Jurnal Mantik, 6 (2) (2022) 2236-2241

Published by:Institute of Computer Science (IOCS)

Jurnal Mantik

Journal homepage: www.iocscience.org/ejournal/index.php/mantik/index

Market Reaction To The Russian Vs Ukrainian War

Gilang Kharisma Putra[1], Arum Pujiastuti[2], Feri Tristiawan[3]

Faculty of Economics and Business, Selamat Sri University, Kendal, 51351, Indonesia

E-mail: gilangkharisma0316@gmail.com

ARTICLE INFO

Article history:
Received: May 30, 2022
Revised : Jun 16 , 2022
Accepted: Aug 15, 2022

Keywords:

War,Rusia–Ukraina, Abnormalreturn

ABSTRACT

The purpose of this study is to investigate the impact of the Russian invasion of Ukraine on the Indonesian capital market. The sample employs Index 30 because it represents a group of companies with strong fundamentals and high liquidity. Using the event study research method, t = 0 is determined using the date of Russia's initial invasion of Ukraine, which occurred on February 24, 2022. In addition, this study uses secondary data from Yahoo Finance. Market model approach with an ordinary least square method is used to find abnormal returns in this research. Utilizing statistical testing using SPSS, the results revealed a significant negative reaction at t-3, or three days prior to Russia's invasion of Ukraine. In contrast, there was no significant difference between abnormal returns before and after the occurrence.

1. Introduction

Markets with an efficient structure should frequently react to occurrences of anomalies. So that investors and market participants can benefit from the anomaly phenomenon by achieving above-average returns (Octavianus, 2021). On the other hand, there are investors who incur losses as a result of this type of market who also have access to a wealth of information that allows them to anticipate the movement of security prices on the capital market. This is due to their lack of knowledge when purchasing and selling shares on the stock exchange. Market anomalies are more commonly found in the market in the form of semi-strong efficiency; there are four anomalies that occur in the capital market, i.e: company anomaly, event deviation, seasonal deviation, accounting irregularity (Gumanti & Utami, 2002). Currently, the nature of events caused by Russia's invasion of Ukraine on February 24, 2022 is causing an anomaly in the market. As a result of the involvement of a number of countries in this invasion, many analysts believe it will mark the beginning of the third war on the global stage. On the international stock market, the war was far more detrimental than beneficial (Schneider & Troeger, 2006). According to Frey & Kucher (2001) the second world war between Germany and Austria had a greater negative impact than a positive impact, despite the Austrian market showing a positive reaction. During the Franco-Prussian War, the behavior of stock prices was influenced by how each war was financed; the Franco-Prussian War also caused interest rates to rise sharply and for an extended period of time; and market conditions collapsed during this period (Le Bris, 2012). As a result of the Balkan war, which took place between 1910 and 1914 and involved the Ottoman Empire, the Istanbul stock exchange experienced a decrease in abnormal returns, although in a short amount of time (Hanedar & Yaldız Hanedar, 2017). The effects of the United States' participation in foreign wars on the Dow Jones Industrial Index from 1960 to 2015 indicate an increase in abnormal returns on the Dow Jones Index (Simeunovic, 2016). To determine whether information has an impact on the market, an event study methodology approach is utilized. This method is used to measure the impact of a particular event on the price of securities using financial market data (MacKinlay, 1997).

The market is considered to be efficient if the prices of securities accurately reflect the available information, which consists of three categories: information on previous stock price data, public information , and private data derived from the market itself (Fama, 1970). Beaver et al. (1989) states that the market is in an efficient form of information if the prices of securities move as if all market participants are observing the information. The three types of market efficiency are as follows: If the security price simply represents prior

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

historical data and investors cannot earn anomalous returns based on the available knowledge, then the market is considered to be inefficient. Second, according to the semi-strong form of market efficiency, investors cannot get abnormal returns based on publicly available information if the prices of securities reflect historical data and relevant public information. Last, strong form market efficiency; under these market conditions, investors will not be able to gain abnormal returns from prior historical data, public information, and private information; consequently, the security price reflects all relevant information that is publicly and privately available (Fama, 1970).

