD DEVIATION
AR Before	5	-0,7507	-0,7351	-0,7454	0,0063
AR After	5	-0,7629	-0,7321	-0,7463	0,0122
TVA Before	5	0,0012	0,0030	0,0018	0,0007
TVA After	5	0,0015	0,0024	0,0019	0,0003

Based on the descriptive statistics, the average *abnormal return* recorded before the event was -0.7454, while the corresponding average after the event reached -0.7463. Both figures remained negative, while the difference between the two means was relatively minor. Meanwhile, the *standard deviation* rose from 0.0063 to 0.0122, suggesting greater dispersion in *abnormal return* values after the event compared with the period before it.

The descriptive results for *trading volume activity* (TVA) show a mean value of 0.0018 during the pre-event period and 0.0019 during the post-event period. This indicates only a marginal change in trading activity between the two observation periods. Meanwhile, the value of *standard deviation* decreased from 0.0007 to 0.0003, which indicates that the variation in stock trading activity after the event is lower than in the previous period. Descriptively, both variables show changes between the period before and after the national demonstration. However, to find out if the change is statistically significant, inferential testing is needed at a later stage.

Normality Test

Data normality was evaluated using the Kolmogorov–Smirnov procedure to verify the distributional assumption required for the subsequent hypothesis analysis.

Table 2. Normality Test Results

Variabel	Testing Period	Asymp. Sig. (2-tailed)	a	Conclusion
<i>Abnormal Return</i>	Before the event	0,200	0,05	Normal
	After the event	0,200	0,05	Normal

Variabel	Testing Period	Asymp. Sig. (2-tailed)	a	Conclusion
<i>Trading Volume Activity</i>	Before the event	0,163	0,05	Normal
	After the event	0,200	0,05	Normal

Source: SPSS 27 output results, data reprocessed in 2026

The normality assessment indicated that each research variable produced with all significance values above 0.05, the findings indicate that the dataset meets the normality requirement. Therefore, parametric tests can be applied in the next stage of the analysis, specifically the *one-sample t-test* and *paired-sample t-test*.

Results of *One Sample t-test* on *Abnormal Return*

Table 3. Average *Abnormal Return* Test Results

PERIOD	AVERAGE ABNORMAL RETURN	TESTING		
		P- VALUE	a	REMARKS
T-5	-0,735	0,318	0,05	Insignificant
T-4	-0,735	0,328	0,05	Insignificant
T-3	-0,750	0,317	0,05	Insignificant
T-2	-0,746	0,321	0,05	Insignificant
T-1	-0,745	0,321	0,05	Insignificant
T0	-0,766	0,308	0,05	Insignificant
T+1	-0,754	0,315	0,05	Insignificant
T+2	-0,732	0,329	0,05	Insignificant
T+3	-0,739	0,325	0,05	Insignificant
T+4	-0,744	0,321	0,05	Insignificant
T+5	-0,763	0,309	0,05	Insignificant

Source: SPSS 27 output results, data reprocessed in 2026

The results presented in Table 3 show that *abnormal return* did not reach statistical significance at any point within the *event window*, covering t-5 through t+5. The significance values for all observation days were above the 0.05 criterion, indicating the absence of a statistically meaningful market response during the period examined. This finding suggests that the national demonstration did not generate a statistically detectable market response among firms included in the LQ45 index.

Paired *Sample t-test* results against *abnormal return*

Table 4. Paired-Sample t-Test Results for *Abnormal Return*

PERIOD TIME	TESTING		
	P-VALUE	a	REMARKS
5 DAYS BEFORE AND 5 DAYS AFTER	0,859	0,05	There is no difference

Source: SPSS 27 output results, reprocessed in 2026

Table 4 presents a paired-sample *t-test* result with a significance level of 0.859, exceeding the established threshold of 0.05. The finding suggests that the *abnormal return* observed before and after the national demonstration did not differ significantly across companies included in the LQ45 index.

Paired *Sample t-test* results on *Trading Volume Activity*

Table 5. Paired *Sample Test Results t-test Trading Volume Activity*

PERIOD	TESTING
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TIME	P-VALUE	a	REMARKS
5 DAYS BEFORE AND 5 DAYS AFTER	0,782	0,05	There is no difference

Source: SPSS 27 output results, reprocessed in 2026

Table 5 reports a paired-sample *t-test* significance value of 0.782, which is higher than the predetermined significance level of 0.05. The statistical evidence indicates that *trading volume activity* among LQ45 constituent firms remained statistically unchanged when comparing the periods preceding and following the national demonstration.

DISCUSSION

Market Reaction to National Demonstrations Based on *Abnormal Returns*

The *one-sample t-test* results show that *abnormal return* did not exhibit a statistically significant deviation from zero at any observation point within the event window, from $t-5$ through $t+5$. Despite the predominance of negative *abnormal return* values, the magnitude of these movements was insufficient to demonstrate a meaningful market response to the national demonstration. The findings suggest that the event may have been perceived as negative information (*bad news*), however, its information content was not sufficiently strong to cause a significant adjustment in share-price movements across LQ45 constituent firms. Empirically, these conditions are in line with the market situation during the research period. Information about the demonstration plan has been circulating through the mass media and social media a few days before the implementation date so that investors have the opportunity to adjust expectations from the start. As a result, when the demonstration takes place, the information the market receives is no longer completely new. Although the JCI had weakened by more than 2.5% and foreign investors took action *net sell* On the day of the event, these conditions reflect more of the increasing caution of investors in the short term than changes in the company's fundamental outlook. LQ45 constituent firms are typically characterized by substantial market capitalization, strong liquidity, and relatively sound fundamentals. Consequently, short-lived shifts in market sentiment may not be sufficient to produce a substantial change in firm valuation.

