

## **The Impact of Russian-Ukrainian War Towards *Abnormal Stock Return* and *Trading Volume Activity***

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### **Abstract**

This study aims to determine the impact of the events of the Russian and Ukrainian wars by looking at market reactions using 2 measurement variables, namely Abnormal Return and Trading Volume Activity. This study uses a quantitative approach with secondary data taken from the IDX and Yahoo Finance websites. The population in this study were energy sector companies that were listed on the Indonesian Stock Exchange before the events of the Russian and Ukrainian wars on February 24, 2022. Meanwhile, the sample used in this study were energy sector companies that met predetermined criteria totaling 34 companies. Data collection techniques in this study used literature and documentation. Meanwhile, data analysis techniques used paired sample t-test and Wilcoxon signed rank t-test. The results of this study indicate that (1) There are significant differences in the Average Abnormal Return (AAR) of energy sector companies listed on the Indonesia Stock Exchange in the period before and after the Russian and Ukrainian wars. (2) There are significant differences in the Average Trading Volume Activity (ATVA) in energy sector companies listed on the Indonesia Stock Exchange in the period before and after the Russian and Ukrainian wars.

**Keywords:** Impact of the Russian and Ukrainian Wars, Russian Invasion, Event Study, Abnormal Return and Trading Volume Activity.

### **INTRODUCTION**

Sustainable economic growth is developing very rapidly, the economic instrument that influences economic growth is the capital market. Companies can use and leverage capital markets as an economic tool to access more funds from the general public who have extra money. This instrument is very important because it can improve the economy and people's welfare, because the wheels of the economy are closely tied to the capital needed to meet the needs in developing the country's economy, investors play an important role in the success of a country's economy. To invest these funds, investors choose and determine which company will be used for investment or invest their capital with the aim of getting maximum profits (Silaban & Sadana, 2018).

One of investment is shares. Shares are valuable records that function as proof that an individual or organization participates in or owns a company. From this statement it can be interpreted that a person or company that has invested or invested capital in a company that needs capital can be said to have a company that has been listed on the Indonesian Stock Exchange. The events described above are political events. Political events are non-economic risks that can affect the state of the capital market. This situation basically affects the country's economic condition because investors use information from these events to analyze the current market, meaning that a non-economic event that has accurate information can be related directly or indirectly. directly with the capital market and this information is used as basic material for consideration of an investor's decision making.

One of the non-economic environments that results in market instability is the conflict of Russia's invasion of Ukraine. Russia and Ukraine often experience tensions. In his campaign for president, Volodymyr Zelenskyy promised to end all emerging tensions and to move Ukraine closer to Europe than to Russia. Zelensky is pursuing policies that run counter

to what Russia wants. Apart from urging Ukraine to join the European economic community, Zelensky also registered Ukraine as a member of NATO to strengthen Ukraine's military strength and enable it to repel Russian aggression and escape Russian influence (Andriani & Wismara Attata, n.d). These sanctions also prohibit banks and the government, including the Russian Central Bank, from buying or borrowing securities as well as companies joining well-known Western bloc countries such as IKEA, Spotify, H&M, EIA Sport. investments that have been made in Russia (Tiara Kusuma et al., n.d.).

By receiving many sanctions from the Western Bloc countries, the Russian government led by Vladimir Putin did not remain silent, instead giving a statement by cutting gas supplies using a new payment method that had been assigned to European countries such as Germany because before Russia's invasion of Ukraine the European Union used gas from Russia. by 40 percent. With this cut in supply, energy sector commodities have increased due to high demand. To overcome this incident, European countries changed their energy from using gas to using coal. From this statement, coal production countries such as Indonesia will experience an increase because demand is much more than the supply offered, making energy sector companies experience an increase (www.kompas .com).

The stock market can become more sensitive to any events that are reported to the public through statements made by the media. To see the stock market reaction to this political event, researchers analyzed the influence of the invasion on market reactions using event studies. The concept of market efficiency is interesting to study and research, especially in making investment decisions because it is a basic concept that can understand how price mechanisms are formed in the market. In analyzing market reactions using abnormal returns. Abnormal return according to Hartono is the difference between the reduction in real profit returns and the desired profit. With this, to find the influence of abnormal returns, it can be seen from the trading volume movement parameters on the stock exchange. According to Panjaitan in (Hartanto & Fettry, 2019) said that trading volume activity is one of the indicators used to see investor relations in response to an event. Researchers will use company objects from the Allergy Sector to measure the extent to which Russia's invasion of Ukraine has affected the stock market.

