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Capital Market Reaction to the Announcement of the Russian Invasion to Ukraine (Case Study on Energy Industry Companies in ASEAN)

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A B S T R A C T

This study aims to determine and test the reaction of the capital market to geopolitical events. The invasion was carried out by Russia into Ukraine on 24 February 2022. The variables tested were abnormal returns before and after the events in energy industry companies in ASEAN. This study uses a different test (paired sample Wilcoxon signed ranked test) to determine the movement of the average abnormal return 11 days before and after the invasion occurred on 24 February 2022. The results obtained based on the different test say that there is no significant effect of the Russian invasion of Ukraine on stock prices. the energy industry in Indonesia, while there was a significant influence from the Russian invasion of Ukraine on the share price of the energy industry in Malaysia and Singapore.

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INTRODUCTION

On February 24, 2022, Russian President Vladimir Putin announced that his country would militarily invade Ukraine in the Donbas region, marking the beginning of the Russian-Ukrainian military conflict. The official status of Crimea and Donbass has been disputed between Russia and Ukraine since 2014. In 2014, Russia invaded and annexed Crimea and Russian-backed separatists seized parts of the Donbas region in southeastern Ukraine, consisting of Luhansk and Donetsk Oblasts sparking a regional war. However, in the last eight years, the situation in Ukraine has reversed where the majority of the political climate and society tend to side with the west, away from Russia.

Ukraine maintains close relations with the North Atlantic Treaty Organization (NATO), and even plans to join it. As a result, this caused relations between Russia and Ukraine to heat up. It is known that Russia itself is in opposing camps with NATO. This situation led to the Russian president Vladimir Putin ordering an invasion of Ukraine.

The United States condemned the invasion and imposed economic sanctions on Russia. The sanctions are in the form of stopping the operations of Russian-owned financial institutions in the United States, freezing all investment assets and individual properties close to the President of Russia, as well as restrictions on Russian debt transactions. After being hit by economic sanctions, Russia was also sanctioned by a crude oil embargo by European Union countries and the United States.

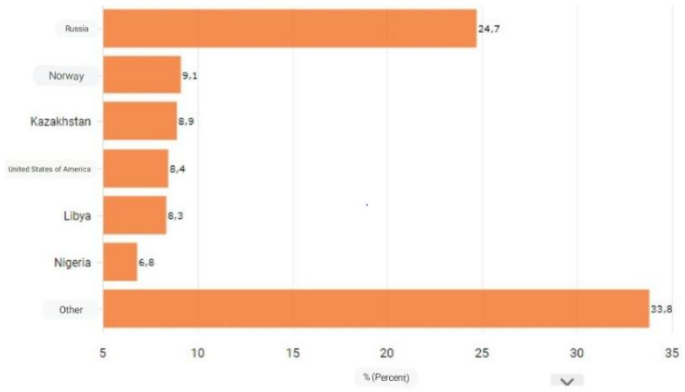

Figure 1. Market Share of Crude Oil in the European Union (Hem I-2021)

The European Union has threatened sanctions against Russia if it continues to invade Ukraine. This plan for imposing sanctions even covers the energy sector. Even though Russia is the main supplier of petroleum to the European Union. Of all the European Union's oil imports, 24.7% came from Russia, this percentage is far greater than Norway's 9.1% which is in second place. Kazakhstan is in third place with a percentage of 8.9% and the United States is fourth with 8.4%. Libya is ranked fifth with a percentage of 8.3%. Quoting Eurostat data, the European Union has imported 253.1 million tons of oil, of which 64.2 million tons were obtained from Russia as of the first half of 2021. The import value reached 101 billion euros, with 24.9 euros flowing to Russia (Pahlavi, 2022). The oil embargo sanctions imposed by the European

Union and the United States on Russia will have an impact on oil scarcity in the world. Therefore, the price of oil will increase drastically, as shown in the increase in the price of fuel oil (BBM) in several countries. The price of fuel oil (BBM) in various countries has increased, in line with rising world oil prices.