Descriptive statistics further support the test results, as the mean *abnormal return* remained negative in both periods, with only a slight difference between the values before and after the event. The higher dispersion observed after the event indicates greater variation in *abnormal return*, but does not imply a statistically significant market response. Moreover, the application of the *Mean Adjusted Model* based on a 30-day estimation period produces a relatively stable *expected return*, resulting in limited changes in *abnormal return* throughout the *event window* and, consequently, no statistically significant effect. MacKinlay (1997) explains that the selection of estimation models *expected return* can affect its magnitude *abnormal return* in research *event study*. This finding is consistent with the *semi-strong-form* version of market efficiency proposed by Fama (1970), which suggests that publicly available information is rapidly incorporated into security prices in accordance with its perceived informational value. However, if the information is not seen as having direct implications for the company's economic value or has been anticipated in advance, then the market response is likely to be limited. The evidence obtained in this study is consistent with findings reported in earlier research Haningrum & Sukoco (2022); Laksana (2023); Nafisa (2023); Rosman et al. (2022); and Yulianti et al. (2022) which suggests that various non-economic

events do not always produce *abnormal return* significant. On the contrary, The findings obtained in this study differ from those reported by Sholahuddin & Dhani (2026) which found that there was a market reaction on the day of the event. These differences are suspected to be influenced by the characteristics of events and estimation models *expected return* used.

The Difference Between *Abnormal Returns* Before and After National Demonstrations

Analysis of the paired observations showed that the difference was not statistically significant change in *abnormal return* between the periods preceding and following the national demonstration. The findings show that the change in stock prices during the observation period was relatively consistent so that the national demonstration has not been able to change investors expectations of the company's value during the initial period following the event. This condition can be explained because the national demonstration did receive public attention, but it was not accompanied by information directly related to the company's fundamentals, such as financial performance announcements, corporate actions, and economic policies that directly affect the company's cash flow. Therefore, investors tend to maintain their investment decisions because the event is perceived as an external risk that is temporary.

The descriptive results suggest that the mean *abnormal return* remained broadly consistent across the periods before and after the event. This result is in line with the paired-sample *t-test* findings. This pattern may also be related to the characteristics of stocks included in the LQ45 index, which are dominated by large market capitalization companies, have high levels of liquidity, and relatively strong fundamentals, cause investors to consider the medium- and long-term business prospects more than temporary social sentiment. Thus, the national demonstrations have not been strong enough to change the process of investor valuation of these stocks. A comparable outcome was documented in the study conducted by Rosman et al. (2022), Laksana (2023), and Nafisa (2023) which suggests that non-economic events do not necessarily lead to change *abnormal return* If the information received by investors does not have direct implications for the company's fundamental value.

Difference in *Trading Volume Activity* Before and After the National Demonstration

The paired-sample *t-test* indicates that the level of *trading volume activity* (TVA) remained statistically unchanged when comparing the pre-event and post-event periods surrounding the national demonstration. The findings show that stock trading activity in LQ45 companies was relatively stable during the observation period, so the national demonstration has not driven any significant changes in transactions. Although the national demonstration had increased uncertainty and suppressed the movement of the JCI on the day of the event, the trading activity of LQ45 stocks remained in a relatively normal range. This condition shows that investors still view the national demonstration as a temporary event so that it is not strong enough to change their investment strategy. This attitude indicates that investors tend to wait for advanced information that has a direct relationship with the company's prospects before making portfolio adjustments.

The results of descriptive statistics show that the average TVA after the event only increases by a relatively small amount, while the value of *standard deviation* Instead, it decreased so that trading activities after the demonstration took place became more uniform than in the previous period. This condition indicates that the change in transaction volume that occurred is not large enough to produce a statistically significant difference in TVA. From the standpoint of *Signaling Theory*, the absence of a strong investor response may indicate that the information did not convey a sufficiently meaningful signal about changes in firm value. In this study, the national

demonstration has not produced economic signals that directly affect the company's prospects, so investors prefer to maintain their investment strategies rather than oversell or buy. The evidence obtained in this study corresponds with findings reported in earlier studies Rentini & Herawati (2020), Walters et al. (2023), Yulianti et al. (2022), and Laksana (2023) which shows that negative events are not always followed by changes in stock trading activity if the information received is not strong enough to change investment decisions.

CONCLUSION

Using an *event study* approach, this research evaluates the response of the Indonesian capital market, with LQ45 constituent companies serving as the sample, to the national demonstration held on August 29, 2025. The findings show that *abnormal return* tended to take negative values across the *event window*, but these movements were not statistically significant. Furthermore, the comparative analysis found no significant differences in either *abnormal return* or *trading volume activity* between the periods before and after the event. These results suggest that the information associated with the demonstration did not generate a sufficiently strong market response to alter stock prices or trading activity among LQ45 firms. From an empirical perspective, the findings contribute to the *event study* literature by demonstrating that socio-political events outside the economic and corporate domains do not necessarily produce significant capital market reactions, particularly when investors do not perceive the event as having a direct bearing on corporate prospects or fundamentals. This study has limitations on the object of the study which only includes companies in the LQ45 index, the use of *Mean Adjusted Model* in estimating *expected return*, as well as an observation period that includes eleven trading days.

Further research is suggested to expand the research object to different indices or sectors so that the research results can be compared based on more diverse company characteristics. Future studies are encouraged to consider alternative approaches for estimating *expected return*, including the *Market Model* and *Market Adjusted Model*. Researchers may also expand the length of the *event window* and incorporate additional indicators of market response, such as *security return variability*, *bid-ask spread*, and *market capitalization*. These methodological extensions could provide a broader perspective on how the capital market responds to various non-economic events.

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