



(RESEARCH ARTICLE)



Reaction of the Indonesian capital market to the conflict between Russia and Ukraine: Event study approach to abnormal returns and trading volume activity of coal issuers' shares on the IDX

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World Journal of Advanced Research and Reviews, 2023, 18(01), 197–205

Publication history: Received on 25 February 2023; revised on 03 April 2023; accepted on 06 April 2023

Article DOI: <https://doi.org/10.30574/wjarr.2023.18.1.0576>

Abstract

The peak of tensions between Russia and Ukraine occurred on 24 February 2022, the day the first attacks were carried out. This event caused turmoil on global financial markets, especially the G20 countries including Indonesia. Commodity sectors such as coal on the IDX gained sentiment from the outbreak of this event. This research uses an event study approach and will focus on the reaction of the Indonesian capital market in the coal sub-sector when the military conflict between Russia and Ukraine broke out. Market reaction in this study will be measured by abnormal returns and trading volume activity. This study used 29 samples from coal issuers. Data obtained from the IDX.CO.ID website. This study found that abnormal returns and trading volume activity in the coal sub-sector experienced significant differences between before and after the conflict occurred.

Keywords: Event Study; Abnormal Return; Trading Volume Activity; Capital Market; Coal Sector

1. Introduction

February 24, 2022 is the day the conflict broke out between Russia and Ukraine, on that day Russia carried out the first attack. Basically, the Russian authorities have never mentioned that this is a war. But Russian President Vladimir Putin said this was a "special military operation" in the territory of the Ukrainian state. Many sectors were badly affected by this event, especially the economic sector and its derivatives in countries that were experiencing military conflict. Export and import relations from conflict and non-conflict countries will be influential (Harrison, 2000).

The countries that are members of the European Union (EU) and their allies condemn Russia's actions against Ukraine. The EU and its allies are trying hard to paralyze the Russian economy. The sanctions imposed by the European Union and its allies have resulted in the collapse of the value of the Ruble. Foreign companies in Russia are divesting their assets out from Russia. The most significant sanctions for Russia are international sanctions in the form of international trade (OECD, 2022).

The ban on international trade from Russia has an impact on the supply of energy commodities in Europe. Russia's supply of energy commodities is widely used around the world for power plants of electricity. Because of this, the former partner countries of Russia are looking for new alternative suppliers to fulfil the needs of coal commodities in their countries. One of the alternative countries for countries embargoed by Russia is Indonesia. Based on data published by katadata (2022), European Union countries have purchased fossil fuels from South Africa and Colombia but their supply cannot fulfil the demand.

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This ongoing military conflict raise a lot of concern. One of those concerns is the impact on the economy, especially the reaction on global capital markets, both in conflict and non-conflict countries. The world capital market reacted from various existing multi-sectors. This major event added to the new uncertainty for investors after 2020, when the COVID-19 outbreak occurred (Whelsy, 2022).

Academic literacy, there is a term called the "black swan" event. Black swan is an event that cannot be predicted or predicted by anyone. Black swans have a very significant impact if it occurs (Taleb, 2007). Black swan events include financial crises, health crises, pandemics, natural disasters, terrorist attacks, and the most significant impact on equity globally is war. War increases investor uncertainty about the future profitability of a company and leads to movements in the share price of an issuer (Yousuf, 2022).

Research by Yousuf (2022) stated that world stock markets were significantly negatively affected by the Russia-Ukraine conflict on Thursday 24 February 2022 and thereafter. The analysis that has been done shows that the stock exchanges of Russia, Hungary, Slovakia, and Poland were the first to react negatively to the conflict in Ukraine. Meanwhile, the stock markets of South Africa, Australia, Germany, France, Italy, India, Romania, Japan, Spain and Turkey were badly hit after the first day of attacks. The research that has been conducted has resulted in the Asian and European regions being significantly negatively affected by this event.

The ban on Russian energy commodities caused the prices of world energy commodity increase. it has an impact on the profitability of companies in the energy sector by analyzing stock returns. Energy companies have a business model that is like selling and extracting commodities. The energy sector is divided into several business lines, namely new and renewable energy, fossil fuels, and uranium. In the current period, counting from 24 February 2022, the energy sector significantly outperformed other sectors in the North American stock market (Whelsy, 2022). There was a greater link between the stock market and oil during the armed conflict that took place in Russia-Ukraine than before (Adekoya, 2022).