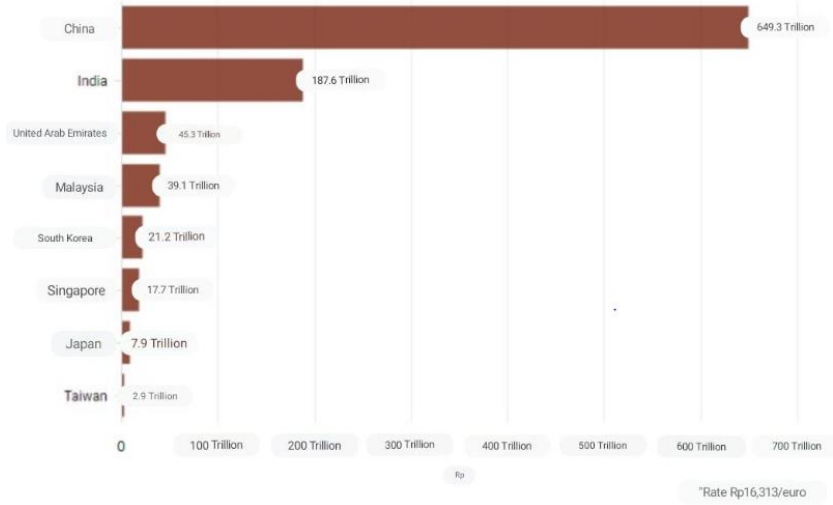

Figure 2. Asian Countries Buying Russian Oil since the Beginning of the War (24 February-18 November 2022)

Since the start of the Russo-Ukrainian war until November 25, 2022, Russia has pocketed around €233.9 billion or IDR 4.8 quadrillion (exchange rate of IDR 16,313 per euro) from fossil energy exports which include oil, gas and coal. According to data from the Center for Research on Energy and Clean Air (CREA), many European Union countries have purchased Russian energy commodities, including Germany, the Netherlands, Italy, Poland and France. There are also a number of Asian countries that are buyers, namely China, India, South Korea, Japan, the United Arab Emirates, to Malaysia and Singapore.

The conflict between Russia and Ukraine affected Asian markets, such as the decline in Japan's Nikkei index, Hong Kong's HSI, and China's Shanghai Composite. Instead, the dollar, gold and oil prices skyrocketed. Asian stock markets tumbled and oil prices jumped nearly $100 per barrel on Thursday 24 February 2022, after President Putin launched a military operation in Ukraine. Market benchmarks in Tokyo and Seoul fell 2%, while Hong Kong and Sydney lost more than 3%. Japan's Nikkei 225 (N225) index fell 2.2% to 25,855.04, Hong Kong's Hang Seng (HSI) fell 3.1% to 22,925.60, and China's Shanghai Composite moved down 0.9% at 3,458.12 (www.dw.com, 2022).

The stock market is unpredictable and influenced by events, regardless of whether those events are economic or non-economic related. Events can provide information for investors. Relevant information influences market reaction. Market reaction can be measured by changes in stock prices. Hartono (2016) divides stock returns into actual returns, which are based on previous historical data, and expected returns.

Abnormal returns are returns that investors did not anticipate. An event is one that includes information and causes an abnormal market return. Events that cause abnormal returns can have a positive or negative impact on returns. Previous research conducted Hariyanto (2022)The results of the first stage of different tests show that overall there was no capital market reaction in ASEAN member countries as seen from the value of abnormal returns, cumulative abnormal returns and trade volume activity during the war between Russia and Ukraine. The results of the second stage of different test show that the reaction of the capital market seen from the abnormal return value can be seen that the capital market in Cambodia reacted during the war between Russia and Ukraine, from the cumulative abnormal return value of the capital market in all ASEAN member countries did not react to war incidents.

Unlike the research conducted by Nerlinger & Utz (2022) found that the cumulative average abnormal return of energy firms was positive around the event, i.e. energy firms outperformed the stock market. This excellent performance was higher for North American companies than for European and Asian companies. The results provide evidence of better performance by energy companies in export markets competing with Russian suppliers of renewable energy, fossil fuels and uranium, after the Russian-Ukrainian invasion.

Based on the phenomenon above, the researcher is interested in conducting research entitled "The Capital Market Reaction to the Announcement of the Russian Invasion of Ukraine in Energy Industry Companies in ASEAN".

LITERATURE REVIEW

Signalling Theory

Signal theory is a theory that discusses published information as an announcement that will provide a signal for investors in making investment decisions. When information is announced, market participants first interpret and analyze the information as a good signal (good news) or bad signal (bad news). If the announcement of the information is a good signal for investors, then there will be a change in abnormal return, where the abnormal return will increase, whereas if the announcement of the information is a bad signal for investors, then there will be a change in abnormal return, where the abnormal return will decrease (Tumewu et al., 2022).

