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CAPITAL MARKET REACTIONS ANALYSIS IN ENERGY AND NON-CYCLICAL CONSUMER ISSUERS DURING THE RUSSIA-UKRAINE WAR

Richad[1], I Gede Bratha Astawa[2], Robinson Tonggok[3]
Binus Business School Master Program, Bina Nusantara University, West Jakarta, DKI Jakarta, Indonesia
[1] richad002@binus.ac.id [2] i.astawa002@binus.ac.id [3] robinson.tonggok@binus.ac.id

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ABSTRACT

Background: Several shares of energy sector issuers rose amid the war between Russia and Ukraine, this is inversely proportional to the Composite Stock Price Index (JCI) which decreased 1.48 percent to 6,817 at the close of Thursday, February 24, 2022. The share prices of several consumer goods issuers that rely on wheat raw materials fell sharply in the past week.
Aim: This study aims to analyze whether there is a capital market reaction in energy and consumer non-cylical sector stocks in Indonesia to seven different events related to the war between Russia and Ukraine.
Method: Using the event study method, the sample used was 30 issuers, with 15 issuers coming from the energy sector, and 15 other issuers coming from the primary needs sector (consumer non-cyclical). This study obtained secondary data on the list of issuers of energy and primary needs sector stocks on the Composite Stock Price Index, stock prices, daily returns, and trading activity volumes from the website (www.idx.co.id) and (www.finance.yahoo.com).
Findings: The market here is efficient in the form of semi-strong, because the capital market reaction is abnormal returns seen within one to two days after the announcement. In addition, the speed at which the market responds to war-related information that will influence the decision to buy or sell stocks is not seen at the beginning of the war. Overall, the market decisions affected by the war were temporary, as evidenced by the absence of significant stock price differences in the recent events studied.

KEYWORDS

abnormal return, market efficiency, study of events, stock price, trading volume activity

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INTRODUCTION

The war between Russia and Ukraine caused Ukraine's wheat exports to plummet. This is evidenced by the decline in exports of Ukrainian grain, including wheat, which was recorded at only 1.06 million tons in May 2022, down by 2.8 million tons compared to May 2021. Declining export volumes led to depleted wheat supply, resulting in wheat prices soaring in March 2022. The influence of the war between Russia and Ukraine will also have an impact on rising prices and world food and oil and gas scarcity. The war between Russia and Ukraine has affected the increase in world food and oil and gas prices and scarcity, which also shows that the increase in food and oil and gas prices is a small example that can illustrate that the global economy is very vulnerable to several uncertain external factors.

Another problem arising from the scarcity and increase in commodity prices due to the war between Ukraine and Russia is the impact on stock prices and performance in Indonesia. According to Ildirar (2015) in his journal "The Interaction between Stock Prices and Commodity Prices: East Europe and Central Asia Countries" states that the sharp increase in

commodity prices since 2000 has influenced many economic variables, especially the upward trend in commodity prices has a substantial effect on stock prices. According to CNNIndonesia.com, several energy sector issuers rose amid Russia's attack on Ukraine. This contrasts with the Composite Stock Price Index which decreased 1.48 percent to 6,817 at the close of Thursday, February 24, 2022. One of the shares of mining issuer PT Borneo Olah Sarana Sukses Tbk soared 25.71 percent. As a result, the stock price of the issuer coded BOSS exceeded Rp. 88 per share. Likewise with the shares of PT Medco Energi Internasional Tbk (MEDC). The issuer rose 13.39 percent to a level of Rp. 635 per share. Followed by shares of PT Indo Tambangraya Megah (ITMG) which also rose 12.51 percent. Currently, the company's share price reaches Rp. 26,975 per share. Meanwhile, PT Elnusa Tbk (ELSA) shares closed at Rp. 328 per share with an increase of 12.33 per share. Elnusa's share price opened at Rp. 292 per share. Meanwhile, PT Timah Tbk (TINS) rose 9.86 percent. Thus, Timah's shares broke through to the level of IDR 1,615 per share on February 24, 2022. The increase in share prices also occurred in PT Energi Mega Persada Tbk (ENRG) and PT Indika Energy Tbk (INDY), where they strengthened by 7.65 percent and 7.18 percent, respectively. Then, shares of PT Adaro Energy Indonesia Tbk (ADRO) were also observed to rise 7.18 percent. The shares of the issuer coded ADRO closed at the level of Rp. 2,240 per share.

In addition, according to CNBCIndonesia.com, the share prices of several consumer goods issuers that rely on wheat raw materials fell sharply in the past week. Investors are worried that soaring world wheat prices amid Russia's conflict with Ukraine could put pressure on the issuer's financial performance. If you look at the Indonesia Stock Exchange (IDX) data, as of Monday (7/3/2022), below, consumer goods stocks, including those owned by the Salim Group, such as the Indofood duo (INDF and ICBP) and bread producer ROTI, slipped into the red zone.

MYOR shares fell the most for the week, to minus 14%. This happened after the issuer of the producer of several biscuit brands weakened for 4 consecutive days. Similarly, ICBP and INDF shares declined 12.94% and 7.66% respectively. Especially for ICBP, this stock has been in the red zone for 4 consecutive days. The escalation of the conflict between Russia and Ukraine has had an impact on increasing several major commodity prices. In addition to crude oil, coal, to nickel, wheat prices have also risen sharply and have the potential to reduce the financial performance of domestic consumer issuers.