The cessation of oil and gas imports from Russia has forced embargoed countries to look for new suppliers to fill their demand for energy commodities. Apart from being the largest gas supplier to the European Union, Russia is the largest coal exporter in Europe, which is 32% (Lo, 2022). The official website of the European Union (europa.eu, 2022) states that the EU is looking at third countries as potential suppliers for its countries. This causes the demand for coal commodities to increase, thus causing the reference price to increase as well. Indonesian coal producing companies have good opportunities for their industry. The strengthening of coal commodity prices gave a positive reaction to the Indonesian capital market because many coal issuers with large market capitalizations were listed on the Indonesia Stock Exchange (IDX).

According to data from the Indonesia Stock Exchange, there are 34 coal companies listed on the stock exchange. One of them just made its first public offering on September 7 2022. The three coal companies that have the largest market capitalization on the stock exchange are PT Bayan Resources Tbk (BYAN), PT Adaro Energi Indonesia Tbk (ADRO), and PT Bukit Asam Tbk (PTBA). The movement of stocks with a large market capitalization certainly has a big contribution to the movement of the stock market or the composite stock price index.

The following graph illustrates the movement of the stock prices of BYAN, ADRO and PTBA during the military conflicts in Russia and Ukraine:



Figure 1 BYAN Price Movement

PT Bayan Resources Tbk price made a fairly rapid increase after the military conflict. BYAN increased from IDR 37,000 per share to IDR 42,950 per share or 16.44% from the first day the Russian and Ukrainian military conflicts broke out five days later.

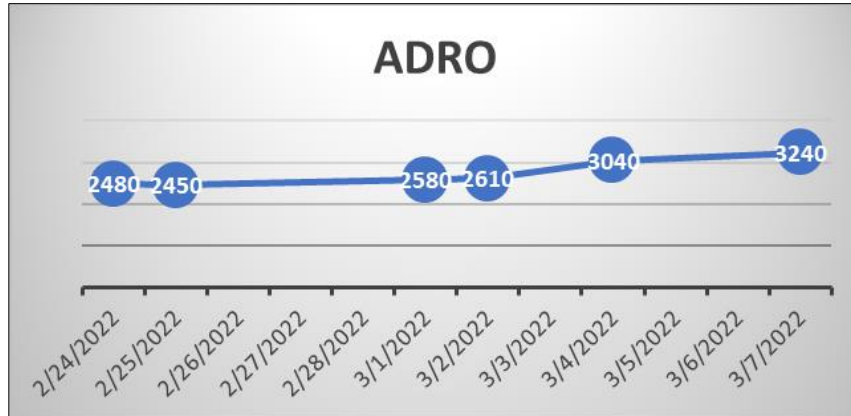


Figure 2 ADRO Price Movement

PT Adaro Energi Indonesia Tbk price made a significant increase. ADRO’s shares price increase of 38.04% from the first day of the attack to the following five days. The increase in the span of six trading days is very large for stocks that have a large market capitalization.

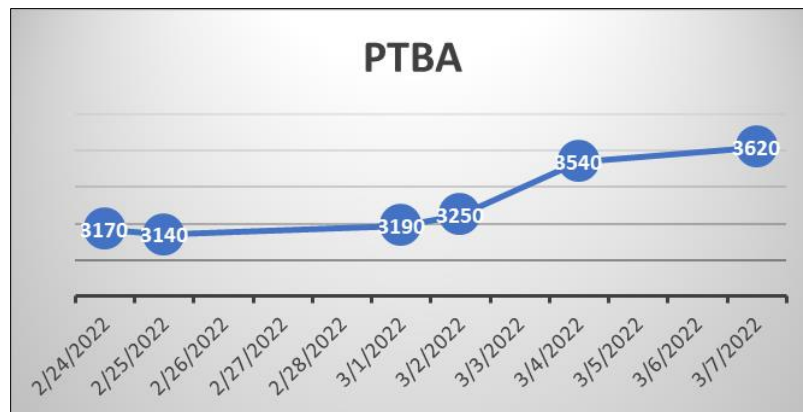


Figure 3 PTBA Price Movement

PT Bukit Asam Tbk price made a fairly rapid increase as well. PTBA’s shares price increase of 19.78% from the first day of the attack to five days after.

One of the instruments to see the reaction of the capital market can be demonstrated by abnormal returns. Abnormal return is defined as the difference between the actual return from the guarantee and the expected return (Jogiyanto, 2010). Abnormal return usually occurs when there is an event. This event can be in the form of corporate action from an issuer, rights issue, dividend shared, merger, and others. In addition to corporate actions, abnormal returns can also occur due to the release of financial reports, increases in central bank interest rates, black swan events, and others.

