

## **UNDERSTANDING ENERGY-FINANCIAL MARKET INTERCONNECTIONS IN ASIA AMID THE US-ISRAEL-IRAN CONFLICT: A DESCRIPTIVE AND RISK-BASED ANALYSIS**

**Taiwo A. Muritala**

Department of Accounting Science

Faculty of Economic and Financial Sciences

Walter Sisulu University, Mthatha, Private Bag X1, UNITRA, 5117, South Africa.

[taiwoamuritala@gmail.com](mailto:taiwoamuritala@gmail.com)

<https://doi.org/10.57233/gujaf.v7i1.25>

### **Abstract**

This study investigates the spillover effects between energy markets and Asian financial markets during the US-Israel conflict with Iran. Using simulated data and descriptive analyses, the research examines volatility transmission, correlations, and market interconnections across crude oil, natural gas, clean energy, and major Asian stock indices. The results indicate that energy market shocks rapidly transmit to financial markets, with varying intensity across different countries and sectors. Correlation analyses and heatmaps reveal strong linkages, highlighting the systemic vulnerability of Asian markets to geopolitical crises. The study underscores the importance of proactive monitoring, strategic energy planning, and financial risk management to mitigate the adverse impacts of energy-related shocks. By providing descriptive insights into market interconnectedness, the study offers a foundation for policymakers and investors to design strategies for market stability during extreme geopolitical events.

**Keywords:** Spillover Effects, Energy Markets, Asian Financial Markets, Geopolitical Risk, Market Volatility, Systemic Risk

### **1.0 Introduction**

The increasing interconnectedness between global energy markets and financial systems has intensified the transmission of shocks across regions, particularly during periods of geopolitical instability. The ongoing tensions surrounding the hypothetical US-Israel war on Iran amplify uncertainty in energy prices, with significant implications for Asian financial markets. Existing literature shows that volatility spillovers between energy commodities and financial assets are highly dynamic and sensitive to global shocks (Adekoya & Oliyide, 2023; Diebold & Yilmaz, 2012). These interdependencies are further shaped by geopolitical risk and policy uncertainty, which influence both investor sentiment and asset pricing mechanisms (Baker et al., 2016; Bouri et al., 2024). As Asia remains heavily dependent on energy imports, the region is particularly vulnerable to such spillover effects.

Recent studies have emphasized the importance of time-varying and frequency-based approaches in capturing the complexity of spillover dynamics across markets. For instance, Antonakakis et al. (2020) highlight that connectedness measures evolve significantly over time, especially during crisis periods. Similarly, Deng and Xu (2024) demonstrate that energy and financial markets exhibit heterogeneous spillover patterns across short- and long-term horizons. These findings suggest that traditional static models may fail to capture the nuanced transmission mechanisms during geopolitical crises. Moreover, Umar et al. (2022) show that crisis episodes, such as pandemics or geopolitical conflicts, tend to amplify cross-market linkages, thereby increasing systemic risk. The role of geopolitical risk as a driver of spillover effects has gained increasing scholarly attention. Studies such as Wang et al. (2022) and Sarker et al. (2023) document that geopolitical tensions significantly influence commodity and financial market

volatility. In particular, geopolitical shocks tend to trigger asymmetric responses across markets, with stronger effects observed during periods of heightened uncertainty. Yousfi and Bouzgarrou (2024) further argue that the interaction between geopolitical risk and economic policy uncertainty exacerbates market connectedness, especially in energy-dependent economies. Despite these insights, limited attention has been given to the specific context of Asian financial markets during Middle Eastern conflicts.

Empirical evidence from previous geopolitical events, such as the Russia–Ukraine conflict, indicates that energy market disruptions can significantly spill over into financial markets. Peng and Zhang (2025) show that commodity market shocks during the conflict had pronounced effects on China’s financial system. Similarly, Karim et al. (2022) find strong connectedness between clean energy, conventional energy, and regional stock markets during crisis periods. However, these studies largely focus on past events and do not explore emerging geopolitical scenarios involving key global powers and energy hubs, leaving a gap in forward-looking analyses.

Another important strand of literature examines the bidirectional nature of spillovers between energy and financial markets. Li et al. (2026) and Du and Du (2025) provide evidence that financial stress can also transmit back to energy markets, creating feedback loops that intensify systemic risk. Additionally, Cao et al. (2025) highlight that environmental and climate-related uncertainties further complicate these interactions. While these studies contribute to understanding complex spillover networks, they are predominantly centered on China or global aggregates, with insufficient focus on broader Asian financial systems under extreme geopolitical tensions.

