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Geopolitical Risk and Stock Market Reaction: An Event Study from Uzbekistan

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ABSTRACT

This study examines the reaction of the Uzbek stock market to geopolitical escalation involving Iran, the United States, and Israel, using an event-study approach. Existing studies on geopolitical risk predominantly focus on developed and emerging markets, while evidence from frontier markets remains relatively limited. This study addresses this gap by analyzing whether geopolitical shocks generate abnormal returns in a relatively segmented frontier market with limited global financial integration. The study employs daily stock price data from 90 firms listed on the Tashkent Stock Exchange. Using an estimation window of [-120, -11] and an event window of [-10, +10], abnormal returns are estimated using the market-adjusted model and further evaluated through robustness analyses, including alternative event windows and non-parametric statistical tests. The findings indicate that both average and cumulative abnormal returns remain statistically insignificant throughout the event window. These results suggest that the Uzbek stock market is relatively insensitive to external geopolitical shocks. From a theoretical perspective, the findings support the argument of market segmentation theory, which suggests that lower financial integration, limited foreign investor participation, and weaker information transmission may reduce the spillover effects of global geopolitical risk in frontier markets. The study contributes to the literature by extending research on geopolitical risk to Central Asian frontier markets and by providing empirical evidence of the heterogeneous transmission of geopolitical shocks across financial systems.

Keywords: Geopolitical Risk; Event Study; Frontier Market; Market Segmentation; Uzbekistan Stock Market

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INTRODUCTION

Financial markets are highly sensitive to geopolitical developments, particularly when conflicts involve major global powers and generate uncertainty regarding future economic and political conditions. Military confrontations, diplomatic tensions, economic sanctions, and regional security instability may alter investor sentiment, increase risk perception, and influence capital allocation

decisions across international financial markets. In increasingly interconnected financial systems, geopolitical shocks may rapidly spread across countries through capital flows, information transmission, and changes in global investor expectations. Consequently, understanding how geopolitical risk affects stock market behavior has become an increasingly important issue in financial economics (Nasouri, 2025; Bouoiyour et al., 2019). One of the most significant geopolitical escalations in early 2026 involved rising tensions among Iran, the United States, and Israel. On 28 February 2026, geopolitical tensions intensified amid military escalation and reciprocal security threats in the Middle East, heightening concerns about regional instability, energy supply disruptions, and broader global economic uncertainty. The escalation attracted substantial international attention because conflicts involving the Middle East often influence global oil prices, investor confidence, and financial market stability (Alqahtani et al., 2019; Eissa et al., 2025). Previous studies demonstrate that geopolitical crises associated with war, terrorism, or military conflict often lead to increased financial market volatility and negative stock market reactions (Enescu & Szeles, 2026; Balcilar et al., 2018). However, the extent to which such geopolitical shocks affect financial markets may vary substantially across countries depending on market structure and financial integration.

Recent literature increasingly recognizes geopolitical risk as an important determinant of financial market dynamics. The Geopolitical Risk Index developed by Caldara and Iacoviello (2022) demonstrates that geopolitical tensions can significantly affect investment activity, macroeconomic performance, and financial market volatility. Rising geopolitical risk often increases uncertainty regarding future economic conditions, prompting investors to demand higher risk premiums and rebalance portfolios away from risky assets such as equities (Foglia et al., 2025). Empirical evidence from developed and emerging markets generally indicates that geopolitical shocks are associated with declines in stock returns and increases in volatility (Yang et al., 2021; Agoraki et al., 2022; Demir et al., 2018; Su et al., 2019). Nevertheless, prior findings remain inconsistent across market categories. While developed financial markets often exhibit strong, immediate reactions to geopolitical events, several studies suggest that emerging and frontier markets may exhibit weaker or delayed responses due to differences in liquidity, investor composition, and financial integration. These inconsistencies indicate that the transmission of geopolitical risk across financial systems is not uniform. Financial Integration Theory argues that highly integrated markets are more vulnerable to external shocks because global investors rapidly adjust portfolios in response to changes in international risk conditions (Das et al., 2019; Uddin et al., 2018; Zheng et al., 2023). In contrast, Market Segmentation Theory suggests that relatively segmented financial markets may exhibit lower sensitivity to global shocks because limited cross-border capital mobility reduces the transmission of external risks. Frontier markets, which are generally characterized by lower liquidity, limited foreign investor participation, and weaker institutional integration, may therefore react differently to geopolitical events compared with developed markets. Although previous studies have extensively examined geopolitical risk in developed and emerging economies, empirical evidence from frontier markets remains relatively limited, particularly in Central Asia.

The Uzbekistan stock market provides an important setting for examining these issues. As one of the frontier financial markets in Central Asia, Uzbekistan has experienced a gradual development of its capital market in recent years (FTSE Russell, 2023). However, the market remains relatively small, less liquid, and only moderately integrated into the global financial system. The dominance of domestic investors and relatively limited participation by foreign institutional investors may reduce the transmission of global geopolitical shocks into domestic stock prices. From a theoretical perspective, Uzbekistan represents a relevant empirical context for testing whether market segmentation weakens the influence of geopolitical risk on stock market performance. This study, therefore, investigates the reaction of the Uzbekistan stock market to the geopolitical escalation involving Iran, the United States, and Israel on 28 February 2026. Using an event study framework, the study analyses abnormal returns surrounding the geopolitical escalation by examining stock price movements of firms listed on the Tashkent Stock Exchange. Specifically, the research evaluates

whether the geopolitical escalation generated statistically significant abnormal returns during the event window and whether the market exhibited persistent cumulative reactions following the event. This study contributes to the literature in several ways. First, it extends existing research on geopolitical risk by providing empirical evidence from a frontier market that has received relatively limited attention in financial economics literature. Second, the study strengthens the theoretical explanation of geopolitical risk transmission by integrating Market Segmentation Theory with event study analysis. Third, the research contributes methodologically by employing robustness analyses using alternative event windows and additional statistical tests. Finally, the findings provide important practical implications for investors, policymakers, and financial regulators regarding the resilience of frontier markets to external geopolitical shocks. Understanding how frontier markets respond to geopolitical uncertainty is important because financial globalization increasingly exposes domestic markets to international political instability. By examining whether geopolitical escalation generates abnormal returns in the Uzbekistan stock market, this study contributes to a broader understanding of the heterogeneous transmission of geopolitical risk across different financial systems.

