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THE IMPACT OF FUEL OIL INCREASE ON STOCK PRICES: AN EVENT STUDY APPROACH ON THE IDX80 INDONESIA STOCK EXCHANGE 2022

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Abstract: The objective of this study is to analyze the different responses of the market when fuel price hikes are announced in Indonesia. Utilizing an event study approach, abnormal returns, trading volume activity, and bid-ask spread differentials were measured during a 9-day period before and after the announcement. The research was conducted during the transition from the pandemic phase to the endemic phase of Covid-19. This study is significant in understanding the impact of fuel price announcement as a disruptive factor in the national economic recovery during the post-pandemic period. The sample consisted of IDX80 companies, and the Wilcoxon statistical test was employed for analysis. According to the results, there is no notable disparity in abnormal returns prior to and following the announcement of fuel price increases. However, the increase in fuel prices had a significant impact on trading volume activity before and after the event, as well as differences in bid-ask spread among IDX80 companies. These results suggest market uncertainty, influencing investor behavior and risk management strategies by companies to prevent losses. This research provides new insights into the relationship between economic events and the capital market, offering valuable information for market participants, investors, and policymakers in making informed investment decisions.

Keywords: *Event Study, Abnormal return, trading volume activity, bid-ask spread*

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1. Introduction

The global economic growth has been hindered by the Covid-19 pandemic, resulting in a deceleration. The pandemic has had an impact on the labor sector, global supply chains, consumer spending dynamics, stock markets, and other economic dimensions. The global economic slowdown has resulted in a decrease in the supply of investment cash flow in the capital market (Alamgir & Amin, 2021). The economic growth in developing nations, particularly in South Asia and South Africa, has been significantly affected by the Covid-19 pandemic (Sanusi & Kapingura, 2022). The economic slowdown is caused by these countries' dependence on developed and developing countries in the process of improving the real sector, such as infrastructure development, natural resource management, governance, creative industries, and other productivity-enhancing activities of the population. The Covid-

19 pandemic has also had a significant negative impact on the Indonesian stock market, affecting investor behavior and the fluctuation of the Composite Stock Price Index (IHSG) (Pitaloka et al., 2020). The Covid-19 pandemic has caused a decrease in market capitalization value in the early period of the pandemic (Indrayono, 2021).

The Covid-19 pandemic has triggered volatile market sentiment, which can be observed through daily stock returns and abnormal stock returns when the World Health Organization (WHO) declared the Covid-19 pandemic status (Novita & Suryani, 2022). One popular approach to examining the daily stock price movements in the capital market is by conducting investigative studies on abnormal stock returns. Abnormal stock returns refer to the difference between the individual stock returns and the expected stock returns based on market movements (Schell et al., 2020). Event study approaches to the capital market provide signals of trading volume activity and bid-ask spreads that have a significant impact on stock values (Adicandra & Desmiza, 2022; Fajarwati & Nurasik, 2021; Minzani et al., 2021).

Event study is an analysis that examines the behavior of the market in response to the occurrence of a specific event (Alves & Silva, 2021). This analysis involves testing various parameters such as price, market return, and stock return in relation to the event (Phuong, 2021). By employing a historical analysis approach, event studies aim to observe market reactions concerning changes in stock prices, trading activities, and the ability of securities to withstand market risks (Bhowmik & Wang, 2020). Furthermore, event studies can also be conducted by comparing pre- and post-event activities and evaluating their impact on stock prices (Nurwulandari et al., 2021).

Trading Volume Activity (TVA) serves as a measure of the number of shares traded within a given time period, reflecting the availability and liquidity of a security in the market (Naibaho et al., 2022). It provides insights into the strength or weakness of market conditions. An increase in TVA signifies heightened investor activity, encompassing both buying and selling activities. Furthermore, TVA indicates the level of a security's capacity to withstand market risks. A higher TVA implies a greater potential for the security to experience losses (Indrayono, 2021). Bid-Ask Spread refers to the disparity between the buying price offered by an investor and the selling price quoted by a security (Adicandra & Desmiza, 2022). Moreover, the bid-ask spread can provide insights into investor caution and the risk-taking behavior of securities dealers. It also reflects the fee charged by dealers to investors for their services. A larger bid-ask spread results in higher security costs for investors (Minzani et al., 2021).

