

*Original Research*

# Mining Stock Price Reactions Before and After the Russia - Ukraine Conflict Events

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## Abstract

This research aims to observe how the Indonesian capital market reacts, especially in the mining sector, to the export ban resulting from the Russian invasion of Ukraine, particularly on coal exports. This study uses the event study method by collecting closing stock price data 5 days before and 5 days after the Russian invasion of Ukraine which occurred on February 24, 2022. This research indicates that the Russian invasion of Ukraine had a significant impact on the market, as evidenced by the disparities in average abnormal returns before and after the events, as well as the fluctuations in stock prices and substantial abnormal returns when comparing the days surrounding the events. The theories employed in this study include the Efficient Market Hypothesis and Signal Theory. This study only uses mining company as a sample and abnormal returns and stock prices as variables. This research does not only look at the average difference before and after the Russian invasion of Ukraine. But also compare the difference in stock prices and abnormal returns between each day before and after the event. The results of the research conducted are in line with previous research conducted by Theiri et al., (2022).

**Keywords:** Abnormal return, Russian invasion of Ukraine, Stock Prices.

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## Introduction

This study meticulously dissects the multifaceted impact of the Russian invasion by closely examining abnormal market returns. On February 24, Russia launched its invasion of Ukraine, citing two main reasons: a plea for aid from the People's Republic of Donbas and the need to protect Donbas citizens, who had endured "harassment to genocide" orchestrated by the Ukrainian government over the past eight years (Isa, 2022). The global consequences of Russia's invasion reverberated deeply. Numerous nations condemned the action, imposing strict restrictions on access to gas, oil, and commodities. This, in turn, led to a sharp increase in energy, commodity, and food prices. Based on World Economic Outlook (2022), The International Monetary Fund projections signaled a decline in aggregate economic activity for both Russia and Ukraine, triggering a surge in commodity prices worldwide. These outcomes were extensive, heightening price pressures and compounding significant policy challenges. In 2022, International Energy Agency (IEA) data Russia's role as the world's third-largest producer of oil and natural gas accentuated the impact. Predictably, coal prices were poised to rise due to increased demand and limited stock availability, further complicating the global energy landscape (Abdul Malik, 2022).

The Russia-Ukraine conflict significantly shook Indonesia's economic landscape, particularly affecting its trade and energy sectors. Non-oil and gas exports faced a sharp decline, and disruptions in wheat imports raised concerns about food price hikes (Permana, 2022). Simultaneously, the global energy market witnessed a surge in prices, benefiting Indonesia as the world's leading thermal coal exporter (Nugroho, 2022). On February 24, as news of the conflict spread, Indonesia's financial markets reacted strongly. The Jakarta Composite Index (JCI) dropped by 2.04 percent, hitting IDR 6,776. According RTI Infokom data, foreign investors displayed confidence, making substantial net purchases, totaling Rp. 761.14 billion. The following day, JCI showed signs of recovery, strengthening by 0.58 percent to IDR 6,681 (CNN, 2022). Amid the conflict, PT Adaro Energy Tbk, a major mining company, secured coal supplies from European Union countries, bypassing the Russian coal ban. The more constrained the coal supply, the greater the surge in coal prices (Setiawan, 2022). On March 7, 2022, coal stocks surged: ADRO rose by 6.58 percent to IDR 3,240, HRUM by 9.13 percent to IDR 13,750, and PTBA by 2.26 percent to IDR 3,260. This upward trend also benefitted mutual funds. Manulife Andalan fund achieved a one-year return of 21.37 percent, Earth Spring Investments Value Discovery fund yielded 9.38 percent, and Sucorinvest Equity Fund recorded 10.79 percent returns within a year (Abdul Malik, 2022).

This study offers a comprehensive analysis, not only examining the variance in average abnormal returns before and after the Russian invasion of Ukraine but also scrutinizing stock prices and abnormal returns in the days surrounding this significant event. Employing the event study methodology, this research delves into the information content of the Russian invasion by assessing how the market reacted. The same method was also used by Theiri et al., (2022), have probed the repercussions of the Russia-Ukraine conflict on financial markets. This study focused on the response of Bitcoin and Ethereum liquidity. Their findings revealed a significant yet temporary surge in Bitcoin and Ethereum liquidity levels during the initial two days post-event, returning to pre-

event levels subsequently. Considering the presence of abnormal returns indicates that the Russian invasion of Ukraine contains information that significantly influences market dynamics. Conversely, the absence of abnormal returns suggests a lack of substantial information impact on the market.