THEORETICAL FRAMEWORK AND HYPOTHESES

Market Segmentation Theory and Geopolitical Risk Transmission

This study primarily adopts Market Segmentation Theory as the dominant theoretical framework to explain how geopolitical risk is transmitted into frontier financial markets. Market Segmentation Theory argues that financial markets are not perfectly integrated into the global financial system and therefore may exhibit different sensitivities to external economic and political shocks. In segmented markets, barriers to international capital mobility, limited foreign investor participation, lower liquidity, and weaker institutional integration reduce the transmission of global risk into domestic asset prices (Das et al., 2019; Albulescu et al., 2019; Ji et al., 2020). The theory is particularly relevant for frontier markets, where domestic financial systems often remain relatively isolated from global portfolio flows. Compared with developed and highly integrated financial markets, frontier markets generally exhibit lower trading volumes, limited market depth, higher information asymmetry, and a stronger dominance of domestic investors (Das et al., 2019; Cui et al., 2023). These structural characteristics may weaken the spillover effects of external geopolitical uncertainty on domestic stock prices because global investors play a relatively smaller role in price formation.

In the context of geopolitical escalation, Market Segmentation Theory suggests that international political instability may not necessarily generate strong abnormal returns in relatively segmented markets. Although geopolitical shocks may increase global uncertainty and alter investor sentiment internationally, the transmission of such shocks depends on the extent of financial integration and information diffusion within domestic markets. Consequently, frontier markets such as Uzbekistan may exhibit weaker or delayed reactions to geopolitical escalation compared with developed financial systems.

Efficient Market Hypothesis and Market Reaction to Information

While Market Segmentation Theory explains differences in shock transmission across markets, the Efficient Market Hypothesis (EMH) provides the theoretical basis for understanding how financial markets respond to new information. According to EMH, stock prices rapidly incorporate all publicly available information into market prices (Charles et al., 2017; Ahmed & Hossain, 2019). Under semi-strong market efficiency, unexpected geopolitical developments may generate abnormal returns because investors revise expectations regarding future economic conditions, political stability, and corporate profitability. Event study methodology is closely associated with EMH because it evaluates whether new information produces statistically significant abnormal returns around specific events (El Ghoul et al., 2023). If financial markets perceive geopolitical escalation as economically relevant, stock prices should adjust rapidly during the event window. Conversely, the absence of significant abnormal returns may indicate either the event's limited economic

relevance or the weak transmission of geopolitical information into domestic financial markets. Previous empirical studies demonstrate that geopolitical events frequently influence stock market performance through increased uncertainty and investor risk aversion (Enescu & Szeles, 2026; Balcilar et al., 2018). Geopolitical tensions may increase required risk premiums, reduce investor confidence, and encourage portfolio reallocation away from risky assets such as equities towards safer investment instruments. However, the magnitude of market reactions varies considerably across countries and market structures.

Financial Integration and Information Transmission

Financial Integration Theory further explains how geopolitical shocks spread across international financial systems. In highly integrated markets, geopolitical uncertainty can rapidly influence stock prices through cross-border capital flows, contagion effects, and global investor sentiment (Antonakakis et al., 2017; Mensi et al., 2016; Vo & Ellis, 2018). International investors often adjust portfolio allocations in response to geopolitical developments, thereby transmitting volatility and risk across markets. Information transmission also plays an important role in geopolitical risk spillovers. In modern financial systems, geopolitical news spreads rapidly through global media and financial information networks, influencing investor expectations across countries. Markets with stronger international linkages are therefore generally more sensitive to geopolitical uncertainty because investors respond simultaneously to changes in global risk conditions. However, frontier markets may experience weaker information transmission due to lower foreign investor participation and lower market integration. As a result, geopolitical events occurring outside the domestic economy may not produce substantial changes in investor behaviour or stock market performance. This argument is consistent with Market Segmentation Theory, which suggests that segmented markets are relatively insulated from external shocks.

Frontier Markets and Investor Behaviour

Frontier financial markets possess structural characteristics that may influence investor responses to geopolitical events. Compared with developed markets, frontier markets generally exhibit lower liquidity, smaller market capitalisation, and limited institutional participation. These conditions may reduce market participants' responsiveness to international political developments, as they primarily focus on domestic economic fundamentals rather than global geopolitical dynamics. Furthermore, the dominance of domestic investors in frontier markets may contribute to relatively stable trading behaviour during periods of international uncertainty. Unlike global institutional investors, who actively rebalance portfolios in response to geopolitical developments, domestic investors may perceive external geopolitical events as less directly relevant to domestic corporate performance. Consequently, geopolitical escalation may not necessarily generate significant abnormal returns in frontier stock markets. The Uzbekistan stock market represents an important empirical context for examining these theoretical arguments. Although Uzbekistan has experienced gradual financial market development, its capital market remains relatively segmented from global financial systems. Limited foreign investor participation and relatively weak financial integration may therefore reduce the transmission of geopolitical shocks into domestic stock prices.

