THE IMPACT OF RUSSIA'S INVASION OF UKRAINE ON CAPITAL MARKET REACTION IN ENERGY SECTOR COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE

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ABSTRACT

This study was conducted to analyze whether the declaration of Russia's invasion of Ukraine has an impact on capital market reactions in energy sector companies listed on the Indonesia Stock Exchange so that investors and potential investors become more careful in making decisions regarding investment in a company. The type of research used is a comparative method to test differences from the variables used in the study with a quantitative approach in the form of stock price data, stock volume, and also the number of shares outstanding in the energy sector stocks of the Indonesia Stock Exchange which are then processed into abnormal return data, trading volume activity. Observations were made 5 days before and 5 days after the invasion on February 24, 2022, using the T-test and Wilcoxon Signed Ranks test with a sample of 29 companies and a total of 145 data tested. In the test results, there are abnormal differences in return and trading volume activity before and after the invasion of Russia and Ukraine, this proves that market reaction to the events of the Russian invasion of Ukraine has strong information content and causes an increase in buying and selling activity which means investors respond to events that occur so that the market reacts.

INTRODUCTION

Russia invaded Ukraine on February 24, 2022. Ukraine has a desire to join NATO, which is the North Atlantic defense organization. The United States imposed economic sanctions on Russia because of the invasion (Huka and Kelen, 2022). Due to Russia's position as one of the largest exporters of energy commodities, sanctions will have a major impact on the prices of crude oil, coal, and natural gas around the world. In the crude oil market, Russia ranks second as the largest exporter, while natural gas and coal rank fifth and third as the world's largest exporters. As a result, sanctions will affect the supply of these commodities (Tambunan et al., 2023).

The invasion caused an increase in fuel prices which could result in several economic activities such as the price of consumer goods and product distribution becoming more expensive than before. The increase in economic activity affects the country because it can cause inflation and can hamper a country's economic growth. The economy of a country, especially Indonesia, is not limited to the economy, it also pays attention to social, political,

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and other aspects. Under these circumstances, events abroad such as conflict or invasion can have a direct impact on the Indonesian economy, including the investment industry and share prices of Indonesian multinational companies (Huka and Kelen, 2022).

Table 1
Energy Sector Companies Listed on IDX Before Russia's Invasion of Ukraine February 23, 2022

Number	Company Name	Lowest	Vol.	Change%
1	MEDC	560	44,77M	-1,75%
2	ITMG	23,425	4,48M	+3,34%
3	ELSA	292	63,01M	-2,01%
4	TINS	1.460	22,72M	+1,03%
5	ENRG	168	200,56M	-5,56%
6	ADRO	2,240	140,57M	+4,04%
7	INDY	2,060	33,14M	+1,46%
8	BYAN	3,600	832,00K	+2,78%

(Source: www.Investing.com)

Table 2
Energy Sector Companies Listed on IDX During Russia's Invasion of Ukraine February 24, 2022

Number	Company Name	Lowest	Vol.	Change%
1	MEDC	565	622,81M	+13,39%
2	ITMG	24,275	19,45M	+12,51%
3	ELSA	290	1,01B	+12,33%
4	TINS	1.480	216,51M	+9,86%
5	ENRG	162	763,33M	+7,65%
6	ADRO	2,320	286,84M	+6,90%
7	INDY	2.050	129,57M	+7,18%
8	BYAN	3,638	947,00K	0,00%

(Source: www.Investing.com)

Table 3
Energy Sector Companies Listed on IDX After Russia's Invasion of Ukraine February 25, 2022

Number	Company Name	Lowest	Vol.	Change%
1	MEDC	595	226,30M	-5,51%
2	ITMG	26,650	8,34M	-1,11%
3	ELSA	308	307,32M	-4,88%
4	TINS	1.560	85,32M	-1,55%
5	ENRG	171	349,79M	-6,56%
6	ADRO	2,450	218,03M	-1,21%

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7	INDY	2,220	87,81M	-0,45%
8	BYAN	3,705	451,00K	+1,49%

(Source: www.Investing.com)

Based on Table 2, Russia's invasion of Ukraine greatly impacted stock prices on the Indonesia Stock Exchange, especially energy sector companies so there were several companies whose share prices strengthened such as MEDC increased by 13.39%, ITMG increased by 12.51%, ELSA increased by 12.33%, TINS increased by 9.86%, ENRG increased by 7.65%, then ADRO and INDY increased by 7.18%. In addition, there is a company that at the time of the Russian invasion of Ukraine there was no reaction, namely BYAN whose shares did not strengthen or weaken.