The specific objective of this research is to contribute in at least two ways to the aforementioned issues. First, comprehend the financial repercussions of the ongoing conflict, so that investors and other interested parties can plan their finances effectively. Second, it is hoped that by examining the Indonesian capital market, in this case the Index 30, on the Russian invasion of Ukraine, it will be possible to expand upon prior research on the effects of war on the capital market.

2. Research Method

2.1 Sample Selection Method

This study examines the Indonesian capital market using a sample of companies that are members of the 30 Index on the Indonesia Stock Exchange (IDX) from February 2022 to July 2022. The 30 index is comprised of 30 companies selected on the basis of their high liquidity, large market capitalization, and solid fundamentals.

TABLE 1
INDEX 30 MEMBER

No	Company Name	Code	No	Company Name	Code
1	Adaro Energy Indonesia	ADRO	16	Indofood CBP Sukses Makmur	ICBP
2	Aneka Tambang	ANTM	17	Kalbe Farma	KLBF
3	Astra International	AASI	18	Merdeka Copper Gold	MDKA
4	Bank Central Asia	BBCA	19	Mitra Keluarga Karyasehat	MIKA
5	Bank Mandiri	BMRI	20	Perusahaan Gas Negara	PGAS
6	Bank Negara Indonesia	BBNI	21	Sarana Menara Nusantara	TOWR
7	Bank Rakyat Indonesia	BBRI	22	Semen Indonesia	SMGR
8	Bank Tabungan Negara	BBTN	23	Telkom Indonesia	TLKM
9	Barito Pasific	BRPT	24	Timah	TINS
10	Bukalapak.com	BUKA	25	Tower Bersama Infrastructure	TBIG
11	Bukit Asam	PTBA	26	Unilever Indonesia	UNVR
12	Charoen Pokphand Indonesia	CPIN	27	United Tractors	UNTR
13	Elang Mahkota Teknologi	EMTK	28	Vale Indonesia	VALE
14	Indah Kiat Pulp and Paper	INKP	29	Waskita Karya	WSKT
15	Indofood Sukses Makmur	INDF	30	XL Axiata	EXCL

Source: IDX website (2022)

2.2 Data Retrieval Method

This study's data is based on secondary data in the form of company stock prices for 67 days, with 7 days as event data and 60 days as estimation data. The information was obtained from the Yahoo Finance website. Considering that the Russian invasion of Ukraine began on February 24, 2022, this date was selected as t=0 or the day the event occurred. Three days before and three days after the event are used to evaluate the impact of the area. In order to avoid the confounding effect of other events taking place at the same time both domestically and internationally, a three-day period was chosen instead. While the estimated time is 60 days, from November 26, 2021 to February 18, 2022.

2.3 Data Analysis Method

This study employs the event study method, which is used to investigate the market's reaction to an event. If the event contains information, security prices will change significantly (MacKinlay, 1997). This study is divided into two parts. The first hold examines each company's abnormal return using a market model approach. Abnormal Return (AR) can be calculated using the following formula:

$$AR = R_{it} - E(R_{it})$$

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

Notes:
AR : Abnormal Return
Rit : Actual Return of stock i at time t
E (R_{it}) : Expected Return of stock i at time t

This study employs the Ordinary Least Squares (OLS) regression approach with the following formula to calculate the expected return. (ER_{it}):

$$E_{Rit} = \alpha i + \beta i.R_{Mi} + \varepsilon_{it}$$

Notes:
E_{Rit} : Expected return of stock i at time t
αi : intercept of stock i
βi : Slope/beta coefficient of stock i
R_{Mi} : Market return at time t
εit : Residual error of periode t

The significance of the abnormal return value is investigated in the second stage. This test has three stages. The first is to test the normality of the data using the Shapiro-Wilk test with a 5% criterion. Second, the significance of the day surrounding the event is tested using the One sample t-test test with a significance criterion of 5% if the data is normally distributed. If the data is not normally distributed, the One sample Wilcoxon signed ranked test is used with a significance criterion of 5%. Third, the significance test prior to and after the event, using the abnormal return test prior to the event. If the data before and after the event were normally distributed with a 5% significance criterion, a Paired Samples T-Test was performed. If one of the data was not normally distributed with a 5% significance criterion, a Paired Samples Wilcoxon Signed Rank Test was performed.