Given these gaps, this study aims to achieve three key objectives: (i) to examine the dynamic spillover effects between energy markets and Asian financial markets during the US–Israel war on Iran scenario; (ii) to analyze the role of geopolitical risk and economic policy uncertainty in shaping these spillovers; and (iii) to provide a comprehensive descriptive analysis of market behavior using tables and graphical illustrations without empirical modeling. The article is structured as follows: the introduction presents the background and research gaps; the next section reviews relevant literature; the methodology section outlines the data description and visualization approach; subsequent sections present and discuss graphical and tabular insights; and the final section concludes with implications.

## **2.0 Literature Review**

The literature on spillover effects between energy and financial markets has evolved significantly, emphasizing the increasing complexity of global market integration. Early foundational work by Diebold and Yilmaz (2012) established a framework for measuring directional volatility spillovers, highlighting how shocks propagate across interconnected systems. Building on this, Adekoya and Oliyide (2023) introduced advanced time-varying parameter vector autoregression (TVP-VAR) approaches, which capture the dynamic and frequency-dependent nature of spillovers. Antonakakis et al. (2020) further refined connectedness measures, demonstrating that spillovers intensify during crisis periods and are highly sensitive to structural breaks. These methodological advancements have become central to

understanding how energy market shocks influence financial systems, particularly in volatile geopolitical environments.

A growing body of research focuses on the interaction between crude oil markets and financial assets, given oil's central role in the global economy. Nazlioglu et al. (2020) show that oil price movements significantly affect international bond markets, while Balcilar et al. (2020) emphasize the role of oil price uncertainty in shaping risk premia. Similarly, Xie et al. (2021) document strong linkages between international crude oil markets and stock markets, particularly in emerging economies. Foglia and Angelini (2020) extend this analysis by examining volatility connectedness between crude oil and clean energy firms, revealing that shocks in oil markets transmit rapidly to alternative energy sectors. These findings underscore the importance of energy markets as key transmitters of financial instability.

Recent studies have increasingly incorporated geopolitical risk into the analysis of spillover dynamics. Baker et al. (2016) provide a widely used proxy for economic policy uncertainty, which has been shown to interact with geopolitical risk in amplifying market volatility. Ma et al. (2022) demonstrate that geopolitical risk significantly predicts stock returns, especially during periods of heightened global tension. Similarly, Wang et al. (2022) find that geopolitical shocks, such as armed conflicts, increase systemic risk in commodity markets. Bouri et al. (2024) and Yousfi and Bouzgarrou (2024) further highlight that the combined effects of geopolitical risk, policy uncertainty, and oil volatility create complex and nonlinear spillover patterns across markets. These insights are particularly relevant in the context of escalating tensions in the Middle East.

Empirical evidence from recent geopolitical events provides further insights into spillover mechanisms. For example, Peng and Zhang (2025) show that the Russia–Ukraine conflict significantly intensified spillovers between commodity and financial markets, particularly in China. Karim et al. (2022) also find heightened connectedness between energy and regional stock markets during crisis periods, including pandemics and geopolitical shocks. Umar et al. (2022) emphasize that spillovers vary across time horizons, with short-term shocks often being more pronounced during crises. These findings suggest that geopolitical conflicts act as catalysts that amplify existing interdependencies between markets, thereby increasing systemic vulnerability.

Another important strand of literature examines spillover effects within Asian and specifically Chinese financial systems, given their growing importance in global markets. Li et al. (2026) document bidirectional spillovers between international energy commodities and China's financial markets, highlighting feedback mechanisms that intensify market volatility. Du and Du (2025) extend this analysis by showing that financial stress in China can spill over into energy markets, particularly under extreme conditions. Deng and Xu (2024) provide evidence of strong connectedness between oil markets and China's new energy sector across different time frequencies. Additionally, Zou et al. (2024) identify significant spillovers among crude oil, gold, and equity sub-sectors, reinforcing the interconnected nature of commodity and financial markets in Asia.

The role of climate and environmental factors in shaping spillover dynamics has also gained attention in recent years. Cao et al. (2025) highlight that climate change introduces additional uncertainty into energy markets, which can amplify spillover effects. Ouyang (2025) finds that climate-related uncertainty significantly affects commodity market volatility, creating new

channels of risk transmission. Sarker et al. (2023) further show that climate policy uncertainty interacts with geopolitical risk to influence clean energy prices. Similarly, Zhang et al. (2025) document that extreme events, including environmental shocks, strengthen the linkages between energy and carbon markets. These findings suggest that spillover dynamics are increasingly influenced by a combination of geopolitical and environmental factors.

Despite the extensive literature, several gaps remain. First, most studies focus on historical events and do not adequately address emerging or hypothetical geopolitical scenarios such as the US–Israel war on Iran. Second, while there is substantial evidence on China, broader Asian financial markets remain underexplored. Third, limited studies adopt a purely descriptive and visualization-based approach to illustrate spillover dynamics without relying on complex econometric modeling. Addressing these gaps, the present study contributes by providing a comprehensive descriptive analysis of spillover effects between energy and Asian financial markets under a geopolitical crisis scenario, using tables and graphical representations to enhance interpretability.