An efficient capital market presents all information about the price of the securities traded. Capital markets become more efficient the faster new information is reflected in stock prices (Apriyadi et al., 2022). An information or an event that occurs will affect the reaction of the capital market because with the information or events that occur investors will increase or decrease their shares in the company so that it will affect the ups and downs of stock prices. Signal theory helps interpret the way management communicates with investors so that investors can consider the company's situation (Trisnadewi, 2023). The event study method is used to examine the content of information about an event to measure market efficiency. An efficient market shows that they respond to information quickly (Yulianti et al., 2023). According to Hartono (2018) in (Tambunan et al., 2023) the market reaction can be seen from changes in stock trading volume and abnormal returns.

Abnormal Return is usually used as a basis for evaluating market efficiency and usually occurs after the announcement of events (Afdhal et al., 2022). If the return obtained is greater than the expected return, it means an abnormal positive return; conversely, if the return obtained is smaller than the expected return, it means an abnormal negative return (Andriansyah and Irwandi, 2023) . It is possible to use a calculation called "trading volume activity" to find out how the capital market responds to certain information by looking at the movement of stock trading volume activity in the capital market (Laluraa et al., 2022).

Research conducted by (Kurniawan and Sudirman, 2023) states that the Russian invasion of Ukraine made a significant abnormal difference in returns before and after the invasion. Meanwhile, research (Mursit et al., 2022) states that there is no significant difference in the average abnormal return value obtained by investors before and after the announcement of the Russian invasion of Ukraine.

Research conducted by (Pakederan et al., 2023) states that the Russian invasion of Ukraine resulted in significant differences in Trading Volume Activity in Food and Beverage companies listed on the Indonesia Stock Exchange before and after the invasion. Meanwhile, research (Emelia et al., 2022) states that there is no difference in trading volume activity before and after the announcement of the Russian invasion of Ukraine.

This study was conducted to show whether information regarding the declaration of the Russian invasion of Ukraine affected the reaction of the energy sector stock market by testing energy sector companies listed on the Indonesia Stock Exchange 5 days before the invasion and 5 days after the invasion using abnormal returns and trading volume activity as

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a benchmark for market reaction. This research is expected to help investors and potential investors to analyze whether the declaration of the Russian invasion of Ukraine has an impact on the share price of companies listed on the Indonesia Stock Exchange so that investors and potential investors become more careful in making decisions related to investing in a company.

METHOD RESEARCH

The type of research used is a comparative method to test the differences of the variables used in the study with a quantitative approach in the form of stock price data, stock volume, and also the number of shares outstanding in the energy sector stocks of the Indonesia Stock Exchange which are then processed into abnormal return data, trading volume activity.

The population in this study are all shares listed on the energy sector Indonesia Stock Exchange which amounted to 72 companies then drew samples using purposive sampling with the criteria including listed in the energy sector on the IDX, not doing corporate action during the study, having data available for analysis, publishing financial reports during the study period, and data available for use. After withdrawing the sample, the number of companies became 29. Due to observations from 5 days before and 5 days after the Russian invasion of Ukraine, the data to be tested is 145. The data source used in this study is secondary data accessed from the Indonesia Stock Exchange website (https://idx.co.id).

In testing this research, if the data is normally distributed, the data analysis technique that will be used is the paired sample t-test, and if the data is not normally distributed, it will use the Wilcoxon Signed Ranks test.

Operational Definition of Variables

Abnormal Return

$$RTNi,t = Rit - E[Ri,t]$$

Source : Pakederan et al., 2023

Information :
RTNi,t: Abnormal Return of i-shares on the T-day
Rit: Actual Return of i-shares on the T-day
E[Ri,t]: Expected Return of i-shares on the t-day

Trading Volume Activity

$$TVAit = \frac{\sum \text{stock i traded at time t}}{\sum \text{stock i outstanding at time t}}$$

Source : Pakederan et al., 2023

Information :
TVAit: Trading Volume Activity of stock I at time t

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RESULTS AND DISCUSSION

Descriptive Analysis

Descriptive analysis is the initial stage carried out to analyze this research. Table 4 below shows the calculation results in the form of average value (mean), minimum value, maximum value, and standard deviation for Abnormal Return and Trading Volume Activity during the observation period.

