

## AN EVENT STUDY: INDONESIAN CAPITAL MARKET REACTION TO THE RUSSIA-UKRAINE WAR ANNOUNCEMENT



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### Abstract

The development of the Indonesian capital market is heavily influenced by global macroeconomics and economic conditions. The purpose of this study is to evaluate the reaction of the Indonesian capital market to LQ45 stocks before and after the announcement of war between Russia and Ukraine on February 24, 2022. The Composite Stock Price Index (IHSG) and the daily closing price of the corporation are utilized as secondary data. In this study, hypotheses were evaluated using the Wilcoxon signed-rank test and the one-sample t-test. The data indicated that the Indonesian capital market's response to the Russia-Ukraine conflict was negligible, although abnormal returns in the mining, finance, consumer, and real estate sectors differ significantly.

## INTRODUCTION

Capital market growth in Indonesia is sensitive to both domestic and international economic trends. Changes in macroeconomic factors can affect investors' reactions to stock prices very quickly. However, macroeconomic changes affect company performance slowly and in the long term. Investors will of course calculate the positive and negative impacts on company performance and then decide to sell or buy a share. This causes stock prices to adjust more quickly to changes in macroeconomic factors.

The most important activity that must be considered by investors when investing in the capital market is the movement of stock prices which shows the performance of the issuer. The company will generate large profits if its performance is improving and it affects its stock price, which tends to rise. Conversely, poor performance will result in small profits for the company. In addition to stock prices, stock trading volume greatly affects the number of outstanding shares. The high trading volume of a stock indicates that the stock is classified as an active stock and attracts the interest of many investors. Investors consider that trading volume is important for investors because it describes the condition of securities traded in the capital market.

One of the macroeconomic factors that can affect the stock market is political events such as wars that occur between countries. Quoting from BBC News, Russia invaded Ukraine on 24 February 2022 which had an impact on global politics. This will also have a long term impact on economic sectors around the world. Russia and Ukraine are important countries in the global oil, gas, grain, energy, food and fertilizer markets.

The Southeast Asian region is a region that depends on Russia in oil commodities. In literature, war is one of several important events that can affect equity markets globally (Leigh et al., 2003; Rigobon & Sack, 2005). Referring to research conducted by Yousaf et al., (2022), the aggregate stock market had negative significant impact on the Russia – Ukraine conflict on the event day and after the event day.

Quoting from IDX Channel (29 March 2022), the war between Russia and Ukraine had an impact on the decline in the capital market. This is considered normal because it occurs all over the world. The Indonesian Composite Stock Price Index (IHSG) on February 24 2022 closed down 102.24 points or 1.48%. However, Indonesia's economic fundamentals are considered strong as indicated by a surplus in the current account balance, increased foreign exchange reserves, a stable Rupiah exchange rate, and improved economic growth. This situation that causes geopolitical risk causes fluctuating market conditions and can dominate market sentiment in the short term. Investors are beginning to be careful in compiling their portfolios and diversifying to minimize risk.

Using as its point of departure the study of how the G20 nations reacted to the conflict between Russia and Ukraine, Yousaf et al., (2022) build here an event study. Empirical results of country-by-country anomalous returns demonstrate that the announcement (event day) has a large and negative influence on most markets (AR). Considering that the stock market's CAAR coefficient was negative both on the day of the conflict and the day after, it's safe to assume that investors shied away from risky investments in the wake of the Russian-Ukrainian crisis. Invasion generated negative cumulative anomalous returns for garis besar stock market indexes, as found by Boubaker et al. (2022), however the effects varied across the market.

In contrast to earlier research, this one employs an event study, focusing on the conflict between Russia and Ukraine. The analysis relies on end-of-day stock price information for the LQ45 component firms. The study's goal is to examine the dissimilarity in abnormal stock returns following the news of the impending war between Russia and Ukraine. The choice of the LQ45 index as the object of research is because the stocks in the LQ45 are shares of companies that have large market capitalization, and high liquidity. Another reason is that the LQ45 index is known as the main index that drives the JCI, so it can be a reflection of the condition of the capital market in Indonesia. This research was conducted due to the lack of research on the impact of the announcement of the war between Russia and Ukraine on the Indonesian capital market.

