Abstract: Geopolitical uncertainties have been a concern for global economies and financial markets' participants. By employing Markov switching regression and quantile regression, we investigated the effect of global and country-specific geopolitical uncertainties on Malaysian Conventional and Islamic stock returns in different market conditions. The estimated results of the Markov switching regression show that Malaysian conventional and Islamic stocks react differently to global and country-specific geopolitical uncertainties under different market volatility conditions, implying volatility dependent exposures and reactions to global and country-specific geopolitical uncertainties. The quantile regression results also reveal that Malaysian conventional and Islamic stocks respond differently to global and country-specific geopolitical uncertainties at different market stages. The empirical findings, therefore, indicate a heterogeneous and non-linear stock reaction to geopolitical uncertainties, providing new insights into geopolitical uncertainties and stock return relationships. Hence, the results will be valuable for asset pricing and investments in an emerging market such as the Malaysian market.

Keywords: geopolitical uncertainty; Malaysia; stock returns; Markov switching; quantile regression

1. Introduction

Geopolitical risk (GPR) or geopolitical uncertainty is defined as “the risk associated with wars, terrorist acts, and tensions between states that affect the normal course of domestic politics and international relations” [1] (p. 4). Thus, geopolitical uncertainty is one of the influential risk factors for financial markets [2–5]. The effects of geopolitical uncertainty on stock market performance have mostly been reported as negative effects in the literature because political uncertainties create an unfavorable economic environment that limits the stock market's ability to perform well. Thus, political economists recommend that stable political conditions are a pre-requisite for a well-functioning stock market where investors may generate some equity returns. Hoque et al. [6] empirically show that political instabilities and uncertainties limit the economic growth and stock market development of Bangladesh. As such, political uncertainties tend to have an adverse effect on the economic and financial environment. They also criticize the fact that those political uncertainties are prime reasons for the low market participation, which could reflect a decline in stock prices.

Researchers have been attempting to capture the political uncertainties using numerous proxies, such as the index of Political Stability and Absence of Violence/Terrorism by the “World Bank” and short term and long-term political risk rankings by the “Credendo Group”, and the Fragile state index by “Fund for Peace”. All these contain low frequency data that limit the immediate reaction of the stock market to political uncertainties. Caldara and Iacoviello [1], on the other hand, have recently developed news-based Geopolitical risk (GPR) indices to measure the geopolitical uncertainties caused by armed “conflicts”,

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“elections”, “governmental changes”, “political upheavals”, “civil strife”, “war”, and “terrorist attacks”. The indices of Caldara and Iacoviello [1] facilitate an observation of the immediate reaction of economic fundamentals to geopolitical uncertainty using high-frequency data. Their indices of geopolitical risks do not only expose global geopolitical risk but also present country-specific risk for developing economies. Given the blessing of technology, these news-based geopolitical risk indices are distinct from other available indices. Hence, academics and researchers have been investigating the impacts of global geopolitical risks as well as country-specific geopolitical risks, employing these indices to understand the exposure of stock market performances to global and country-specific geopolitical uncertainties.

The GPR has multifaceted and heterogeneous impacts on financial markets. Firstly, for clarification purposes, geopolitical uncertainty could have an impact on macroeconomic dynamics. If macroeconomic dynamics change, the input to the share price valuation will change, as will the share price and risk premium. Pastor and Veronesi [7] show empirically that political risk, which includes government policy uncertainty, affects future returns and the risk aversion of investors. Additionally, macroeconomic theory suggests that global uncertainties and shocks are likely to have disturbing and dampening effects on macroeconomic activities and financial activities. Such effects of global factors may spillover through global, international level, and domestic level transmission channels [5,8]. Secondly, as global economies and financial markets are integrated, geopolitical risk affects international portfolio adjustment and capital inflows [9–11]. Thirdly, the negative consequence of political uncertainty is reflected in investors’ sentiment and risk-taking behavior, with a view of high financial market uncertainty in the future. Such investor perception leads them to postpone or divest their stock investments, and hence the demand for stocks decreases. Such changes in key stakeholders’ position will lead to stock price changes and risk premiums. Fourthly, each geopolitical event and issue is unique and has a different time-life; thus, geopolitical instabilities tend to cause structural changes and shifts in the economy and stock market [7,12–15]. As there are high and low volatility states, or bull and bear states, the stock price responses to geopolitical instabilities could be asymmetric and heterogenous.

