








# The Influence of Indonesian Investor Sentiment on Stock Returns Before and After the Issue of the Russian-Ukrainian War in Energy Sector Companies Listed on the IDX

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**Abstract.** The Russo-Ukrainian War and its subsequent geopolitical ramifications have wielded a substantial influence on market dynamics and industrial energy sectors in various countries, including Indonesia. This article delves into the intricacies of Indonesian investor sentiment and its correlation with stock returns within the energy sector, both pre and post the Russia-Ukraine war. The overarching objective of this study is to unravel the nuanced shifts in investor sentiment in the backdrop of this geopolitical strife and comprehend how these shifts reverberate throughout Indonesia's energy sector. Several factors that are known to sway investor sentiment are scrutinized in this article. These encompass the volume of keyword searches on Google Trend, trading volume, consumer confidence indices, and mutual fund flows. The research findings unearth a negative impact of the volume of keyword searches linked to the Russia-Ukraine conflict on the stock returns of energy sector companies. Furthermore, trading volume is revealed to exert a positive influence on stock returns, while consumer confidence indices and mutual fund flows exhibit a favorable effect on the stock returns of energy sector companies. Against the backdrop of the Russian-Ukrainian war, investor sentiment emerges as a pivotal factor with the potential to significantly shape the stock prices and returns of companies operating in the energy sector. This study serves as a valuable resource for understanding the pivotal role of investor sentiment during geopolitical conflicts and its ripple effects on market dynamics within the energy sector. The insights garnered from this research can furnish both companies and investors with a foundational framework for making informed investment decisions and mitigating risks during periods of political and economic uncertainty.

**Keywords:** Consumer Confidence, Mutual Fund Flows, Investor Sentiment, Stock Return, Trading Volume.

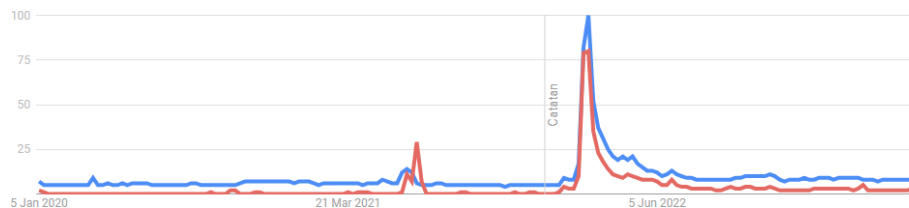
## 1 Introduction

The recent eruption of the Russian-Ukrainian conflict has reverberated across the global stage, with multifaceted geopolitical repercussions. Beyond its profound political and economic implications, this conflict cast its shadow over international stock markets and left an indelible mark on the energy sector of numerous nations, including Indonesia. Indonesia, in particular, felt the ramifications of the Russia-Ukraine war through a surge in crude oil prices. The cost of crude oil ascended to an unprecedented \$100 per barrel, triggering a series of price adjustments imposed by state-owned enterprises on the general populace. This manifested in the form of increased rates for non-subsidized LPG, which saw two successive increments, and the recalibration of non-subsidized fuel prices. The primary driver behind this surge in prices is the fact that the majority of Indonesia's oil supply hinges on imports [1].

However, it is not just the economic landscape that bore the brunt of this conflict. The Russia-Ukraine war had a profound impact on the psychological realm, eliciting a plethora of emotional and psychological responses from those directly involved and those who closely monitored the unfolding events through media channels. Wars of this magnitude have the potential to instill feelings of anxiety, fear, and apprehension not only among those directly affected but also within the global community at large. Instances of violence and political instability often give rise to significant psychological distress, causing individuals to feel threatened, fear for their safety and that of their loved ones, and grapple with the emotional toll exacted by the harrowing images of war's human toll.

Moreover, war can profoundly influence perceptions of stability and security. Negative sentiments, such as distrust in government and political systems, tend to gain traction. People grapple with uncertainty about the economy and investment, which can, in turn, influence their decisions concerning expenditure, investments, and savings. The Russo-Ukrainian conflict holds the potential to reshape investor psychology and their perception of financial markets. Consequently, investors who incur substantial losses might engage in panic selling, divesting their shares without heeding the prevailing conditions in the capital market [2].

To this end, it becomes imperative to comprehend the influence of investor sentiment on stock returns within Indonesia's energy sector both pre and post the Russia-Ukraine war. The graph below illustrates a notable surge in investor apprehension concerning the state of the Indonesian capital market, underscoring the significance of understanding these dynamics.