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Researchers are interested in researching this because the Russian invasion of Ukraine was very widely reported in the media throughout the world. The event of Russia's invasion of Ukraine will impact the stock market both directly and indirectly. The indicators used by researchers in this research are abnormal returns and trading volume activity.

This research is based on research conducted by Shkaer Ahmed, Mostafa M. Hasan, Md Rajib Kamal (2022), which shows that Russia's reaction to Ukraine in the STOXX Europe 600 Index has a significant negative effect on the Average Abnormal Return. On the other hand, research conducted by Mokh. Syamsul Bakhir, Budi Santoso, Nur Aida Arifah Tara (2022), who researched the Differences in Abnormal Return and Trading Volume Activity of LQ-45 Shares Before and After the Declaration of the Russian Invasion of Ukraine, showed that this event did not have a significant impact on changes in the abnormal returns of LQ shares. -45 all selectors will still have an influence on the increase in avelragel trading volume activity in LQ-45 shares. However, this is different from research conducted by Elia Emelia, Cristiani Libora Suud, Febriane H.S Tangga, Celciva I Rawis, Joubert B. Maramis (2022),

which shows that abnormal returns have a positive and significant difference. Likewise, research conducted by Muhajir, Nita Erika Ariani (2022), showed that there was a positive response from investors to an event, namely the legislative election and the 2019 presidential election.

## **LITERATURE REVIEW**

### **Signaling Theory**

According to Hartono (2016) in (Arum Endang Setyowati et al., 2022) signaling theory is a theory that is useful for investors considering making investment decisions by receiving signals from material released in the media as announcements. Informational events or statements will send signals to the stock market. The event of the Russian invasion of Ukraine allows the market to experience a reaction because this announcement contains information that can change market relations. This means that positive abnormal returns will be displayed by the market in response to good signals (good news) received by investors, while negative abnormal returns will be displayed by the market in response to bad signals (bad news).

### **Efficiency Market Theory**

According to Fama (1970) in (Sahputra et al., 2022) states that market efficiency theory is that information that has important content from an event will have a response from investors with the characteristics of stock prices will experience an increase, meaning that an event that occurs if it has important information content can cause a market reaction which can be seen by increasing the prices of shares circulating on the stock market because investors respond to information. Market efficiency theory states that the market will react quickly if an event has very important information content. The current event is the war between Russia and Ukraine which could have an impact on the response of the capital market, especially the stock market.

### **Event Study**

Event study or event study is a science that studies how an event containing important information has an impact on market response. According to Mckinley (1997) explaining event studies, research tools that utilize secondary financial data can be used to measure the impact of an event on business value. In this case, event studies are usually used to test the information content of an announcement, which can be used to test market efficiency in semi-strong form. The current event is the war between Russia and Ukraine. How will the market react to this event? Do investors consider this incident as bad news or good news because if investors consider this as good news, abnormal returns will relax positively, whereas if investors consider this as bad news? What will happen is that abnormal market returns will relax negatively and stock trading volume activity before and after the incident will increase due to investors' reactions.

### **Capital Market**

According to Martalena and Maya (2019) the capital market is a market that has various long-term financial instruments that can be traded, including debt securities (bonds), equity (shares), mutual funds, and derivative instruments and other instruments. According to the Capital Market Law No. 8 of 1995, capital markets are activities related to public offerings and securities trading, public companies and professional institutions related to securities. The public offering in question is an offering activity carried out by an issuer or company selling securities to the public in accordance with implementing laws and regulations.

### **Russian invasion of Ukraine**

Ukraine is a country that became independent from the Soviet Union on December 1, 1991, while Russia is a great power with significant influence and a key player in world politics. To make Ukraine's independence legally binding and internationally recognized, its population agreed to a referendum on secession from the Soviet Union. In 2019 Volodymyr Zelensky was elected president of Ukraine. In his campaign Zelensky will end all existing conflicts and move Ukraine away from Russia and towards Europe. Zellelnsky pursued policies that were contrary to what Russia wanted. In addition to urging Ukraine to join the European economic community, Zellelnsky also enrolled Ukraine as a member of NATO to strengthen Ukraine's military power and enable it to repel Russian aggression and rid itself of Russian influence. Ukraine has also long sought membership in the European Economic Community to advance the well-being of its citizens.