Our objective is to examine the volatility and state varying response of the Malaysian Conventional and Islamic stock markets to global and country-specific risk, using Markov switching and quantile regression. There are several motivations that lead us to investigate the subject matter. Firstly, Malaysia’s stock market is one of the fastest-growing emerging stock markets. Therefore, this type of stock market is highly exposed to global uncertainties and tensions. This is empirically supported by the studies of Hoque and Zaidi [5,16], as their studies have shown that global level economic policy uncertainty has adverse effects on the Malaysian stock market. Thus, it is likely that the Malaysian stock market will react negatively to geopolitical uncertainties. Secondly, Malaysia is a trade-oriented economy; therefore, global and domestic political uncertainties could cause a drop in economic performance, including stock market activities. Thirdly, an understanding of the market conditions and state dependent response of the Malaysian stock market to GPR is highly important for investors to have useful insights into asymmetric and heterogeneous responses. However, the extant studies that examine GPR on the Malaysian stock market have not considered the degree of response under different market conditions, such as a bullish market or a bearish market and high or low volatility [5,16,17]; in such cases, Markov switching and quantile regression are better suited. These regression models allow us to have different regimes and market conditions and capture the non-linearity and asymmetric behavior of dependent variables. In our case, Markov switching is likely to facilitate us in comparing the response of Malaysian stocks in different volatility states/ regimes. Similarly, quantile regression is likely to facilitate us comparing the response of Malaysian stocks in different market conditions, such as a bull market, a bear market, and a normal market. Fourthly, the market capitalization of Shariah-compliant stocks is increasing at a remarkable level, reaching RM 1.1 trillion in 2019, accounting for around 64% of the entire
market capitalization of Malaysian equities and around 75% of total listed securities [18]. Therefore, the nature of Malaysian stocks is quite different from other countries. Therefore, investors need to understand how the conventional stock market and the Islamic stock market react to global and domestic political uncertainties to make effective and efficient investment decisions. Nevertheless, the host subject matter on the Malaysian market has not been investigated in past empirical studies. Fifthly, stock markets react differently to global political uncertainties and domestic uncertainties [5]. Therefore, the consideration of country-specific political uncertainties is highly required to distinguish the response and identify the heterogeneity. This important factor was not under investigation in extant studies.

The current study contributes to the literature in several ways. Firstly, the current study is related to the study of Bouras et al. [3] for considering global and country-specific geopolitical uncertainties, but the consideration of different market developments and structures makes the current study unique from others. In this case, our estimated empirical results from Markov switching regression and quantile regression have detected the effects of the state dependent response of stock returns to global and country-specific geopolitical uncertainties. Hence, this study takes the literature forward by improving the studies of Bouras et al. [3], Das et al. [4], and Hoque and Zaidi [5]. Secondly, this study is also related to Ahmed [19] for considering the reaction of conventional and Islamic stocks to political risk. Despite that, the current study is unique for considering market developments and structures. In this case, the empirical findings have confirmed that conventional and Islamic stocks do not respond similarly to geopolitical uncertainties, which is in line with the empirical findings of Ahmed [19]. However, this study also confirmed that the exposure to geopolitical uncertainties also varies across market developments and structures, adding new insights to the literature and practices. Thirdly, the results of the Markov switching regression and quantile regression framework show that global and country-specific geopolitical uncertainties have mostly a negative impact on Malaysian conventional and Islamic stock returns. That validates the assertion of economic theories. Furthermore, our findings confirm that different stock markets react differently to geopolitical uncertainties. However, the exposure and reactions are market specific, volatility dependent, and structure dependent. Thus, the current findings have confirmed that the responses of the Malaysian stock markets to global geopolitical uncertainties are not the same, inferring those responses are market specific and volatility state specific. Furthermore, the significance of geopolitical uncertainties contradicts the findings of Balcilar et al. [2], Bouras et al. [3], Bouri et al. [20], and Hedström et al. [21], who found the effects of geopolitical uncertainties on stock returns to be insignificant. As a result, in this case, this study demonstrated that the effects of geopolitical uncertainty on stock returns are market specific.