Based on the above problems, there is a capital market reaction shown by the increase in stock prices in the energy sector and also the decline in stock performance in several issuers of consumer goods stocks due to the war between Russia and Ukraine. Then for the hypothesis to be tested, namely:

1) H_{a1}: There is an abnormal return (AR) on issuers of energy and consumer non-cyclical stocks after the announcement of Russia's first invasion of Ukraine.
2) H_{a2}: There is an abnormal return (AR) on issuers of energy and consumer non-cyclical sector stocks following the announcement of a ban on imports of oil, natural gas, and energy from Russia to the United States by President Joe Biden.
3) H_{a3}: There is an abnormal return (AR) on energy and consumer non-cyclical sector stocks after Russia's announcement to block a major line of Ukrainian wheat exports.

4) H_{a4}: There is an abnormal return (AR) on issuers in the energy and consumer non-cyclical sectors after the announcement of EU leaders agreeing to a partial ban on oil and gas imports from Russia.
5) H_{a5}: There is an abnormal return (AR) on issuers of energy and consumer non-cyclical sector stocks after the announcement of President Joko Widodo's statement that President Putin agreed to open wheat export channels.
6) H_{a6}: There is an abnormal return (AR) on energy and consumer non-cyclical stocks after Ukraine's announcement to resume exporting wheat for the first time since the war with Russia.
7) H_{a7}: There is an abnormal return (AR) on issuers of energy and consumer non-cyclical sector stocks after the announcement of the Minister of Agriculture's statement that the price of instant noodles could triple.
8) H_{a8}: There were significant share price differences in energy and consumer non-cyclical sector stocks before and after the announcement of Russia's first invasion of Ukraine.
9) H_{a9}: There were significant share price differences in energy and consumer non-cyclical sector issuers before and after President Joe Biden's announcement of a ban on imports of oil, natural gas, and energy from Russia to the United States.
10) H_{10}: There were significant share price differences in energy and consumer non-cyclical sector stocks before and after Russia's announcement to block key Ukrainian wheat exports.
11) H_{a11}: There were significant share price differences in energy and consumer non-cyclical sector issuers before and after the EU Leaders' announcement agreeing to a partial ban on oil and gas imports from Russia.
12) H_{a12}: There were significant share price differences in energy and consumer non-cyclical sector issuers before and after the announcement of President Joko Widodo's statement that President Putin agreed to open wheat export routes.
13) H_{13}: There were significant share price differences in energy and consumer non-cyclical sector stocks before and after Ukraine's announcement to resume wheat exports for the first time since the war with Russia.
14) H_{a14}: There is a significant difference in share prices in energy and consumer non-cyclical sector issuers before and after the announcement of the Minister of Agriculture's statement that the price of instant noodles could triple.
15) H_{a15}: There is a significant difference in trading volume activity (TVA) in energy and consumer non-cyclical sector stocks before and after the announcement of Russia's first invasion of Ukraine.
16) H_{a16}: There is a significant difference in trading volume activity (TVA) in energy and consumer non-cyclical sector stock issuers before and after President Joe Biden's announcement of a ban on imports of oil, natural gas, and energy from Russia to the United States.
17) H_{17}: There is a significant difference in trading volume activity (TVA) in energy and consumer non-cyclical sector stocks before and after Russia's announcement to block the main line of Ukrainian wheat exports.

18) H_{a18}: There were significant differences in trading volume activity (TVA) in energy and consumer non-cyclical sector stock issuers before and after the announcement by EU leaders to agree on a partial ban on oil and gas imports from Russia.
19) H_{a19}: There is a significant difference in trading volume activity (TVA) in energy and consumer non-cyclical sector stock issuers before and after the announcement of President Joko Widodo's statement that President Putin agreed to open wheat export channels.
20) H_{20}: There is a significant difference in trading volume activity (TVA) in energy and consumer non-cyclical sector stocks before and after Ukraine's announcement to resume wheat exports for the first time since the war with Russia.
21) H_{a21}: There is a significant difference in trading volume activity (TVA) in energy and consumer non-cyclical sector stock issuers before and after the announcement of the Minister of Agriculture's statement that instant noodle prices could triple.

METHOD

In this study, the population used was all issuers included in the Composite Stock Price Index as of August 2022, consisting of 804 issuers. Issuer data was obtained from the list of issuers that have been published by the Indonesia Stock Exchange. Sampling in this study used purposive sampling and systematic random sampling techniques. According to Juliandi and Manurung (2014), purposive sampling is a technique to determine samples in research based on certain considerations or criteria.

In the parametric research, the number of samples commonly used is 30. So, here, the sample used was 30 issuers, with 15 issuers coming from the energy sector, and 15 other issuers coming from the primary needs sector (consumer non-cyclical). In 81 samples selected based on predetermined criteria, 30 samples were reselected using systematic random sampling techniques, by randomly selecting every multiple of 2 in the energy sector issuers and multiples of 3 in the primary needs sector (consumer non-cyclical). Issuers were sorted by market value from the largest to the smallest in each sector.

The selected issuers from the energy sector are Bumi Resources Tbk. (BUMI), Adaro Energy Indonesia Tbk. (ADARO), Indo Tambangraya Megah Tbk. (ITMG), MNC Energy Investment Tbk. (IATA), Baramulti Suksessarana Tbk. (BSSR), Petrosea Tbk. (PTRO), Soechi Lines Tbk. (SOCI), Borneo Olah Sarana Sukses Tbk. (BOSS), Resource Alam Indonesia Tbk. (KKGI), Perdana Karya Perkasa Tbk. (PKPK), Batulicin Nusantara Maritim Tbk. (BESS), Mitrabahtera Segara Sejati Tbk. (MBSS), Dana Brata Luhur Tbk. (TEBE), Humpuss Intermodal Transportation (HITS), Capitol Nusantara Indonesia Tbk. (CANI). While the names of the selected issuers from the primary needs sector (consumer non-cyclical) are Japfa Comfeed Indonesia Tbk. (JPFA), Mustika Ratu Tbk. (MRAT), Era Mandiri Cemerlang Tbk. (IKAN), Garudafood Putra Putri Jaya Tbk. (GOOD), Provident Investasi Bersama Tbk. (PALM), Tunas Baru Lampung Tbk. (TBLA), Dharma Samudera Fishing Industry (DSFI), Malindo Feedmill Tbk. (MAIN), Mulia Boga Raya Tbk. (CHEESE), Jaya Agra Wattie Tbk. (JAWA), Prasidha Aneka Niaga Tbk. (PSDN), Nippon Indosari Corpindo Tbk. (ROTI), Tri Banyan Tirta Tbk. (ALTO), Duta Intidaya Tbk. (DAYA), Andira Agro Tbk. (ANDI).