We report two hypothesis in this research. First, LQ45 equities experienced a highly unusual day of trading on the day when the Russian-Ukrainian war was declared. Second, LQ45 stocks' abnormal returns were drastically different before and after news of war between Russia and Ukraine was made public.

## METHODS

The LQ45 stock index's daily closing prices were used as the data source for this quantitative analysis. The information used for the study came from the Indonesia Stock Exchange, which was accessible via the websites [www.idx.co.id](http://www.idx.co.id) and [www.finance.yahoo.com](http://www.finance.yahoo.com). The purpose of this study is to analyze the impact of an event by employing the event study methodology. In this study, we examine the news of the impending war between Russia and Ukraine.

The population and sample of this study are all companies listed in the LQ45 stock index during the announcement of the Russia-Ukraine war. The LQ45 stock index is used in this study because the companies selected are based on stock trading liquidity and are adjusted every six months (Hartono, 2015). The data used is the daily closing stock price of the company LQ45 during the Russia-Ukraine war announcement.

This study uses observations for 11 days, namely 5 days before the event and 5 days after the announcement of the Russia-Ukrainian war. The choice of this observation period is due to be able to see when investors start to respond to information so that no other events occur during the observation period. The event date (day 0) is determined based on Russia's announcement against Ukraine on February 24, 2022. The estimation period is set for 60 days, from t-60 to t-11. More details can be seen in the following figure:



Figure 1. Estimated Period and Event Window on the announcement of the Russia-Ukraine War

In this study, the proclamation of war between Russia and Ukraine serves as an independent variable. The abnormal stock return of the company serves as the dependent variable in this analysis of market activity. The anomalous return is used as a proxy to assess market reaction to the declaration of a trade war between Russia and Ukraine. If a return is lower than expected, it is considered abnormal. It is necessary to estimate the return.

This study uses several steps to calculate the abnormal return variable (Rofiah et al. 2019), namely: Calculating abnormal returns with the following equation:

$$AR_{it} = R_{it} - E[R_{it}]$$

$AR_{it}$  is the abnormal return of stock  $i$  in the event period  $t$ ,  $R_{it}$  is the realized return of stock  $i$  in the event period  $t$ , and  $E[R_{it}]$  is the expected return of stock  $i$  in the event period  $t$ .

Calculating the expected return with the following equation:

$$E(R_{it}) = R_{Mt}$$

$E(R_{it})$  is the expected return of the  $i$ th security in the  $t$ -period, while  $R_{Mt}$  is the market return which is calculated using the following formula:

$$R_{Mt} = (LQ-45t \text{ Index} - LQ-45t-1 \text{ Index}) / LQ-45t-1 \text{ Index}$$

$R_{Mt}$  is the market return for the  $t$ th event period, the  $LQ-45t$  Index is the  $LQ-45$  market index in the  $t$  period (now), and the  $LQ-45t-1$  Index is the  $LQ45$  market index in the  $t-1$  period (previous period).

The next step is to calculate the realized return with the following formula:

$$R_{it} = (P_t - P_{t-1}) / P_{t-1}$$

$R_{it}$  is the return of stock  $i$  in period  $t$ ,  $P_t$  is the price of stock  $i$  in period  $t$ , and  $P_{t-1}$  is the price of stock in period  $t-1$ .

Calculating the Average Abnormal Return (AAR) with the following formula:

$$AAR_t = (\sum AR_{i,t})/n$$

$AAR_t$  is the average abnormal return on the  $t$ -th date,  $AR_{i,t}$  is the  $i$ -th abnormal return on the  $t$ -day, and  $n$  is the number of securities.

The collected data will be analyzed in stages through descriptive statistics and then statistical tests will be carried out through a normal distribution test using the Kolmogorov-Smirnov test. Furthermore, if the data is normally distributed, variables of this research will be tested by using a paired sample  $t$ -test analysis. However, if the collected data is not normally distributed, then the data is processed using the Wilcoxon Signed Rank analysis test model.