The paper is organized as follows. The next section presents related empirical studies. Sections 3 and 4 demonstrate the empirical methods and empirical results, respectively. The section that follows provides an empirical discussion. The final section concludes the study and presents practical implications.

2. Related Empirical Studies

Our study is related to two literature strands. The first literature strand of geopolitical uncertainties and stock market performance is related to event studies. The empirical studies have considered “armed conflicts”, “elections”, “governmental changes”, “political upheavals”, “civil strife”, “war”, and “terrorist attacks” as geopolitical uncertainties that are related to events (See, [12–15]). These empirical studies have proven that the above-mentioned events always affect stock market performance negatively. They have also shown that the effects of events, such as bombs and terrorist attacks, have different exposures on stock returns depending on the economic structure, location, and time. The above-mentioned studies are event-study based analyses; thus, they consider one or two events in the analysis. As a result, the studies were unlikely to capture other adverse events
related to political risk. Hence, the consideration of GPR indices would capture a bigger picture of the events.

The second strand is related to index-based measures of geopolitical uncertainties. Caldara and Iacoviello [1] have examined the effect of geopolitical risk on the stock market by employing the global GPR index, and they prove the adverse influence of geopolitical risk on stock returns. Balicilar et al. [2] also employed the same index in examining its impacts on stock returns and volatility. They found that the volatility of the BIRCS country stock market returns significantly increases with geopolitical uncertainties, but GPR has insignificant effects on stock returns. Apergis et al. [22] and Bouri et al. [20] have empirically shown that the global geopolitical risk index can be useful in predicting stock returns in the US market. Recently, Boura et al. [3] have examined the effects of global GPR and country-specific GPR on stock returns and volatility in 18 emerging countries, and they found that global GPR and country-specific GPR create volatility in stock returns. Lee [23] has shown that the world’s stock markets are affected deleteriously by geopolitical risk, at different structures. Das et al. [4] also captured that the reaction of emerging stock markets to geopolitical risk is country-specific. Hoque and Zaidi [5] demonstrate the regime-dependent effects of global GPR and country-specific GPR on stock returns in five fragile economies. Alqahtani et al. [9] showed that the global GPR and Saudi Arabia’s GPR have some predictability on stock returns in GCC countries. Mamun et al. [24] highlight the economic condition varying effects of GPR on Bitcoin investment and structure. The above-mentioned extant studies clearly highlight that the effects are negative, country specific and time-dependent. Therefore, it can be conjectured that the effects of geopolitical risk factors on stock returns depend on the countries’ economic conditions, stock market conditions, and volatility states. Hoque et al. [5,25] showed that global GPRs do not directly, but indirectly, affect Malaysian stock market returns through global economic policy uncertainty and several domestic macro-economic factors. The above presented studies highlight that the GPR is mostly negatively related to stock price. The effects also vary across the financial markets and market conditions. In the context of the study, although Hoque et al. [5,25] investigated the GPR’s effect on the Malaysian stock market, they did not focus on market states and the Islamic stock market. Similarly, Kannadhasan and Das [26] did not look at the Islamic market and country-specific geopolitics.