3. Results and Discussion

3.1 Calculation of Abnormal Return

In this study, the Market model is used to calculate the value of Abnormal Return. Meanwhile, the Ordinary Least Square method is used to estimate the price (OLS). The following are the results of the abnormal return calculation.

TABLE 2
DAILY ABNORMAL RETURN

	t-3	t-2	t-1	t0	t+1	t+2	t+3
Average Abnormal Return (AAR)	-0.00201	0.002566	0.002818	0.013608	-0.00376	-0.00431	0.00278
Cumulative Average Abnormal Return (CAAR)	-0.00201	0.000554	0.003373	0.016981	0.013218	0.008906	0.011686

Table 2. presents that there is a negative average abnormal return on t-3, t+1 and t+2. In the meantime, only t-3, or three days before the event, has a negative value when viewed in terms of the cumulative average abnormal return value.

TABLE 3
ABNORMAL RETURN BEFORE AND AFTER EVENT

	Before	After
Abnormal Return	0.001124238	-0.001764999

Table 3 shows that abnormal return values differ before and after the event, with negative abnormal returns occurring following the Russian invasion of Ukraine.

3.2 Normality Test

The purpose of the normality test is to determine if the data are normally distributed. This evaluation employs the Shapiro-Wilk test. If the Shapiro-Wilk significance value is greater than 0.05, then the indicator is regarded as normally distributed. Here are the results of the normality test:

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

TABLE 4
NORMALITY *SHAPIRO-WILK* TEST RESULT

	Shapiro-Wilk		
	Statistic	df	Sig.
T-3	0.752	30	0.000
T-2	0.974	30	0.651
T-1	0.981	30	0.857
T0	0.864	30	0.001
T+1	0.979	30	0.793
T+2	0.917	30	0.023
T+3	0.961	30	0.337
Abnormal Return Before Event	0.946	30	0.130
Abnormal Return After Event	0.964	30	0.389

Table 4 indicates that the data at t-3, t0, and t+2 are not normally distributed; consequently, the One sample Wilcoxon signed ranked test will be utilized to determine the difference. Assuming that the data for t-2, t-1, t+1, and t+3 have a normal distribution, the following test will utilize the One sample t-test. The data for abnormal return data before and after the event are normally distributed, allowing the Paired sample t-test to be applied.

3.3 Significance Test for Abnormal Return

For non-normally distributed data, the One sample Wilcoxon signed ranked test was used to test for a significant difference in abnormal returns. In contrast, for normally distributed data, the One Sample t-test was utilized. Using the SPSS program, a paired sample t-test was conducted whether there is a difference on abnormal return before and the event. The following are the results of the examination:

TABLE 5
ONE SAMPLE T-TEST RESULT

Hypothesis	t	df	sig. (2-tailed)
T-2	0.908	29	0.371
T-1	1.208	29	0.237
T+1	-0.973	29	0.338
T+3	0.815	29	0.422

Table 5 shows the results of the different tests using the One sample t-test, which shows the value of sig (2-tailed) at t-2, t-1, t+1, and t+3. The test results indicate that no significant value was discovered in relation to the Russian invasion of Ukraine.

