

Market Reaction to Middle East Geopolitical Shocks: Evidence from Iran Conflict Escalation and Energy Stocks on the Indonesia Stock Exchange

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Abstract

The escalation of the Iran conflict, which threatens global energy supply through the Strait of Hormuz, raises the question of how energy sector stocks on the Indonesia Stock Exchange (IDX) respond to such geopolitical risk. The study aims to determine whether the conflict generates significant abnormal returns and cumulative market effects and to assess the speed of investor response to the geopolitical shock. A quantitative event study design is employed using daily stock returns over an 11-day event window from H-5 to H+5. Expected returns are estimated using the Market Model, while abnormal returns (AR) and cumulative abnormal returns (CAR) are evaluated using a one-sample t-test. The results show a significant negative abnormal return of -1.93% on H-1 ($p < 0.01$), indicating an anticipatory market response before the event. No significant abnormal returns are observed on H=0 and H+1, suggesting that the market rapidly incorporated the publicly available information. However, the cumulative abnormal return reaches -19.24% ($p < 0.001$) over the event window, indicating a substantial and persistent decline in the valuation of energy stocks. The findings imply that geopolitical shocks affect emerging-market energy equities not only through immediate information effects but also through persistent uncertainty and risk repricing. These results are relevant for investors in managing geopolitical exposure and for policymakers and market regulators in strengthening market resilience during periods of heightened geopolitical uncertainty.

Keywords: Abnormal Returns, Energy Equities, Event Study, Geopolitical Uncertainty, Market Efficiency.

1. Introduction

Geopolitical conflicts have become one of the most important sources of uncertainty in global financial markets because they directly affect commodity prices, international trade, and investor sentiment. Recent evidence shows that large shocks to geopolitical risk associated with conflicts in key oil producing regions are transmitted to both oil prices and global financial conditions, amplifying volatility and risk premia in equity and bond markets. The Middle East is particularly salient in this context, as it remains central to the global energy supply chain and to the pricing of crude oil benchmarks such as Brent. Within the region, the Strait of Hormuz is one of the world's most critical maritime chokepoints, carrying around one fifth of global oil supply and a substantial share of liquefied natural gas; disruptions to traffic through the strait have repeatedly been associated with sharp spikes in energy prices and heightened uncertainty in international capital markets (Gareis, 2026; Minesso et al., 2023; Verduzco-Bustos & Zanetti, 2026).



Between 2024 and 2026, geopolitical tensions involving the Islamic Republic of Iran intensified through a sequence of military confrontations and retaliatory actions that culminated in a temporary closure or severe restriction of shipping through the Strait of Hormuz. These episodes included missile exchanges between Iran and Israel, broader regional escalations, and joint military operations involving the United States, Israel, and Iran, which together generated the largest oil supply disruption on record in terms of daily output lost. In this period, Brent crude oil prices repeatedly breached the USD 100 per barrel threshold and peaked at around USD 118, as markets priced in the risk of prolonged interruptions to energy flows through Hormuz and rapid drawdowns of strategic oil reserves. The persistence of this elevated geopolitical risk contributed to increased volatility in global financial markets and a deterioration of growth and inflation prospects (Gareis, 2026).

Event study evidence from Middle Eastern stock markets confirms that the 2026 Iran conflict and the associated disruption of the Strait of Hormuz triggered significant negative abnormal returns in broad equity indices, alongside differentiated responses across sectors with direct exposure to oil and gas. Studies focusing on recent Middle East escalations also document strong reactions of oil prices and financial variables to geopolitical shocks, underscoring the role of conflict driven risk in shaping commodity and asset price dynamics (Gareis, 2026; Minesso et al., 2023). These findings suggest that the Iran conflict escalation during 2024-2026 provides a natural experiment for analyzing how external geopolitical shocks are transmitted to stock markets in other regions that are heavily dependent on imported crude oil but also significantly involved in global energy trade.

Indonesia offers a particularly compelling case for examining this transmission channel. Although the country is one of the world's major exporters of coal and a significant producer of natural gas, it has remained a net importer of crude oil since the mid-2000s, implying structural vulnerability to global oil price increases. Rising international energy prices tend to raise domestic production costs, intensify inflationary pressures, weaken the trade balance through higher oil import bills, and contribute to exchange rate depreciation which is macroeconomic adjustments that ultimately affect investor behavior and stock market performance. Following the 2026 Iran conflict escalation and the effective disruption of shipping through the Strait of Hormuz, Indonesia recorded a sharp deterioration in its external position: after registering sizeable annual trade surpluses in previous years, including a surplus of around USD 41 billion in 2025, the country posted a monthly trade deficit of USD 1.61 billion in May 2026, its first deficit after more than six years of consecutive monthly surpluses (BPS-Statistics Indonesia, 2026). Over the same period, the Jakarta Composite Index (JCI) experienced a notable decline and increases in volatility, consistent with investors' flight to safety amid heightened global and regional uncertainty.