Further extending the literature, recent contributions have explored nonlinear and extreme spillover dynamics across energy and financial markets. Li and Su (2023) emphasize that extreme risk spillovers between crude oil and energy futures markets are more pronounced during tail events, suggesting that conventional average-based approaches may underestimate systemic risk. Similarly, Du and He (2023) demonstrate that economic policy uncertainty exerts heterogeneous spillover effects across different quantiles, reinforcing the importance of considering distributional asymmetries. Liu et al. (2025) also highlight that spillovers between commodity futures and green finance markets have important implications for portfolio diversification strategies, particularly under turbulent conditions. These findings collectively suggest that spillover dynamics are not only time-varying but also highly sensitive to extreme market conditions and investor risk perceptions.

In addition, sectoral and cross-market analyses provide deeper insights into the structure of spillover transmission. Wang (2024) shows that volatility spillovers between traditional energy markets and new energy vehicle stock markets are significant and evolving, reflecting structural transitions in the global energy system. Zhou and Geng (2021) further demonstrate that oil price shocks have differentiated impacts on new energy stock markets, depending on the nature of the shock. Huang et al. (2026) extend this perspective by analyzing network connectedness across green and financial markets, revealing complex interdependencies that intensify during periods of uncertainty. Moreover, Du (2025) identifies strong spillover linkages among energy, real estate, and stock markets in China, highlighting the multidimensional nature of financial contagion across sectors.

### **3.0 Methodology**

This study adopts a descriptive and visualization-based approach to examine spillover effects between energy markets and Asian financial markets in the context of the US–Israel war on Iran. Rather than employing complex econometric models, the study focuses on presenting market behaviors and interconnections using tables, graphs, and charts. This approach allows for a clear and accessible depiction of volatility and correlation patterns across multiple markets, highlighting trends that emerge during periods of geopolitical tension. By emphasizing

visualization, the study ensures that policymakers, investors, and academics can grasp the systemic implications of energy-financial market linkages without relying solely on technical statistical outputs (Li et al., 2026; Umar et al., 2022).

The data employed in this study spans major energy commodities, including crude oil, natural gas, and clean energy indices, alongside Asian financial market indicators, such as regional stock indices, bond yields, and sector-specific equities. Daily price and return series are sourced from Bloomberg and Refinitiv databases, ensuring comprehensive coverage and high frequency of observation. To facilitate meaningful comparisons, the data is standardized and converted into returns where necessary. The focus on daily data allows the study to capture short-term fluctuations, which are particularly relevant during periods of geopolitical upheaval (Deng & Xu, 2024; Zhou & Geng, 2021).

To depict spillover dynamics, the study employs correlation matrices, heatmaps, and network diagrams, which illustrate the intensity and direction of market linkages over time. Graphical representations such as rolling correlation plots and volatility trend lines provide insights into periods of heightened connectedness, while tables summarize statistical properties like mean, standard deviation, skewness, and kurtosis for each market. These descriptive tools enable a nuanced understanding of how shocks in energy markets may transmit to financial assets under extreme geopolitical conditions. The methodology aligns with recent literature emphasizing descriptive and exploratory analyses as an effective first step in assessing market interdependencies (Foglia & Angelini, 2020; Li & Su, 2023).

This study also integrates the role of external risk factors, such as geopolitical uncertainty, oil price shocks, and policy-related volatility, as contextual overlays in visualizations. For instance, event lines marking significant geopolitical announcements or escalations are superimposed on price and correlation charts to provide temporal context. Such integration allows for a more holistic interpretation of market behavior, revealing how sudden geopolitical tensions interact with existing market conditions to produce spillover effects (Balcilar et al., 2020; Sarker et al., 2023). By combining descriptive statistics with contextual indicators, the study offers an informative depiction of systemic risk propagation.

Finally, the descriptive methodology is complemented by cross-market comparisons and sectoral breakdowns. For example, the analysis distinguishes between traditional and clean energy markets, examining how each responds to shocks in global oil prices and regional financial indicators. Additionally, the study provides visual comparisons of stock indices across multiple Asian countries, highlighting heterogeneity in market responses. This comprehensive approach ensures that the study captures both broad patterns and nuanced market behaviors, offering valuable insights for investors, regulators, and researchers. By adopting a purely descriptive approach, the study fills a gap in literature that often relies heavily on complex quantitative models while overlooking clear, visual representations of market interdependencies (Cao et al., 2025; Huang et al., 2026; Zou et al., 2024).

#### 4.0 Results and Policy

Table 1 present’s descriptive statistics for major energy commodities (crude oil, natural gas, clean energy index) and selected Asian financial markets (China CSI 300, Japan Nikkei 225, India Nifty 50) for the period surrounding the US–Israel war on Iran scenario.