## **Theoretical Foundations**

### *Efficient Market Theory*

The Efficient Market Hypothesis (EMH), as posited by Jensen & Jones, (2019), asserts that stock prices promptly adjust to assimilate all relevant information, thereby upholding fairness among investors. However, real-world scenarios often involve complexities that challenge this theory. Putri et al., (2022) explores information asymmetry, where specific individuals possess undisclosed information, disrupting market efficiency and occasionally leading to abnormal returns. This imbalance prompts investors to strategically adjust their portfolios, seeking to maximize profits by capitalizing on these unincorporated insights. Comprehending and navigating these theories not only enriches financial knowledge but also empowers investors with essential insights. Armed with this understanding, investors can confidently navigate the intricate landscape of the stock market, making informed decisions in the face of evolving information disparities. The implementation of this theory in Russian Invasion of Ukraine is when the information regarding the Russian invasion of Ukraine is rapidly integrated into changes in stock prices and other financial assets, it indicates the efficiency of the market. This implies that markets adeptly assimilate newly emerging information, and prices promptly and accurately reflect the swift assessments made by market participants regarding the impact of the invasion.

According to Fama theory (2020), there are three levels of market efficiency, namely:

#### a. Weak Form Efficient Market

Market efficiency is said to be weak because in making stock buying and selling decisions investors use past price and volume data combined with various technical analyses to determine the direction of stock movement whether to go up or down. The drawback is that the analysis ignores other variables that may affect the stock price in the future, so errors in estimating prices may occur (Handini & Astawinetu, 2020).

#### b. Semi-Strong Form Efficient Market

Market efficiency is said to be half strong because in making buying and selling decisions, investors use historical data and published information such as financial reports, annual reports, social and political events, international financial information, and others that can affect the national economy. This means that investors use technical analysis and fundamental analysis in determining the position of the buying price and selling price of shares by Handini & Astawinetu, (2020).

### c. Strong Form Efficient Market

Strong market efficiency occurs because investors use more complete data such as historical data, published information, and private information that is not published in general. Examples of private information are the results of research produced by the company itself or purchased from other research institutions (Handini & Astawinetu, 2020).

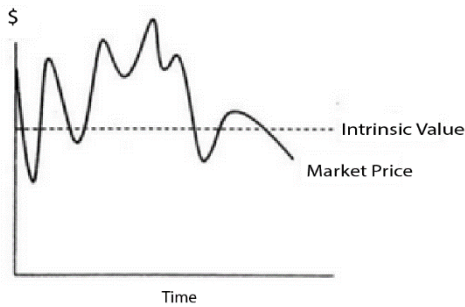


Figure 1. Weak Efficient Market

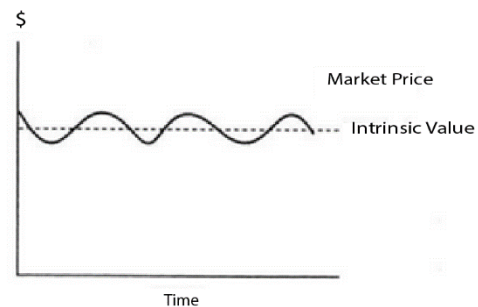


Figure 2. Strong Efficient Market

Sumber: Handini & Astawinetu, (2020)

In a strongly efficient market, where investors share similar information, the gap between market price and intrinsic value remains minimal. Bid and ask prices show slight differences, reflecting the market's rationality. Conversely, in a weakly efficient market influenced by emotional decision-making and limited information, the disparity between price and intrinsic value widens significantly. Investors tend to speculate without considering vital indicators, emphasizing the need for informed decision-making (Handini & Astawinetu, 2020).

### *Signal Theory*

In the realm of investment decision-making, information published as announcements plays a pivotal role. Investors evaluate this information to gauge a company's prospects. If the data suggests positive outcomes and garners a favorable response from investors, a swift and accurate market reaction indicates market efficiency by Hartono, (2022). Signaling theory is instrumental in comprehending management decisions, where conveyed information can influence investors' choices based on the company's circumstances. During events like the Russian and Ukrainian invasions, information owners relay company-related updates to recipients. These recipients analyze the actions taken to mitigate the impact of the invasion. Their responses manifest as signals, either bad news or good news. A positive reception, deemed as good news, can lead to a company's increased value, reflected in stock price fluctuations. Stock returns rise in tandem with the ascending stock prices (Welley et al., 2020). This dynamic interplay underscores the significance of signaling theory in understanding market reactions during crucial events.

### *Abnormal Return*

Abnormal returns signify the variance between the actual return and the anticipated return, with investors making predictions about market performance (Hartono, 2022). Abnormal returns can be positive or negative. Positive abnormal returns occur when the actual return significantly exceeds the expected return, indicating favorable market conditions. Conversely, negative abnormal returns arise when the expected return surpasses the actual return, reflecting less favorable market conditions (Safitri, 2021). In the context of the Russian invasion of Ukraine, the capital market is inevitably influenced, potentially leading to fluctuations in stock prices. Positive signals received can cause an upsurge in stock prices, while negative signals may lead to a decline. Analyzing abnormal returns before and after the invasion can illuminate market reactions, highlighting the impact of significant events on stock performance. Understanding abnormal returns is essential as it provides valuable insights into market responses, shedding light on investors' reactions to critical events and their subsequent effects on stock prices.