### Stock returns

Return is the result of profits obtained by various parties in investment activities such as companies, individuals and institutions. Hartono, 2016 in (Fajar Irvangi & Hani Fitria Rahmani, 2022). An object definitely has components, one of which is Return. Return has a profit component (capital gain) or profit from buying and selling results and loss (capital loss) or loss from buying and selling results seen by if the selling price is higher than the buying price then there will be a profit, whereas if the selling price is lower than the buying price then there will be suffer a loss.

*Stock Returns* can be calculated using the following formula : (Fajar Irvangi & Hani Fitria Rahmani, 2022) :

$$R_t = \frac{P_t - (P_{t-1})}{P_{t-1}} \quad (1)$$

Note :

P<sub>t</sub> : current stock price

P<sub>t-1</sub> : stock price for the next period

### Abnormal Return

According to Jogiyanto (2010) in (Suud, 2022) explains that abnormal return or excel return is the excess of the return that actually occurred in the event (actual return) over the normal return. Where the meaning of normal return (expected return) is forgetting the return expected by an investor in investing. According to Tandelilin (2017) in his book, abnormal returns are actual returns that affect the event period minus expected or predicted returns. The actual return itself is the return that actually occurs or actually occurs, while the expected or predicted return is the return that investors predict is in accordance with their expectations. From the experts' explanation above, searching for abnormal returns can be formulated in the following way: (Tandelilin, 2017)

$$RTN_{it} = R_{it} - E(R_{it}) \quad (2)$$

notes :

RTN<sub>it</sub> = *abnormal return*

R<sub>it</sub> = *actual return*

E(R<sub>it</sub>) = *expected return*

### Trading Volume Activity

Trading volume activity (TVA) is a tool for observing how the market responds to information by tracking the parameters of stock trading volume activity on the capital market exchange. (Manurung, 2019). According to Susanti (2015) in (Anita elt al., 2021) said that market movements in response to an announcement whose information has just occurred in stock trading activity on the stock exchange is indicated by a sign called trading volume activity. Investor stock exchange investment decisions are explained by changes in trading

volume of shares listed on the Indonesian Stock Exchange (BEI). Stock exchange trading activity will vary if the market responds to certain information. According to Foster 1986 in (Quddusi et al., 2020) stock trading activity uses the following formula to calculate it:

$$TVA_{it} = \frac{\sum \text{share } i \text{ traded in period } t}{\sum \text{share } i \text{ outstanding at time } t} \quad (3)$$

Note:

$TVA_{it}$  = volume perdagangan saham i pada periode t

## METHOD

This research uses Event Study, which is a study that studies market reactions to an event whose information is published (Fajar Irvangi & Hani Fitria Rahmani, 2022) with a quantitative approach. The current event is the war between Russia and Ukraine. The test will be used to see the market response reflected in abnormal returns and trading volume activity before and after the war between Russia and Ukraine. The population used in this research includes energy sector companies listed on the Indonesia Stock Exchange, totaling 78 companies with a sample of 34 companies in the research. The sampling technique was carried out using the purposive sampling method. According to Sugiyono in (Adi Wijaya, 2018) states that purposive sampling is a technique for determining samples with special considerations. The criteria are; energy companies listed on the Indonesian Stock Exchange, companies that publish historical share price data, and companies included on the main board.

In this study, researchers used an observation period of five days before the event (T-5 to T-1) and five days after the event (T+1 to T+5), namely February 17 2022 to March 7 2022. There were 11 observation periods. day is expected to see the market reaction in that period (Affandi & Utama, 1998). The type of data used is secondary data that is publicly available and published by the company. This data comes from historical data on energy companies listed on the Indonesia Stock Exchange (BEI) page [www.idx.com](http://www.idx.com) and Yahoo Finance [www.yahoo.com](http://www.yahoo.com). The analysis was carried out with the help of SPSS version 25 and Microsoft Excel analysis test tools, through descriptive statistical analysis tests, normality tests, and hypothesis tests to observe changes that occurred before and after the Ukrainian and Russian wars.