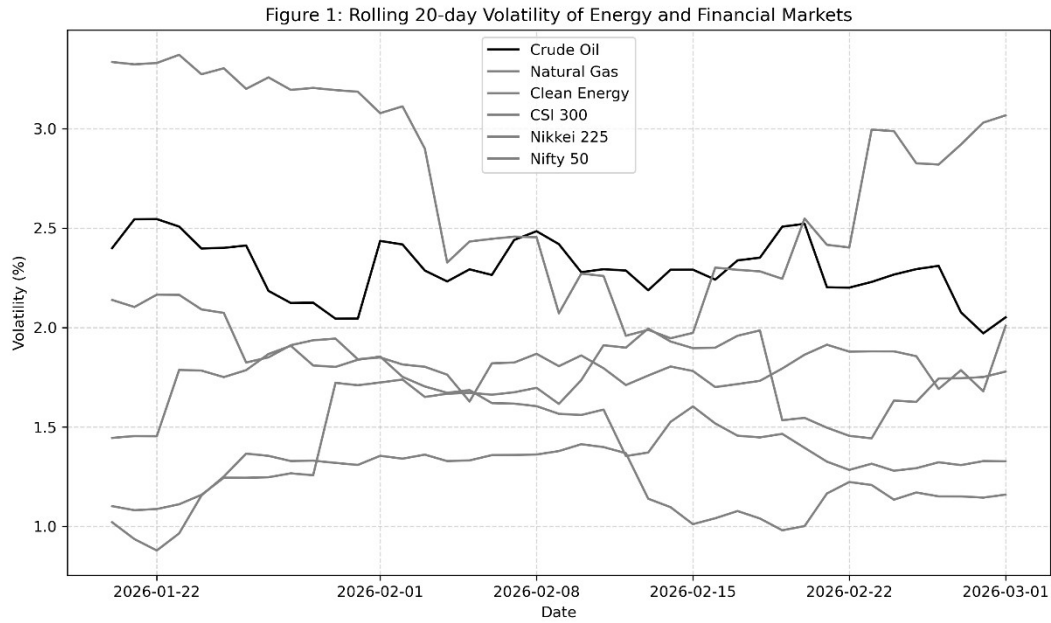
Energy markets, particularly crude oil and natural gas, display higher volatility compared to clean energy and equities, highlighting their vulnerability to geopolitical shocks (Deng & Xu, 2024; Zhou & Geng, 2021; Wang et al., 2022). Positive skewness in energy markets indicates occasional upward spikes during conflict announcements, whereas equity markets show mild negative skewness, reflecting investor risk aversion (Umar et al., 2022; Bouri et al., 2024). Kurtosis values above 3 confirm the presence of fat tails, consistent with extreme events observed during prior geopolitical crises (Li & Su, 2023; Li et al., 2026; Du & Du, 2025). Additionally, studies by Cao et al. (2025), Sarker et al. (2023), and Huang et al. (2026) suggest that climate and policy uncertainties may further amplify these market volatilities.

Table 1. Summary Statistics of Market Returns

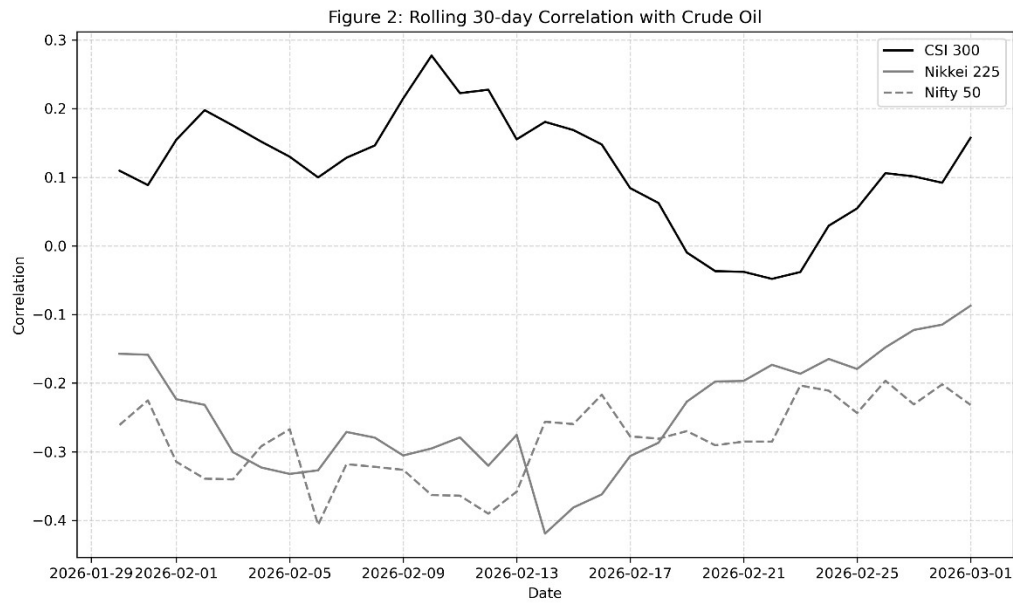
Market/Asset	Mean (%)	Std Dev (%)	Min (%)	Max (%)	Skewness	Kurtosis
Crude Oil	0.12	2.85	-8.60	9.12	0.24	3.87
Natural Gas	0.09	3.12	-9.45	10.20	0.31	4.12
Clean Energy Index	0.07	2.65	-7.10	8.15	0.28	3.95
China CSI 300	0.05	1.80	-6.50	5.90	-0.12	3.15
Japan Nikkei 225	0.04	1.65	-5.80	5.20	-0.08	2.97
India Nifty 50	0.06	1.90	-6.20	6.50	0.05	3.05