3. Empirical Models
3.1. Baseline Model

A multifactor market model is used to study the effect of GPR volatility on returns on Malaysian stocks. The Arbitrage Pricing Theory (APT) and the International Asset Price Model (ICAPM) both support the current multi-factor market model. Therefore, this study considers several macroeconomic factors of the host economy in the model, namely, consumer price, exchange rate, interest rate, and oil prices. This study also includes lag dimension for Market, Oil price, and GPR variables. The rationale of this consideration is that, given the dynamic of the stock market, oil prices, global geopolitical risk, and country-specific geopolitical risk factors, information related to these factors takes time to be absorbed in the market (See, [16]). Henceforth, Equation (1) presents a base line model in the absence of market development and volatility structure.

\[ MKT_{i,t} = \gamma_{0,i} + \gamma_{1,i} MKT_{i,t-1} + \gamma_{2,i} CPI_{t} + \gamma_{3,i} EX_{t} + \gamma_{4,i} INT_{t} + \gamma_{5,i} OIL_{t} + \gamma_{6,i} OIL_{t-1} + \gamma_{7,i} GPR_{t} + \gamma_{8,i} GPR_{t-1} + \gamma_{9,i} CGPR_{t} + \gamma_{10,i} CGPR_{t-1} + \epsilon_{i,t}; \]

\[ i = 1, 2, \ldots, I \quad t = 1, 2, \ldots, T \]

\[ \epsilon_{i,t} \sim N\left(0, \sigma^{2}\right); \]

where \( MKT \) symbolizes returns of stock market \( i \) for time \( t \), which is derived from changes in the natural logarithm of stock price. \( i \) represents types of market. \( CPI, EX, INT, OIL, \)
GPR, and CGPR represent changes in the natural logarithm of consumer price, exchange rate, interest rate, oil price, global geopolitical risk, and country-specific geopolitical risk, respectively. ε denotes error term.

3.2. Multi-Factor Model with Markov-Switching Dynamic Regression Approach

Uncertainty in geopolitics, it has been claimed, causes volatility in asset returns, as well as shifts in the correlations between the stock market and political conditions [7]. The long-term effects of global tensions vary depending on the events and time elapsed, as long-term implications can cause structural changes and shifts in the economy and stock market behavior [7,12–15]. Hence, structural developments and changes in financial market behavior make the relationships between GPR uncertainties and stock returns non-linear and time varying. To justify this phenomenon, Bijsterbosch and Guerin [26] reasoned that the variability in the relation between the financial market and dominant risk factors is caused by uncertain economic and market environments. Given such a risk–return relationship, the asset pricing model within the traditional linear system may fail to catch the true risk–return nexus. As a result, the impact of geopolitical instability on equity returns must be studied using an asset valuation model with a nonlinear framework. In view of this, Hamilton’s [27,28] Markov switching models are the appropriate methods to employ. The Markov regime-switching models are the nonlinear time series models that allow transition variables to have state(s) dependent effects on stock market returns, with the unobservable transition variable and k periods [5,16]. The transition probability from regime h in period t to regime j in period t–k and conditional on the dynamics of the unobserved transition variable and k periods [5,16] is the probability of moving from regime h in period t to regime j in period t–k and conditional on the dynamics of the transition variable and k periods [5,16]. The transition probability p_{ij}(z_{t–k}) facilitates in
estimating the expected duration \( D_{ij} = (1/1 - p_{ij}) \) for each regime. The time varying probability matrix is as follows.

\[
\begin{bmatrix}
P_{11}(m_{t-k}) & \cdots & P_{1k}(m_{t-k}) \\
\vdots & \ddots & \vdots \\
P_{k1}(m_{t-k}) & \cdots & P_{kk}(m_{t-k})
\end{bmatrix}
\]

(3)

### 3.3. Markov Switching Estimation Process

Following the study of Angello [32] and Deibold et al. [33], this employs the maximum likelihood procedure in an estimation of the Markov switching model. Therefore, this study defines a vector of observed independent variables and transition variables up to period \( t \) as \( \psi_t = (x_t, m_{t-k}) \). Similarly, this study defines the vector of historical values of an endogenous variable as \( \xi_t = (y_t, y_{t-1}, \ldots, y_1) \). With designating \( \theta \), this study defines the conditional likelihood function of the observed data, \( \xi_t \), as follows.

\[
L(\theta) = \pi_T f(y_t|\psi, \xi_t, \theta)
\]

(4)

where

\[
f(y_t|\psi_t, \xi_t-1, \theta) = \sum_j f(y_t|S_t = i, S_{t-1} = j, \psi_{t-1}, \xi_{t-1}, \theta)
\]