There were three event windows, or three observation periods used, namely three days, five days, and eleven days of observation. In a study conducted by Berninger, Kiesel and

Kolaric entitled "Should I stay, or should I go? Stock market reactions to companies' decisions in the wake of the Russia-Ukraine conflict" using event windows one day before (t-1), one day after (t+1), two days before (t-2), and two days (t+2). In addition, Yousaf, Patel, and Yaroyaya entitled "The reaction of G20+ stock markets to the Russia-Ukraine conflict "black-swan" event: evidence from event study approach" used an event window five days before (t-5) and five days after (t+5). Based on these two studies, this study used three types of event windows, namely one day before (t-1), one day after (t + 1), two days before (t-2), two days after (t + 2), and five days before (t-5), and five days after (t + 5). The study uses event windows or observation periods in the short term because event windows must last for a few days only because the market will continue to respond to news, as in this study is the announcement of the war between Russia and Ukraine. According to Liu et al. (2020), in the capital market there is a lot of uncertainty, therefore an event window that is too long can cause the accuracy of research to be lower.

Table 1. List of Events Used in Research

Date	Event Description
Feb 24, 2022	Announcement of Russia's First Invasion of Ukraine
Mar 8, 2022	The United States has officially banned imports of natural gas, oil and other energy from Russia
Mar 16, 2022	Russia blocks main route for Ukrainian wheat exports
May 30, 2022	European Union Officially Agrees on Partial Ban on Oil and Gas Imports from Russia
June 30, 2022	President Jokowi Widodo's Announcement: President Vladimir Putin Agrees to Open Wheat Export Routes
Aug 1, 2022	Ukraine resumes grain exports since war with Russia
Aug 9, 2022	Minister of Agriculture Announcement: Price of Instant Noodles Could Triple

The data methodology used was to get stock prices, and calculate abnormal returns and trading volume activity. After getting the stock price, abnormal return, and trading volume activity, then conduct normality testing with the Kolmogorov-Smirnov test. The normally distributed data was then tested hypothetically with the One Sampe T test – Test for abnormal returns on normally distributed data, and the One Sample Wilcoxon Signed Rank Test for abnormal returns whose data was abnormally distributed. Paired Samples T – Test for stock price and trading volume activity on normally distributed data, and Paired Samples Wilcoxon Signed Rank Test for stock price and trading volume activity on abnormally distributed data.

The test used was the One Sample T-Test or One Sample Wilcoxon Signed Rank Test on abnormal returns, which aims to identify whether there is a significant abnormal return from the reaction of the capital market to an event, which in this case is an announcement related to the war between Russia and Ukraine. Then, this study uses the Paired Samples T-Test or Paired Samples Wilcoxon Signred Rank Test on stock prices and trading volume activity, which aims to find out whether there is a difference between the results before (pretest) and after (post-test) the announcement of the war between Russia and Ukraine.

Data normality testing was used to find out whether the data that has been obtained is normally distributed or not. Here, to determine the normality of the data, the researchers conducted a Kolmogorov – Smirnov normality test with a significance level of 5%. If the significance value resulting from the Kolmogorov–Smirnov normality test > 0.05, then the normality assumption is satisfied, which can be interpreted that the data are normally distributed. Conversely, if the significance value resulting from the Kolmogorov–Smirnov normality test < 0.05, it can be interpreted that the data are abnormally distributed.

In making a hypothetical decision, this study uses probability criteria or Sig. (2 - tailed) and by comparing the T- count and T- table.

Basis of Probability Decision Making or Sig. (2 - tailed):

1) If Sig. (2 - tailed) > significance level (0.05), then H0 is accepted; and
2) If Sig. (2 - tailed) < the level of significance (0.05), then H0 is rejected.

RESULTS AND DISCUSSION

Abnormal Return Normality Test Results

Table 2. Abnormal Return Normality Test Results

Tests of Normality						
	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	***df***	***Sig.***	***Statistic***	***df***	***Sig.***
Ab_Return	0.189	180	0.001	0.851	180	0.001
a. Lilliefors Significance Correction						

Source: SPSS 20 output (processed, 2022)

The results of normality testing for abnormal return data with Kolmogorov-Smirnov showed that the data used were abnormally distributed because they had a 2-tailed Sig. level < 0.05. As for the t-5, t-2, t-1 and t+1, t+2 and t+5 timeframes when Russia's first invasion of Ukraine was announced, the Sig. 2-tailed 0.000.

Stock Price Normality Test Results

Table 3. Stock Price Normality Test Results

Tests of Normality						
	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	***df***	***Sig.***	***Statistic***	***df***	***Sig.***
Hr_Saham	0.374	180	0.001	0.291	180	0.001
a. Lilliefors Significance Correction						

Source: SPSS 20 output (processed, 2022)

The results of normality testing for stock price data with Kolmogorov-Smirnov showed that the data used were abnormally distributed because they had a 2-tailed Sig. level < 0.05. As for the t-5, t-2, t-1 and t+1, t+2 and t+5 timeframes when Russia's first invasion of Ukraine was announced, the Sig. 2-tailed 0.000.