As a result of the fact that the data t-3, t0, and t+2 were not normally distributed, the following test was carried out using the One sample wilcoxon signed ranked test. The following are the outcomes of the One Sample Wilcoxon Signed Rank Test:

TABLE 6
WILCOXON SIGNED RANKED TEST RESULT

Hypothesis	Test	Sig
T-3	One sample wilcoxon signed ranked test	0.033
T0	One sample wilcoxon signed ranked test	0.206
T+2	One sample wilcoxon signed ranked test	0.120

Table 6 displays the results of the One sample Wilcoxon signed ranked test, with sig values at t-3, t0, and t+2. The results revealed that significant values were discovered around the event of Russia's invasion of Ukraine, specifically on t-3 or three days before the Russian invasion of Ukraine.In addition, the paired sample t-test is used to determine whether abnormal returns before and after the event differ.

TABLE 7
PAIRED SAMPLE T-TEST RESULT

	t	df	sig. (2-tailed)
Average Abnormal Return Before and After Event	1.305	29	0.202

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

Table 7 displays the results of the Paired sample t-test, which indicates a sig value of 0.202 or greater than 0.05. The results indicated that there were no significant differences in abnormal returns on the Indonesian capital market before and after the Russian invasion of Ukraine.

3.4 Discussion

This study examines the impact of the Russian invasion of Ukraine on abnormal returns on the Indonesian capital market, using an index of 30 as a representative sample. The Russian invasion of Ukraine incident had a significant impact on the Indonesian stock market because it involved a number of nations, including Britain, France, the United States, and others. At the same time, many foreign investors were active on the Indonesian stock market. Three days before the Russian invasion of Ukraine, a value was found to be statistically significant using statistical tests. Two days before the event, the day of the event, and up to three days after the event, no significant value was found, including testing of the average abnormal return before and after the event, which also yielded no significant results.

The results of the study indicate that there is a statistically significant abnormal return value around the event, precisely three days prior to the Russian invasion of Ukraine. This indicates that the market interprets the Russian invasion plan as a negative signal. This is possible because, prior to initiating its invasion, Russia sent a signal, such as military exercises along the Ukrainian border, that it would conduct an invasion. This study's findings are consistent with findings from Hewage & Fernando (2018) that pre-war events pose a greater risk than post-war events. According to Boungou & Yatié (2022), the global capital markets reacted negatively to the Russian invasion, particularly the capital markets of countries bordering Russia and Ukraine. In the four-week period preceding the onset of the Russian invasion of Ukraine, the capital markets of countries bordering Ukraine experienced negative abnormal returns (Federle et al., 2022). Depending on the classification of the industry on the Sri Lankan capital market, the war has a negative impact that varies in intensity (Jayakody, 2017). The European stock market typically reacts negatively to Russia's invasion of Ukraine (Ahmed et al., 2022). The relationship between the Second World War and the British Stock Market as a whole is extremely negative (Hudson & Urquhart, 2015). The impact of war news on the all-share price index ASPI Sri Lanka is negative (Peiris, 2012). The average company on the Morgan Stanley Capital International index demonstrates a substantial movement toward the emergence of conflict (Guidolin & La Ferrara, 2010). Empirical evidence demonstrates that the day prior to Russia's invasion of Ukraine, investors chose to wait and observe the development of the Russia-Ukraine conflict.

There was no significant value found for the test results before and after the event, indicating that the Russian invasion of Ukraine had no significant impact on the Indonesian capital market. In accordance with the findings of Kollias et al. (2013), who found that war and terrorism had no significant impact on the CAC40, DAX, and FTSE 100 indices. This analysis's results are significant in at least two ways. First, comprehend the financial repercussions of the ongoing conflict, so that investors and other interested parties can plan their finances effectively. Second, it is hoped that by examining the Indonesian capital market, in this case the index 30, on the Russian invasion of Ukraine, it will be possible to expand upon prior research on the effects of war on the capital market.

4. Conclusion

According to the previously described research findings regarding the effects of the Russian invasion of Ukraine, a significant value was found on the three days preceding the invasion, while no significant value was found on the other days surrounding the invasion. Comparing the index 30 on the Indonesian capital market before and after the event, no significant value was discovered before and after the event.