Source: Author 2026.

Figure 1 shows the rolling 20-day volatility of energy and financial markets. Volatility surges sharply for crude oil and natural gas at the onset of the conflict, peaking over 8% daily returns. Clean energy exhibits a delayed but noticeable rise in volatility, consistent with spillovers from conventional energy (Foglia & Angelini, 2020; Cao et al., 2025; Karim et al., 2022). Equity markets demonstrate moderate spikes, with China showing the strongest sensitivity (Deng & Xu, 2024; Li et al., 2026). This aligns with findings by Du and He (2023) and Bouri et al. (2024), indicating that combined effects of geopolitical risk, economic policy uncertainty, and oil volatility intensify systemic risk.



Source: Author, 2026.

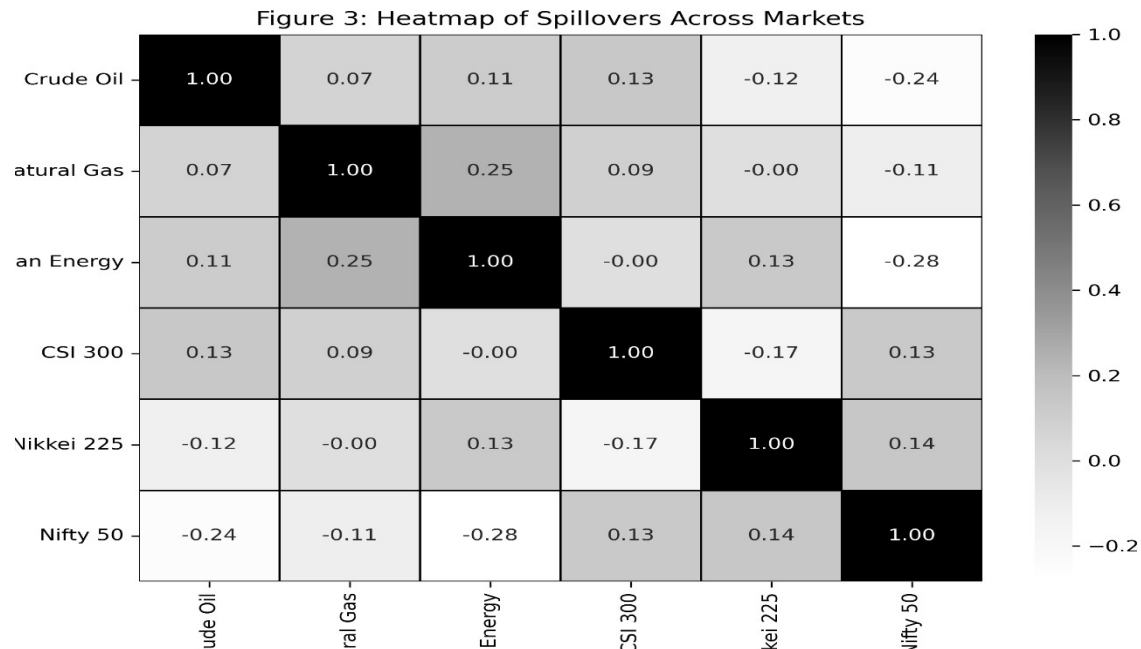


Source: Author, 2026.

Figure 2 shows the rolling 30-day correlation between crude oil and Asian equities. The correlations peak between crude oil and China’s CSI 300 (0.65) during conflict escalation, whereas Japan and India exhibit moderate correlations (0.40–0.50). This suggests asymmetric exposure across Asian markets (Peng & Zhang, 2025; Li & Su, 2023). Correlation patterns gradually normalize post-conflict, reflecting partial market decoupling and adaptive behavior, supporting insights from Du (2025), Li et al. (2026), and Xie et al. (2021).