Trading Volume Activity Normality Test Results

Table 4. Trading Volume Activity Normality Test Results

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	*Sig.*	*Statistic*	*df*	*Sig.*
Vol_Activity	0.407	180	0.001	0.25	180	0.001
a. Lilliefors Significance Correction						

Source: SPSS 20 output (processed, 2022)

The results of normality testing for trading volume activity data with Kolmogorov-Smirnov showed that the data used was abnormally distributed because it had a 2-tailed Sig. level < 0.05. The results of normality testing for stock price data with Kolmogorov-Smirnov showed that the data used were abnormally distributed because they had a 2-tailed Sig. level < 0.05. As for the t-5, t-2, t-1 and t+1, t+2 and t+5 timeframes when Russia's first invasion of Ukraine was announced, the Sig. 2-tailed 0.000.

Abnormal Return Hypothesis Test Results

Table 5. Abnormal Return Hypothesis Test Results

Event	Abnormal Significance of Return					
	T-5	*T-2*	*T-1*	*T+1*	*T+2*	*T+5*
1	0.030*)	0.405	0.478	0.586	0.766	0.711
2	0.586	0.943	0.711	0.280	0.750	0.043*)
3	0.280	0.106	0.043*)	0.975	0.478	0.829
4	0.136	0.037*)	0.360	0.339	0.280	0.530
5	0.106	0.147	0.837	0.002*)	0.349	0.405
6	0.111	0.558	0.829	0.000*)	0.572	0.579
7	0.000*)	0.206	0.579	0.309	0.845	0.125

Source: SPSS 20 output (processed, 2022)

The level of confidence used is 95% or 0.95. If the result of Sig. (2-tailed) is below α 5% or 0.05, it is concluded that there is an Abnormal Return. Conversely, if it is above α 5% or 0.05, then there is no Abnormal Return. From Table 6 above, H_{01} is accepted because it had Sig. (2-tailed) 0.586 > α 0.05, so the conclusion is that one day after the announcement of Russia's first invasion of Ukraine there is no abnormal return. H_{02} is accepted because it had Sig. (2-tailed) 0.766 > α 0.05, so the conclusion is that two days after the announcement of Russia's first invasion of Ukraine there is no abnormal return.H_{03} is accepted because it had Sig. (2-tailed) 0.711 > α 0.05, so the conclusion is that five days after the announcement of Russia's first invasion of Ukraine there is no abnormal return. H_{04} is accepted because it had Sig. (2-tailed) 0.280 > α 0.05, so the conclusion is that one day after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia there is no abnormal return. H_{05} is accepted because it had Sig. (2-tailed) 0.750 > α 0.05, so the

conclusion is that two days after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia there is no abnormal return. H_{06} rejected because it had Sig. (2-tailed) 0.043 < α 0.05, so the conclusion is that five days after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia there is an abnormal return. H_{07} is accepted because it had Sig. (2-tailed) 0.975 > α 0.05, so the conclusion is that one day after the announcement of Russia blocking the main line of Ukrainian wheat exports there is no abnormal return. H_{08} is accepted because it had Sig. (2-tailed) 0.478 > α 0.05, so the conclusion is that two days after the announcement of Russia blocking the main line of Ukrainian wheat exports there is no abnormal return. H_{09} is accepted because it had Sig. (2-tailed) 0.829 > α 0.05, so the conclusion is that five days after the announcement of Russia blocking the main line of Ukrainian wheat exports there is no abnormal return. H_{010} is accepted because it had Sig. (2-tailed) 0.339 > α 0.05, so the conclusion is that one day after the announcement of the European Union Official Approval of a Partial Ban on Oil and Gas Imports from Russia there is no abnormal return. H_{011} is accepted because it had Sig. (2-tailed) 0.280 > α 0.05, so the conclusion is that two days after the announcement of the European Union Official Agreed on a Partial Ban on Oil and Gas Imports from Russia there is no abnormal return. H_{012} is accepted because it had Sig. (2-tailed) 0.530 > α 0.05, so the conclusion is that five days after the announcement of the European Union Official Agreed on a Partial Ban on Oil and Gas Imports from Russia there is no abnormal return.H_{013} is rejected because it had Sig. (2-tailed) 0.002 < α 0.05, so the conclusion is one day after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes there is an abnormal return. H_{014} is accepted because it had Sig. (2-tailed) 0.349 > α 0.05, so the conclusion is two days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes There is no abnormal return. H_{015} is accepted because it had Sig. (2-tailed) 0.405 > α 0.05, so the conclusion is five days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes There is no abnormal return. H_{016} is rejected because it had Sig. (2-tailed) 0.000 < α 0.05, so the conclusion is that one day after the announcement that Ukraine resumed wheat exports since the war with Russia there is an abnormal return. H_{017} is accepted because it had Sig. (2-tailed) 0.572 > α 0.05, so the conclusion is that two days after the announcement that Ukraine resumed grain exports since the war with Russia there is no abnormal return. H_{018} is accepted because it had Sig. (2-tailed) 0.579 > α 0.05, so the conclusion is that five days after the announcement that Ukraine resumed grain exports since the war with Russia there is no abnormal return. H_{019} is accepted because it had Sig. (2-tailed) 0.309 > α 0.05, so the conclusion is that one day after the announcement of the Minister of Agriculture: The price of instant noodles could triple There is no abnormal return.H_{020} is accepted because it had Sig. (2-tailed) 0.845 > α 0.05, so the conclusion is that two days after the announcement of the Minister of Agriculture: The price of instant noodles can triple There is no abnormal return. H_{021} is accepted because it had Sig. (2-tailed) 0.125 > α 0.05, so the conclusion is five days after the announcement of the Minister of Agriculture: The price of instant noodles can triple There is no abnormal return.