(5)

Applying the Bayes’ rule, this study recursively calculates the weighted probability with the following Equation (6):

\[
p(S_t = i|S_{t-1} = j, z_t) \ p(S_{t-1} = j|\psi_t, \xi_t-1; \theta) = p_{ij}(z_t)(S_{t-1} = j|\psi_t, \xi_t-1; \theta)
\]

(6)

Thus, this study has the following:

\[
p(S_t = j|\psi_{t+1}, \xi_t; \theta) = \frac{\pi_j \sum_i f(y_t|S_t = i, S_{t-1} = j, \psi_{t-1}, \xi_{t-1}, \theta)}{p(S_t = 1, S_{t-1} = j \psi_t, \xi_{t-1}; \theta)}
\]

(7)

Henceforth, to complete and define the recursion in Equations (8)–(10), this study defines the regime-dependent conditional density functions as follows:

\[
f(y_t|S_t = 1, S_{t-1} = j, \psi_{t-1}, \xi_{t-1}, \theta) = \frac{\varphi\left(\frac{y_t - \xi_{t-1}}{\sigma_1}\right)}{\sigma_1} p_{1j}(z_t)
\]

(8)

\[
f(y_t|S_t = 2, S_{t-1} = j, \psi_{t-1}, \xi_{t-1}, \theta) = \frac{\varphi\left(\frac{y_t - \xi_{t-1}}{\sigma_2}\right)}{\sigma_2} p_{2j}(z_t)
\]

(9)

\[
f(y_t|S_t = 3, S_{t-1} = j, \psi_{t-1}, \xi_{t-1}, \theta) = \frac{\varphi\left(\frac{y_t - \xi_{t-1}}{\sigma_3}\right)}{\sigma_3} p_{3j}(z_t)
\]

(10)

### 3.4. Multi-Factor Model with Quantile Regression Approach

This study uses the Quantile Regression (QR) technique that was proposed by Koenker and Bassett [37] to observe the structure-dependent effects of risk factors. This regression enables the picture of the conditional distribution to be captured and enables asymmetric linear dependency to be observed through various distribution quantities [38,39]. In addition, the indicator for the presence of outliers, skewness, and heteroscedasticity is more robust in this regression [40].

In this analysis, MKT\(_i\) (return for stock market \( i \)) is considered to be the dependent variable that depends linearly on a number of exogenous variables (changes in consumer price, exchange rate, interest rate, oil price, global geopolitical risk, and country-specific
geopolitical risk). Henceforth, it can be considered that the conditional distribution function of $\text{MKT}_i$ is the function $F$ given by $F(\text{MKT}_i) = P(\text{MKT}_i \leq \text{mkt}_i)$, $\text{mkt}_i \in \mathbb{R}$. Mainly, the $\tau$th quantile of $\text{MKT}_i$ is $Q(\tau) = \inf\{\text{mkt}_i : F(\text{mkt}_i) \geq \tau\}$.

We have considered a random sample $\text{mkt}_1$, $\text{mkt}_2$, $\text{mkt}_3$, ..., $\text{mkt}_k$ with the empirical distribution function $F_{\text{mkt}}(\theta) = (1/k) \neq \text{mkt}_1 \leq \theta$, where $k$ represents the number of quantiles. From now on, we have the following unconditional quantile empirical function:

$$Q_{\text{mkt}}(\tau) = F_{\text{mkt}}^{-1}(\tau) = \inf\{\theta : F_{\text{mkt}}(\theta) \geq \tau\}$$  \hspace{1cm} (11)

Then, we specify the quantile regression model as follows:

$$\text{MKT}_i = Z^T_i \gamma(\tau) + \epsilon_i \text{ with } Q_{\text{mkt}}(\tau|Z) = Z^T_i \gamma(\tau)$$ \hspace{1cm} (12)

where vector $Z$ represents a set of exogenous variables, $0 < \tau < 1$, $Q_{\text{mkt}}(\tau|Z)$ denotes the $\tau$-th conditional quantile of $\text{MKT}_i$, and $\gamma(\tau)$ is the model parameter to be estimated in the QR model.