Hypotheses Development

Geopolitical events may also generate differences in investor behaviour between periods before and after the event. If investors respond negatively to geopolitical uncertainty, abnormal returns following the event should be lower than those observed before the escalation. Event study literature suggests that post-event adjustments often reflect changing investor expectations and portfolio reallocation behaviour (Sathyanarayana, 2026).

Thus, the second hypothesis is proposed:

H2: Abnormal returns during the post-event period are significantly lower than abnormal returns during the pre-event period.

In addition to daily abnormal returns, geopolitical escalation may generate cumulative effects throughout the event window. Persistent investor pessimism and uncertainty may produce

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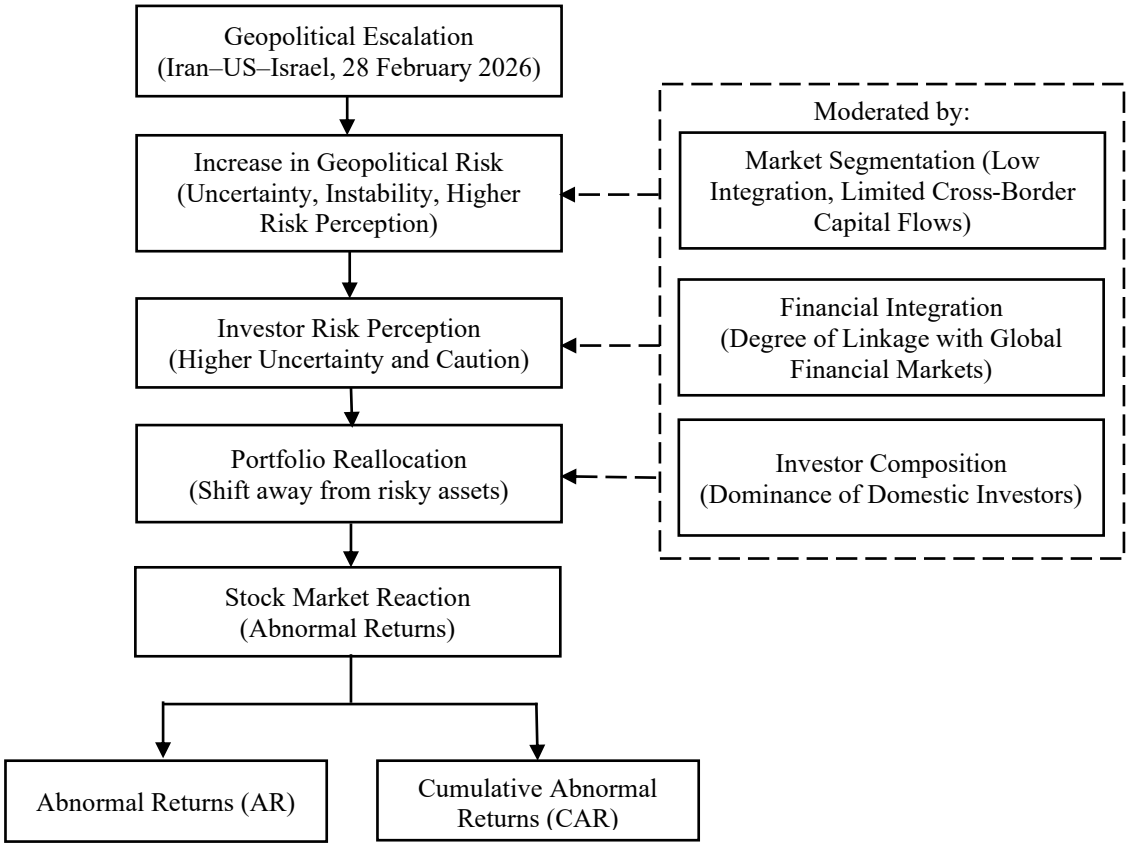
cumulative abnormal returns that deviate significantly from zero over time. If the geopolitical escalation negatively affects investor sentiment, cumulative abnormal returns are expected to become negative during the event window.
Accordingly, the third hypothesis is formulated as follows:
H3: The cumulative abnormal returns during the event window surrounding the geopolitical escalation are significantly negative.

Conceptual Framework



Note: Solid arrows indicate the direction of influence, dashed arrows indicate moderating effects
Figure 1. Conceptual Framework
Source: Developed by the author (2026)

Figure 1 shows the conceptual framework of the study. The framework illustrates that geopolitical escalation involving Iran, the United States, and Israel increases global geopolitical risk and investor uncertainty, which subsequently influences investor risk perception and portfolio reallocation behaviour. These processes may generate stock market reactions in the form of abnormal returns and cumulative abnormal returns. The framework further suggests that the transmission of geopolitical risk into the Uzbekistan stock market is moderated by market segmentation, financial integration, and investor composition. In relatively segmented frontier markets characterised by limited foreign investor participation and lower global financial integration, the impact of external geopolitical shocks on domestic stock prices may become weaker or less persistent.

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METHODS

Research Design

This study employs an event study methodology to examine the reaction of the Uzbekistan stock market to the geopolitical escalation involving Iran, the United States, and Israel on 28 February 2026. Event study analysis is widely used in financial economics to evaluate how specific information events influence stock prices by comparing actual returns with expected returns during a defined observation period (El Ghoul et al., 2023; Francq & Zakoïan, 2019). The methodology is particularly appropriate for analysing short-term market reactions to unexpected political and geopolitical events because it allows researchers to isolate the informational impact of an event on stock returns (Goldsmith-Pinkham & Lyu, 2025). The geopolitical escalation examined in this study refers to the intensification of military and diplomatic tensions involving Iran, the United States, and Israel on 28 February 2026. The escalation heightened global uncertainty about regional security and potential disruptions to global economic conditions, particularly in energy markets and international investor sentiment. The event date (t = 0) is therefore defined as 28 February 2026.