## RESULT AND DISCUSSION

Based on the results of descriptive statistical analysis in Table 1 of all samples for each variable from the observation period before and after the announcement of the Russian invasion of Ukraine, it was found that the mean or average value before the announcement was -0.003300048 with a standard deviation of 0.0155154613 and after the announcement of the event Russia's attack on Ukraine increased by 0.009163989 with a standard deviation of 0.0245262640. From the announcement of Russia's attack on Ukraine, it was explained that the AAR before it had a mean value was negative, but the AAR after it had a mean value was positive or which means it increased, from this conclusion the returns obtained by investors increased.

Meanwhile, the mean or average value before the announcement was 0.004372820 with a standard deviation of 0.0074206137 and after the announcement of the Russian attack on Ukraine it increased by 0.009338420 with a standard deviation of 0.0150392104. From the announcement of Russia's attack on Ukraine, it is clear that ATVA before and after has a mean value that is positive and increases, meaning that stock trading volume has increased.

The data normality test used in this research is the Kolmogorov-Smirnov test. If the asymp sig (2-tailed) value is greater than 0.05 then the data is normally distributed, whereas if the asymp sig (2-tailed) value is smaller than 0.05, then the data is not normally distributed

using a significance of 5%. The results of the analysis in Table 2 show that the period before the announcement of the Russian invasion of Ukraine had a sig value greater than 0.05, including (0.089 > 0.05) and the period after the announcement of the Russian invasion of Ukraine had a sig value greater than 0.05, including (0.171 > 0.05). Next, hypothesis testing uses the Paired Sample T-Test.

Meanwhile, the results of testing normality of trading volume activity in Table 3 show that the periods before and after the announcement of the Russian invasion of Ukraine had the same sig value, namely smaller than 0.05, including (0.000 < 0.05). With this, the data is not normally distributed so that next hypothesis testing uses the non-parametric Wilcoxon signed rank test.

**Table 1. Descriptive Statistics Test Results**

	N	Min	Max	Mean	Std. Dev.
AAR Before Announcement of Invasion	34	-0.0631	0.033	-0.003300048	0.0155154613
AAR After Announcement of Invasion	34	-0.059	0.058	0.009163989	0.0245262640
ATVA Before the Announcement of the Invasion	34	0.000	0.028	0.004372820	0.0074206137
ATVA After the Announcement of the Invasion	34	0.000	0.076	0.009338420	0.0150392104

Note:

AAR = *Average Abnormal Return*

ATVA = *Average Trading Volume Activity*

**Table 2. Normality Testing Average Abnormal Return**

	Tests of Normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
AAR Before Announcement of Invasion	.140	34	.089	.868	34	.001
AAR After Announcement of Invasion	.128	34	.171	.946	34	.091

a. Lilliefors Significance Correction

**Table 3. Normality Testing Average Trading Volume Activity**

	Tests of Normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
ATVA Before the Announcement of the Invasion	.288	34	.000	.596	34	.000
ATVA After the Announcement of the Invasion	.267	34	.000	.628	34	.000

a. Lilliefors Significance Correction

### Hypotheses Testing *Average Abnormal Return*

The test results in Table 4 show that the asymp sig (2-tailed) value is 0.027 ( $0.027 < 0.05$ ), which means that there is a difference in the Average Abnormal Return (AAR) before and after the announcement of the Russian attack on Ukraine.

Based on the results of the average trading volume activity (ATVA) normality test on energy sector companies, the available data is not normally distributed, then the hypothesis test is continued using a non-parametric test, namely the Wilcoxon signed rank test on. The test results in Table 5 show that the asymp sig (2-tailed) value is 0.000 ( $0.000 < 0.05$ ), which means that there is a difference in Average Trading Volume Activity before and after the announcement of the Russian attack on Ukraine.

The market response after Russia's invasion of Ukraine fluctuated differently compared to before the attack, which caused significant differences. From the results of the analysis using signal theory, it is clear that investors consider that this invasion event is a good signal, with marked abnormal returns and the prices of oil and gas issuers in Indonesia becoming positive, which is indicated by significant positive results, resulting in an abnormal return rate that is higher than the expected return, expected by investors.