**Fig. 1.** Russian and Ukrainian Google Trend Search Results

Investor behavior can be broadly categorized into two groups: arbitrageurs and noise traders. Arbitrageurs are investors who formulate well-grounded opinions based on available information, capable of rationalizing their positive or negative views through external factors. In contrast, noise traders are experienced investors who abstain from fundamental analysis, instead relying solely on trend analysis [3]. The framework proposed by Barberis, Shleifer, and Vishny (1998) sheds light on how investor sentiment can exert influence over investment decisions and stock price movements. They emphasize the role of factors such as over-optimism, irrational expectations, and risk perceptions in shaping investor decisions, potentially leading to market imbalances [4].

Investor sentiment indicator reflecting the collective sentiment of investors toward the market. Their research establishes a significant correlation between investor sentiment and stock returns. They conclude that during periods of heightened positive sentiment, investors tend to disproportionately invest in their preferred stocks, subsequently exerting a negative impact on future stock returns [2]. Investor sentiment stands as a pivotal factor shaping stock prices and company stock returns. Investors often make investment choices influenced by their perceptions and emotions regarding market conditions and the broader economic and political landscape, which, in turn, can impact the companies they invest in [5]. In the context of the Russia-Ukraine war, investor sentiment assumes particular significance as it can wield considerable influence over the trajectory of stock prices and stock returns within Indonesia's energy sector.

Energy sector companies in Indonesia lean heavily on investor support and confidence to fuel their long-term growth and prosperity. Preceding the Russia-Ukraine war, investor sentiment toward Indonesia's energy sector companies was possibly underpinned by optimism and confidence in market stability, as well as the sector's growth potential. However, with the onset of the Russia-Ukraine war, it is highly probable that investor sentiment has undergone a significant transformation. Geopolitical conflicts of this magnitude tend to inject heightened uncertainty into global markets, rendering investors more cautious about investment risks [6]. This altered sentiment may, in turn, impact how investors assess Indonesia's energy sector companies, with potential implications for stock prices and stock returns.

The research conducted delves into the analysis of trading activity and stock price movements in relation to various information factors that capture investor attention<sup>7</sup>. These factors encompass media coverage, financial reports, and company-specific events. Their findings underscore how investor attention to these factors can influence stock price movements and trading activity [8].

In the forthcoming research, the investigators will embark on a comprehensive exploration of the impact of investor sentiment on stock returns within Indonesia's energy sector. This analysis will span the periods both preceding and subsequent to the Russia-Ukraine war. The researchers will delve into the factors influencing investor sentiment in the context of this geopolitical conflict, dissecting their repercussions on the stock market. Moreover, the study will endeavor to unveil strategies that energy sector companies can employ to effectively manage and respond to shifts in investor sentiment.

## 2 Methods

The data sources harnessed for this study comprise secondary data culled from several key sources: the Indonesia Stock Exchange, Yahoo Finance, Google Trends, and Bank Indonesia. The data span the period from 2020 to 2023. The nature of the data utilized in this research is panel data. The cohort primarily comprises companies operating in the energy sector that are publicly listed on the Indonesia Stock Exchange during the years 2020 to 2023. Employing a purposive sampling method, the selection criteria are as follows: 1) Inclusion of companies on the Indonesian stock exchange within the aforementioned time frame, and 2) Categorization of companies within the energy sector during the same period. In accordance with these purposive sampling criteria, a total of 52 companies out of the 74 initially considered for the study met the research criteria spanning three years, resulting in a comprehensive dataset encompassing 43,836 data points for analysis.

### 2.1 Operational Definition of Variabel

**Table 1.** Operational Variables

Variable	Definition	Measurement	Source
Energy Sector Stock Returns	A measure of the profit or loss earned by shareholders from their investment in a company. Stock returns can be expressed in percentage or absolute value and describe changes in the value of stock investments from 2020 to 2023	$R = \frac{P_{it} - P_{it-1}}{P_{it-1}}$	(Bodie, Z., Kane, A., & Marcus, A. J, 2014)
Russian-Ukrainian War	The Russian-Ukrainian War data used is a search result for the words Russian-Ukrainian War on Google Trends monthly for the period 2020-2023	The search index for the word "Russian-Ukrainian War" as a measure of G_Russian-Ukrainian War is accessed on the <a href="https://trends.google.com/">https://trends.google.com/</a> site. Then, selected based on location, namely Indonesia and the time span, namely Days, during the research observation period.	(Rizki Fadhel, 2022)
Trading Volume	The number of shares or contracts traded in a certain period on the financial market. Trading volume reflects how active transactions are taking place in the market, and can be used to	Daily Trade Volume Data (Yahoo Finance)	(Harris, L., 2003)