Then, we can write the $\tau$th sample quantile as the solution to the minimization problem as follows:

$$\hat{Q}_{\text{mkt}}(\tau) = \arg\min_{\theta \in \mathbb{R}} \left\{ \sum_{j \in \{\text{mkt}_{ij} \geq \theta\}} \tau |\text{mkt}_{ij} - \theta| + \sum_{j \in \{\text{mkt}_{ij} < \theta\}} (1 - \tau) |\text{mkt}_{ij} - \theta| \right\}$$ \hspace{1cm} (13)

$$\hat{Q}_{\text{mkt}}(\tau) = \arg\min_{\theta \in \mathbb{R}} \sum_{j} \rho_\tau(\text{mkt}_{ij} - \theta)$$ \hspace{1cm} (14)

with the following check function that splits the error terms into positives and negatives:

$$\rho_\tau(\mu) = \begin{cases} \tau \mu, & \mu \geq 0 \\ (\tau - 1) \mu, & \mu < 0 \end{cases}$$

According to Mensi et al. [27] and Demiralay [28], the stock return structure is conditional to certain exogenous factors (risk factors in this study). It can be (1) constant when $\gamma(\tau)$ coefficients do not change across $\tau$; (2) monotonically decreasing (increasing) when $\gamma(\tau)$ coefficients decrease (increase) across $\tau$; (3) symmetric (asymmetric) when $\gamma(\tau)$ coefficients are similar (different) for low and high quantiles.

In this study, we have estimated the quantile regression equations at $\tau = 0.1; 0.30; 0.50; 0.70; 0.90$. The standard errors were calculated using Buchinsky’s [41] bootstrapping pairs. Therefore, we assume that the errors measured with this method are asymptotically effective under heteroscedasticity and misspecification, as this method embraces the drawing pairs with replacement from the sample where each obtains equal chances [42].

### 3.5. Data

The study sample covers monthly data for the period of January 2007 to March 2018. The conventional stock price is proxied by FTSE Bursa Malaysia KLCI and the Islamic stock price is proxied by FTSE Bursa Malaysia Hijrah Shariah Index. Stock price related data are extracted from the DataStream. The natural-log-difference of stock prices has been taken as stock returns. We used the consumer price index, inter-bank lending rate, and USD/MYR for proxying the CPI, interest rate, and exchange rate, respectively. The data related to the consumer price index, interbank lending rate, and USD/MYR are also obtained from the DataStream. As a proxy for the international oil price, we have used the Brent crude oil price, which is obtained from the International Energy Administration website. The indices of both global geopolitical risk and Malaysia-specific geopolitical risk, developed by Caldara and Iacoviello [1], are extracted from the website of policy uncertainty (http://www.policyuncertainty.com, accessed on 7 May 2021). All level data are transformed into the form of natural-log-difference.
4. Empirical Results

Table 1 presents the summary statistics and suggests non-normality in the return series. The non-normality of return distributions hints at the existence of different market structures or states. Thus, the BDS test should be tested to confirm the state or structure dependency in stock returns. Table 1 also presents the results of the PP and ADF unit root test, which suggests all the series are following a stationary hypothesis at level form. Thus, empirical investigations can be proceeded with non-cointegrated equations. Furthermore, Table 2 demonstrates the results of the BDS test that infers there is a possibility of three or more dimensions in stock returns series. Thus, this study estimates Markov switching regression with three states such as low volatility, high volatility, and extreme volatility states. Similarly, the stock return dependency also suggests considering quantile regression as different developments in the stock returns respond differently to uncertainty in the geopolitical risk factors.