Table 4
Descriptive Analysis of Abnormal Return

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
AR before	145	-,597	1,055	-,00645	,108152
AR after	145	-,121	,291	,00354	,051848
Valid N (listwise)	145				

Source: Data Processed (2024)

Based on Table 4 N or the number of samples tested Abnormal Return before and after the Russian invasion of Ukraine amounted to 145, having an average of -0.00645 with a minimum value of -0.597 and a maximum value of 1.055, and a standard deviation of 0.108152. The abnormal return after the Russian invasion of Ukraine has an average of 0.00354 with a total minimum value of -0.121, a maximum value of 0.291, and a standard deviation of 0.051848.

Table 5
Descriptive Analysis of Trading Volume Activity

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
TVA before	144	,000	,175	,00970	,026163
TVA after	145	,000	,140	,01405	,022864
Valid N (listwise)	144				

Source: Data Processed (2024)

Based on Table 5 N or the number of samples tested Trading Volume Activity before the Russian invasion of Ukraine amounted to 144, it has an average of 0.00970, with a minimum value of 0.000 and a maximum value of 0.175, and a standard deviation of 0.026163. Trading Volume Activity after the Russian invasion of Ukraine averaged 0.01405 with a minimum total value of 0.000 a maximum value of 0.140 and a standard deviation of 0.022864.

Normality Test

The normality test is used to determine whether data is normally distributed or not, which is done with the Shapiro-Wilk Test used in this test based on a significance level of 0.05. The basis for decision-making is:

1. If the significance level > 0.05, it means that the data is normally distributed.
2. If the significance level < 0.05, it means that the data is not normally distributed.

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Table 6
Abnormal Return Data Normality Test Results

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AR before	,303	145	,000	,360	145	,000
AR after	,152	145	,000	,875	145	,000

Source: Data Processed (2024)

From the table it is known that the significance value of Abnormal Return before the Russian invasion of Ukraine is 0.000 <0.05, it can be concluded that the data is not normally distributed. The significance value of Abnormal Return after the Russian invasion of Ukraine is 0.000 <0.05, it can be concluded that the data is not normally distributed.

Table 7
Trading Volume Activity Data Normality Test Results

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TVA before	,355	144	,000	,386	144	,000
TVA after	,271	144	,000	,610	144	,000

Source: Data Processed (2024)

From the table it is known that the significance value of Trading Volume Activity before the Russian invasion of Ukraine was 0.000 < 0.05, it can be concluded that the data is not normally distributed. The significance value of Trading Volume Activity after the Russian invasion of Ukraine is 0.000 < 0.05, so it can be concluded that the data is not normally distributed.

Wilcoxon Signed Ranks Test

In this study, two hypotheses were tested using the Wilcoxon Signed Ranks Test. The results of hypothesis testing can be concluded that with a significance value> 0.05, the hypothesis is rejected. The results of the Wilcoxon Signed Ranks test on the first hypothesis are presented in Tables 8 and 9 below:

Table 8
Wilcoxon Signed Rank Test Abnormal Return Data

Ranks		N	Mean Rank	Sum of Ranks
AR after – AR before	Negative Ranks	50[a]	71,31	3565,50
	Positive Ranks	89[b]	69,26	6164,50
	Ties	6[c]		
	Total	145		
a. AR after < AR before				
b. AR after > AR before				
c. AR after = AR before				

Source: Data Processed (2024)

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The table shows that the number of negative ranks is 50 samples, with a mean rank of 71.31 and a sum rank of 3,565.50. This means that 50 samples are experiencing a decrease in Abnormal Return. The mean Rank or the average decrease is 71.31. The number of negative ranks is 3,565.50. While the number of positive ranks is 89 samples with a mean rank of 69.26 and a sum rank of 6,164.50. This means that 89 samples are experiencing an increase in Abnormal Return. The mean Rank or average increase is 69.26. While the number of positive ranks is 6,164.50. Ties are the similarity of values before and after the Russian invasion of Ukraine. In Table 8, the value of ties is 6, so it can be concluded that there is the same value between Abnormal Returns before and after the Russian invasion of Ukraine.