However, the aggregate downturn in the Indonesian stock market masks a heterogeneous pattern of sectoral responses. Prior research on geopolitical risk and equity markets has shown that sectors directly linked to energy production and commodities can behave as relative beneficiaries during conflict episodes, particularly when supply disruptions lead to sustained increases in oil prices (Gareis, 2026; Marzbanmehr, 2025). In Indonesia, the surge in global crude oil prices during the 2026 Iran conflict cycle improved revenue expectations and cash flow projections for upstream oil and gas firms and other energy related companies, suggesting the possibility of positive abnormal returns and heightened trading activity in the energy sector despite the overall market weakness. This heterogeneity implies that geopolitical shocks are unlikely to affect all sectors uniformly; rather, their impact depends on industry characteristics, firms' exposure to commodity price movements, and their role within global energy value chains.

Although the relationship between geopolitical risk and financial markets has attracted increasing academic attention, the existing literature has several important limitations. Most studies focus on developed economies or major oil exporting countries in the Middle East and North America, with relatively few analyses of emerging markets that combine the roles of energy exporter and net oil importer. Furthermore, prior research tends to examine aggregate stock market indices or broad regional benchmarks, providing limited evidence on sector specific responses to conflict related shocks and on how these responses differ across industries with varying sensitivity to energy prices and trade disruptions (Marzbanmehr, 2025; Minesso et al., 2023). In the case of Indonesia, empirical studies on the impact of the recent Iran conflict escalation on the domestic stock market remain scarce, and systematic evidence on the behavior of listed energy companies during this episode is largely absent from the literature (Fianto et al., 2025; Ndako et al., 2021).

To address these gaps, this study investigates the market reaction of energy companies listed on the Indonesia Stock Exchange to the escalation of the Iran conflict during the period 2024-2026. Using a standard event study framework, the analysis focuses on whether key conflict events associated with disruptions in the Strait of Hormuz generated significant abnormal returns and changes in trading volume activity for Indonesian energy stocks around the event dates, after controlling for overall market movements. By concentrating on a single emerging market with a dual role as an energy commodity exporter and a net crude oil importer, and by examining sector level rather than purely aggregate indices, this study contributes to the growing literature on geopolitical risk and capital market behavior in emerging economies. The findings provide new empirical evidence on the sensitivity of sectoral equity markets specifically, the Indonesian energy sector to external geopolitical shocks linked to major disruptions in global energy supply routes.

2. Literature Review

2.1. Geopolitical Risk, Oil Prices, and Equity Returns

Geopolitical risk (GPR) and financial markets literature establishes that Middle East conflict risk is a priced factor that simultaneously raises oil prices and depresses equity returns. Using the Caldara-Iacoviello GPR index, a substantial body of research establishes that geopolitical risk (GPR) functions as a priced factor in financial markets, simultaneously driving oil prices upward and depressing equity returns (Caldara & Iacoviello, 2022; Nasouri, 2025; Salisu et al., 2022). Smales (2021) demonstrates that increases in the Caldara and Iacoviello (2022) GPR index are associated with higher oil returns but lower stock returns, with volatility impacts markedly stronger for crude oil than for equities, reflecting the centrality of Middle East supply disruptions in energy pricing and risk premia. Extending this evidence to Middle East and North African (MENA) markets, Elsayed and Helmi (2021) document that GPR significantly amplifies return and volatility spillovers between regional stock indices, oil, and other financial assets, underscoring the role of regional geopolitical shocks as a source of systemic risk transmission.

Recent work broadens this asset-pricing perspective. Systematic reviews of the GPR literature show that news-based indices à la Caldara-Iacoviello have strong predictive power for returns and volatility across equities, commodities, and currencies, with particularly pronounced effects around major geopolitical escalations (Aysan et al., 2022). In line with this, Khraiche et al. (2023) finds that higher GPR is associated with weaker stock market development and heightened downside risk, especially in countries with shallow financial systems and strong dependence on external energy supplies.

The link between geopolitical tension and energy asset pricing operates through a distinct risk premium channel. Cheng et al. (2023) estimate a GPR beta for commodity futures and find that energy contracts, particularly crude oil, exhibit the strongest sensitivity to global geopolitical risk, with elevated GPR associated with both higher expected returns and heightened volatility in energy futures. At the macro-sector level, Zhang et al. (2023) report that GPR shocks significantly increase conditional volatility globally, with stronger effects observed in emerging and commodity-dependent economies relative to advanced markets, consistent with evidence that GPR heightens energy market uncertainty and volatility clustering (Liu et al., 2021). Complementary evidence indicates that geopolitical uncertainty and political tensions significantly raise oil prices and volatility, reflecting markets' reassessment of future supply disruptions and global demand conditions (Pan et al., 2023). These findings support the proposition that Middle East geopolitical shocks propagate internationally through an oil-price and risk-premium channel that disproportionately affects energy-related assets and helps explain the pricing of GPR as a systematic factor in the cross-section of stock returns (Caldara & Iacoviello, 2022; Zaremba et al., 2022; Zhang et al., 2023).