Event studies on the Indonesian capital market in 2020-2021 have indicated negative sentiments characterized by a decline in abnormal stock returns in the financial, property, and construction sectors (Naibaho et al., 2022). Other studies have explained that the high abnormal returns were caused by the decrease in market capitalization value during the pandemic announcement (Indrayono, 2021). The abnormal stock returns in the property sector in 2022 indicate that government and WHO pandemic announcements have a negative impact on stock returns (Tambunan & Ugut, 2022).

Research experiences have shown that the Indonesian capital market is highly sensitive to events related to crises, fiscal policies related to price increases, and economic events related to public consumption. Other research (Pratama & Wijaya, 2020) explains that the Ramadan event affects abnormal returns. Event studies have found that investment status announcements have a significant impact on abnormal returns (Suryanto, 2015). Furthermore, research by Singh & Padmakumari (2020) indicates that government announcements in developing countries have a significant response in the capital market as they are highly

sensitive to developing countries. This suggests that economic events, especially those related to consumer price increases, have an influence on abnormal stock returns in the capital market.

By September 2022, the status of Covid-19 in Indonesia had transitioned from a pandemic to an endemic phase. This indicates that the Indonesian economy is recovering, and the stock market is in a phase of stabilizing market value. However, this condition is disrupted by other factors affecting the capital market, namely the increase in fuel prices. On September 3, 2022, the Indonesian government announced an increase in fuel prices by reducing subsidies. Another reason is the fluctuation of global oil prices. This phenomenon resulted in a decline in overall stock prices during the period surrounding the announcement of the price increase. This is evidenced by the decrease in the value of the Composite Stock Price Index (IHSG) during the announcement period.

Figure 1. Daily JCI Stock Price Chart

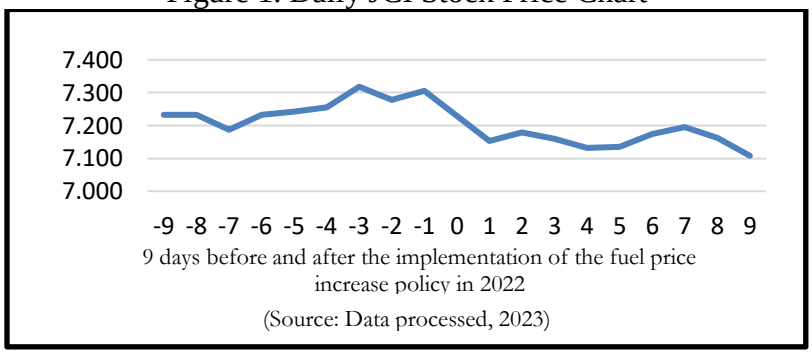


Figure 1 above shows the decline in JCI stock prices during the period after the announcement of the fuel price increase. The weakening of the composite stock prices is a market response to the fuel price increase. Additionally, real sector companies listed on the Indonesia Stock Exchange (IDX) have a dependency on fuel in terms of transportation facilities and industrial processes. The table demonstrates the presence of market sentiment regarding phenomena or policies occurring in the real sector. During the fuel price increase in 2014, the rise in fuel prices had a negative impact on the transportation sector, which subsequently led to a decrease in stock prices (Setyawan, 2014). Government policies elicit market responses that impact a decrease in market prices (Nerger et al., 2021).

This research conducts a comparative study on the market reaction of the IDX80 in the Indonesia Stock Exchange before and after the announcement of the fuel price increase. The study employs abnormal stock returns as a measurement variable (Indrayono, 2021; Naibaho et al., 2022; Novita & Suryani, 2022; Pitaloka et al., 2020; Pratama & Wijaya, 2020; Schell et al., 2020; Singh & Padmakumari, 2020; Suryanto, 2015; Tambunan & Ugut, 2022). Additionally, this research includes trading volume measurement instruments by using trading volume activity and bid-ask spreads to provide a comprehensive analysis of market activity (Adicandra & Desmiza, 2022; Fajarwati & Nurasik, 2021; Minzani et al., 2021). The observation is conducted for 9 days before and after the fuel price increase in 2022.