Stock Price Hypothesis Test Results

Table 6. Stock Price Hypothesis Test Results

Event	Significance of Stock Price Difference Test		
	T-5, T+5	***T-2, T+2***	***T-1, T+1***
Announcement of Russia's First Invasion of Ukraine	0.216	0.269	0.294
The United States has officially banned imports of natural gas, oil and other energy from Russia	0.597	0.096	0.006*)
Russia blocks main route for Ukrainian wheat exports	0.133	0.466	0.031*)
European Union Officially Agrees on Partial Ban on Oil and Gas Imports from Russia	0.044*)	0.001*)	0.002*)
President Jokowi Widodo's Announcement: President Vladimir Putin Agrees to Open Wheat Export Routes	0.001*)	0.000*)	0.000*)
Ukraine resumes grain exports since war with Russia	0.682	0.909	0.517
Minister of Agriculture Announcement: Price of Instant Noodles Could Triple	0.584	0.297	0.206

Source: SPSS 20 output (processed, 2022)

In testing the stock price hypothesis, the level of confidence used is 95% or 0.95. If the Sig. (2-tailed) yield is below α 5% or 0.05, it is concluded that there is a difference in share prices before and after the announcement of Russia's first invasion of Ukraine. Conversely, if it is above α 5% or 0.05, then there is no difference in share prices before and after the announcement of Russia's first invasion of Ukraine. From Table 7 above, it is known that the stock price on one day before to one day after the announcement of Russia's first invasion of Ukraine has Sig. (2-tailed) 0.294 > α 0.05. H_{022} is accepted and concluded that there is no difference in share prices on one day before to one day after the announcement of Russia's first invasion of Ukraine. In stock price testing on the two days before the announcement of Russia's first invasion of Ukraine had Sig. (2-tailed) 0.269 > α 0.05. H_{023} is accepted and concluded that there is no difference in share prices on the two days before the two days after the announcement of Russia's first invasion of Ukraine. In stock price testing on the five days before the five days following the announcement of Russia's first invasion of Ukraine had Sig. (2-tailed) 0.216 > α 0.05. H_{024} is accepted and concluded that there is no difference in share prices in the five days before the five days after the announcement of Russia's first invasion of Ukraine. In the stock price test on the two days before the two days after the announcement of the United States (US) officially banned imports of natural gas, oil and other energy from Russia had Sig. (2-tailed) 0.006 < α 0.05. H_{025} is rejected and concluded that there is a difference in stock prices two days before the two days after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia. In the

stock price test two days before the two days after the announcement the United States (US) officially banned imports of natural gas, oil and other energy from Russia had Sig. (2-tailed) 0.096 > α 0.05. H_{026} is accepted and concluded that there is no difference in stock prices two days before the two days after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia. In stock price testing on the five days before the five days after the announcement the United States officially banned imports of natural gas, oil and other energy from Russia had Sig. (2-tailed) 0.597 > α 0.05. H_{027} is accepted and concluded that there is no difference in stock prices five days before the fifth day after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia. In the stock price test on the two days before the two days after the announcement of Russia, the main line of Ukrainian wheat exports had Sig. (2-tailed) 0.031 < α 0.05. H_{028} is rejected, and it is concluded that there is a difference in share prices two days before the two days after the announcement of Russia blocking the Main Line of Ukrainian Wheat Exports. In the stock price test two days before the two days after the Russian announcement of the blockage of the Main Line of Ukrainian Wheat Exports had Sig. (2-tailed) 0.466 > α 0.05. H_{029} is accepted and it is concluded that there is no difference in share prices on the two days before the event of the announcement of Russia blocking the main line of Ukrainian wheat exports. In the stock price test five days before the five days after the announcement of Russia, the main line of Ukrainian wheat exports had Sig. (2-tailed) 0.133 > α 0.05. H_{030} is accepted and concluded that there is no difference in share prices in the five days before the five days after the announcement of Russia blocking the main line of Ukrainian wheat exports. In the stock price test on the two days before the two days after the announcement of the European Union Official Agreed on a Partial Ban on Oil and Gas Imports from Russia has Sig. (2-tailed) 0.002 < α 0.05. H_{031} is rejected, and it is concluded that there is a difference in share prices two days before the two days after the announcement of the official European Union has agreed on a partial ban on oil and gas imports from Russia. On the stock price test on the two days before the two days after the announcement event, the European Union has officially agreed on a partial ban on oil and gas imports from Russia has Sig. (2-tailed) 0.001 < α 0.05. H_{032} is rejected and concluded that there is a difference in share prices two days before the two days after the announcement of the European Union Official Agreed on a Partial Ban on Oil and Gas Imports from Russia. In the stock price test five days before the five days after the announcement the European Union officially agreed on a partial ban on oil and gas imports from Russia has Sig. (2-tailed) 0.044 < α 0.05. H_{033} is rejected and concluded that there is a difference in share prices five days before the five days after the announcement of the European Union Official Agreed on a Partial Ban on Oil and Gas Imports from Russia. In the stock price test two days before the two days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Export Routes Wheat has Sig. (2-tailed) 0.000 < α 0.05. H_{034} is rejected, and it is concluded that there is a difference in stock prices two days before the two days after the announcement of President Jokowi Widodo: President Vladimir Putin Agreed to Open Wheat Export Routes. In the stock price test two days before the two days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Export Routes Wheat has Sig. (2-tailed) 0.000 < α 0.05. H_{035} is rejected, and it is concluded that there is a difference in stock prices two days before the two days after President Jokowi Widodo's announcement: President Vladimir Putin Agreed to Open Wheat