Consumer Confidence Index	<p>measure investor interest and participation in a financial instrument.</p> <p>An indicator used to measure the level of consumer confidence in current economic conditions and their expectations of future economic conditions. These indices are often based on surveys of consumers regarding consumption spending personal financial conditions, and general views of the economy</p>	Consumer Confidence Index Data (Otoritas jasa Keuangan)	(Bloomberg, 2021)
Mutual Fund Flows	<p>Inflows and outflows of funds from mutual funds. This term describes the amount of funds invested by new investors or funds withdrawn by investors from a mutual fund within a certain period of time. These fluctuations in inflows and outflows can give an idea of investor interest in the mutual fund and overall market sentiment.</p>	Data Mutual Fund NAB Mutual Fund (Otoritas jasa Keuangan)	(Bloomberg, 2021)

## 2.2 Data Analysis Techniques

In order to substantiate the veracity of a hypothesis, an analytical approach is employed. This entails the utilization of a hypothesis testing model followed by an assessment of the model's suitability through the application of three different models. According to [9], when estimating equations with panel data, three distinct approaches can be adopted: the Common Effect Model, the Fixed Effect Model, and the Random Effect Model. For this study, the data analysis technique centers around panel data regression, executed with the assistance of the Eviews 8 Statistics data processing software. The panel data regression model employed in this research is as follows:

$$Y = \beta_0 + \beta_1 G_{\text{War}} + \beta_2 \text{VolT} + \beta_3 \text{CCI} + \beta_4 \text{MFF} + e \quad \text{Based} \quad (1)$$

on the panel data regression model, that:

Y	= Dependent variable
$\beta_0$	= Constant
$\beta_1 - \beta_2 - \beta_3 - \beta_4$	= Variable Coefficient,
G_War	= Number of Searches for the Word "Russia-Ukraine War" on Google Trend,
VolT	= Trading Volume,
CCI	= Consumer Confidence Index,
MFF	= Mutul Fund Flows,

e = Disruptive Variables.

### 3 Results and Discussion

#### 3.1 Panel Data Regression (Random Effect Model)

**Table 2.** Model Selection Recapitulation Test

	FEM	REM	CEM	Infomation
Chow test				FEM
Hausman test				REM
Langrange Multiplie Test				REM

Panel data regression is a study that combines cross sections with time series. Based on the three previous tests, the researchers concluded that the random effect model was good for this model. The following is a display of the Random effect model (REM) obtained using Eviews 12 Software.

**Table 3.** Random effect mode test results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1_WAR	2.93E-05	1.95E-05	1.499512	0.1337
X2_VOLT	9.47E-12	6.10E-13	15.51600	0.0000
X3_CCI	2.58E-10	1.51E-10	1.710127	0.0872
X4_MFF	6.34E-18	3.20E-18	1.979003	0.0478
C	-002932	0.001703	-1.721152	0.0852

Based on the panel regression equation above, the following equation is obtained:

$$Y = -0.002932 + 2.93E05 + 9.47E12 + 2.58E10 + 6.34E18 + e \quad (2)$$

#### 3.2 Difference Test

**Table 4.** Test for Equality of Medians

Method	df	Value	Probability
Wilcoxon/Mann-Whitney		0.933835	0.3504
Wilcoxon/Mann-Whitney (tie-adj.)		0.947434	0.3434
Med. Chi-square	1	30.93244	0.0000
Adj. Med. Chi-square	1	30.41054	0.0000
Kruskal-Wallis	1	0.872052	0.3504
Kruskal-Wallis (tie-adj.)	1	0.897635	0.3434
van der Waerden	1	1.427387	0.2322

The Wilcoxon test results show a value of  $0.3434 > 0.05$ , which means that before and after the war there was no difference in stock returns for the energy sector in Indonesia.

### 3.3 Discussion

**The Influence of the Number of Word Searches on Google Trend on Energy Sector Stock Returns.** The outcome of the first hypothesis (H<sub>1</sub>) suggests that the number of word searches on Google Trend does not exert an influence on energy sector stock returns. This finding aligns with recent research conducted in Norwegian stock market, [10] does not find relation between internet search and stock return. These results imply that other factors, such as prevailing global market conditions, oil prices, and governmental policies, wield greater dominance in shaping movements in energy sector stock prices. Consequently, relying solely on Google Trend search trends as a reference for making investment decisions in the energy sector may not be advisable.