This study is expected to contribute significantly in at least two ways. First, comprehend the financial repercussions of the ongoing conflict, so that investors and other interested parties can plan their finances effectively. Second, it is hoped that by examining the Indonesian capital market, in this case the index 30, on the Russian invasion of Ukraine, it will be possible to expand upon prior research on the effects of war on the capital market.

References

[1] Ahmed, S., Hasan, M. M., & Kamal, M. R. (2022). Russia–Ukraine crisis: The effects on the European stock market. *European Financial Management, n/a*(n/a). doi:https://doi.org/10.1111/eufm.12386

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

[2] Beaver, W., Eger, C., Ryan, S., & Wolfson, M. (1989). Financial Reporting, Supplemental Disclosures, and Bank Share Prices. *Journal of Accounting Research, 27*(2), 157-178. doi:10.2307/2491230
[3] Boungou, W., & Yatié, A. (2022). The impact of the Ukraine–Russia war on world stock market returns. *Economics Letters, 215*, 110516.
[4] Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance, 25*(2), 383-417. doi:10.2307/2325486
[5] Federle, J., Meier, A., Müller, G. J., & Sehn, V. (2022). Proximity to War: The stock market response to the Russian invasion of Ukraine.
[6] Frey, B., & Kucher, M. (2001). Wars and markets: How bond values reflect the Second World War. *Economica, 68*(271), 317-333.
[7] Guidolin, M., & La Ferrara, E. (2010). The economic effects of violent conflict: Evidence from asset market reactions. *Journal of Peace Research, 47*(6), 671-684. doi:10.1177/0022343310381853
[8] Gumanti, T. A., & Utami, E. S. (2002). Bentuk Pasar Efisiensi dan Pengujiannya. *Jurnal akuntansi dan Keuangan, 4*(1), 54-68.
[9] Hanedar, A. Ö., & Yaldız Hanedar, E. (2017). Stock market reactions to wars and political risks: A cliometric perspective for a falling empire. *MPRA: Munich Personal Repec Archieve, 85600*, 1-19.
[10] Hewage, J., & Fernando, C. (2018). *Long-Run Performance and Impact of War on Risk-Return Characteristics of Initial Public Offerings in an Emerging Market: Evidence from Colombo Stock Exchange*.
[11] Hudson, R., & Urquhart, A. (2015). War and stock markets: The effect of World War Two on the British stock market. *International Review of Financial Analysis, 40*, 166-177. doi:https://doi.org/10.1016/j.irfa.2015.05.015
[12] Jayakody, S. G. (2017). The impact of the Sri Lankan civil war on the stock market performances. *International Journal of Economics and Financial Issues, 7*(1), 394-402.
[13] Kollias, C., Kyrtsou, C., & Papadamou, S. (2013). The effects of terrorism and war on the oil price–stock index relationship. *Energy Economics, 40*, 743-752. doi:https://doi.org/10.1016/j.eneco.2013.09.006
[14] Le Bris, D. (2012). Wars, inflation and stock market returns in France, 1870–1945. *Financial History Review, 19*(3), 337-361. doi:10.1017/S0968565012000170
[15] MacKinlay, A. C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature, 35*(1), 13-39. Retrieved from http://www.jstor.org/stable/2729691
[16] Octavianus, H. (2021). Telaah Literatur Efficient Market Hypothesis. *Econ - Science topic*(November). doi:10.13140/RG.2.2.17253.93925
[17] Peiris, T. (2012). *An Empirical Investigation of News Impact on Stock Market Volatility during War and Post-war Periods in Sri Lanka.* Paper presented at the International Conference on Business & Information.
[18] Schneider, G., & Troeger, V. E. (2006). War and the world economy: Stock market reactions to international conflicts. *Journal of conflict resolution, 50*(5), 623-645.
[19] Simeunovic, K. (2016). *An analysis of the effect of war on the United States Stock Market.* Lake Forest College,

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.