The reaction of the Indonesian capital market to the occurrence of military conflicts in Russia and Ukraine is reflected in stock price fluctuations with different volatility than before, especially for coal issuers. An increase in trading frequency can increase the liquidity of a stock. This liquidity can be measured from the trading volume activity of an issuer. Trading volume activity is a measure of the volume of a stock that is being traded. When a stock has high bid and offer liquidity, it indicates that investors can easily invest and transact to these shares (Jogiyanto, 2010).

Stock price movements on stock market reflect all available information and will have direct price implications with no bias towards new information (Wickramasinghe, 2016). This has something to do with the theory of the efficient market hypothesis. The concept of the efficient market hypothesis theory is the relationship between the price of an issuer and

the available information so that it can reflect the level of price balance. On an exchange that has information efficiency, all information relating to management, earnings, a company's products, profits, and information considered important by investors will affect the movement of an issuer's stock price (Jyothi, 2021).

The coal sub-sector is more interesting in this research because the coal sub-sector is a mainstay sector for Indonesia. This coal sub-sector contributes greatly to the economy or state revenues. According to data from BP statistical review (2021), Indonesia is the 3rd largest coal exporter after China and India. As for the oil and gas sector, from 1997-2021 Indonesia imported more of it than it exported (BPS, 2022). The military conflict between Russia and Ukraine resulted in a surge in demand for Indonesian coal, coupled with an increase in world coal reference prices, giving a lot of sentiment to coal issuers on the Indonesia Stock Exchange.

An interesting research formulation in this study is as follows:

- Is the abnormal return of coal issuers different between before and after the military conflict between Russia and Ukraine?
- Is the trading volume activity of coal issuers different between before and after the military conflict between Russia and Ukraine?

2. Material and methods

The method that will be used in this research is quantitative research method. This research uses event study in the event window. The event study is used to find out the reaction of Indonesian capital market in coal sub-sectors caused by the outbreak of the Russian and Ukrainian military conflicts. The analytical method used is descriptive and inferential methods.

This type of research is quantitative with a descriptive approach and event study. Descriptive research is research that aims to describe or describe certain things, for example conditions, circumstances, situations, activities, and events (Arikunto, 2013). Hypothesis analysis in this study uses an event study. Event study is a technique for conducting empirical financial research that allows an observer to see the impact of an event on the price of a company's stock (Alex, 2007).

This research will focus on the reaction of the Indonesian capital market in the coal sub-sector when the military conflict broke out between Russia and Ukraine. Market reaction in this study will be measured from two indicators, there are abnormal returns and trading volume activity. The type of data that will be used in this study is secondary data. The data used is daily stock data from each coal issuer. The data in this study were obtained from the idx.co.id website. The data collection method in this study uses documentation techniques.

Data analysis technique is a process of simplifying data into a form that is easier to understand. The steps used by researchers in this study, there are calculating abnormal returns and calculating trading volume activity. The use of statistical analysis techniques in this study is the normality test and hypothesis testing. Testing this hypothesis can be used to prove whether all research variables have significantly different averages before and after the Russian and Ukrainian military conflicts or not. This study uses the SPSS tool to calculate the paired sample t-test if the data distribution is normal and uses Wilcoxon signed rank test if the data distribution is not normally distributed.

The population of this study are all coal companies listed on the IDX. The following are sample from this research:

Event study research has an observation period and an estimation period (Sayed & Eledum, 2021). The estimation period used in this study is 120 days, because 120 days is sufficient in formulating a benchmark for normal returns. The estimation period consists of 120 trading days before the observation period (t-125) (MacKinlay, 1997). The observation period in this study is 11 days, there are five (t-5) trading days before 24 February 2022, 24 February (t0), and five (t+5) trading days after 24 February 2022.

Table 1 Sample

NO	Company Name	Code
1	PT Bayan Resources	BYAN
2	PT Adaro Energi	ADRO
3	PT Bukit Asam	PTBA
4	PT Akbar Indo Makmur Stimec	AIMS
5	PT Atlas Resources	ARII
6	PT Borneo Olah Sarana Sukses	BOSS
7	PT Baramulti Suksessarana	BSSR
8	PT Bumi Resources	BUMI
9	PT Golden Energy Mines	GEMS
10	PT Harum Energy	HRUM
11	PT Indika Energy	INDY
12	PT Indo Tambangraya Megah	ITMG
13	PT Resource Alam Indonesia	KKGI
14	PT Mitrabara AdiPerdana	MBAP
15	PT Golden Eagle Energy	SMMT
16	PT TBS Energi Utama	TOBA
17	PT Pelayaran Nasional Bina	BBRM
18	PT Batulicin Nusantara Maritim	BESS
19	PT Capitol Nusantara Indonesia	CANI
20	PT Dwi Guna Laksana	DWGL
21	PT Alfa Energi Investama	FIRE
22	PT Mitrahaftera Segara Sejati	MBSS
23	PT Pelita Samudera Shipping	PSSI
24	PT Indo Straits	PTIS
25	PT Rig Tenders Indonesia	RIGS
26	PT Sumber Global Energy	SGER
27	PT Transcoal Pacific	TCPI
28	PT Dana Brata Luhur	TEBE
29	PT Trans Power Marine	TPMA