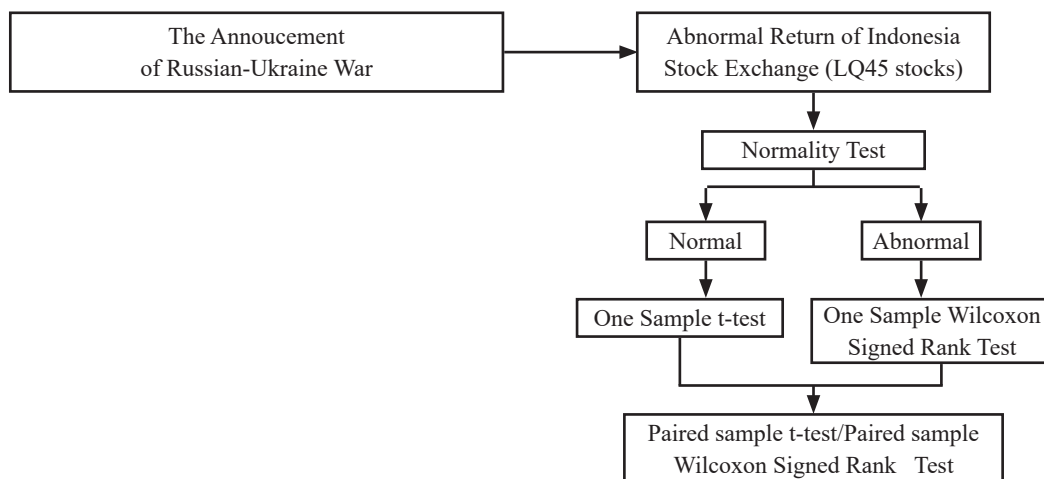


Figure 2. Research Design

## RESULTS

The average abnormal return (AAR) for the day around the day the Russia-Ukraine war was announced, as well as the AAR for the 5 days before to and following the event, are presented in this paper. Below are the typical AAR values:

Table 1. Average Abnormal Return (AAR) on the day around the Russia-Ukraine announcement date

Period	AAR
t-5	-0,00444
t-4	-0,00139
t-3	-0,00685
t-2	-0,00547
t-1	-0,0084
t0	0,001893
t+1	-0,01188
t+2	-0,0067
t+3	-0,00306
t+4	-0,00766
t+5	0,001907

The movement of AAR changes is described as follows:

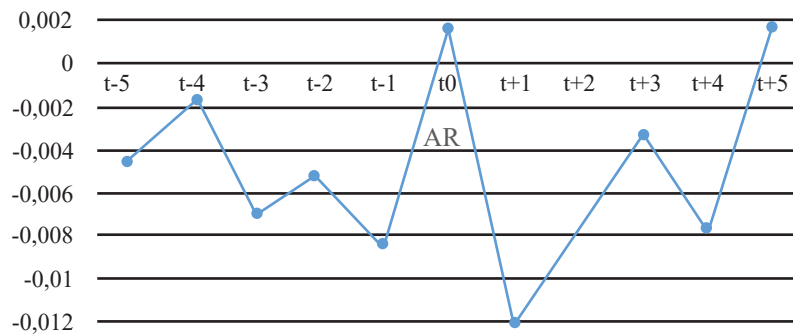


Figure 3. AAR Graph

Figure 3 shows the change in AAR in the period starting from 5 days before, the day of the event, and 5 days after the announcement of war between Russia and Ukraine. The AAR value for the period before the event was very volatile but experienced an increase on the day Russia declared war with Ukraine (t0) compared to the AAR t-1 value, from -0.0084 to 0.001893. The period after the event announcement (t+1) experienced a steep decline from 0.001893 to -0.01188. This may indicate that investors are starting to respond to information regarding the announcement of war between Russia and Ukraine. However, in the t+5 period, the AAR value again increased to 0.001907.

The results of the normality test of the research data are as follows :

Table 2. Data Normality Test

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
TMIN5	.301	45	.000	.539	45	.000
TMIN4	.350	45	.000	.462	45	.000
TMIN3	.254	45	.000	.698	45	.000
TMIN2	.086	45	.200 *	.980	45	.635
TMIN1	.313	45	.000	.421	45	.000
TNOL	.247	45	.000	.661	45	.000
TPLUS1	.323	45	.000	.422	45	.000
TPLUS2	.208	45	.000	.791	45	.000
TPLUS3	.307	45	.000	.476	45	.000
TPLUS4	.280	45	.000	.578	45	.000
TPLUS5	.171	45	.002	.840	45	.000
AARSBLM	.388	45	.000	.444	45	.000
AARSSDH	.295	45	.000	.599	45	.000

\*. This is a lower bound of the true significance.