Market Efficiency Theory (Efficient Market *Hypothesis*)

According to Fama (1970) in Suganda (2018) categorizing the efficient market hypothesis into three forms namely weak efficient market (weak form), semi strong form of efficiency market and very strong efficiency market (strong form). There are three types of market efficiency, including:

a. **Weak form efficient market,** that is, the market is said to be efficient if the prices of securities fully reflect past information such as prices, trading volume, and past events;
b. **Semi strong form efficient market,** that is, the market is said to be efficient if security prices fully reflect all historical information and published information, including information contained in financial

reports. Such information may be in the form of information originating from an issuer that only affects the share price of the issuer, information that affects the share price of several securities;

c. **Strong form efficient market,** that is, the market is said to be efficient if the prices of securities fully reflect all available information, including private information.
d. **Capital market,** According toIswi et al. (2010) defines the capital market (capital market) is one of the important elements and benchmarks of a country's economic progress. One of the characteristics of advanced industrial countries and newly industrialized countries is the existence of a well-developed and growing capital market. From the figures of the Composite Stock Price Index (IHSG), we can find out the condition of the companies listed on the stock exchange. JCI can also reflect the economic condition of a country. A sharp decline in the JCI indicates that a country is experiencing an economic crisis. The capital market can also be used as a means to invite foreign investors and foreign funds to help the progress of the country's economy.

Abnormal Returns

According to (Hartono, 2022) explains that event studies analyze abnormal returns (abnormal returns) from securities that may occur around the announcement of an event. Abnormal return or excess return is the excess of the actual return over the normal return. Normal return is the expected return (return expected by investors). Thus the abnormal return (abnormal return) is the difference between the actual return that occurs and the expected return, the formula is as follows:

$$ARit = Rit - E(Rit)$$

Information:
Sickle :*returns* abnormal (abnormal return) of stock i in the event period t.
Rit :*returns* the actual return that occurs for the i-th stock in the t-event period.
E(Rit) :*expected returns*the i-th stock for the t-event period.

To calculate Abnormal Return, the following steps are taken:

1. Calculating the actual return
   To calculate the actual return to find out the comparison of today's stock price with the previous day's stock price, the following equation is used:

$$Ri,t = \frac{Pi,t - Pi,t-1}{Pi,t-1}$$

Information:
Ri,t : actual return on stock i that occurs on day t.
Pi,t : stock price i at time t.
Pi,t-1 : stock price i at time t-1.

2. Calculating the expected return
   Calculation of expected return with the market model (market adjusted model). This model assumes that the best predictor for estimating the return of a security is the return on the market index at that time. By using this model, it is not necessary to use an estimation period to form an estimation model, because the estimated return on securities is the same as the market return as follows:

$$E(Ri,t) = Rm,t$$

Information:
E(Ri,t):*returns*the expectation of the ith security in the tth event period
Rm,t :*returns*security at time t

The formula for calculating the market return is as follows:

$$Rm,t = \frac{IHSGt - IHSGt\text{-}1}{IHSGt\text{-}1}$$

Information:
Rm,t :*returns*market at time t
IHSGt : JCI index day t
IHSGt-1 : JCI Index day t-1

From the results of the calculation of known abnormal returns, the average abnormal return can be calculated using the following formula:

$$AARi,t = \frac{\sum ARi,t}{n}$$

Information:
AARi, t : The average abnormal return of securities i in period t
∑ARi,t : Total abnormal return of securities in period t
n : Number of companies

Security Return Variability

Security return variability (SRV) is the average profit variability before the event which is an analysis to see whether the market in aggregate judges that an information is informative and results in a change in the distribution of stock returns at the time of the announcement(Tiswiyanti, 2015). The formula for calculating Security return variability is as follows:

$$SRVi,t = \frac{ARi,t}{VAR_{i,t}}$$

Information:

SRVi,t : Security return variability of securities i in period t

Sickle :*Abnormal returns*security i in period t

VARI,t: Variance of Abnormal return of security i in period t

Where to calculate the abnormal return variant using the following equation:

$$VARi,t = \frac{(ARi,t - AARi,t)}{n-1}$$

Information :
Sickle : Abnormal return of security i in period t
AARi, t : The average abnormal return of securities i in period t
n : The number of days observed

From the results of the calculation of the known security return variability, it can be seen that the average security return variability uses the following equation:

$$ASRVi,t = \frac{\sum SRVi,t}{n}$$

Information :
ASRVi,t : Average security return variability of security i in period t
∑SRVi,t : Total security return variability of security i-period t
n : Number of companies