By examining the impact of fuel price increases on the capital market, this research can provide valuable information for market participants, investors, and policymakers to understand the factors influencing market movements amidst complex economic conditions.

The uniqueness of this research stems from the fusion of multiple event studies that employ a sample of companies from the IDX80 index, conducted during the period of the

fuel price increase in 2022. This study is the first event study conducted in this context, where the fuel price increase event occurs outside the capital market. Thus, this research is expected to provide new insights into the relationship between economic events and the capital market and offer useful insights for investment decision-making.

Based on the literature review, the market reaction study conducted in this research is represented by three alternative hypotheses that need to be confirmed: 1) there is a difference in abnormal returns before and after the fuel price increase, 2) there is a difference in Trading Volume Activity before and after the fuel price increase, and 3) there is a difference in bid-ask spread before and after the fuel price increase.

2. Research Method

The research adopts a quantitative approach utilizing the Study Event model (Wang & Ngai, 2020). The sample for this study consists of statistical data from companies listed in the IDX80 index, which comprises the top 80 items with the highest trading market volume on the Indonesia Stock Exchange (IDX). The population of interest comprises companies listed on the Indonesia Stock Exchange. The research data is derived from daily transactions, closing price per share, trading volume, and bid-ask data of each item included in the IDX80, accessed through historical stock trading on the idx.co.id website. Additionally, the daily price of composite shares (JCI) is obtained from yahoo.finance.com. The statistical analysis is conducted using a Wilcoxon Signed Ranks Test performed with Microsoft Excel and SPSS statistical tools (Ross & Willson, 2017).

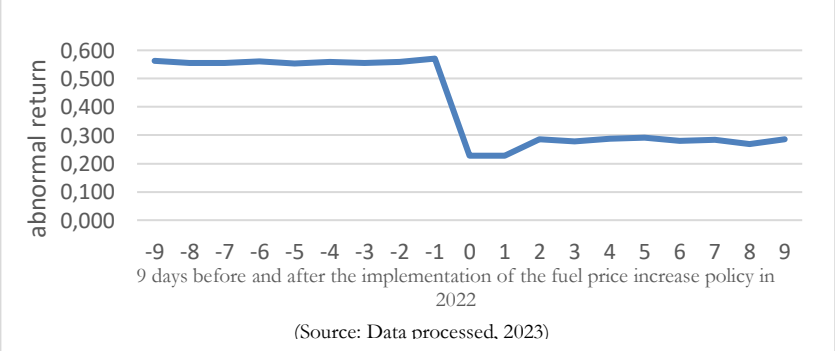
3. Results and Discussion

3.1. Results

Market reaction measurements yield diverse outcomes. The analysis of a 9-day period, spanning from 9 days prior to September 3, 2022, to 9 days following that date, reveals several pertinent market conditions for this study. Figure 1 depicts a notable abnormal decline in compulsive returns during the specified timeframe, aligning with the announcement of the fuel price increase policy in 2022.

Figure 2 examines trading volume, indicating a cautious sentiment among investors and companies, as evidenced by a decrease in trading activity observed one day after the policy announcement. Figure 3 showcases bid-ask activity in the capital market, highlighting intense speculation among select market participants who actively sought to enhance stock buying and selling intensity. During the 8 to 5 days preceding the announcement of the fuel price increase, the company conducted an experiment involving increased share offerings, while buyers endeavored to secure lower ask prices.