2.2. Regional and Sectoral Transmission of Geopolitical Risk

Regional and sectoral analyses further clarify the asymmetric nature of these effects. Focusing on the Middle East and Africa (MEA) region, Abdelaziz Eissa et al. (2025) show that negative shocks linked to conflicts and terror-related events trigger larger and more persistent declines in stock returns and increases in volatility than positive or de-escalation news, especially in energy-intensive and oil-exporting economies. Complementing this, Al-Fayoumi et al. (2025) find that GPR shocks cause pronounced cyclical fluctuations in European energy-related industries, amplifying business-cycle volatility and highlighting the central role of oil and gas sectors in transmitting geopolitical risk to the broader economy. Recent evidence on GCC markets around the war on the Gaza Strip similarly highlights that GPR intensifies volatility connectedness between regional stock markets and global risk factors, with overreaction and strong short-run volatility spillovers from GPR to equity markets (Salisu et al., 2022). Studies of GCC sectoral indices further indicate that GPR and oil-market uncertainty jointly magnify return and volatility spillovers to energy and related sectors, especially under stressed market conditions (Bouri et al., 2023). Taken together, these studies imply that conflict escalation in the Middle East, including Iran-related events, can generate far-reaching consequences for stock markets well beyond the immediate region, with oil-price and volatility channels particularly salient for energy-linked sectors and for economies highly exposed to imported energy.

A more targeted strand of literature examines market reactions to specific conflict episodes involving Iran. Abedin et al. (2024) apply an event-study framework to the 13 April 2024 Israel-Iran air and drone strikes, analyzing abnormal returns and cumulative average abnormal returns (CAAR) for the top ten global energy companies. Their findings reveal positive CAAR in the pre-event window, suggesting that investors anticipated conflict-driven gains in energy prices, followed by significant negative abnormal returns on the event day and negative post-event CAAR, reflecting a sharp reassessment of risk and profit expectations once the confrontation materialized. The study emphasizes that conflict-related uncertainty raises the cost of capital for energy firms and increases tail risk and volatility clustering around key geopolitical announcements, reinforcing the view that Middle East conflict episodes operate as discrete information shocks to energy equity valuations. Related evidence on regime-dependent oil price volatility indicates that recent Middle East shocks, including Iran-related episodes, are associated with sharp shifts in oil price regimes and heightened downside

risk for energy-importing economies (Kang et al., 2017). Beyond hydrocarbons, GPR has also been shown to exert persistent volatility spillovers on renewable-energy and green-bond markets, suggesting that both conventional and low-carbon energy assets are exposed to geopolitical conflict risk (Chishti et al., 2025; Yang & Yang, 2021).

2.3. Evidence from Emerging Markets and the Indonesian Context

Shifting focus to emerging markets that are net oil importers, several studies examine how geopolitical risk (GPR) shapes stock-market dynamics in Indonesia. Ndako et al. (2021) investigate whether global and country-specific GPR predict the return volatility of Islamic stock indices in Indonesia and Malaysia using a GARCH-MIDAS framework. They find that both global and domestic GPR significantly increase volatility, with the impact consistently larger for Indonesia, and that models incorporating GPR deliver superior out-of-sample volatility forecasts. Fianto et al. (2025) complement this by showing that higher global and regional geopolitical risk is associated with lower Islamic stock returns in Indonesia, particularly during periods of heightened tensions affecting oil prices, indicating that GPR is a relevant factor in pricing Sharia-compliant equities in a major oil-importing economy. At a broader emerging-market level, Jawadi et al. (2024) report that GPR significantly increases stock-market volatility in emerging economies and that incorporating GPR into GARCH-MIDAS specifications materially improves volatility forecasts compared with models based solely on realized volatility and macro variables, in line with wider evidence that emerging stock market volatility responds more strongly to geopolitical risk than advanced markets (Salisu et al., 2022). In a similar vein, cross-country studies document that GPR affects bank stability, sovereign risk, and equity risk premia more forcefully in emerging markets than in advanced economies, reflecting structural vulnerabilities and thinner market liquidity (Dogan et al., 2021; Phan et al., 2022). These studies collectively establish that Indonesian equity markets, including their Islamic segment, are sensitive to geopolitical risk transmitted through global energy and risk-aversion channels.

Despite this growing body of evidence, three critical gaps remain. First, a context gap. Existing conflict-episode studies either focus on global energy majors (Abedin et al., 2024) or on regional markets in MENA and GCC countries, where economies are predominantly oil exporters that may benefit, at least in the short run, from higher oil prices induced by conflict-driven supply fears (Abdelaziz Eissa et al., 2025; Bouri et al., 2023; Elsayed & Helmi, 2021b). These findings cannot be directly generalized to Indonesia, which is a net crude-oil importer with a structurally different macro-financial exposure to oil-price shocks. Second, a unit-of-analysis gap. The Indonesia-focused GPR literature has concentrated on broad market indices and Islamic stocks (Fianto et al., 2025; Ndako et al., 2021), without isolating the sectoral responses of energy firms to well-identified Middle East conflict events, particularly those involving Iran and the associated risks to the Strait of Hormuz and global oil shipping routes. Third, an event-design gap. Prior studies generally rely on aggregate GPR indices and long-horizon volatility models rather than event-study designs that examine investor reactions around clearly dated Iran conflict escalations. Consequently, limited empirical evidence exists on how discrete Iran conflict escalations affect abnormal returns, cumulative average abnormal returns, and trading-volume reactions of energy stocks on the Indonesia Stock Exchange, even though recent cross-country evidence indicates that GPR significantly predicts excess stock returns and downside risk over long horizons (Lee et al., 2025; Zhang et al., 2023).