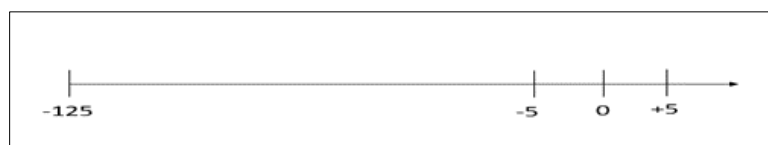


Figure 4 Timeline Event Study

3. Results and discussion

Abnormal return often used to see the performance of an issuer and can also see the efficiency of a stock market. A major event can affect activity on an exchange, which can be seen from trading volume activity. The following is the average calculation of the abnormal return and trading volume activity of coal issuers on the Indonesia Stock Exchange during the Russian and Ukrainian military conflicts

Table 2 Average Abnormal Return dan Average TVA

Kode	AAR before	AAR after	ATVA before	ATVA after
ADRO	0.00092	0.05095	0.003396	0.00998
AIMS	-0.0068	-0.0294	0.00566	0.00993
ARII	-0.0006	-0.0022	3.67E-05	4.47E-05
BBRM	-0.042	-0.0413	0.00071	0.00101
BESS	-0.0029	-0.0401	8.11E-05	7.94E-05
BOSS	-0.0021	-0.0276	0.02339	0.177391
BSSR	-0.0076	0.00803	0.00027	0.00145
BUMI	-0.0674	0.00354	0.00096	0.01509
BYAN	-0.0027	0.02202	1.5E-05	2.1E-05
CANI	-0.0019	-0.0577	0.000538	0.006088
DWGL	0.00166	0.004894	2.07E-06	4.19E-06
FIRE	-0.0094	0.00961	0.000751	0.006935
GEMS	-0.0109	-0.0653	2.1E-06	4.12E-05
HRUM	0.00858	0.01389	0.00529	0.005474
INDY	-0.0114	0.051876	0.006095	0.02851
ITMG	-0.0008	0.017601	0.002269	0.008566
KKGI	-0.0051	0.05691	0.000420	0.001029
MBAP	0.00524	0.014733	0.000115	0.000308
MBSS	-0.0208	0.03849	0.000804	0.002333
PSSI	-0.0111	0.019565	0.000927	0.001293
PTBA	0.00326	0.023803	0.003037	0.006861
PTIS	-0.0077	-0.02051	1.9E-06	4.65E-06
RIGS	-0.0025	0.005244	0.000341	0.000579
SGER	-0.0107	0.096139	0.001133	0.007187
SMMT	0.03886	0.065476	0.041083	0.050638
TEBE	-0.0047	0.013682	0.000148	0.000439
TOBA	-0.0237	-0.00538	0.00214	0.006135
TCPI	-0.0191	-0.01571	0.001264	0.001006
TPMA	0.00462	0.019396	0.000477	0.000955

To find out the distribution of the research data, a normality test was carried out. This study uses the normality test with the Kolmogorov Smirnov test because the sample is <20. The decision making for data that is normally distributed

is if the probability value > significance value (0.05) and vice versa if the probability value < significance value (0.05) then the data is not normally distributed. The normality test of this study uses the SPSS 22 tool.

Table 3 Normalitas Test

Data	Significance	Conclusion
AAR before	0.0004	Not Normal
AAR after	0.2	Normal
ATVA before	0.0002	Not Normal
ATVA after	0.0002	Not Normal

The distribution of data from abnormal returns of coal issuers in this study can be seen from Table 3 of the Normality Test above. With a significance level of 0.05, the distribution of the data is not entirely normally distributed. The distribution of data from TVA before and after the military conflict occurred was not normally distributed.