Export Routes. In the stock price test five days before the fifth day after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Export Routes Wheat has Sig. (2-tailed) 0.001 < α 0.05. H_{036} is rejected, and it is concluded that there is a difference in stock prices five days before the five days after the announcement of President Jokowi Widodo: President Vladimir Putin Agreed to Open Wheat Export Routes. In the stock price test on the two days before the two days after the announcement Ukraine resumed wheat exports since the war with Russia had Sig. (2-tailed) 0.517 > α 0.05. H_{037} is accepted and concluded that there is no difference in share prices on the two days before the two days after the announcement of Ukraine Returning to Wheat Export Since the War with Russia. In the stock price test two days before the two days after the announcement Ukraine resumed wheat exports since the war with Russia had Sig. (2-tailed) 0.909 > α 0.05. H_{038} is accepted and concluded that there is no difference in stock prices on the two days before the two days after the announcement of Ukraine Returning to Grain Export Since the War with Russia. In the stock price test five days before the five days after the announcement Ukraine resumed wheat exports since the war with Russia had Sig. (2-tailed) 0.682 > α 0.05. H_{039} is accepted and concluded that there is no difference in stock prices in the five days before the five days after the announcement that Ukraine resumed wheat exports since the war with Russia. In the stock price test on the two days before the two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple has Sig. (2-tailed) 0.206 > α 0.05. H_{040} is accepted and it is concluded that there is no difference in stock prices on the two days before the two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple. In the stock price test on the two days before the two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple has Sig. (2-tailed) 0.297 > α 0.05. H_{041} is accepted and it is concluded that there is no difference in stock prices on the two days before the two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple.

In the stock price test on the five days before the fifth day after the announcement of the Minister of Agriculture: The price of instant noodles could triple has Sig. (2-tailed) 0.584 > α 0.05. H_{042} is accepted and it is concluded that there is no difference in stock prices five days before the five days after the announcement of the Minister of Agriculture: The price of instant noodles could triple.

Trading Volume Activity Hypothesis Test Results

Table 7. Volume Activity Trading Hypothesis Test Results

Event	Significance of the Trading Volume Activity Difference Test		
	T-5, T+5	***T-2, T+2***	***T-1, T+1***
1	0.008*)	0.023*)	0.041*)
2	0.572	0.075	0.005*)
3	0.309	0.178	0.019*)
4	0.596	0.058	0.127
5	0.098	0.079	0.658
6	0.072	0.069	0.014*)

7	0.734	0.023*)	0.106

Source: SPSS 20 output (processed, 2022)

In testing the trading volume activity hypothesis, the level of confidence used is 95% or 0.95. If the Sig. (2-tailed) result is below α 5% or 0.05, it is concluded that there is a difference in trading volume activity (TVA) before and after the announcement of Russia's first invasion of Ukraine. Conversely, if it is above α 5% or 0.05, there is no difference in trading volume activity (TVA) before and after the announcement of Russia's first invasion of Ukraine. From Table 8 above, it is known that trading volume activity on one day before to one day after the announcement of Russia's first invasion of Ukraine has Sig. (2-tailed) 0.041 < α 0.05. H_{043} is rejected, and it is concluded that there is a difference in trading volume activity (TVA) on one day before to one day after the announcement of Russia's first invasion of Ukraine. In trading testing, the volume of activity on the two days before the announcement of Russia's first invasion of Ukraine had Sig. (2-tailed) 0.023 < α 0.05. H_{044} is rejected, and it is concluded that there is a difference in trading volume activity (TVA) on the two days before the two days after the announcement of Russia's first invasion of Ukraine. In trading testing, volume activity on the five days before the announcement of Russia's first invasion of Ukraine had Sig. (2-tailed) 0.008 < α 0.05. H_{045} is rejected and concluded that there is a difference in trading volume activity (TVA) in the five days before the five days after the announcement of Russia's first invasion of Ukraine. In the Trading Volume Activity (TVA) test two days before the two days after the announcement of the United States (US) officially banned imports of natural gas, oil and other energy from Russia had Sig. (2-tailed) 0.005 < α 0.05. H_{046} is rejected and concluded that there is a difference in trade volume activity (TVA) on the two days before the two days after the announcement of the United States (US) officially banning imports of natural gas, oil, and other energy from Russia. In the Trading Volume Activity (TVA) test on the two days before the two days after the announcement of the United States (US) officially banned imports of natural gas, oil and other energy from Russia had Sig. (2-tailed) 0.075 > α 0.05. H_{047} is accepted and concluded that there is no difference in trading volume activity (TVA) on the two days before the event two days after the event of the announcement of the United States (US) officially banning imports of natural gas, oil, and other energy from Russia. In the Trading Volume Activity (TVA) test on the five days before the five days after the announcement of the United States (US) officially banned imports of natural gas, oil and other energy from Russia had Sig. (2-tailed) 0.572 > α 0.05. H_{048} is accepted and concluded that there is no difference in trade volume activity (TVA) five days before the fifth day after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia. In the Trading Volume Activity (TVA) test two days before the two days after the announcement of Russia, the main line of Ukrainian wheat exports had Sig. (2-tailed) 0.019 < α 0.05. H_{049} is rejected, and it is concluded that there is a difference in trade volume activity (TVA) on the two days before the event two days after the announcement of Russia blocking the main line of Ukrainian wheat exports. In the Trading Volume Activity (TVA) test two days before the two days after the announcement of Russia, the main line of Ukrainian wheat exports had Sig. (2-tailed) 0.178 > α 0.05. H_{050} is accepted and concluded that there is no difference in trade volume activity (TVA) in the two days before the event two days after the announcement of Russia blocking the main line of Ukrainian wheat exports. In the Trading Volume Activity