Figure 2. Cumulative Abnormal Return



(Source: Data processed, 2023)

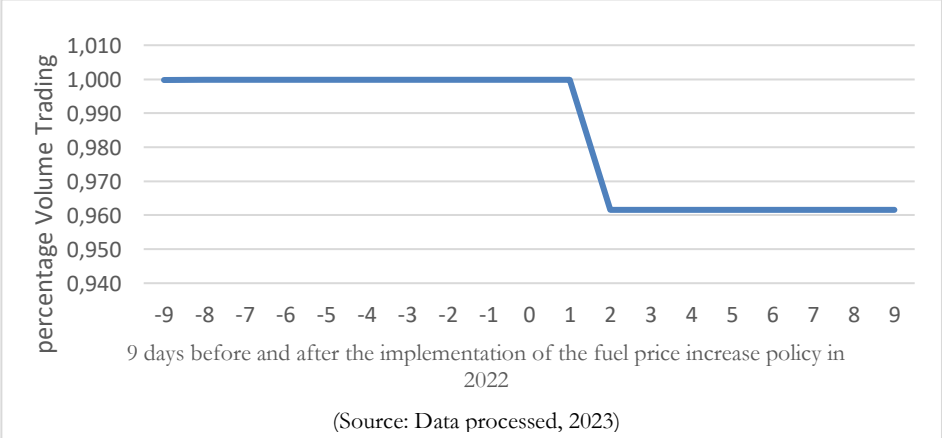
In figure 2, during the period before the implementation of the fuel price increase policy (-9 to -1), there were variations in the values of abnormal returns. These abnormal return values on those days reflected unusual levels of returns for investors. Data indicated that the majority of abnormal return values during that period remained relatively stable and consistent.

From day -1 to 2, there were changes in the condition of abnormal returns, reflecting the market's reaction to the fuel price increase policy. The significant decrease in abnormal returns from day -1 to day 0 indicated a negative reaction and concerns from the market regarding the policy. Investors may have anticipated the negative impact of the policy on overall company performance and the economy. This also reflected increased market uncertainty and volatility, causing investors to exercise caution and reduce their trading activities to avoid higher risks.

The significant decrease in abnormal returns also provided important clues for market participants in making investment decisions. On day 2, abnormal returns started to show an increase, indicating a recovery in market confidence. Investors may have felt more confident and began taking more active investment positions, adapting to the new conditions. Overall, the changes in abnormal return conditions before and after the implementation of the fuel price increase policy reflected market dynamics and investor reactions to economic policy changes.

In Figure 3, the trading volume remains stable and consistent before and after the fuel price increase policy implementation. The volume maintains a constant value of 1.000, indicating no significant changes in trading activity. However, following the decline, in the subsequent days, the trading volume activity returned to a consistent and stable level at 0.962. This indicates stabilization in trading activity after the initial phase of adjustment and market reaction to the policy. Although it remained at a lower level than before, the consistency in trading volume demonstrates that the market has adapted to the new policy and market participants have found a balance in conducting their trading transactions.

Figure 3. Trading Volume Activity



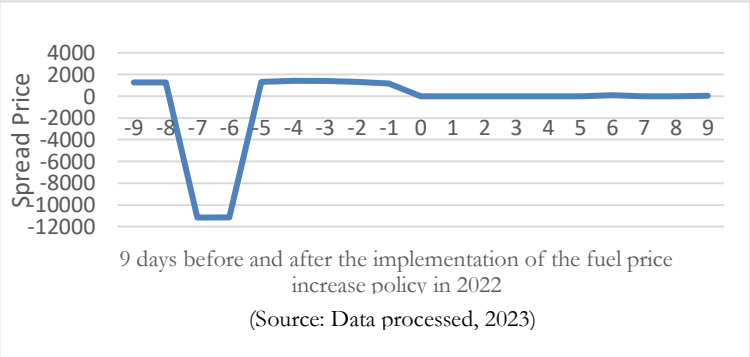
(Source: Data processed, 2023)

The changes in trading volume activity can reflect market reactions to the fuel price increase policy. The decline in trading activity may be attributed to various factors, such as investor concerns regarding the policy's impact on overall company performance and the economy. Investors may reduce their trading activity to avoid higher risks or adjust their trading strategies in response to policy changes.