According to Table 2, the AAR value is statistically significant below the 0.05 level, indicating that the data is not normally distributed. In addition, the Wilcoxon Signed Rank Test, another non-parametric test, will be used to test for an anomalous data distribution, while the One Sample t-Test will be used to test for normality in the TMIN2 data.

## DISCUSSION

The first hypothesis in this investigation postulated that LQ45 equities will have a large abnormal return on the day around the declaration of the Russia-Ukraine war. Hypotheses testing is done using a significance level of 5% (0.05). The results of testing the first hypotheses statistically are as follows:

Table 3. First Hypotheses Testing Results

Data	Sig.	Conclusion
t-5	0.569	There is no significant AR (H1 rejected)
t-4	0.827	There is no significant AR (H1 rejected)
t-3	0.085	There is no significant AR (H1 rejected)
t-2	0.717	There is no significant AR (H1 rejected)
t-1	0.615	There is no significant AR (H1 rejected)
t0	0.950	There is no significant AR (H1 rejected)
t+1	0.144	There is no significant AR (H1 rejected)
t+2	0.229	There is no significant AR (H1 rejected)
t+3	0.291	There is no significant AR (H1 rejected)
t+4	0.420	There is no significant AR (H1 rejected)
t+5	0.808	There is no significant AR (H1 rejected)

According to Table 3, the first hypothesis was rejected (H1) or there were no significantly abnormal returns that may have affected the LQ45 stock market reaction on the day surrounding the news of the Russia-Ukraine war.

The second hypothesis in this study is that LQ45 stocks exhibited significantly different anomalous returns before and after the announcement of the Russia-Ukraine war. The news of the conflict between Russia and Ukraine is expected to be well received by the market. The Wilcoxon Signed Rank Test is utilized to assess the second hypothesis due to the non-normal distribution of abnormal returns both prior to and during the declaration of war between Russia and Ukraine. The results of testing the second hypotheses are as follows:

Table 4. Second Hypotheses Testing Results

	AARSSDH - AARSBLM
Z	-.897 <sup>b</sup>
asymp. Sig. (2-tailed)	,370

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Ho is accepted and H2 is rejected since Table 4 demonstrates that there is no statistically significant difference in anomalous returns before and after the declaration of the Russia-Ukraine war. Similar findings were found in studies by Satryo & Wijayanto (2019) and other researchers (Ridwan, 2018). In contrast to studies by Wagner et al. (2018), Pham et al. (2018), and Saraswati & Mustanda (2018), the results of this study are inconsistent with their findings.

Although the announcements issued by Russia were seen as bad news, there was no statistically significant variation in the average value of abnormal returns between before and after the announcement of the war between Russia and Ukraine, so investors decided to put themselves in a wait-and-see position (Satryo & Wijayanto, 2019). This shows that investors are waiting whether the policy will have a good impact or vice versa. There were no significant differences in the events of the Russia-Ukrainian war indicating that the information implied was not strong enough to influence the reaction of the Indonesian Capital Market. Investment decisions of investors that will affect abnormal returns do not have a significant impact.

Another influencing factor is the condition of Indonesia's economic growth which is getting better after the Covid 19 pandemic. As quoted from the website of the Central Statistics Agency (BPS), the Indonesian

economy grew 5.02% in the fourth quarter of 2021 and the International Monetary Fund (IMF) also projects that the Indonesian economy will continue to grow throughout 2022 to reach 5.4%. Indonesia was also able to maintain the inflation rate according to the Indonesian government's target.

The war between Russia and Ukraine is not a threat to Indonesia if you look at the geopolitical value of Indonesia's import and export trade with Russia. According to BPS data, the share of Indonesia's exports to Russia in 2021 is only 0.56% of Indonesia's total exports in 2021 and the share of imports from Russia to Indonesia is also of small value, namely only 0.64% of total imports throughout 2021. Likewise with Ukraine, Indonesia's export market share to Ukraine is only 0.18% and the import share is only 0.53% in 2021. This encourages investors not to overly respond to news of the war between the two countries in making investment decisions.