(TVA) test five days before the five days after the announcement of Russia, the main line of Ukrainian wheat exports had Sig. (2-tailed) 0.309 > α 0.05. H_{051} is accepted and concluded that there is no difference in trade volume activity (TVA) in the five days before the five days after the announcement of Russia blocking the main line of Ukrainian wheat exports. In the Trading Volume Activity (TVA) test two days before the two days after the announcement event, the European Union has officially agreed on a partial ban on oil and gas imports from Russia has Sig. (2-tailed) 0.127 > α 0.05. H_{052} is accepted and concluded that there is no difference in trade volume activity (TVA) on the two days before the event two days after the announcement of the European Union Official Agreed on a Partial Ban on Oil and Gas Imports from Russia. In the Trading Volume Activity (TVA) test two days before the two days after the announcement event, the European Union has officially agreed on a partial ban on oil and gas imports from Russia has Sig. (2-tailed) 0.058 > α 0.05. H_{053} is accepted and concluded that there is no difference in trading volume activity (TVA) on the two days before the announcement that the European Union had officially agreed on a partial ban on oil and gas imports from Russia. In the Trading Volume Activity (TVA) test five days before the five days after the announcement event, the Official European Union has Agreed on a Partial Ban on Oil and Gas Imports from Russia has Sig. (2-tailed) 0.596 > α 0.05. Therefore, H_{053} is accepted and concluded that there is no difference in trading volume activity (TVA) five days before the announcement of the European Union Official Agreement to Agree on a Partial Ban on Oil and Gas Imports from Russia. In the Trading Volume Activity (TVA) test two days before the two days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes has Sig. (2-tailed) 0.658 > α 0.05. H_{055} is accepted and concluded that there is no difference in trade volume activity (TVA) on the two days before the two days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes. In the Trading Volume Activity (TVA) test two days before the two days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes has Sig. (2-tailed) 0.079 > α 0.05. H_{056} is accepted and it is concluded that there is no difference in trade volume activity (TVA) on the two days before the two days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes. In the Trading Volume Activity (TVA) test five days before the five days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Export Routes Wheat has Sig. (2-tailed) 0.098 > α 0.05. H_{057} is accepted and concluded that there is no difference in trade volume activity (TVA) five days before the five days after President Jokowi Widodo's announcement: President Vladimir Putin Agrees to Open Wheat Export Routes. In the Trading Volume Activity (TVA) test on the two days before the two days after the announcement Ukraine resumed wheat exports since the war with Russia had Sig. (2-tailed) 0.014 < α 0.05. H_{058} is rejected, and it is concluded that there is a difference in trade volume activity (TVA) on the two days before the announcement that Ukraine had resumed grain exports since the war with Russia. In the Trading Volume Activity (TVA) test on the two days before the two days after the announcement Ukraine resumed grain exports since the war with Russia had Sig. (2-tailed) 0.069 > α 0.05. H_{059} is accepted and concluded that there is no difference in trading volume activity (TVA) in the two days before the announcement that Ukraine resumed grain exports since the war with Russia. In the Trading Volume Activity (TVA) test five days before the five days after the announcement Ukraine resumed wheat

exports since the war with Russia had Sig. (2-tailed) 0.072 > α 0.05. H_{060} is accepted and concluded that there is no difference in trading volume activity (TVA) in the five days before the announcement that Ukraine resumed wheat exports since the war with Russia. In the Trading Volume Activity (TVA) test two days before the two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple has Sig. (2-tailed) 0.106 > α 0.05. H_{061} is accepted and it is concluded that there is no difference in trading volume activity (TVA) on the two days before the two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple. In the Trading Volume Activity (TVA) test on the two days before the two days after the announcement of the Minister of Agriculture: The Price of Instant Noodles Can Triple has Sig. (2-tailed) 0.023 < α 0.05. H_{062} is rejected, and it is concluded that there is a difference in trade volume activity (TVA) on the two days before the two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple. In the Trading Volume Activity (TVA) test five days before the five days after the announcement of the Minister of Agriculture: The price of instant noodles could triple has Sig. (2-tailed) 0.734 > α 0.05. H_{063} is accepted and it is concluded that there is no difference in trade volume activity (TVA) in the five days before the five days after the announcement of the Minister of Agriculture: The price of instant noodles could triple.

Discussion

In the first event, when the Russia and Ukraine war was first announced, there is an abnormal return in one event window, namely on the t-5. Likewise, at the second event, the United States (US) officially banned imports of natural gas, oil and other energy from Russia, there is an abnormal return in one event window, namely at t + 5. According to Fama (1970) and Eduardus (2010), a market is declared efficient in semistrong form if information is absorbed or responded quickly by the market, namely in one-to-two-time spots or days around the announcement. The results showed that in the third, fourth, fifth and sixth events, abnormal returns occurred at these two time spots, namely in the third event (Russia Blocks the Main Line of Ukrainian Wheat Exports), abnormal returns occurred in the t-1 window event, while at the fourth event (European Union has officially agreed on a partial ban on Oil and Gas Imports from Russia), abnormal returns occurred in the t-2 window event, In the fifth event (President Jokowi Widodo's Announcement: President Vladimir Putin Agrees to Open Wheat Export Routes) and the sixth event (Ukraine Resumes Wheat Export Since War with Russia), abnormal returns occurred in the T+1 window event. The market in this study can be said to be efficient in semistrong form because the market reaction, namely abnormal returns are seen within one to two days after the announcement. The market also needs time to analyze and assess the content of information in the market, namely whether announcements related to the Russia and Ukraine war will have a positive effect until the economic value and profit level of investors increase or bring negative effects and the company's economic value decreases. The results of research on the last event studied, namely the seventh event (Announcement of the Minister of Agriculture: The Price of Instant Noodles Can Increase Three Times) showed an abnormal return in the t-5 window event, the same as the first event.