Figure 4 illustrates the fluctuation in bid-ask spread during the period preceding the fuel price increase. A significant decrease in bid-ask spread was observed on day 8. During the days -8 and -7 prior to the fuel price increase, market rumors and speculations regarding the potential increase were circulating. The decline in bid-ask spread values during this period may indicate market concerns and uncertainties surrounding the impending fuel price policy. Speculation about the fuel price increase can impact market sentiment and elicit reactions from market participants. In response to such speculation, investors and traders may exercise caution and remain vigilant in anticipation of the forthcoming changes. Market participants may adopt precautionary measures, including refraining from transactions or adjusting their trading strategies, to mitigate the heightened risks associated with the policy change.

The figure illustrates that prior to the announcement of the fuel price increase, there was an increase in the bid-ask spread. This fluctuation was driven by market concerns and uncertainties regarding the policy's impact on asset prices and liquidity. However, during the announcement, there was a decrease in the bid-ask spread (on day 0-1). This decrease indicates a positive market response to the policy, reflecting a belief that the economic conditions will improve. These conditions indicate an adjustment that prepares market participants to engage in transactions, leading to improved buyer-seller agreements. Increased confidence in the market conditions can reduce uncertainty and enhance liquidity.

Figure 4. Bid-Ask Spread



(Source: Data processed, 2023)

3.2. Discussion

Investor Speculation

Based on Table 1 below, the significance value for the abnormal return variables is 0.878, which is greater than the commonly accepted significance level of 0.05. Therefore, there is insufficient evidence to reject the null hypothesis. The null hypothesis in this study states that there is no significant difference in abnormal returns before and after the announcement of the fuel price increase.

The announcement of the fuel price increase did not have a significant effect on the abnormal return of the companies in this study. This suggests that investor speculation was not significantly influenced by the announcement of the fuel price increase. It is possible that investors already had prior information about the planned fuel price increase before the official announcement was made. If this information was already available and anticipated beforehand, then the announcement may not have resulted in significant changes in investor speculation.

During the endemic phase of COVID-19, financial markets and investors may have been more focused on pandemic-related factors such as changes in health policies, vaccination

efforts, and overall economic impacts. In this context, the announcement of a fuel price increase may have been considered a relatively smaller factor compared to the ongoing pandemic situation. The endemic phase of COVID-19 often coincides with high market volatility and increased uncertainty. Changes in fuel prices may be perceived as less significant compared to the larger fluctuations and dramatic shifts occurring in the market during that time. Investors may have been more focused on larger price movements or other developments that had a more direct impact on their investments.

The COVID-19 pandemic has created long-term changes in market perceptions and expectations. Investors may have adjusted their strategies and expectations to align with the ongoing pandemic conditions. In this context, a fuel price increase may be seen as a relatively smaller and insignificant change on a larger scale. It is important to note that the explanations provided are based on hypothetical scenarios and general observations. The specific impact of the fuel price increase on investor speculation during the COVID-19 pandemic would require in-depth analysis and research specific to the given context.

Table 1. Test Statistics

	CAR_After - CAR_before	TVA_After - TVA_Before	BAS_After - BAS_Before
Z	-.153[b]	-2.023[b]	-5.322[b]
Asymp. Sig. (2-tailed)	.878	.043	.000

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

(Source: Data processed, 2023)

Market liquidity decline

Table 1 illustrates a significance value of 0.043 when examining Trading Volume Activity during the periods before and after the announcement of a fuel price increase. This indicates a significant difference in Trading Volume Activity between the pre-announcement and post-announcement periods.

The findings of this research indicate that the announcement of a fuel price increase has a significant impact on Trading Volume Activity. Specifically, it can be concluded that the announcement significantly influences the trading volume in the market. The significant decrease or increase in trading volume can reflect the market's response to the announcement. The low significance value suggests that these findings are not merely coincidental, but rather indicate a genuine relationship between the fuel price increase announcement and changes in Trading Volume Activity.