To examine in more detail the results of this study, further hypotheses testing was carried out by classifying data according to the business sector. The test results are as follows:

Table 5. Results of Hypotheses Testing Per Sector

Sector	Sig.	Conclusion
Mining (10 companies)	0.005	There were significant AR differences before and after the announcement of the Russia-Ukrainian war in Indonesia
Various Industries (4 companies)	0.465	There was no significant AR difference before and after the announcement of the Russia-Ukrainian war in Indonesia
Consumer Goods Industry (8 companies)	0.002	There were significant AR differences before and after the announcement of the Russia-Ukrainian war in Indonesia
Basic Industry & Chemical (4 companies)	0.068	There was no significant AR difference before and after the announcement of the Russia-Ukrainian war in Indonesia
Infrastructure, Utilities, and Transportation (6 companies)	0.403	There was no significant AR difference before and after the announcement of the Russia-Ukrainian war in Indonesia
Finance (6 companies)	0.048	There were significant AR differences before and after the announcement of the Russia-Ukrainian war in Indonesia
Trade, Services & Investment (3 companies)	1	There was no significant AR difference before and after the announcement of the Russia-Ukrainian war in Indonesia
Property, Real Estate & Building Construction (3 companies)	0.033	There were significant AR differences before and after the announcement of the Russia-Ukrainian war in Indonesia

The Asymp. Sig. (2-tailed) for mining, consumer goods, finance, property, real estate, and building construction companies are all below 0.05, as shown in Table 5. This indicates that there was a statistically significant difference in abnormal returns before and after the announcement of the Russia-Ukraine war on the Indonesian capital market.. This is because Russia is the backbone of exports for mining commodities so the geopolitical events that have occurred have caused world concern about the depletion of mining commodity supplies. On the other hand, Indonesia is one of the countries with the largest mining output in the world which has an impact on increasing the Indonesian economy on the mining side. This information becomes a positive sentiment for investors to react in the capital market.

The war between Russia and Ukraine has hampered trade between Indonesia and Russia and Ukraine, which has implications for rising domestic food prices. Ukraine is the largest supplier of wheat to Indonesia, which is the raw material for food products such as instant noodles and flour. According to data from the Central Statistics Agency (BPS), Ukraine supplies 27% of wheat imported by Indonesia in 2020. This has caused the shares of companies in the consumer goods industry sector to have an impact on the occurrence of war between Russia and Ukraine.

Investors also responded positively to financial sector stocks due to the favorable economic outlook . The trend of low-cost funds (CASA) Banks also contributed to the increase in prospects for lending which could also boost bank profitability so that world confidence in the Indonesian economy amid a war between Russia and Ukraine increased .

The property, real estate, and building construction sectors also received positive responses from investors. The Russia-Ukrainian war resulted in inflation as a result of rising world crude oil prices. Inflation will also have an impact on rising market interest rates so it will affect the property sector. However, the Indonesian government is currently running a subsidized landed housing program (KPR-FLPP) whereby the mortgage interest rate has been set so that it does not affect inflation. This influenced investors to react to the Property, Real Estate, and Building Construction sector stocks in Indonesia.

## CONCLUSION

The purpose of this research is to ascertain how the announcement of war between Russia and Ukraine affected the Indonesian stock market. The results were analyzed using the One-Sample t-Test and the Wilcoxon Signed Rank Test (for non-normally distributed data) (for data that is normally distributed). No statistically significant differences were found between abnormal returns before and after the announcement of the Russia-Ukraine war, and no statistically significant abnormal returns were found on the day before the announcement of the war between Russia and Ukraine, which might have affected the reaction of the LQ45 stock market. The results of this study indicate that the Indonesian capital market's response to LQ45 stocks, as assessed by the anomalous return value, was not significantly affected by the declaration of war between Russia and Ukraine. A considerable effect of abnormal returns on equities is seen in the mining, consumer goods industry, finance, property, real estate, and building construction sectors if hypotheses testing is conducted according to business sector.

This research implies that it can be used to make the investors' decision, especially when foreign political events occur so that they can be more careful in placing positions when investing. This research can also be used as a literature reference for those who wish to conduct similar research in future studies.

The author's suggestion for further research is to add trading volume activity variables. In addition, further research can use a longer observation time and a different research object. Follow-up research can also compare the reaction of the capital market in Indonesia with other countries that are members of the G20.

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