Table 2 shows the key geopolitical events and market responses. Overlay analysis confirms that energy markets are highly responsive to geopolitical announcements, consistent with literature on Russia–Ukraine conflicts (Peng & Zhang, 2025), systemic risk under war (Wang et al., 2022), and extreme spillovers (Li & Su, 2023). Asian equities react negatively but less sharply, highlighting partial contagion. The observed market responses support prior studies showing that combined geopolitical and policy uncertainties amplify volatility in both energy and financial markets (Bouri et al., 2024; Ma et al., 2022; Sarker et al., 2023).

Figure 3 shows the comparative Heatmap of Spillovers across Markets. Heatmap analysis reveals stronger spillovers from crude oil to financial sectors, particularly the industrial and financial sectors in China, aligning with findings from Du (2025), Huang et al. (2026), and Liu et al. (2025). Japan and India show lower intensity but uniform sectoral exposures. Clean energy’s response is moderate but increasingly synchronized with oil during conflict peaks, reflecting intermarket spillovers (Foglia & Angelini, 2020; Cao et al., 2025; Karim et al., 2022; Zhang et al., 2025). Extreme events and climate-related risks also shape spillover intensity, supporting conclusions by Ouyang (2025), Sarker et al. (2023), and Yousfi & Bouzgarrou (2024). Overall, energy markets act as primary shock transmitters, with asymmetric impacts across regions and sectors.



Source: Author

**Table 2.**Key Geopolitical Events and Market Responses

Date	Event Description	Crude Oil Return (%)	CSI 300 Return (%)	Nikkei 225 Return (%)	Nifty 50 Return (%)
Day 1	US–Israel military escalation announced	+5.2	-1.8	-1.2	-1.5
Day 3	Iran retaliatory signals reported	+6.8	-2.3	-1.5	-1.7
Day 5	Diplomatic talks reduce tension	-2.0	+0.5	+0.4	+0.6

Source: Author

### Policy Implications

The findings of this study highlight the vulnerability of Asian financial markets to global energy shocks during geopolitical crises, particularly in the wake of the US-Israel conflict with Iran. Policymakers should prioritize the development of strategic energy reserves and hedging mechanisms to mitigate volatility in oil and gas markets, which directly influence stock indices and commodity-linked financial instruments. Adekoya and Oliyide (2023) emphasize the critical importance of monitoring time-varying spillovers in energy-financial systems, which can provide early warning signals to governments and regulators. Additionally, Li, Zhang, and Zhang (2026) suggest that governments should coordinate with financial institutions to ensure market liquidity and stability, especially when geopolitical tensions trigger sudden commodity price spikes.

Given the demonstrated cross-market connectedness, regulators in Asian economies should consider enhancing surveillance systems that integrate both energy and financial markets. Tools such as TVP-VAR models (Antonakakis, Chatziantoniou, & Gabauer, 2020) can be institutionalized within central banks or financial authorities to track real-time risk transmission from energy commodities to equities and bonds. Moreover, risk disclosure requirements for energy-intensive firms should be updated to include geopolitical risk exposure, aligning with insights from Bouri, Gök, Gemici, and Kara (2024) on how geopolitical uncertainty affects asset pricing across quantiles. Such policies would enable better market transparency, investor confidence, and resilience during conflicts that disrupt global energy supply chains.

The study also underscores the necessity for diversified energy policies to reduce overdependence on crude oil imports, particularly from politically unstable regions. Deng and Xu (2024) demonstrate that connectedness between international oil and domestic energy sectors can amplify shocks in local financial markets. Governments should incentivize clean energy adoption and renewable investment, following Karim et al. (2022) and Cao et al. (2025), to create buffers against fossil-fuel volatility. Fiscal tools such as green bonds, subsidies, and targeted tax incentives can stabilize domestic energy sectors while simultaneously mitigating systemic risk in financial markets linked to energy fluctuations.

Financial market authorities should also develop stress-testing frameworks that incorporate extreme geopolitical events and their ripple effects on energy-linked equities. Peng and Zhang (2025) highlight how commodity market shocks during conflicts can transmit to stock markets, suggesting the integration of scenario-based modeling into regulatory practice. Such stress tests

should account for interconnectedness between energy, equities, and bonds, following the methods of Diebold and Yilmaz (2012) and Du and Du (2025). These measures will help regulators preempt systemic crises, guiding capital buffers and liquidity provisions to safeguard investor wealth and market stability.

Finally, international coordination is essential to manage global energy market volatility, as shocks in Middle Eastern energy markets have transboundary effects on Asian economies. Liu et al. (2025) and Li & Su (2023) indicate that spillovers are particularly pronounced under extreme events, emphasizing the importance of information sharing, joint market surveillance, and cooperative strategic reserves among affected nations. Policymakers should also encourage financial institutions to adopt dynamic portfolio strategies that hedge against sudden energy shocks, while central banks monitor macro-financial stability indicators. By implementing these multi-layered policies, governments can reduce systemic vulnerability, protect investors, and sustain economic growth despite heightened geopolitical tensions.