The present study addresses these gaps in several ways. First, by applying an event-study methodology to energy issuers listed in Indonesia, it extends the analysis of Iran conflict episodes which previously confined largely to global energy majors and oil-exporting regions

to a major oil-importing emerging market context, thereby broadening the external validity of existing event-study findings (Abedin et al., 2024). Second, by examining abnormal returns, cumulative average abnormal returns, and trading-volume activity around key Iran-related conflict dates, the study allows for a finer characterization of how energy stocks in an oil-importing economy respond to external supply-side shocks. Third, by focusing on sector-level energy equities rather than broad indices or Islamic stocks, it isolates the specific transmission channel through which Middle East geopolitical shocks reach an oil-importing emerging market. The study helps clarify the transmission of Middle East geopolitical shocks to energy-sector equities in an oil-importing emerging-market setting, informing both international investors' hedging strategies and domestic policymakers' assessment of external financial vulnerability.

2.4. Hypothesis Development

Building on the theoretical arguments and empirical gaps discussed above, this study tests three hypotheses. First, geopolitical shocks in major oil-producing regions tend to trigger flight-to-safety behavior and negative repricing of energy equities in oil-importing economies. Because Indonesia is a net crude-oil importer, the escalation of the Iran conflict and the associated threat to the Strait of Hormuz are expected to generate negative abnormal returns for IDX energy stocks before the event becomes fully public. Second, unresolved geopolitical uncertainty and prolonged threats to global energy supply routes can lead to persistent reassessment of risk premiums. Therefore, the cumulative abnormal return over the event window is expected to be significantly negative. Third, geopolitical shocks attract heightened investor attention and induce portfolio rebalancing, which should be reflected in changes in trading activity. Accordingly, trading volume activity is expected to change significantly around the event date.

H1: The escalation of the Iran conflict generates a significant negative abnormal return for energy stocks listed on the Indonesia Stock Exchange on the pre-event day ($H-1$).

H2: The cumulative abnormal return of energy stocks listed on the Indonesia Stock Exchange is significantly negative over the event window.

H3: There is a significant change in the trading volume activity of energy stocks listed on the Indonesia Stock Exchange around the event date.

3. Methods

This study employs an event-study framework to evaluate how the escalation of the Iran conflict affects Indonesian energy sector stocks. Consistent with standard event-study methodology, market reaction is captured through price-based and volume-based indicators (abnormal returns and trading volume activity), while the geopolitical event itself is treated as an exogenous shock (S. J. Brown & Warner, 1985; MacKinlay, 1997).

The empirical design evaluates whether the selected geopolitical escalation generated stock-price and trading-activity responses that were different from normal market movements. The analysis uses an 11-trading-day event window, from $H-5$ through $H+5$, and treats $H=0$ as the first trading day on which credible public information about the escalation was available.

The final sample consists of $N = 21$ energy sector stocks listed on the Indonesia Stock Exchange (IDX) over the 2024-2026 period. The sample was selected based on the IDX energy sector classification and the availability of daily stock price, return, and trading volume data. Table 1 presents the list of sample firms.

Table 1. Sample Firm

No.	Ticker	Company Name	Subsector	Listing Date
1.	AKRA.JK	PT AKR Corporindo Tbk	Oil & Gas Storage and Transportation	03 October 1994
2.	APEX.JK	PT Apexindo Pratama Duta Tbk	Oil & Gas Drilling	10 July 2002
3.	ARTI.JK	PT Ratu Prabu Energi Tbk	Oil & Gas Services	30 April 2003
4.	ATLA.JK	PT Atlantis Subsea Indonesia Tbk	Oil & Gas Equipment & Services	16 April 2024
5.	BULL.JK	PT Buana Lintas Lautan Tbk	Marine Transportation (Oil & Gas Shipping)	23 May 2011
6.	ELSA.JK	PT Elnusa Tbk	Oil & Gas Equipment and Services	06 February 2008
7.	ENRG.JK	PT Energi Mega Persada Tbk	Crude Petroleum & Natural Gas Production	07 June 2004
8.	ESSA.JK	PT ESSA Industries Indonesia Tbk	Industrial Gases / Basic Chemicals	01 February 2012
9.	HADE.JK	PT Himalaya Energi Perkasa Tbk	Wholesale (Durable & Non-Durable Goods)	12 April 2004
10.	HITS.JK	PT Humpuss Intermoda Transportasi Tbk	Oil & Gas Storage and Transportation	15 December 1997
11.	HUML.JK	PT Humpuss Maritim Internasional Tbk	Oil & Gas Storage & Distribution	09 August 2023
12.	KOPI.JK	PT Mitra Energi Persada Tbk	Oil & Gas Storage and Transportation	24 April 2001
13.	LEAD.JK	PT Logindo Samudramakmur Tbk	Oil & Gas Equipment and Services	11 December 2013
14.	LMAX.JK	PT Lupromax Pelumas Indonesia Tbk	Auto Components (Lubricants)	09 August 2023
15.	MEDC.JK	PT Medco Energi Internasional Tbk	Crude Petroleum & Natural Gas Production	12 October 1994
16.	MKAP.JK	PT Multikarya Asia Pasifik Raya Tbk	Oil, Gas & Coal Equipment & Services	12 February 2024
17.	MTFN.JK	PT Capitalinc Investment Tbk	Crude Petroleum & Natural Gas Production	16 April 1990
18.	PKPK.JK	PT Paragon Karya Perkasa Tbk	Oil & Gas Equipment and Services	11 July 2007
19.	SICO.JK	PT Sigma Energy Compressindo Tbk	Oil & Gas Equipment and Services	08 April 2022
20.	SURE.JK	PT Super Energy Tbk	Oil & Gas Exploration and Production	05 October 2018
21.	WOWS.JK	PT Ginting Jaya Energi Tbk	Oil & Gas Drilling	08 November 2019