Trading Volume Activity

Trading volume activity(trading volume activity) is the sale of every transaction that occurs on the stock exchange at a certain time for certain shares and is one of the factors that also influences the movement of shares. The formula used refers to Foster (1986) inWardhani et al. (2022)The TVA calculation formula is:

$$TVAi,t = \frac{\sum \text{share i traded period t}}{\sum \text{stock i outstanding in period t}}$$

From the results of known trading volume activity calculations, the average trading volume activity can be calculated using the following equation:

$$ATVAi,t = \frac{\sum TVAi,t}{n}$$

Information :
ATVA : Average trading volume activity of securities i in period t
∑TVAi,t : Total trading volume activity of security i in period t
n : Number of companies

METHODOLOGY

Population and Research Sample

The population in this study are companies in the energy sector in ASEAN, namely Indonesia, Malaysia and Singapore, totaling 60 companies. The sampling technique uses purposive sampling, namely selecting samples with certain criteria so that they are in accordance with the specified research. The criteria for the sample companies are as follows:

1. Energy sector companies listed on the IDX, Malaysia Exchange and Singapore Exchange.
2. Energy sector company whose shares were actively traded during the five days before and five days after the announcement of the Russian Invasion of Ukraine in 2022.
3. Does not issue other policies such as dividends, rights issues, bonus shares and other stock announcements during the observation period.
4. Complete Energy sector company data is available for analysis purposes.
5. From a total of 60 populations, 46 companies were selected as samples.

Types and Sources of Research Data

The type of research used is event study research. The timeframe used in this study was 11 days, namely five days before the announcement of the Russian Invasion of Ukraine or t-5, the day at the time of the announcement or to, five days after the announcement of the Russian Invasion of Ukraine or t+5.
The type of data used in this study consists of:

1. The date of the event (event day), namely the announcement of the Russian Invasion of Ukraine on February 24, 2022.
2. List of companies including Energy sector company shares on the Indonesia Stock Exchange (www.idx.co.id), Malaysia Exchange (www.bursamalaysia.com), and Singapore Exchange (www.sgx.com)
3. Daily stock price data included in Energy sector company shares on 5 active stock trading days prior to the announcement event, 1 active stock trading day announcement event and 5 active stock trading days after the event, which in this case is the active day of stock trading data for which the data was obtained from the website (www.finance.yahoo.com).
4. Composite Stock Price Index (IHSG), Singapore Straits Time Index (STI) and KLCI Malaysia (KLSE).
5. The total trading volume of shares and the number of shares outstanding which are included in the shares of Energy sector companies on 5 active trading days before the event, 1 active trading day on the announcement of the event and 5 active trading days after the event.

Descriptive Statistical Analysis

Descriptive analysis describes a data that looks at the mean, standard deviation, maximum value and minimum value(Siregar, 2017).

Normality Test

The normality test aims to see whether the residual values are normally distributed or not. The normality test in this study used the Shapiro Wilk Test

with the SPSS version 26 application program by comparing the asymptotic significance α = 0.05. In this study the data were normally distributed, the parametric test used was the paired sample t-test to test the hypothesis. If the data is not normally distributed, use the non-parametric test, namely Wilcoxon to test the hypothesis. The basis for making the decision is that the data is said to be normally distributed if the asymptotic significance value is > 0.05.

Hypothesis test

Hypothesis testing is a temporary conjecture or conclusion related to the research problem formulation. The next test tool uses the Paired Samples T-Test method for normally distributed data and the Wilcoxon signed ranks test for non-normally distributed data using SPSS version 26. The test criteria are as follows:

a. If the significance value or α <0.05 then the hypothesis is supported.
b. If the significance value or α > 0.05 then the hypothesis is not supported.

RESEARCH RESULT

Descriptive Statistical Analysis

The results of descriptive statistics to see an overview of the maximum and minimum values in the data can be seen in the following table:

Table 1. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AARsblmIndo	20	-63196.00	33103.00	-5629.2000	19272.63424
AARssdhIndo	20	-59139.00	91580.00	3462.8500	33266.31535
AARsblmMalay	15	-13457.00	40214.00	857.2000	12439.69815
AARssdhMalay	15	-20021.00	10386.00	-9450.2667	8685.15197
AARsblmSpore	11	-19171.00	102697.00	11806.8182	32331.21390
AARssdhSpore	11	-12765.00	134653.00	44795.7273	44524.05973
Valid N (listwise)	11				

Based on the results of descriptive statistical tests, it can be seen that the abnormal return values before and after the invasion between Russia and Ukraine in the three ASEAN countries have different values where the minimum abnormal return value has decreased while the maximum value has increased.