Apart from that, the results of the Market Efficiency Theory analysis explain that capital market conditions indicate that the market is inefficient because this war event is information that can be obtained easily because the information is published, so the efficiency is not half strong. The market is said to be efficient if not all of the information published can be utilized by investors. However, in this research the published information was able to be put to good use by investors. This happened because according to the Director General of Mineral and Coal (Dirjen Minerba) of the Ministry of Energy and Mineral Resources, Ridwan Djamaluddin, said that a number of EU countries had approached domestic entrepreneurs to get coal supplies, such as Germany, which had asked for 150 million (tons) of coal because the western block provided policies. What is detrimental for Russia is that the policies that have been created by the western bloc actually have an impact, including cutting the natural gas from the North 1 pipeline by up to 60% which flows to Europe, apart from that Europe will face the season plus the supply of oil and gas is running low and it is obliged to look for energy reserves.

**Table 4. Paired Samples Test**

	Mean	Std. Dev.	Paired Differences			T	df	Sig. (2-tailed)
			Std. Error	95% Confidence Interval of the Difference				
				Lower	Upper			
AAR Before Announcement of Invasion - AAR After Announcement of Invasion	-.011	.029	.005	-.022	-.001	-2.310	33	.027

**Table 5. Hypotheses Testing *Average Trading Volume Activity***

Test Statistics <sup>a</sup>	
ATVA Before the Invasion Announcement – ATVA After the Invasion Announcement	
Z	-4.095 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Apart from abnormal returns, the variable used to see market reactions is trading volume activity. The market response after Russia's invasion of Ukraine has changed significantly. Judging from stock trading activity on the stock exchange, it shows differences before the attack. This shows that the market reaction to Russia's invasion of Ukraine was very strong and the available information was very accurate. As a result, investors convert the information contained in the announcement into something that can be used to support investment decisions. From the results of the analysis using signaling theory, it is clear that investors consider that this invasion event is a good signal (good news) with the sign of positive trading volume activity and the trading activity of shares traded on the stock exchange before and after the invasion attack has increased. So the results of market efficiency theory show that the market is inefficient.

According to the Executive Director of the Center of Reform on Economics (CORE), Mohammad Faisal, investment performance in the second quarter of 2022 will continue the positive trend because it is influenced by rising global commodity prices amidst the ongoing war between Russia and Ukraine, making Indonesia's leading commodity sector attractive to investors. Foreign investment in Indonesia, according to data from the Indonesian Stock Exchange (IDX), recorded that foreign investors bought shares worth IDR 31.13 trillion and in the regular foreign market a net buy of IDR 4.55 trillion was recorded and the domestic stock market also experienced a flood of funds. foreign (cnbc indonesia.com) meaning that if investors receive an announcement via the media and then the announcement is used as a signal then it can be ensured that the information has good content (good news) in making investment decisions to hunt for shares in the energy sector and cause stock trading activity to increase .

This research is in line with (Shabila.at.all 2022) which explains that there are differences in trading volume activity before and after the implementation of emergency Community Activity Restrictions (PPKM). The results of this research agree with research from (Muzakir Melissa 2020) explaining that there is a significant difference in the average trading volume in IDX30 shares listed on the IDX between before and after the government's official announcement regarding the COVID-19 outbreak in Indonesia because after receiving this information the response from investors is panic selling, investors consider that this information is a negative signal that could cause share prices to plummet due to the severity of the Covid-19 incident which first occurred in China.

## **CONCLUSION**

Based on data analysis and discussion of quantitative research conducted on the Impact of the Russian-Ukrainian War on Abnormal Returns and Trading Volume Activity of Energy Sector Companies listed on the Indonesian Stock Exchange, the following conclusions can be drawn: First, the results of the Paired Sample T-test calculation of the average Abnormal return in the period before and after the announcement of the Russian-Ukrainian invasion show that the Average Abnormal Return increased after the announcement of the Russian-Ukrainian invasion. Second, the results of the nonparametric Wilcoxon Signed Rank T-Test calculation of the average Trading Volume Activity in the period before and after the announcement of the Russian-Ukrainian invasion show that the Average Trading Volume Activity increased after the announcement of the Russian-Ukrainian invasion.

## **SUGGESTION**

There are several suggestions for future research developments that can be considered, namely: first, for future researchers who will conduct research with the same theme regarding economic and non-economic events, it is recommended to use more variables related to reaction measurement, a longer observation period and for the number of research samples



not only the energy sector, but also other sectors. because this event has quite a broad impact, not only in the energy sector. Second, for research investors, they hope that every event that occurs which is related to the capital market from the economic and non-economic environment will be taken into greater consideration in making investment decisions because not all events that occur give a negative signal, it could be positive and can use this research as a reference in decision making of infestation

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