To isolate the effect of the Hormuz-related shock from other concurrent geopolitical noise, this study employs a multi-layered identification strategy. First, the event date is selected based on a specific escalation that directly threatened the Strait of Hormuz such as missile exchanges, retaliatory strikes, or shipping restrictions rather than general conflict news. This ensures that the shock is exogenous and clearly attributable to a disruption in a critical energy supply route. Second, a short event window of H-5 to H+5 is used to minimize contamination from unrelated events that may occur over longer horizons. Third, the Market Model controls for overall market movements through the Jakarta Composite Index

(JKSE/IHSG), so that abnormal returns capture firm-specific reactions to the shock rather than broad market trends. Fourth, we conduct a series of robustness checks to validate the baseline results: (i) alternative event windows (e.g., H-3 to H+3 and H-7 to H+7); (ii) placebo tests using pseudo-event dates; (iii) exclusion of confounding events such as domestic policy announcements, earnings releases, or other major geopolitical developments; and (iv) controlling for global oil prices (Brent) and the Caldara-Iacoviello geopolitical risk index to ensure that the observed effects are not merely proxies for general oil-market or geopolitical uncertainty. These steps follow standard practice in the event-study literature (S. J. Brown & Warner, 1985; MacKinlay, 1997) and strengthen the causal interpretation of the estimated abnormal returns.

3.1. Variables of the Study

This study employs an event-study framework to examine how the escalation of the Iran conflict affects Indonesian energy sector stocks. Consistent with standard event-study methodology, market reaction is captured through price-based and volume-based indicators (abnormal returns and trading volume activity), while the geopolitical event is treated as an exogenous shock (S. J. Brown & Warner, 1985; MacKinlay, 1997).

The dependent variables capture the market reaction of Indonesian energy sector stocks to the escalation of the Iran conflict:

A. Abnormal Return (AR)

Abnormal Return (AR) is the primary measure of market reaction. It represents the portion of stock *i*'s return on day *t* that cannot be explained by normal market movements. Following the classic event-study literature, AR is defined as the difference between the actual (ex post) return and the expected (normal) return estimated from the Market Model (S. J. Brown & Warner, 1985; MacKinlay, 1997).

A statistically significant AR around the event date indicates that investors are reacting to new information related to the geopolitical conflict rather than to regular market dynamics. This interpretation is standard in event studies of stock price responses to corporate announcements, policy changes, and geopolitical shocks (S. J. Brown & Warner, 1985; MacKinlay, 1997).

To analyze the overall impact of the event across time and firms, individual AR are aggregated in two steps:

1) Average Abnormal Return (AAR(*t*)) across (*N*) firms on each event day (*t*):

$$AAR_t = (1/N) \sum_{i=1}^N AR_{it}$$

The Average Abnormal Return (AAR) represents the cross-sectional mean abnormal return on event day *t*. It is the principal aggregate measure used to identify whether the sample of energy stocks, as a group, experienced a systematic response.

2) Cumulative Average Abnormal Return (CAAR) over a specified sub-window:

$$CAAR(\tau_1, \tau_2) = \sum_{t=\tau_1}^{\tau_2} AAR_t$$

CAAR summarizes the cumulative price impact of the Iran conflict escalation on the Indonesian energy sector over the event window but is treated as a derived summary measure, not as a separate explanatory variable. This aggregation is consistent with prior studies on war-related shocks, which rely on CAAR to evaluate the net effect of geopolitical events on sectoral or market indices (MacKinlay, 1997; Sari et al., 2023).

B. Trading Volume Activity (TVA)

Trading Volume Activity (TVA) is used as a second dependent variable to capture changes in trading intensity and liquidity around the event. Volume-based measures are widely employed to complement price reactions in event-study settings, as they reveal how strongly investors rebalance their portfolios in response to new information (MacKinlay, 1997; Sari et al., 2023). TVA for stock (i) on day (t) is defined as:

$$TVA_{it} = \text{Shares Traded}_{it} / \text{Shares Outstanding}_{it}$$

This relative measure standardizes trading activity by firm size and allows comparison across companies. Increases in TVA around the event window indicate heightened investor participation, stronger information arrival, and potential shifts in market liquidity. Studies on conflict events and political shocks in emerging markets often report significant changes in abnormal trading volume alongside abnormal returns, underscoring that investors react both through price adjustments and trading intensity (Afego et al., 2022; Sari et al., 2023).

Abnormal TVA can be constructed by comparing event-window TVA with the average TVA in the estimation window (pre-event period). Significant deviations from the benchmark level are interpreted as abnormal trading volume associated with the Iran conflict escalation (Sari et al., 2023).