During significant events such as the announcement of fuel price increases, trading activity tends to undergo changes that have the potential to affect market liquidity. One of the resulting impacts is a decrease in market liquidity, which can occur due to fluctuations in Trading Volume Activity, leading to limited availability of assets that can be rapidly bought or sold at reasonable prices, particularly within the context of companies listed in the IDX80 index.

In the context of fuel price increase announcements, the decline in market liquidity may be attributed to two primary factors. Firstly, fuel price increases can cause changes in fuel costs and operational expenses for companies. This can influence investors' decisions regarding the purchase or sale of stocks or assets associated with companies directly impacted by the fuel price hike. Consequently, trading interest declines, thereby impacting overall trading volume. Secondly, fuel price increases can create uncertainty in the financial

market as a whole. Investors may become more cautious and reluctant to engage in significant transactions. This cautious approach can result in reduced trading activity, ultimately affecting market liquidity as a whole.

Risk Management

In Table 1, a significance value of 0.000 was obtained in the Wilcoxon test, examining the Bid-Ask Spread before and after the announcement of the fuel price increase. This indicates a significant difference in the Bid-Ask Spread between the two periods. With such a low significance value, it can be concluded that there is a significant difference in the spread between bid-ask prices before and after the announcement of the fuel price increase. These findings demonstrate that the announcement of the fuel price increase has a significant impact on the difference between bid-ask prices in the market.

The announcement of the fuel price increase has a significant impact on the Bid-Ask Spread in the context of the IDX80 stock exchange. This is attributed to several factors. Firstly, the fuel price increase can affect the operational costs of companies listed on the IDX80. Changes in operational costs can influence investors' decisions in bidding or asking prices for assets, ultimately affecting the Bid-Ask Spread. Secondly, the fuel price increase can create market-wide uncertainty. An increase in the Bid-Ask Spread can serve as an indicator of higher liquidity risk in the market. Low liquidity can affect investors' ability to buy or sell assets at desired prices, thus increasing transaction execution risk. Moreover, changes in fuel prices and associated operational costs resulting from the price increase can impact the operational risk of companies listed on the IDX80. Companies may need to adjust their strategies and policies to cope with these changes, including effective operational risk management to mitigate negative impacts.

The uncertainty arising from the fuel price increase can be a risk factor that needs to be managed. Market uncertainty can affect asset prices and overall trading activity. In this regard, risk management may involve the use of derivative instruments or hedging strategies to mitigate the risk of price fluctuations or market volatility. These conditions require investors to conduct comprehensive risk analysis to understand the potential impacts on their investments and manage exposure to unforeseen changes. Investors in such conditions demonstrate considerations for portfolio diversification to manage concentration risk. It is also suggested that investors utilize derivative instruments to protect their positions against undesirable price fluctuations. Such hedging strategies enable investors to reduce exposure to unwanted price changes.

4. Conclusion

Based on the findings of this study, hypothesis 1 indicates that there is no significant difference in abnormal returns before and after the announcement of the fuel price increase, suggesting that the fuel price increase event does not have a significant impact on the abnormal returns of IDX80 companies. This can be attributed to the market's and investors' focus on pandemic-related factors such as health policies and economic impacts, which are considered more substantial compared to changes in fuel prices.

In hypothesis 2, it can be explained that the increase in fuel prices has a significant impact on Trading Volume Activity before and after the announcement event. This increase in fuel prices leads to a decrease in market liquidity due to changes in fuel costs and operational expenses for companies. Hypothesis 3 indicates that there is a difference in the Bid-Ask Spread before and after the fuel price increase in IDX80 companies. This difference

explains the uncertainty in bid-ask prices in the market, which subsequently influences the behavior of investors and companies in managing the risk to avoid losses.

Future research in this area could focus on exploring the long-term effects of fuel price increases on market reactions, examining sector-specific analyses to understand how different industries are impacted, investigating investor sentiment and behavior during these events, incorporating additional macroeconomic factors to provide a more comprehensive understanding, and conducting cross-country comparisons to identify country-specific factors that influence market responses. By addressing these areas, future research can contribute to a deeper understanding of the relationship between fuel prices and market dynamics, informing investment decisions and policy-making.

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