**Effect of Trading Volume on Energy Sector Stock Returns.** The findings regarding the second hypothesis (H<sub>2</sub>) indicate a significant influence of Trading Volume on the Return of Energy Sector Shares. These results align with a body of research conducted by various financial experts, establishing the significant impact of trading volume on stock returns. For instance, [11–13] state that trading volume has a significant positive effect on stock returns. This shows that if the trading volume of a stock increases, the stock returns obtained by investors will increase. This underscores that heightened trading activity is indicative of robust investor interest in the energy sector, potentially contributing positively to stock performance. This suggests that elevated trading activity can serve as a valuable signal of market trends' strength and the potential for stock price appreciation.

**Effect of Consumer Confidence on Energy Sector Stock Returns.** The findings regarding the third hypothesis (H<sub>3</sub>) indicate a notable influence of Consumer Confidence on Energy Sector Stock Returns. This contrasts with some recent studies, such as [14] Consumer confidence rises with high stock returns, but high consumer confidence is followed by low stock returns. Their study suggested that an increase in consumer confidence tends to drive up energy sector stock prices due to increased demand for energy. Moreover, other research, like that conducted by [15] examined the relationship between Michigan consumer confidence index and the stock prices, and he found a strong positive relationship where an increase in equity values boosts sentiment. These findings underscore the importance of consumer confidence as an indicator for predicting energy sector stock price movements. In this context, comprehending consumer sentiment and beliefs can offer valuable insights for investors and market participants to anticipate shifts in energy market trends and make more informed investment decisions. Additionally, the third hypothesis (H<sub>3</sub>) demonstrates the effect of Mutual Fund Flows on Energy Sector Stock Returns. This is consistent with research by [16–18], indicating the relationship between the funds' flow of foreign investors and the stock returns. These findings suggest that higher investments in energy-focused mutual funds can lead to an uptick in energy sector stock prices. The outcomes of this study emphasize the importance of comprehending mutual fund flows and the role of institutional investors

in shaping the performance of stocks in the energy sector. Such insights provide valuable information for individual investors to track market trends and make informed investment decisions in the energy sector.

**The influence before and after the Russian-Ukrainian war on the Return of Energy Sector Shares.** This study aims to scrutinize the impact of the Russo-Ukrainian War on stock returns in the energy sector, both before and after the conflict. In the global arena, warfare holds substantial potential for destabilizing financial markets, particularly the energy sector, which exhibits heightened sensitivity to geopolitical uncertainties. The research methodology encompassed the collection of historical data pertaining to stock returns of energy companies during the periods preceding and following the Russo-Ukrainian War. These datasets were subsequently subjected to statistical analysis to discern any noteworthy disparities between the two temporal segments. The outcomes unveiled a lack of substantial dissimilarity in stock returns within the energy sector before and after the Russo-Ukrainian War. This signifies the remarkable resilience of the energy sector in contending with the uncertainty and geopolitical ramifications stemming from the conflict. These findings serve to underscore the robustness and tenacity exhibited by the energy sector when confronted with political upheavals and global instability. Although the Russo-Ukrainian War possesses the potential to exert broad influence on financial markets, the conclusions drawn from this study illustrate that the energy sector remains steadfast and experiences no substantial perturbation. This discovery carries profound implications for investors and participants in financial markets. It suggests that the energy sector can be regarded as a relatively secure and unwavering investment option, even amid the backdrop of volatile geopolitical circumstances. However, it is imperative to emphasize the need for further research to gain deeper insights into the underlying factors that fortify the resilience of the energy sector when confronted with geopolitical conflicts and their implications for stock returns.

#### 4 Conclusion

The research findings unearth a negative impact of the volume of keyword searches linked to the Russia-Ukraine conflict on the stock returns of energy sector companies. Furthermore, trading volume is revealed to exert a positive influence on stock returns, while consumer confidence indices and mutual fund flows exhibit a favorable effect on the stock returns of energy sector companies. Against the backdrop of the Russian-Ukrainian war, investor sentiment emerges as a pivotal factor with the potential to significantly shape the stock prices and returns of companies operating in the energy sector. This study serves as a valuable resource for understanding the pivotal role of investor sentiment during geopolitical conflicts and its ripple effects on market dynamics within the energy sector. The insights garnered from this research can furnish both companies and investors with a foundational framework for making informed investment decisions and mitigating risks during periods of political and economic uncertainty.



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