The core independent variable is Geopolitical Conflict Escalation, representing the exogenous shock stemming from a major escalation in the Iran conflict. Consistent with geopolitical-risk event studies, the event is defined as the occurrence or announcement of significant conflict-related actions such as missile/drone attacks, retaliatory strikes, or sanctions expected to alter investors' perceptions of global oil-supply security, regional stability, and risk aversion (MacKinlay, 1997; Sari et al., 2023).

3.2. Market Model Variable

Market return, defined as the daily return of the Jakarta Composite Index (JKSE/IHSG), serves solely as an explanatory variable within the Market Model to estimate normal returns. Consistent with the event-study literature, it functions as a benchmark for overall market movements rather than as a separate research variable (S. J. Brown & Warner, 1985; MacKinlay, 1997).

The estimation window covers 120 trading days, from H-125 to H-6, and is free from major confounding events. The sample period spans from 2 January 2024 to 4 August 2026, providing up to approximately 650 trading days of observations per stock. The event window covers 11 trading days, from H-5 to H+5, with H=0 defined as the first trading day on which credible public information about the Iran conflict escalation was available.

Expected returns for each stock i are obtained by estimating the Market Model over an estimation window that precedes the event window and is free from major confounding events. The model is specified as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where R_{it} is the actual daily return of stock i on day t, R_{mt} is the daily return on the Jakarta Composite Index, α_i is the intercept term, β_i captures the stock's sensitivity to market movements, and ε_{it} is the error term. The estimated coefficients $\hat{\alpha}_i$ and $\hat{\beta}_i$ are subsequently used to generate the expected return for each day in the event window:

$$E(R_{it}) = \hat{\alpha}_i + \hat{\beta}_i R_{mt}$$

Substituting this into the definition of abnormal return yields:

$$AR_{it} = R_{it} - E(R_{it}) = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i \widehat{R_{mt}})$$

Average abnormal return on event day t is:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

The cumulative abnormal return for an individual firm i over a sub-window $[\tau_1, \tau_2]$ is the sum of its daily abnormal returns during that interval:

$$CAR_i(\tau_1, \tau_2) = \sum_{t=\tau_1}^{\tau_2} AR_{it}$$

Finally, the cumulative average abnormal return over the same sub-window is obtained by summing the average abnormal returns:

$$CAAR(\tau_1, \tau_2) = \sum_{t=\tau_1}^{\tau_2} AAR_t$$

The Market Model is preferred in short horizon event studies because it reduces the variance of abnormal returns relative to simpler benchmarks while preserving good specification and statistical power (S. J. Brown & Warner, 1985; MacKinlay, 1997).

4. Results and Discussion

Employing an event study methodology, this study examines the reaction of energy sector stocks listed on the Indonesia Stock Exchange (IDX) to the escalation of geopolitical tensions involving Iran. Market response is captured through Abnormal Return (AR), which isolates daily specific reactions of energy stocks, and Cumulative Abnormal Return (CAR), which measures the aggregate wealth effect on the sector over an 11-day event window (H-5 to H+5). A one-sample t-test was employed to assess whether these returns are statistically distinguishable from zero. The results of the one-sample t-test for AR and CAR across the event window are presented in Table 2.

Table 2. One-Sample t-Test Results for AR and CAR

Observation Period	Variable	Mean Return	t-statistic	p-value (Sig.)	Conclusion
Pre-Event (H-1)	Abnormal Return (AR)	-0.0193	-3.365	0.003**	Significant
Event Day (H=0)	Abnormal Return (AR)	-0.0062	-1.412	0.175	Not Significant
Post-Event (H+1)	Abnormal Return (AR)	-0.0076	-0.366	0.719	Not Significant
Accumulation (H-5 to H+5)	Cumulative Abnormal Return (CAR)	-0.1924	-4.198	<0.001***	Significant

Notes: Significant at the 1% level ($p < 0.01$). Significant at the 0.1% level ($p < 0.001$).

4.1. Anticipatory Reaction and Information Leakage (H-1)

The most pronounced daily reaction across energy stocks occurs on day H-1, where the AR registers a statistically significant decline of -1.93% ($p = 0.003$). This finding indicates that the market began pricing the Iran conflict escalation before its official public confirmation, consistent with the presence of informed trading and information leakage. Institutional investors and other sophisticated market participants, with access to intelligence assessments or preliminary diplomatic signals, tend to rebalance their portfolios ahead of the broader market (Kissell, 2014). The sell-off concentrated in energy stocks on H-1 reflects a flight-to-safety response, wherein capital was swiftly withdrawn from equities perceived as vulnerable to the unfolding geopolitical threat and redirected toward safe-haven assets such as gold and government bonds (Baur & McDermott, 2010). For Indonesia, a net crude oil importer, the anticipation of supply disruptions in the Strait of Hormuz was immediately interpreted as an adverse macro-financial shock for the energy sector, triggering preemptive divestment. Similar pre-event negative abnormal returns have also been documented around recent Middle East conflicts, such as the Palestine-Israel escalation and the US-Houthi confrontation, where investors shifted to safe assets even before the official confirmation of hostilities (Ijaz et al., 2025; Yudaruddin et al., 2025).