#### *Expected Return*

$$E(Rit) = \alpha + \beta * Rmt \text{ (IHSG return period } t\text{)}. \quad (1)$$

#### *Abnormal Return*

$$AR = Rit \text{ (Stock Return } I \text{ period } t\text{)} - E(Rit) \quad (2)$$

#### *Stock Prices*

The stock price in the stock market represents a consensus among investors, and the price of a stock can fluctuate multiple times within a single day, with a wide range between the lowest and highest market prices (Handini & Astawinetu, 2020). A higher stock price indicates a greater company value and can fluctuate based on supply and demand dynamics (Prasasti, 2022). Events like the Russian invasion of Ukraine can trigger immediate reactions among investors. Major events often lead to panic selling, causing a decline in stock prices due to increased selling pressure. Conversely, if events provide positive signals, investors respond favorably, leading to stock price increases. The analysis involves tracking changes in closing stock prices five days before and after the event to understand these fluctuations.

### **Research Methodology**

This study involved a quantitative analysis of financial data from mining companies listed on the stock exchange. The sample used in this research consists of 24 mining companies. The data collected consists of closing stock prices for five days before and after the Russian invasion of Ukraine, specifically five days before and five days after February 24. In addition, closing price data for 30 days before the event was gathered, which was then analyzed from five days before the event to determine Expected Stock price returns. The collection technique utilized documentation and data analysis through an event study. The variables used in this study include abnormal returns and stock prices.

## Results and Discussion

Table 1 displays the observed variations in stock prices before and after the Russian invasion of Ukraine, examining days prior to the event, the event day itself, and subsequent days. Noteworthy differences were found, particularly in the stock prices from (t-5, t+5) to (t-1, t+1), indicating substantial changes spanning five days before and after the event. This trend continued when analyzing closing prices one day before and after the event, emphasizing consistent shifts. A significant stock price shift occurred from (t-5, 0) to (t-1, 0), signifying substantial changes in the five days leading up to the event. Similar patterns were observed when comparing other days before the event with the day of the event. Moreover, significant changes persisted on days (0, t+4) and (0, t+5), indicating notable alterations in stock prices four to five days after the event. Preceding days did not witness significant price changes.

This analysis delves into the nuanced dynamics of abnormal returns concerning the Russian invasion of Ukraine, shedding light on the market's responsiveness during pivotal events. Examining abnormal returns before and after the event revealed significant disparities at specific time intervals. Notably, there were significant differences in returns five days before to five days after the event day (t-5, t+5), four days before to four days after the event day (t-4, t+4), and one day before to one day after the event day (t-1, t+1), all significant at a 99% confidence level. Similarly, (t-4, t+4) and (t-1, t+1) exhibited significance at certain levels, emphasizing the consistent pattern. Contrastingly, abnormal returns on (t-3, t+3) and (t-2, t+2) did not display significance, indicating that differences in abnormal returns on these days were not substantial. A notable distinction emerged between abnormal returns on the day before and the day of the event, especially at specific time intervals. Significant differences were observed in abnormal returns five and four days before the event compared to the event day. However, there was no significant difference between abnormal returns on the event day and days (t-3, 0), (t-2, 0), and (t-1, 0). Additionally, abnormal returns displayed significance at the 10 percent level on the day (0, t+1), signifying a difference one day after the event. This analysis underscores the nuanced nature of abnormal returns, emphasizing specific time intervals' significance in capturing market responses to critical events. Similar to the research conducted by Theiri et al., (2022), the resulting findings indicated that liquidity levels increased in the first two days around the event and then returned to pre-event levels thereafter. Another study conducted by Gavalas et al., (2022) uses abnormal returns to measure the unexpected impact of an event.

The analysis indicates a notable abnormal return on the day of the incident, with subsequent days displaying no significant abnormal returns. Referencing Table 1, it is apparent that significant price changes occurred in nearly every comparison, especially noticeable in the contrast between the event day and the subsequent day. Significance is only noted on days (0, t+4) and (0, t+5). The invasion of Ukraine by Russia substantially impacted stock prices, leading to significant fluctuations before, during, and after the event. Notable price changes were observed in the days preceding the event, as well as on the event day. Post-event, fluctuations persisted on the fourth and fifth days. However, abnormal returns were significant only in specific instances within each comparison.