Estimation Window and Event Window

A standard event study generally requires both an estimation window and an event window. The estimation window is used to estimate normal or expected stock returns under non-event conditions, while the event window captures abnormal returns associated with the event itself (El Ghoul et al., 2023). This study employs an estimation window of [-120, -11] trading days before the event date. The estimation window consists of 110 trading days and is selected to provide sufficient historical observations for estimating expected returns while avoiding contamination from information leakage immediately before the event. The use of a relatively long estimation period is consistent with prior event-study literature examining financial market reactions to political and geopolitical events (Goldsmith-Pinkham & Lyu, 2025; El Ghoul et al., 2023).

The event window used in this study is [-10, +10], comprising 10 trading days before the event, the event day itself, and 10 trading days after the event. The symmetric event window is selected to capture potential information leakage before the geopolitical escalation and delayed investor reactions afterwards. Previous event study research frequently employs short-term symmetric event windows because financial markets may react both before and after major geopolitical announcements (Enescu & Szeles, 2026; Noda, 2016). Thus, the observation period spans from 18 February 2026 to 10 March 2026.

Sample and Data

The sample consists of companies listed on the Tashkent Stock Exchange (TSE), which represents the principal securities exchange in Uzbekistan. The TSE reflects overall stock market activity in Uzbekistan and serves as the main platform for equity trading within the country. This study includes 90 listed companies with available daily stock price data during the observation period. Daily closing prices were obtained from official trading records published by the Tashkent Stock Exchange. In addition, market index data were collected, using the Tashkent Composite Index as the benchmark, to calculate market returns. The use of the Tashkent Composite Index is appropriate because it represents aggregate market performance and is commonly used as a benchmark for measuring expected returns in the Uzbek capital market.
The total dataset, therefore, consists of:

90 firms × 21 trading days

resulting in a total of:

1890 firm-day observations

Measurement of Stock Returns

Daily stock returns are calculated using logarithmic returns because logarithmic transformations provide time-additive properties and improve statistical comparability across periods (Francq & Zakoïan, 2019). The return of stock i on day t is calculated as follows:

$$\boldsymbol{R_{it} = \ln\left(\frac{P_{it}}{P_{i,t-1}}\right)}$$

where:

$\boldsymbol{R_{it}}$ = abnormal return of stock i on day t

$\boldsymbol{P_{it}}$ = closing price of stock i on day t

$\boldsymbol{P_{i,t-1}}$ = closing price of stock i on day t

Similarly, market returns are calculated using changes in the Tashkent Composite Index:

$$\boldsymbol{R_{mt} = \ln\left(\frac{I_t}{I_{t-1}}\right)}$$

where:

$\boldsymbol{R_{mt}}$ = market return on day t

$\boldsymbol{I_t}$ = market index value on day t

Expected Return and Abnormal Return

This study primarily employs the market-adjusted return model to estimate abnormal returns. Under this model, expected returns are assumed to equal contemporaneous market returns. The market-adjusted model is widely used in event study research because of its simplicity and robustness, particularly when analysing short-term event windows in markets with relatively limited historical trading data (El Ghoul et al., 2023).

The expected return is therefore defined as:

$$\boldsymbol{E(R_{it}) = R_{mt}}$$

Abnormal return is calculated as the difference between actual return and expected return:

$$\boldsymbol{AR_{it} = R_{it} - R_{mt}}$$

where:

$\boldsymbol{AR_{it}}$ = abnormal return of firm i on day t

$\boldsymbol{R_{it}}$ = actual return of firm i

$\boldsymbol{R_{mt}}$ = market return on day t

Average Abnormal Return

To evaluate the overall market reaction, abnormal returns are averaged across all firms in the sample. The Average Abnormal Return (AAR) is calculated as follows:

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

where:

$\boldsymbol{AAR_t}$ = average abnormal return on day t

$\boldsymbol{N}$ = number of firms in the sample

AAR measures the average market reaction across all firms during each trading day within the event window.

Cumulative Abnormal Return

To evaluate the overall impact of geopolitical escalation throughout the event window, cumulative abnormal returns are calculated. The Cumulative Abnormal Return (CAR) for firm i is defined as:

$$\boldsymbol{CAR_i = \sum_{t=t_1}^{t_2} AR_{it}}$$

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The Cumulative Average Abnormal Return (CAAR) across all firms is subsequently calculated as:

$$CAAR = \frac{1}{N}\sum_{i=1}^{N} CAR_i$$

CAR and CAAR provide broader measures of market response by capturing the cumulative effect of abnormal returns over time.

Statistical Testing

This study applies both parametric and non-parametric statistical tests to evaluate the significance of abnormal returns. The primary statistical procedure uses a parametric t-test to determine whether the average abnormal return differs significantly from zero. The t-statistic is calculated as follows:

$$t = \frac{\overline{AR}}{S(AR)/\sqrt{N}}$$

where:
$\overline{AR}$ = mean abnormal return
$S(AR)$ = standard deviation of abnormal returns
N = number of observations

In addition to the conventional t-test, this study performs robustness analyses using several alternative statistical procedures. First, the Patell Z-test is employed to assess the significance of abnormal returns while accounting for event-induced variance. Second, the Wilcoxon signed-rank test is used as a non-parametric procedure that does not assume normal distribution of abnormal returns. Third, the generalised sign test is applied to evaluate the directionality of abnormal returns across firms. The use of both parametric and non-parametric procedures strengthens the robustness of empirical findings. It reduces potential bias arising from non-normal return distributions, which are commonly observed in frontier financial markets.