4.2. Efficient Assimilation of Public Information (H=0 and H+1)

In contrast to the pre-event leakage, AR values for energy stocks on the event day (H=0) and the following day (H+1) are statistically indistinguishable from zero ($p > 0.05$). The immediate dissipation of abnormal returns once the Iran conflict escalation became public knowledge offers evidence consistent with the semi-strong form of the Efficient Market Hypothesis (Fama et al., 1969). The Indonesian energy sector absorbed the publicly announced geopolitical news rapidly and without bias, leaving no residual profit opportunity for traders reacting to official headlines. The negative shock had already been fully incorporated into energy stock prices during the H-1 anticipation window, rendering the event day itself a non-event in terms of incremental price impact. This swift normalization underscores a high degree of short-term informational efficiency, even within an emerging-market sector facing heightened geopolitical turmoil. Comparable patterns of rapid adjustment and short-lived abnormal returns have been reported in multi-country event studies of wartime invasions and the Russia-Ukraine war, where stock markets typically incorporate conflict-related information within a narrow window around the announcement date (Hoffmann et al., 2025; Mishra et al., 2024).

4.3. Sustained Wealth Destruction and Negative Sentiment (Overall CAR)

While daily shocks dissipated after the event day, the CAR for the energy sector over the complete event window (H-5 to H+5) reveals a cumulative decline of -19.24% ($p < 0.001$). This aggregate erosion confirms that the market interpreted the Iran conflict escalation as a systematic and enduring adverse shock rather than a transient disruption. The persistent downward trajectory of the CAR, well after AR had stabilized, points to a fundamental repricing of risk premiums for Indonesian energy stocks. Investors did not merely react to the conflict event itself but reassessed the discounted value of future cash flows in light of the heightened and protracted geopolitical risk landscape surrounding global energy supply routes. This prolonged negative drift is consistent with the Uncertainty Information Hypothesis (UIH), which posits that markets require an extended period to fully incorporate the complex ramifications of major uncertain events, resulting in a sustained negative price trend (K. C. Brown et al., 1988). For energy companies listed on the IDX, the combination of Indonesia's structural dependence on imported crude oil and the prolonged threat to shipping

through the Strait of Hormuz created an environment of entrenched pessimism from which no meaningful recovery materialized within the observation window. Compared with prior evidence from global wartime invasions and recent Middle East conflicts where cumulative abnormal returns are often negative but more dispersed across markets and sectors the magnitude of the CAR in Indonesia's energy sector appears particularly severe, highlighting the vulnerability of oil-importing emerging markets to conflict-driven supply shocks (Hoffmann et al., 2025; Ijaz, 2025; Yudaruddin et al., 2025).

4.4. Trend Analysis of AR and CAR

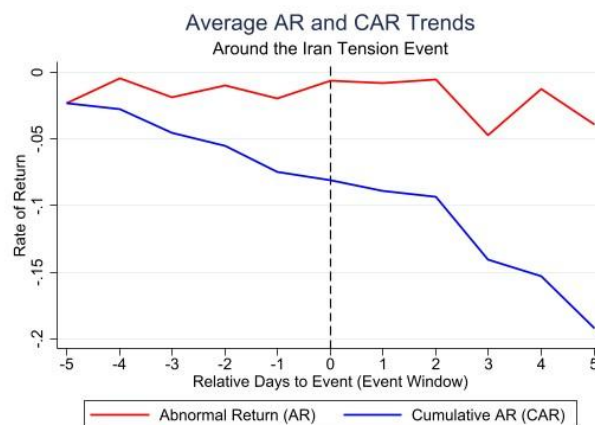


Figure 1. Average AR and CAR Trends

Figure 1 presents the average AR and CAR trends across the event window. The AR line exhibits a sharp, V-shaped trough precisely at H-1, capturing the climax of anticipatory selling in energy stocks before the Iran conflict escalation became public. Its subsequent reversion to near-zero levels from H=0 onward confirms that the marginal informational shock had been fully exhausted by the event date, consistent with the absorption pattern observed in efficient markets processing discrete negative information within a condensed timeframe. This anticipatory V-shaped pattern is similar to that reported for several recent geopolitical shocks, where markets exhibit pronounced pre-event reactions followed by rapid reversion once the news becomes public (Ijaz, 2025; Mishra et al., 2024).

The CAR line, by contrast, does not revert. It traces a descending staircase pattern that begins its decline before H-1 and continues to grind lower through H+5. The divergence between the flattening AR and the persistently declining CAR provides visual evidence of a permanent repricing of Indonesian energy stocks. The absence of any meaningful rebound suggests that the sell-off was not a transient panic but a structural adjustment in market valuation driven by the reassessment of long-term geopolitical risk premiums. By the end of the observation window, the sector's equity values had settled at a substantially lower equilibrium, locking in an aggregate loss of -19.24%. This trajectory is consistent with the behavior of energy equities in an oil-importing emerging market, where a conflict-driven oil supply shock amplifies macro-financial vulnerabilities rather than generating windfall gains. At the same time, compared with broader cross-country evidence on wartime invasions and regionally confined conflicts where CAR responses are more heterogeneous across markets and sectors Indonesia's energy sector exhibits a distinctly more uniform and persistent downward adjustment, underlining the country-specific exposure channel associated with reliance on imported crude (Hoffmann et al., 2025; Ijaz, 2025; Yudaruddin et al., 2025).