Table 1. The Results of Comparative Variables Before, During, and After the Event

Event Window	Stock Price	Abnormal Return
(t-5, t+5)	0,006***	0,003***
(t-4, t+4)	0,006***	0,002***
(t-3, t+3)	0,011**	0,278
(t-2, t+2)	0,007***	0,544
(t-1, t+1)	0,086*	0,013**
<b>BEFORE AND EVENT DAYS</b>		
(t-5, 0)	0,012**	0,043**
(t-4, 0)	0,006***	0,046**
(t-3, 0)	0,006***	0,125
(t-2, 0)	0,003***	0,143
(t-1, 0)	0,033**	0,317
<b>AFTER AND EVENT DAYS</b>		
(0, t+1)	0,149	0,075*
(0, t+2)	0,277	0,455
(0, t+3)	0,196	0,391
(0, t+4)	0,014**	0,582
(0, t+5)	0,003***	0,954

\*\*\*Significance level:  $p < 0,01$  \*\*Significance level:  $p < 0,05$  \*significance level:  $p < 0,1$

Table 2. Result of the Change in The Average Abnormal Return from Day to Day

Days	AAR	Sig.
t-5	-0,01582	0,018**
t-4	-0,01567	0,067*
t-3	-0,00827	0,373
t-2	-0,00398	0,61
t-1	0,012205	0,493
T0	0,019412	0,308
t+1	-0,02107	0,049**
t+2	0,003727	0,749
t+3	0,011943	0,304
t+4	0,030522	0,039**
t+5	0,022816	0,29

\*\*\*Significance level:  $p < 0,01$  \*\*Significance level:  $p < 0,05$  \*significance level:  $p < 0,1$

Table 3. Shows The Difference in The Average Abnormal Return Before and After

Event Time	T value	Sig
AARsblm-AARssdh	-2,270	0,033**

\*\*\*Significance level:  $p < 0,01$  \*\*Significance level:  $p < 0,05$  \*significance level:  $p < 0,1$

In Table 2, the average change in abnormal returns is detailed for the days preceding and following the Russian invasion of Ukraine. Notably, mining sector companies registered negative abnormal returns on the day prior to the event, specifically on days  $t-5$  and  $t-4$ . On both the fifth day ( $t-5$ ) and the fourth day ( $t-4$ ), the actual return fell below the expected return, and this discrepancy held statistical significance. Following the invasion, sentiment notably improved, particularly on the day immediately after the event. This positive trend persisted through the fourth day post-incident, indicating that actual returns consistently outperformed the expected returns during this period. These findings underscore significant shifts in market dynamics in response to the Russian invasion of Ukraine.

In Table 3, the average abnormal return data five days before and after the event exhibits significance at the 5% level. This suggests that the information regarding Russia's invasion of Ukraine was not swiftly absorbed by the market, indicating a momentary inefficiency. Investors, in response, carefully monitor market movements to determine their subsequent actions. If abnormal returns and market price increases are interpreted as indicators of optimism, investors may view them as positive signals. This observation aligns with the findings of a prior study by Tambunan et al., (2023), where they reported an upsurge in stock prices and positive abnormal returns, reflecting investors' inclination to purchase energy stocks post-invasion. This reaffirms that the Russian invasion of Ukraine elicited a market reaction, evident in the disparities in abnormal returns and other variables before and after the event. As in research conducted by Gavalas et al., (2022), events that have an impact on the economy can influence abnormal returns.

## Conclusion and Recommendation

In this study, the day following the announcement of the invasion event witnessed a substantial negative abnormal return. This implies that investors reacted unfavorably by divesting their portfolio assets. Additionally, the fourth and fifth days preceding the event displayed notable negative abnormal returns. This situation indicates that the market did not promptly absorb all available information, allowing a select group of individuals to exploit the circumstances. This emphasizes the incomplete efficiency of the market. Subsequently, investors closely monitored these events to assess the viability of the details surrounding Russia's invasion of Ukraine. In signal theory, the expected response from signal recipients is an increase in the share value of mining sector companies, indicating a positive reaction to the news. Consequently, abnormal returns exhibited substantial differences in certain comparisons, signifying the impact of these events on investors' expectations. The positive abnormal return observed on the fourth day post-invasion suggests that investors began anticipating a favorable impact of the Russian invasion of Ukraine, especially on mining stocks. Relevant earlier research conducted by Gavalas et al., (2022), who examined the impact of the Covid-19 event on the shipping industry, indicated that positive abnormal returns occurred in the clean tanker market during the first WHO announcement.

Conducting further research is crucial to understanding mining stock price movements. Exploring additional factors such as government policies, commodity price fluctuations, and technological advancements will contribute to a more comprehensive understanding



of the sector's dynamics. Besides that, market participants and policymakers should consider geopolitical events as a critical factor in investment decision-making and incorporate them into risk assessment frameworks and investment strategies.


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