Robustness Analysis

To ensure the stability of the empirical findings, this study performs several robustness analyses. First, alternative event windows are examined, including [-3, +3] and [-5, +5], to evaluate whether the results remain consistent across different observation periods. Second, alternative expected return specifications are considered by comparing the market-adjusted return model with the market model approach.

The market model estimates expected returns using the following specification:

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

where:
α_i = intercept term
β_i = systematic risk coefficient
ε_{it} = error term
The inclusion of robustness tests allows the study to verify whether the empirical findings remain stable under alternative methodological assumptions.

Control for Confounding Events

One important concern in event study methodology is the presence of confounding events that may simultaneously influence stock prices during the event window. To minimise the effects of contamination, this study reviews major domestic macroeconomic announcements, monetary policy changes, and significant market events occurring during the observation period. No major domestic economic announcements or extraordinary policy interventions were identified during the event window that could systematically bias the estimation of abnormal returns. Therefore, abnormal return movements observed during the event window are expected to primarily reflect market responses to the geopolitical escalation examined in this study.

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RESULTS AND DISCUSSION

Descriptive Analysis

This study investigates the reaction of the Uzbekistan stock market to the geopolitical escalation involving Iran, the United States, and Israel on 28 February 2026. Using daily stock price data from 90 firms listed on the Tashkent Stock Exchange (TSE), the analysis evaluates abnormal returns over a 21-day event window spanning 10 trading days before the event, the event day itself, and 10 trading days after the event. Daily stock returns were calculated using logarithmic returns, while abnormal returns were estimated using the market-adjusted return model. To strengthen the robustness of the analysis, additional statistical procedures, including alternative event windows and non-parametric tests, were also conducted. Event study methodology has been widely applied in financial economics to analyse stock market reactions to unexpected political, economic, and geopolitical events because it allows researchers to isolate the informational impact of specific events on stock prices (Goldsmith-Pinkham & Lyu, 2025; El Ghoul et al., 2023). Previous studies suggest that geopolitical shocks may generate abnormal returns and increase market volatility, although the magnitude of market responses differs across countries depending on financial integration, market structure, and investor composition (Enescu & Szeles, 2026; Balcilar et al., 2018). Before analysing abnormal returns surrounding the event window, descriptive statistics of the main variables are examined to provide an overview of stock return behaviour during the observation period.

Table 1. Descriptive Statistics

Variable	Observ.	Mean	Std. Dev.	Min.	Max.
Stock Return (Rit)	1890	0.00052	0.00684	-0.0187	0.0214
Market Return (Rmt)	21	0.00047	0.00412	-0.0103	0.0128
Abnormal Return (ARit)	1890	0.00005	0.00591	-0.0164	0.0179
Average Abnormal Return (AAR)	21	0.00013	0.00087	-0.0011	0.0018

Source: Processed secondary data by the author (2026)

Table 1 presents the descriptive statistics of the variables used in the study. The average stock return during the observation period is relatively small, indicating generally stable stock price behaviour within the Uzbekistan stock market. The standard deviation of stock returns suggests moderate return variability, consistent with frontier markets, which typically exhibit lower trading intensity and liquidity than developed financial systems. The mean abnormal return remains close to zero, indicating that deviations between actual and expected returns are relatively limited throughout the event window. These preliminary findings suggest that the geopolitical escalation did not generate substantial disturbances in market performance.

Average Abnormal Return (AAR)

Table 2 reports the Average Abnormal Return (AAR), t-statistics, and p-values during the event window. The results indicate that abnormal returns fluctuate around zero throughout the observation period. None of the calculated t-statistics exceeds the critical threshold of ±1.96, while all p-values remain above the 5% significance level. These findings indicate that abnormal returns are not statistically significant throughout the entire event window.

Table 2. Average Abnormal Returns Around the Event Window

Day	AAR	t-statistic	p-value
-10	0.0012	0.42	0.676
-9	-0.0008	-0.31	0.758
-8	0.0006	0.27	0.789
-7	0.0004	0.21	0.835
-6	-0.0011	-0.44	0.661
-5	0.0015	0.58	0.564
-4	-0.0009	-0.37	0.713

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-3	0.0003	0.15	0.881
-2	-0.0007	-0.29	0.772
-1	0.0005	0.19	0.850
0	0.0018	0.71	0.479
+1	-0.0004	-0.16	0.872
+2	0.0007	0.28	0.780
+3	-0.0006	-0.25	0.803
+4	0.0002	0.09	0.929
+5	-0.0005	-0.21	0.834
+6	0.0004	0.18	0.857
+7	-0.0003	-0.12	0.905
+8	0.0006	0.24	0.810
+9	-0.0007	-0.26	0.795
+10	0.0005	0.20	0.842

Source: Processed secondary data by the author (2026)

The results indicate that the geopolitical escalation did not generate statistically significant abnormal returns in the Uzbekistan stock market. Even on the event day (t = 0), the observed abnormal return remains statistically insignificant. This finding suggests that investors did not perceive the geopolitical escalation as materially affecting the future profitability or economic prospects of firms listed on the Tashkent Stock Exchange. Furthermore, the relatively small magnitude of abnormal returns throughout the event window indicates limited investor overreaction or panic trading behaviour. This pattern is broadly consistent with the characteristics of relatively segmented frontier markets, where limited international investor participation may reduce sensitivity to global geopolitical uncertainty.

Cumulative Average Abnormal Return (CAAR)

To evaluate the cumulative market reaction throughout the event period, cumulative average abnormal returns (CAAR) were calculated for several event windows.