Normality test

The normality test can be carried out using the Shapiro Wilk Test method because the data sample is less than 50 (n <50). The purpose of doing the normality test is to see whether the distribution of the data used is normal or not. The different test uses the Paired Sample t-Test if the data used is normally distributed and the Paired Sample Wilcoxon Signed Rank Test if the data used is not normally distributed.

Table 2. Shapiro Wilk Normality Test Indonesian Country

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AARsblmIndo	.328	20	.000	.720	20	.000
AARssdhIndo	.202	20	.032	.896	20	.035

a. Lilliefors Significance Correction

Based on the results of the normality test in Indonesia, it can be seen that all data before and after the Russian invasion of Ukraine is not normally distributed because of the sig. < 0.05. Based on the results of this normality test, the decision to test different uses the Paired Sample Wilcoxon Signed Rank Test.

Table 3. Shapiro Wilk Normality Test Malaysia

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AARsblmMalay	.352	15	.000	.705	15	.000
AARssdhMalay	.153	15	.200*	.921	15	.198

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

a. Lilliefors Significance Correction

Based on the results of the normality test in Malaysia, it can be seen that the data before the event is not normally distributed because the sig. < 0.05, while the data after the event is normally distributed because of the sig. > 0.05, Based on the results of this normality test, different test decisions using the Paired Sample Wilcoxon Signed Rank Test before and after the event.

Table 4. Shapiro Wilk Normality Test Singapore Country

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AARsblmSpore	.333	11	.001	.670	11	.000
AARssdhSpore	.199	11	.200*	.918	11	.299

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

a. Lilliefors Significance Correction

Based on the results of the normality test in Singapore, it can be seen that the data before the event is not normally distributed because the sig. < 0.05, while the data after the event is normally distributed because of the sig. > 0.05, Based on the results of this normality test, different test decisions using the Paired Sample Wilcoxon Signed Rank Test before and after the event.

Hypothesis testing

Hypothesis testing was carried out to accept or reject the hypothesis and to find out whether the announcement of the Russian Invasion of Ukraine on February 24 2022 had an influence on the Abnormal Return of Energy sector company shares in ASEAN in 2022. If the significance value or $\alpha < 0.05$, the hypothesis is supported (there are differences before and after the event), whereas if the significance value or $\alpha > 0.05$ then the hypothesis is not supported (there is no difference before and after the event).

Table 5. Indonesian Country Difference Test

Test Statistics[a]

	AARssdhIndo - AARsblmIndo
Z	-1.008[b]
Asymp. Sig. (2-tailed)	.313

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Based on the Difference Test in Indonesia, the value of sig. > 0.05, the resulting hypothesis is that there is no difference in Abnormal Return before and after the Russian invasion of Ukraine in energy sector companies in Indonesia.

Table 6. Malaysia's Different Country Test

Test Statistics[a]

	AARssdhMalay - AARsblmMalay
Z	-2.386[b]
Asymp. Sig. (2-tailed)	.017

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Based on the Difference Test in Malaysia, the value of sig. <0.05, the resulting hypothesis is that there are differences in Abnormal Return before and after the Russian invasion of Ukraine in energy sector companies in Malaysia.

Table 7. Singapore Country Difference Test

Test Statistics[a]

	AARssdhSpore - AARsblmSpore
Z	-2.136[b]
Asymp. Sig. (2-tailed)	.033

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Based on the Difference Test in Indonesia, the value of sig. <0.05, the resulting hypothesis is that there are differences in Abnormal Return before and after the Russian invasion of Ukraine in energy sector companies in Singapore.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the Average Abnormal Return (AAR) different test for energy industry companies listed on the Indonesia Stock Exchange, Malaysia Stock Exchange and Singapore Stock Exchange before and after the Russian invasion of Ukraine, it was found that there was no significant difference in Abnormal Return values between countries. Indonesia obtained by investors during a period of 11 days, 5 days before the event, 1 day during the event and 5 days after the event. Meanwhile, in Malaysia and Singapore there are significant differences.

The Indonesian capital market (especially companies in the energy industry) did not react to the information about the Russian invasion of Ukraine. Meanwhile, the capital markets in Malaysia and Singapore reacted to the information about the Russian invasion of Ukraine.

Suggestion For further research related to the capital market it is expected to develop other factors that can influence the movement of company shares such as Trading Volume Activity and Security Return Variability, with this research it can be used as a reference for investors in investing in energy industry companies, so that better and more informed investment decisions.

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