In research conducted by Whelsy (2022), his research examines abnormal returns from the energy sector. The results of testing the abnormal return variable in the energy sector have a positive impact caused by military conflict. Judging from the description of Whelsy's research (2022), this study proposes a temporary hypothesis is:

H1: abnormal return coal stocks differed significantly between before and after the Russian and Ukrainian military conflicts

Research entitled Corporate Decisions in Times of War: Evidence from The Russia-Ukraine Conflict (Tosun, 2022) examines the influence of the Russian and Ukrainian military conflicts on trading volume activity. This study states that this event resulted in an increase in trading volume in the financial market. Referring to Tosun's research (2022), this study proposes a temporary hypothesis is:

H2: trading volume activity of coal stocks differed significantly between before and after the Russian and Ukrainian military conflicts

Hypothesis testing in this study will use a paired sample t test if the data is normally distributed and the Wilcoxon signed rank test if the data is not normally distributed. This method can test the effectiveness value of an event by using the average value between before the Russian and Ukrainian military conflicts broke out and after. The basis for making a conclusion from this hypothesis is that if the significant value is > 0.05 then Ho is accepted or Ha is rejected (the difference is not significant). Conversely, if the significant value <0.05 then Ho is rejected or Ha is accepted (significant difference).

Testing the first hypothesis using the Wilcoxon signed rank test because the data is not normally distributed. The result of the calculation is as follows:

Table 4 Wilcoxon Signed Rank Test Hypothesis 1

	AAR before - AAR after
Z	-2.281 ^b
Asymp. Sig. (2-tailed)	0.023

b: based on negative ranks

Table 4 shows the results of the significance value of the AAR before and AAR after the conflict is below the value of 0.05, which is 0.023. The first hypothesis test resulted in the hypothesis that the abnormal returns on coal stocks were significantly different between before and after the Russian and Ukrainian military conflicts.

The second hypothesis is that the trading volume activity of coal stocks differed significantly between before and after the military conflict between Russia and Ukraine. Testing the second hypothesis has the following significance values:

Table 5 Wilcoxon Signed Rank *Test* Hypothesis 2

	AAR before - AAR after
Z	-4.465 ^b
Asymp. Sig. (2-tailed)	0.00008

b: based on negative ranks

The significance value of ATVA after and ATVA before the Russian and Ukrainian military conflicts in table 5 above is far below 0.05, which is only 0.00008. So, the results of the second hypothesis test is trading volume activity of coal stocks, were significantly different between before and after the Russian and Ukrainian military conflicts.

This study has many limitations, including the sample used in this study is only coal issuers on the Indonesia Stock Exchange. Future research can widen the sample coverage not only for coal issuers. Market reaction in this study was only measured by two variables, there are abnormal return and TVA. Market reaction in further research can add other variables that can measure the market reaction itself. This study only analyzes stock price movements during the Russian and Ukrainian military conflicts. Future research can examine the impact on the financial aspects of the company itself when this event occurs. The limitations in this study are expected to be used as material for consideration for further research.

Relations between Russia and Ukraine after the collapse of the Soviet Union often heated up for various reasons. The results of this study explain that capital market players in Indonesia, whether individual investors or institutional investors, can consider investing in the coal sub-sector during the ongoing conflict between Russia and Ukraine.

4. Conclusion

At the outbreak of the military conflict between Russia and Ukraine, it affected various sectors including the financial market sector. The Indonesian capital market is one of the markets affected by this event. This conflict resulted in fluctuations in the movement of energy sector commodity reference prices. Indonesia as a country producing energy commodities is certainly a good sentiment for the energy sector in Indonesia. Research on the impact of the Russian and Ukrainian conflicts on abnormal returns and trading volume activity findings that are in line with the hypothetical market efficiency theory where stock prices follow sentiment from information that is spread in society.

Indonesia has a sector that benefits from this event, that is the energy sector. The discussion of this study also explains that the coal sub-sector provides abnormal returns or rates of return that are more than expected. When the trading level increases, it is directly changing the transaction volume. Trading volume activity in the coal sub-sector in this study increased significantly after the military conflict occurred. The large number of shares traded is an advantage for capital market players to buy and sell a stock (exit strategy). For short-term investors or traders, the large number of transactions is an advantage. Traders make this an advantage where traders can buy and sell of coal issuers in just hours, days, or less than an hour. This study can be used as a consideration in adjusting the portfolio during the military conflict between Russia and Ukraine

Compliance with ethical standards

Acknowledgments

The authors would like to appreciate and acknowledge all parties who have helped so that this research can be completed properly and on time.

Disclosure of conflict of interest

All authors contributed well during this research and there was no conflict of interest from all authors in completing this research.

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