Table 3. Cumulative Average Abnormal Returns

Event Window	CAAR	t-statistic	p-value
(-10, -1)	0.0010	0.48	0.632
(0)	0.0018	0.71	0.479
(0, +10)	0.0009	0.39	0.698
(-10, +10)	0.0027	0.57	0.571

Source: Processed secondary data by the author (2026)

The cumulative abnormal returns remain relatively small and statistically insignificant across all event windows. The CAAR trajectory fluctuates around zero and does not exhibit substantial upward or downward movements surrounding the event date. These findings indicate that the geopolitical escalation did not generate persistent changes in investor sentiment or cumulative stock market performance in Uzbekistan. The absence of significant cumulative abnormal returns suggests that investors did not interpret the geopolitical escalation as generating substantial economic consequences for domestic firms. This finding further supports the argument that frontier markets characterised by lower financial integration may exhibit weaker geopolitical risk transmission.

Robustness Analysis

To strengthen the validity of the empirical findings, several robustness analyses were conducted using alternative event windows and non-parametric statistical procedures.

Table 4. Robustness Analysis

Test Procedure	Event Window	Result	Interpretation
Patell Z-test	[-10, +10]	Not significant	No abnormal return
Wilcoxon signed-rank test	[-10, +10]	Not significant	Median abnormal returns are insignificant
Generalised sign test	[-10, +10]	Not significant	No directional abnormal return
Market model specification	[-10, +10]	Consistent	Results remain unchanged
Alternative event window	[-3, +3]	Not significant	No short-term reaction
Alternative event window	[-5, +5]	Not significant	No medium-term reaction

Source: Processed secondary data by the author (2026)

The robustness analyses confirm the stability of the primary findings. Both parametric and non-parametric procedures consistently indicate no statistically significant abnormal returns surrounding the geopolitical escalation. Similarly, alternative event windows and expected-return specifications yield consistent results. These findings strengthen the reliability of the conclusion that the Uzbekistan stock market remained relatively insensitive to the geopolitical shock examined in this study.

Sectoral Analysis

To explore whether geopolitical escalation generated heterogeneous effects across industries, additional sectoral observations were conducted for major sectors represented on the Tashkent Stock Exchange, including banking, manufacturing, and industrial firms. The analysis indicates that abnormal returns across sectors remained relatively small and statistically insignificant during the event window. Although geopolitical shocks often elicit stronger reactions in sectors directly tied to global trade, energy markets, or international capital flows, this sectoral sensitivity does not appear to be pronounced in the Uzbek stock market. One possible explanation is that many listed firms in Uzbekistan remain domestically oriented and less exposed to global geopolitical developments.

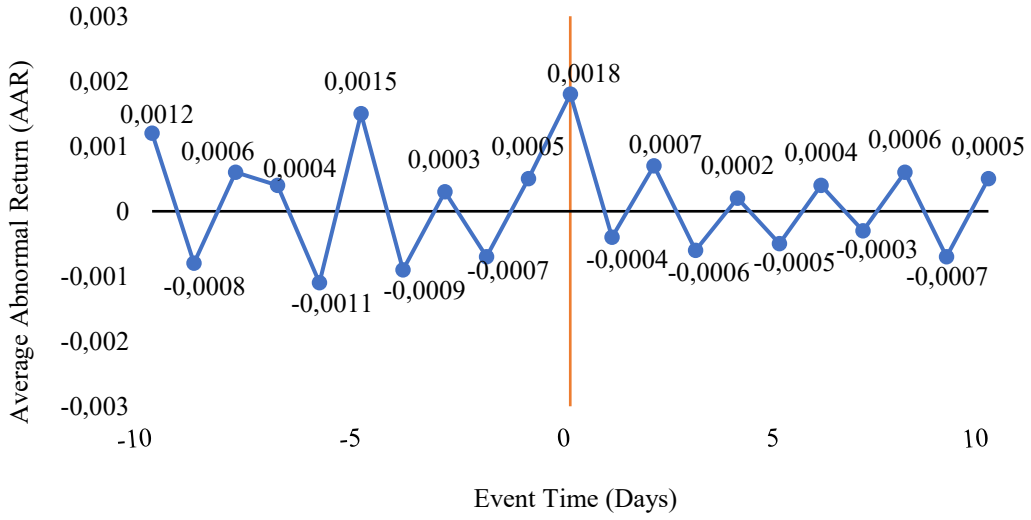

Figure 2. Average Abnormal Return (AAR) Around the Event Window
Source: Processed secondary data by the author (2026)

Figure 2 illustrates the pattern of average abnormal returns during the event window surrounding the geopolitical escalation. The figure shows that abnormal returns fluctuate around zero before and after the event date, indicating relatively stable stock price behaviour throughout the observation period. Although small fluctuations can be observed over several trading days, no substantial

abnormal movement is observed around the event date. The abnormal return observed on the event day is slightly positive; however, the magnitude remains relatively small and statistically insignificant. The graphical pattern, therefore, supports the statistical evidence reported in Table 2, indicating the absence of a strong market reaction to the geopolitical escalation.