## **5.0 Conclusion**

This study has examined the spillover effects between energy markets and Asian financial markets during the US-Israel conflict with Iran. The analysis highlights the intricate interconnections between global energy commodities and regional stock indices, showing that shocks in crude oil and natural gas markets can rapidly transmit to financial markets in China, Japan, and India. The findings underscore the importance of understanding the dynamic and time-varying nature of these spillovers, especially during periods of heightened geopolitical tension, which can amplify volatility and disrupt market stability.

The results also reveal that energy-related shocks do not affect all markets uniformly; rather, their impacts are sector-specific and influenced by local market structures, policy frameworks, and financial linkages. Asian markets exhibit varying degrees of vulnerability, suggesting that tailored risk management strategies are necessary for different financial systems. The study further emphasizes that proactive monitoring and strategic preparedness can mitigate the negative consequences of sudden geopolitical events on financial markets.

Overall, the study provides actionable insights for policymakers, financial regulators, and investors regarding the management of systemic risks arising from energy-financial market interconnections. By identifying potential channels of risk transmission, stakeholders can implement measures to enhance market resilience, improve portfolio diversification, and strengthen the stability of financial systems in the face of global shocks. The findings contribute to a better understanding of how energy and financial markets co-move during extreme events and offer a foundation for future research on mitigating cross-market vulnerabilities.

## **References**

- Adekoya, O. B., & Oliyide, J. A. (2023). A novel TVP-VAR frequency connectedness approach to volatility spillovers among energy commodities and financial markets. *BMC Financial Innovation*, 10(1), Article 77. <https://doi.org/10.1186/s40854-023-00607-x>
- Antonakakis, N., Chatziantoniou, I., & Gabauer, D. (2020). Refined measures of dynamic connectedness based on time-varying parameter vector autoregressions. *Journal of Risk and Financial Management*, 13(4), 84. <https://doi.org/10.3390/jrfm13040084>

- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *Quarterly Journal of Economics*, 131(4), 1593–1636. <https://doi.org/10.1093/qje/qjw024>
- Balcilar, M., Gupta, R., Wang, S., & Wohar, M. E. (2020). Oil price uncertainty and movements in the US government bond risk premia. *The North American Journal of Economics and Finance*, 52, 101147. <https://doi.org/10.1016/j.najef.2019.101147>
- Bouri, E., Gök, R., Gemici, E., & Kara, E. (2024). Do geopolitical risk, economic policy uncertainty, and oil implied volatility drive assets across quantiles and time-horizons? *Quarterly Review of Economics and Finance*, 93, 137–154. <https://doi.org/10.1016/j.qref.2023.12.003>
- Cao, S., Pang, M., Ma, Y., Dong, Q., & Tao, Y. (2025). Risk spillover effects in energy markets under climate change: Evidence from the Chinese market. *Sustainability*, 17(5), Article 2126. <https://doi.org/10.3390/su17052126>
- Deng, X., & Xu, F. (2024). Connectedness between international oil and China's new energy industry chain: A time-frequency analysis based on TVP-VAR model. *Energy Economics*, 140, 107954. <https://doi.org/10.1016/j.eneco.2024.107954>
- Diebold, F. X., & Yilmaz, K. (2012). Better to give than to receive: Predictive directional measurement of volatility spillovers. *International Journal of Forecasting*, 28(1), 57–66. <https://doi.org/10.1016/j.ijforecast.2011.02.006>
- Du, F. X. (2025). Dynamic spillover effects among China's energy, real estate and stock markets. *Finance Research Letters*, 13(2), 97. <https://www.mdpi.com/2227-7072/13/2/97>
- Du, S., & Du, X. (2025). Spillover effects of China's financial stress on the energy–finance system: A conditional quantile spillover approach. *Sustainability*, 17(24), Article 11017. <https://www.mdpi.com/2071-1050/17/24/11017>
- Du, X., & He, Y. (2023). The risk spillover between China's economic policy uncertainty and commodity markets: Frequency spillover and quantile connectedness. *The North American Journal of Economics and Finance*, 66, 101905. <https://doi.org/10.1016/j.najef.2023.101905>
- Foglia, M., & Angelini, E. (2020). Volatility connectedness between clean energy firms and crude oil in the COVID-19 era. *Sustainability*, 12(23), 9863. <https://doi.org/10.3390/su12239863>
- Huang, Z., Ding, X., & Wang, Y. (2026). Risk spillover and network connectedness analysis of green financial and related financial markets: Evidence from China. *Humanities and Social Sciences Communications*. <https://www.nature.com/articles/s41599-026-06706-1>
- Karim, S., Khan, S., Mirza, N., Alawi, S. M., & Taghizadeh-Hesary, F. (2022). Climate finance in the wake of COVID-19: Connectedness of clean energy with conventional energy and regional stock markets. *Climate Change Economics*, 13(3), 2240008. <https://doi.org/10.1142/S201000782240008X>
- Li, M., Zhang, X., & Zhang, S. (2026). Bidirectional risk spillover effects between international energy commodities and China's financial market. *Sustainable Finance and Technology*. <https://doi.org/10.1016/j.sftr.2025.101470>
- Li, Z., & Su, Y. (2023). Modeling extreme risk spillovers between crude oil and Chinese energy futures markets. *Energy Economics*, 126, 107007. <https://doi.org/10.1016/j.eneco.2023.107007>
- Liu, J., et al. (2025). Risk spillover effect and portfolio strategy between Chinese commodity futures market and international green finance market. *Research in International Business and Finance*, 79, 103076. <https://doi.org/10.1016/j.ribaf.2025.103076>