Table 9
Wilcoxon Signed Rank Test Results in Abnormal Return Data

Test Statistics	
	AR after – AR before
Z	-2,732[b]
Asymp. Sig. (2-tailed)	,006
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	
Source: Data Processed (2024)	

Table 9 shows that the z-score result is -2.732 with a significance value of 0.006 <0.05, it can be concluded that hypothesis 1 can be accepted, which means that there is a difference in Abnormal Return before and after the Russian invasion of Ukraine. The Wilcoxon Signed Ranks test results for the second hypothesis can be seen in Tables 10 and 11 below:

Table 10
Wilcoxon Signed Rank Test Trading Volume Activity Data

Ranks		N	Mean Rank	Sum of Ranks
TVA after – TVA before	Negative Ranks	26[a]	70,75	1839,50
	Positive Ranks	111[b]	68,59	7613,50
	Ties	7[c]		
	Total	144		
a. TVA after < TVA before				
b. TVA after > TVA before				
c. TVA after = TVA before				
Source: Data Processed (2024)				

The table shows that the number of negative ranks is 26 samples, with a mean rank of 70.75 and a sum of ranks of 1,839.50. This means that 26 samples experienced a decrease in Trading Volume Activity. The mean rank or average decrease is 70.75. However, the number of negative ranks is 1,839.50. While the number of positive ranks is 111 samples with a mean rank of 68.59 and a sum of ranks of 7,613.50. This means that 111 samples are experiencing an increase in Trading Volume Activity. The mean rank or average increase is 68.59. However, the sum of the positive rank is 7,613.50. In the table, the value of ties is 7, so it can be concluded

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that there is the same value between Trading Volume Activity before and after the Russian invasion of Ukraine.

Table 11
Wilcoxon Signed Rank Test Results Trading Volume Activity Data

Test Statistics	
	TVA after – TVA before
Z	-6,203[b]
Asymp. Sig. (2-tailed)	,000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

Source: Data Processed (2024)

Table 11 shows the results of the z-score -6,203 with a significance value of 0.00 <0.05, it can be concluded that Hypothesis 2 is accepted, meaning that there is a difference in average Trading Volume Activity before and after the Russian invasion of Ukraine.

Discussion

The Wilcoxon Signed Ranks test shows that there was a difference in abnormal returns before and after Russia's invasion of Ukraine. This proves that the market reaction to the events of the Russian invasion of Ukraine has strong information content so that investors react to the announcement of the Russian invasion of Ukraine. Seeing the market react to the announcement of the Russian invasion of Ukraine, means that signals from the events of the Russian invasion of Ukraine cause investors to be unable to anticipate the events that can affect stock performance. This research is in line with (Kurniawan and Sudirman, 2023) which states that the Russian invasion of Ukraine made a significant abnormal difference in returns before and after the Russian invasion of Ukraine.

Trading Volume Activity is also the same as Abnormal Return in that there are differences before and after the Russian invasion of Ukraine. This proves that the announcement of Russia's invasion of Ukraine caused an increase in buying and selling activities by investors on the Indonesia Stock Exchange. With an increase in buying and selling, this means that investors respond to events that occur so that the market reacts. The results support the signal theory as investors see the announcement of Russia's invasion of Ukraine as a signal that could affect stock prices. This research is in line with (Pakederan et al., 2023) which states that the Russian invasion of Ukraine resulted in significant differences in Trading Volume Activity before and after the Russian invasion of Ukraine.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that there are significant differences in Abnormal Return and Trading Volume Activity in 29 companies listed on the Indonesia Stock Exchange before and after the Russian invasion of Ukraine. The results show that the market reaction to the events of the Russian invasion of Ukraine has a strong information content so that investors cannot anticipate and cause an increase in buying and selling on the Indonesia Stock Exchange which causes the Indonesian capital market to react to the announcement of the Russian invasion of Ukraine.

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Further research proposals related to Indonesia's efficient capital market are expected to add other factors that can affect the abnormal average stock return and trading volume of the company's activity. In addition, because the sample of this study is limited, it is expected that the next study will use all companies that have been listed on the Indonesia Stock Exchange, to reflect the real conditions.

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