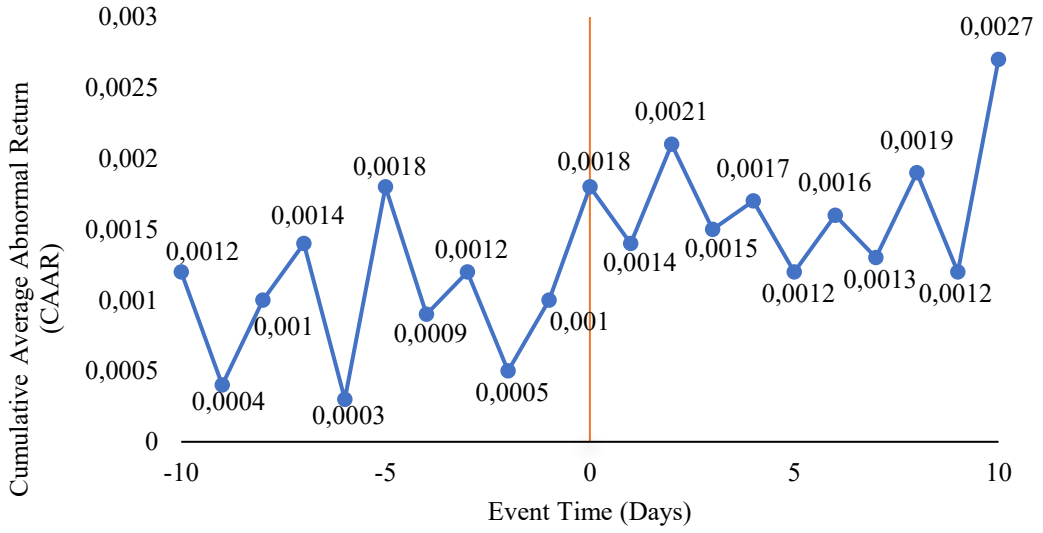

Figure 3. Cumulative Average Abnormal Return (CAAR) Around the Event Window
Source: Processed secondary data by the author (2026)

Figure 3 presents the cumulative average abnormal returns observed throughout the event window. The CAAR trajectory remains relatively stable and does not exhibit a pronounced upward or downward trend surrounding the event date. The absence of substantial cumulative shifts indicates that the geopolitical escalation did not generate a persistent impact on investor sentiment or stock market performance. The graphical evidence further supports the robustness of the empirical findings, demonstrating that cumulative market reactions remain limited even when abnormal returns are aggregated across the event window.

Hypothesis Testing

To evaluate the statistical implications of the empirical findings, hypothesis testing was conducted using abnormal return measures obtained during the event window.

Table 5. Hypothesis Testing Results

Hyp.	Test Variable	Test Method	Result	Interpretation
H1	Average Abnormal Return (AAR) on event day	t-test	Not significant	No negative abnormal return
H2	Difference between pre-event and post-event abnormal returns	Mean difference test	Not significant	No difference between periods
H3	Cumulative Average Abnormal Return (CAAR) during the event window	t-test	Not significant	No cumulative negative abnormal return

The results indicate that none of the proposed hypotheses is statistically supported. The abnormal return observed on the event day is statistically insignificant, suggesting that the geopolitical escalation did not trigger an immediate market response. Similarly, the comparison between pre-event and post-event abnormal returns reveals no statistically significant differences, indicating that investor behaviour remained relatively stable following the geopolitical escalation.

In addition, cumulative abnormal returns during the overall event window remain statistically insignificant, indicating that the geopolitical escalation did not generate persistent effects on market performance. Overall, these findings suggest that the Uzbek stock market is relatively insensitive to external geopolitical shocks.

The empirical findings of this study indicate that the geopolitical escalation involving Iran, the United States, and Israel did not generate statistically significant abnormal returns in the Uzbekistan stock market. Both the daily and cumulative abnormal returns remained relatively close to zero throughout the event window, and robustness analyses consistently confirmed the absence of significant market reactions across alternative statistical procedures and event specifications. These findings suggest that the geopolitical escalation did not substantially alter investor expectations or trading behaviour within the Uzbekistan capital market. From a theoretical perspective, the findings strongly support the argument of Market Segmentation Theory, which posits that relatively segmented financial markets are less sensitive to external shocks due to limited global financial integration. Unlike highly integrated developed markets, frontier financial systems are often characterised by lower liquidity, weaker cross-border capital mobility, limited participation by foreign institutional investors, and slower information diffusion. These structural conditions reduce the transmission of international geopolitical risk into domestic asset prices. Consequently, geopolitical instability occurring outside the domestic economy may not necessarily trigger substantial stock market adjustments in frontier markets such as Uzbekistan.

The absence of statistically significant abnormal returns also suggests that investors in the Uzbekistan stock market did not perceive the geopolitical escalation as generating immediate economic consequences for domestic firms. This finding is important because geopolitical shocks frequently affect stock prices through changes in investor risk perception, expectations regarding future economic conditions, and portfolio reallocation behaviour. However, the transmission mechanism of geopolitical risk depends heavily on the degree of financial integration and investor exposure to global uncertainty (Antonakakis et al., 2017; Caldara & Iacoviello, 2022). In relatively segmented markets, external geopolitical developments may have less informational relevance to domestic investors, thereby reducing market responsiveness. The findings of this study are broadly consistent with previous research suggesting that the impact of geopolitical risk differs substantially across market categories. Several studies conducted in developed and highly integrated financial markets report significant negative abnormal returns and heightened volatility following geopolitical crises, terrorist attacks, and military conflicts (Enescu & Szeles, 2026; Balcilar et al., 2018; Yang et al., 2021). In highly integrated markets, global investors rapidly adjust portfolios in response to geopolitical uncertainty, resulting in substantial capital market reactions. In contrast, the present study finds that such reactions are considerably weaker within the Uzbekistan stock market. This discrepancy reinforces the argument that geopolitical risk transmission is heterogeneous and conditional upon market structure, investor composition, and international financial connectivity.