5. Conclusion

This study examined the reaction of energy sector stocks listed on the Indonesia Stock Exchange (IDX) to the escalation of the Iran conflict using an event study over an 11-day window from H-5 to H+5. Three main findings emerge. First, the significant negative Abnormal Return (AR) of -1.93% on H-1 ($p = 0.003$) indicates an anticipatory market response before the event date, suggesting that investors began adjusting their positions as geopolitical information and expectations developed. This pattern is consistent with flight-to-safety behavior documented in previous research (Baur and McDermott, 2010). Second, AR on the event day (H=0) and the following day (H+1) is statistically insignificant, indicating that no additional abnormal return was generated once the event became public. This finding is consistent with the semi-strong form of the Efficient Market Hypothesis, suggesting that publicly available information was rapidly incorporated into stock prices (Fama et al., 1969). Third, despite the absence of significant daily AR after H-1, the CAR over the full event window reaches -19.24% ($p < 0.001$). This substantial cumulative decline indicates that the conflict generated a persistent negative valuation effect rather than merely a temporary event-day shock. The finding is consistent with the Uncertainty Information Hypothesis, whereby unresolved uncertainty can lead to prolonged repricing of financial assets.

The primary contribution of this study is its empirical evidence on how a Middle Eastern geopolitical shock is transmitted to the energy equity market of an oil-importing emerging economy. While previous studies have predominantly examined developed markets, regional markets, or broad financial-market responses, this study highlights the specific vulnerability of Indonesian energy stocks to geopolitical disruptions affecting global energy supply routes. The results also contribute to the event-study literature by demonstrating the distinction between a significant anticipatory daily response and a much larger cumulative market effect. The findings indicate that examining the event-day AR alone may underestimate the economic consequences of geopolitical shocks.

The findings have several implications for policymakers and financial-market regulators. Indonesia's dependence on imported crude oil makes the domestic economy vulnerable to disruptions in global energy transportation and associated oil-price volatility. Consequently, policymakers should strengthen energy-security measures, including strategic petroleum reserves, diversified energy sourcing, and contingency mechanisms for periods of severe supply disruption. Fiscal measures should also prioritize targeted rather than broad-based energy subsidies during extreme price shocks to maintain fiscal sustainability while protecting vulnerable households and affected industries. Bank Indonesia and other financial authorities could incorporate geopolitical scenarios involving oil-price spikes, rupiah depreciation, capital outflows, and external financing pressures into financial-stability stress testing. For the OJK and IDX, the significant pre-event AR highlights the importance of strengthening market surveillance and monitoring unusual trading activity surrounding major geopolitical developments. Improved dissemination of verified information could also reduce information asymmetry and excessive uncertainty during periods of market stress.

For investors and corporations, the findings indicate that geopolitical risk should be incorporated into portfolio allocation, corporate valuation, and risk-management strategies rather than treated solely as a short-term market disturbance. Energy companies should consider geopolitical scenarios when evaluating future cash flows and financing requirements, while investors may benefit from greater diversification and hedging strategies during periods of elevated geopolitical uncertainty.

This study has several limitations. First, the analysis focuses exclusively on energy sector stocks listed on the IDX and therefore may not capture heterogeneous effects across other

sectors of the Indonesian economy. Second, the 11-day event window provides evidence of short-term market reactions but cannot fully establish whether the observed cumulative decline represents a permanent structural change in valuation. Third, the event study identifies market reactions but cannot completely disentangle the effect of the Iran conflict from other contemporaneous macroeconomic, financial, or geopolitical developments. Finally, the analysis does not directly examine firm-level characteristics that may explain differences in the magnitude of individual stock responses.

Future research could address these limitations by extending the sample across multiple sectors, countries, and geopolitical events to enable cross-market comparisons. Longer event and post-event windows could also be employed to determine whether the negative CAR persists or eventually reverses. Future studies may further incorporate firm-level characteristics, oil-price movements, exchange rates, geopolitical risk indices, trading volume, and investor sentiment to identify the channels through which geopolitical shocks affect stock valuations. Alternative methodologies, including GARCH-type models, panel-data approaches, and high-frequency event studies, could provide additional evidence on volatility transmission and the speed of market adjustment. Such extensions would strengthen understanding of how geopolitical risks are transmitted from international conflicts to emerging-market financial systems and would provide more comprehensive evidence for investment and policy decisions.

5.1. Conflict of Interest Statement

The author declares that there is no conflict of interest regarding the publication of this paper.

5.2. Author Contributions

A.S.: Conceptualization, Methodology, Investigation, Formal Analysis, Data Curation, Visualization, Writing – Original Draft, Writing – Review & Editing, Project Administration.

5.3. Funding Statement

No funding was received for this research.

5.4. Informed Consent

Informed consent was not required, as this study does not involve human participants.

5.5. Ethical Approval

This article does not contain any studies with human participants performed by the author.

5.6. Data Availability

The data that support the findings of this study are available from the corresponding author [A.S.] upon reasonable request.

5.7. Declaration of Generative AI and AI-assisted Technologies

During the preparation of this manuscript, the author utilized ChatGPT (OpenAI) for language editing and improving grammatical clarity. All outputs generated by the AI tool underwent rigorous critical review and thorough editing by the author to ensure factual accuracy, enhance clarity of expression, and confirm adherence to established academic standards. The author assumes full responsibility for the integrity and content of this manuscript.

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