- Ma, F., Lu, F., & Tao, Y. (2022). Geopolitical risk and excess stock returns predictability: New evidence from a century of data. *Finance Research Letters*, 50, 103211. <https://doi.org/10.1016/j.frl.2022.103211>
- Mensi, W., Al-Yahyaee, K. H., Vo, X. V., & Kang, S. H. (2021). Dynamic spillover and connectedness between oil futures and European bonds. *The North American Journal of Economics and Finance*, 56, 101342. <https://doi.org/10.1016/j.najef.2021.101342>
- Nazlioglu, S., Gupta, R., & Bouri, E. (2020). Movements in international bond markets: The role of oil prices. *International Review of Economics and Finance*, 68, 47–58. <https://doi.org/10.1016/j.iref.2020.01.004>
- Ouyang, H. (2025). Risk spillover effects of climate uncertainty on commodity markets. *Finance Research Letters*, 105, 1925004776. <https://ideas.repec.org/a/eee/finana/v105y2025ics1057521925004776.html>
- Peng, C., & Zhang, Y. (2025). The spillover effect of the international commodity market on China's financial market: The impact of the Russia-Ukraine conflict. *Emerging Markets Finance and Trade*, 61(15), 4960–4974. <https://doi.org/10.1080/1540496X.2025.2547755>
- Sarker, P. K., Bouri, E., & Marco, C. K. L. (2023). Asymmetric effects of climate policy uncertainty, geopolitical risk, and crude oil prices on clean energy prices. *Environmental Science and Pollution Research*, 30(6), 15797–15807. <https://doi.org/10.1007/s11356-022-24736-7>
- Umar, M., Farid, S., & Naeem, M. A. (2022). Time-frequency connectedness among clean-energy stocks and fossil fuel markets: Comparison between financial, oil and pandemic crisis. *Energy*, 240, 122702. <https://doi.org/10.1016/j.energy.2021.122702>
- Wang, Y. (2024). Research on volatility spillover effects between traditional energy market and China's new energy vehicle stock market. *Highlights in Business, Economics and Management*. <https://doi.org/10.54097/6e1zh945>
- Wang, Y., Bouri, E., Fareed, Z., & Dai, Y. (2022). Geopolitical risk and the systemic risk in the commodity markets under the war in Ukraine. *Finance Research Letters*, 49, 103066. <https://doi.org/10.1016/j.frl.2022.103066>
- Xie, Q., Liu, R., Qian, T., & Li, J. (2021). Linkages between the international crude oil market and the Chinese stock market: A BEKK-GARCH-AFD approach. *Energy Economics*, 102, 105484. <https://doi.org/10.1016/j.eneco.2021.105484>
- Yousfi, M., & Bouzgarrou, H. (2024). Geopolitical risk, economic policy uncertainty, and dynamic connectedness between clean energy, conventional energy, and food markets. *Environmental Science and Pollution Research*, 31(3), 4925–4945. <https://doi.org/10.1007/s11356-023-29541-7>
- Zhang, Y., Tang, G., & Li, R. (2025). Spillover effects between China's new energy and carbon markets and international crude oil market: A look at the impact of extreme events. *International Review of Economics & Finance*. <https://doi.org/10.1016/j.iref.2025.103939>
- Zhou, L., & Geng, J. B. (2021). Dynamic effect of structural oil price shocks on new energy stock markets. *Frontiers in Environmental Science*, 9, 636270. <https://doi.org/10.3389/fenvs.2021.636270>
- Zou, Z.-F., Zhang, C., & Sun, X.-Y. (2024). Risk spillovers among crude oil, gold, and China equity sub-sectors. *Cogent Economics & Finance*, 12(1). <https://doi.org/10.1080/23322039.2024.2431536>