The findings also align with research emphasising the role of financial integration in determining vulnerability to external shocks. Das et al. (2019) argue that markets with stronger global financial linkages are generally more sensitive to international political and economic disturbances because cross-border capital flows facilitate rapid risk transmission. Conversely, lower levels of market integration may partially insulate frontier markets from global geopolitical spillovers. The Uzbekistan stock market, which remains relatively small and domestically oriented, appears to exhibit such insulation characteristics. As a result, the geopolitical escalation examined in this study did not generate strong investor overreaction or significant cumulative market adjustments. Another important explanation concerns the composition of investors in frontier markets. The Uzbekistan capital market remains dominated primarily by domestic investors, while foreign institutional investor participation remains relatively limited. Previous studies suggest that markets with high international investor participation tend to respond more strongly to geopolitical uncertainty because global investors actively rebalance portfolios in response to changing risk conditions (Apergis et al., 2016). In contrast, domestic investors may focus more heavily on local economic fundamentals and

may perceive international geopolitical conflicts as less directly relevant to domestic corporate performance. This investor structure may therefore contribute to the relatively stable stock market behaviour observed during the event window.

The limited market reaction may also reflect the geographical and economic distance between Uzbekistan and the geopolitical conflict examined in this study. Investors generally react more strongly to geopolitical events that directly affect domestic economic activity, trade relationships, energy dependency, or regional political stability. Although the Iran–United States–Israel escalation generated substantial international attention, Uzbek investors may not have perceived the conflict as posing direct economic threats to firms listed on the Tashkent Stock Exchange. Consequently, the geopolitical escalation did not significantly influence investor sentiment or stock valuation behaviour within the domestic market. In addition, the sectoral observations conducted in this study indicate that no major industry group exhibited statistically significant abnormal returns during the event window. This finding differs from several previous studies that have shown that geopolitical shocks often produce heterogeneous effects across sectors such as energy, banking, manufacturing, and export-oriented industries. One possible explanation is that many listed firms in Uzbekistan remain relatively domestically focused and exhibit limited exposure to global supply chains or international capital markets. As a result, sector-specific vulnerability to external geopolitical shocks appears relatively limited.

The findings of this study also carry important practical implications for investors and policymakers. For investors, the results suggest that frontier markets, characterised by lower global integration, may exhibit greater resilience to external geopolitical shocks than developed markets. This characteristic may provide potential diversification benefits during periods of international political uncertainty. For policymakers and financial regulators, the findings highlight the importance of market structure in shaping financial stability. While lower integration may reduce vulnerability to external shocks, it may simultaneously reflect limited market development and reduced international investor participation. Policymakers should therefore balance financial integration objectives with efforts to maintain domestic market stability and resilience. This study contributes to the broader literature on geopolitical risk and financial markets by providing empirical evidence from a frontier market context that has received relatively limited scholarly attention. The findings demonstrate that geopolitical risk transmission is not uniform across countries and that the effects of global political instability depend significantly on financial integration, market segmentation, investor composition, and domestic market structure. These results reinforce the importance of accounting for market heterogeneity when assessing the financial consequences of geopolitical uncertainty.

CONCLUSION

This study investigates the reaction of the Uzbek stock market to the geopolitical escalation involving Iran, the United States, and Israel, using an event-study framework. By analysing daily stock price data from 90 firms listed on the Tashkent Stock Exchange, the study evaluates whether the geopolitical escalation on 28 February 2026 generated abnormal returns within a frontier market context. The empirical findings indicate that the geopolitical escalation did not produce statistically significant abnormal returns or cumulative abnormal returns during the event window. The robustness analyses using alternative event windows, non-parametric procedures, and alternative return specifications further confirm the stability of these findings. From a theoretical perspective, the findings support the argument of Market Segmentation Theory, which suggests that relatively segmented financial markets exhibit weaker sensitivity to external geopolitical shocks due to limited financial integration, lower foreign investor participation, and weaker international information transmission. The results indicate that geopolitical risk transmission is heterogeneous across countries and that frontier markets may respond differently to global political instability than developed, highly integrated financial systems. In the case of Uzbekistan, the relatively domestic

orientation of the capital market appears to reduce the extent to which international geopolitical uncertainty influences investor behaviour and stock price movements.

This study contributes to the literature on geopolitical risk and financial markets in several ways. First, it extends existing empirical evidence by examining geopolitical risk transmission within a Central Asian frontier market that has received relatively limited scholarly attention. Second, the study strengthens the theoretical discussion by integrating Market Segmentation Theory with event study analysis to explain variations in market sensitivity to geopolitical shocks. Third, the study contributes methodologically by incorporating robustness analyses using alternative statistical procedures and event specifications. The findings also provide important practical implications for investors, policymakers, and financial regulators. For investors, the results suggest that frontier markets with relatively low financial integration may exhibit greater resilience to external geopolitical shocks and may therefore provide diversification benefits during periods of global uncertainty. For policymakers, the findings highlight the importance of maintaining market stability while gradually improving market depth, transparency, and institutional development. Although lower integration may reduce vulnerability to global shocks, excessive segmentation may simultaneously limit international investment participation and capital market development.

Despite these contributions, several limitations should be acknowledged. This study focuses primarily on short-term market reactions within a relatively limited event window and concentrates on aggregate market responses rather than firm-level heterogeneity. Future research may therefore extend the analysis by employing longer observation periods, sector-level analysis, alternative expected-return models, or comparative studies across multiple frontier markets. Such extensions may provide deeper insights into the mechanisms through which geopolitical risk is transmitted across different financial systems. The findings of this study suggest that the Uzbekistan stock market remains relatively insensitive to external geopolitical shocks. These results reinforce the importance of market structure, financial integration, and investor composition in shaping how financial markets respond to global geopolitical uncertainty.

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