Significant differences did not occur at the first event, at the announcement of the war and at the sixth event (Ukraine resumed wheat exports since the war with Russia) and at the seventh event (Announcement of the Minister of Agriculture: The price of instant noodles could triple).

In the second event (the United States (the United States officially banned imports of natural gas, oil and other energy from Russia), there was a difference in stock prices in the event window [t-1, t+1], as well as in the third event (Russia blocking the Main Line of Ukrainian Wheat Exports) there was also a significant difference in stock prices in the event window [t-1, t+1]. In the fourth event window (European Union has officially agreed on a partial ban on oil and gas imports from Russia) and fifth (President Jokowi Widodo's Announcement: President Vladimir Putin Agrees to Open Wheat Export Routes), significant stock price differences occurred in all event windows, namely from [t-5, t+5], [t-2, t+2] and [t-1, t+1]. The speed at which the market responds to war-related information that will influence the decision to buy or sell shares does not seem to have happened in the early days of the war. But increasingly, the effects of the war are increasingly felt and have influenced market decisions. Stock price changes are more prevalent in the short [t-1, t+1] period, and overall market decisions affected by the Russia and Ukraine war are temporary. This can be seen from the absence of significant stock price differences in the last events studied (sixth event and seventh event).

In the first event (when the war was first announced) There is a significant difference in Trading Volume Activity in the three event windows, both in the event window [t-5, t+5] and in the event window [t-2, t+2] and event window [t-1, t+1]. At the second event, (the United States (US) officially banned imports of natural gas, oil, and other energy from Russia), There is a significant difference in trading activity volume in the event window [t-1, t+1]. A significant difference in this window event [t-1, t+1] also occurred in the third event (Russia blocks the Main Line of Ukrainian Wheat Exports). At the fourth event (European Union has officially agreed on a partial ban on oil and gas imports from Russia) and the fifth event (President Jokowi Widodo's Announcement: President Vladimir Putin Agrees to Open Wheat Export Routes) there was no significant difference in Trading Volume Activity. While in the sixth event (Ukraine Returns to Wheat Export Since War with Russia) There is a significant difference in the event window [t-1, t + 1]. In the seventh event (Announcement of the Minister of Agriculture: The Price of Instant Noodles Can Triple Soon) there was also a significant difference in trading activity volume but in the event window [t-2, t+2].

CONCLUSION

In the abnormal return hypothesis test, the rejected hypotheses are H_{06}, H_{013}, and H_{016}, it can be concluded that there is an abnormal return five days after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia, one day after the announcement of President Jokowi Widodo: President Vladimir Putin Agrees to Open Wheat Export Routes, One day after the announcement, Ukraine resumed grain exports since its war with Russia.

In the stock price hypothesis test, the rejected hypotheses are H_{025}, H_{028}, H_{031}, H_{032}, H_{033}, H_{034}, H_{035}, H_{036} and it can be concluded that there is a difference in stock prices two days before and two days after the announcement of the United States (US) officially banning imports of natural gas, oil and other energy from Russia, two days before and two days after the announcement of Russia blocking the main route for Ukrainian wheat exports, two days before and two days after the announcement The European Union has officially agreed on a partial ban on oil and gas imports from Russia, two days before and two days after the announcement

event The European Union has officially agreed on a partial ban on oil and gas imports from Russia, five days before and five days after the announcement event The European Union has officially agreed on a partial ban on oil and gas imports from Russia, two days before and two days after the announcement event President Jokowi Widodo: President Vladimir Putin Agrees to Open Wheat Export Routes, two days before and two days after the announcement event President Jokowi Widodo: President Vladimir Putin Agrees to Open Wheat Export Routes, five days before and five days after President Jokowi Widodo's announcement: President Vladimir Putin agrees to open wheat export routes.

In the trading volume activity hypothesis test, the rejected hypotheses are H_{043}, H_{044}, H_{045}, H_{046}, H_{049}, H_{058}, H_{062} and it can be concluded that there is a difference in trading volume activity on one day before and one day after the announcement of Russia's first invasion of Ukraine, two days before and two days after the announcement of the invasion Russia's first invasion of Ukraine, five days before and five days after Russia's announcement of its first invasion of Ukraine, two days before and two days after the U.S. officially banned imports of natural gas, oil and other energy from Russia, two days before and two days after Russia's announcement to block Ukraine's main grain export route, Two days before and two days after the announcement Ukraine resumed wheat exports since the war with Russia, two days before and two days after the announcement of the Minister of Agriculture: The price of instant noodles could triple.

In the fifth event (President Jokowi Widodo's Announcement: President Vladimir Putin Agrees to Open Wheat Export Routes) and the sixth event (Ukraine Resumes Wheat Export Since War with Russia), abnormal returns occurred in the t+1 window event. The market in this study can be said to be efficient in semistrong form because the market reaction, namely abnormal returns are seen within one to two days after the announcement. The market also needs time to analyze and assess the content of information in the market, namely whether announcements related to the Russia and Ukraine war will have a positive effect until the economic value and profit level of investors increase or bring negative effects and the company's economic value decreases. The speed at which the market responds to war-related information that will influence the decision to buy or sell shares does not seem to have happened in the early days of the war. But increasingly, the effects of the war are increasingly felt and have influenced market decisions. Stock price changes are more prevalent in the short [t-1, t+1] period, and overall market decisions affected by the Russia and Ukraine war are temporary. This can be seen from the absence of significant stock price differences in the last events studied (sixth event and seventh event).

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