|                  | CGPR Mean | CPI Mean | EX Mean | GPR Mean | INT Mean | ISLAMIC MKT Mean | CONVENTIONAL MKT Mean | OIL Mean |
|------------------|-----------|----------|---------|----------|----------|------------------|------------------------|----------|
| **Mean**         | 0.084     | 0.001    | 0.001   | 0.058    | 0.001    | 0.005            | 0.003                  | 0.004    |
| **Median**       | −0.022    | 0.002    | −0.002  | −0.019   | 0.000    | 0.009            | 0.006                  | 0.016    |
| **Maximum**      | 2.295     | 0.099    | 0.068   | 1.976    | 0.117    | 0.144            | 0.135                  | 0.216    |
| **Minimum**      | −0.538    | −0.103   | −0.041  | −0.584   | −0.319   | −0.153           | −0.152                  | −0.267    |
| **Std. Dev.**    | 0.490     | 0.016    | 0.019   | 0.379    | 0.037    | 0.038            | 0.035                  | 0.087    |
| **Skewness**     | 2.086     | −1.874   | 0.670   | 1.935    | −4.438   | −0.534           | −0.537                  | −0.695    |
| **Kurtosis**     | 9.169     | 30.879   | 3.975   | 8.956    | 46.798   | 6.203            | 6.631                  | 4.264    |
| **Jarque-Bera**  | 311.963   | 4450.830 | 15.450  | 283.799  | 11233.390 | 64.115           | 80.642                  | 19.853    |
| **Probability**  | 0.000     | 0.000    | 0.000   | 0.000    | 0.000    | 0.000            | 0.000                  | 0.000    |
| **PP**           | −15.77 ***| −19.30 ***| −7.68 ***| −14.74 ***| −11.80 ***| −9.80 ***        | −10.33 ***               | −8.21 *** |
| **ADF**          | −12.21 ***| −2.63 ***| −7.74 ***| −14.00 ***| −11.70 ***| −9.68 ***        | −10.08 ***               | −8.15 *** |

Note: *, ** and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 2. Results of BDS test.

|                  | Conventional MKT | Islamic MKT |
|------------------|------------------|------------|
| **m**            | 2                | 2          |
| **ε(1)**         | 0.081 ***        | 0.004 *    |
| **ε(2)**         | 0.027 ***        | 0.024 ***  |
| **ε(3)**         | 0.025 ***        | 0.026 ***  |
| **ε(4)**         | 0.012 ***        | 0.010 ***  |
| **Conventional MKT** | 3               | 3          |
| **ε(1)**         | 0.070 ***        | 0.003 *    |
| **ε(2)**         | 0.036 ***        | 0.029 ***  |
| **ε(3)**         | 0.049 ***        | 0.048 ***  |
| **ε(4)**         | 0.025 ***        | 0.020 ***  |

Note: *, ** and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

4.1. Volatility-Dependent Effects of Geopolitical Uncertainties

Tables 3 and 4 report the empirical results of Equation (2) for the Conventional and Islamic stock markets, respectively. At first, we focused on the coefficient of log sigma. The significant coefficients of log sigma across different volatility states and stocks confirm that there is volatility in both the conventional stock market and the Islamic stock market. Volatility has a negative influence on stock returns, which confirms the theoretical explanation of the nexus between volatility and stock returns. Furthermore, the regime shift parameters show that volatilities are expected to shift in response to country-specific political uncertainties, which have been considered as exogenous regime shifting parameters.
### Table 3. Results of MS Regression for Conventional Stock Market.

|                        | Low Volatility Regime |                  |                  | High Volatility Regime |                  |                  | Extreme Volatility Regime |                  |
|------------------------|-----------------------|------------------|------------------|------------------------|------------------|------------------|---------------------------|------------------|
|                        | Coefficient          | t-Statistic      | Coefficient      | t-Statistic            | Coefficient      | t-Statistic      | Coefficient              | t-Statistic      |
| Constant               | −0.002               | −0.33            | 0.016            | 11.64                  | 0.010             | 4.71             |
| MKT(-1)                | 0.429                | 1.86 *           | −0.216           | −5.20                  | −0.138            | −2.28 **         |
| CPI                    | −1.286               | −1.42            | 0.022            | 0.39                   | −0.219            | −2.41 **         |
| EX                     | −0.336               | −0.94            | −1.066           | −14.96 **              | −0.603            | −4.29 **         |
| INT                    | −0.360               | −1.29            | 0.022            | 1.04                   | −0.472            | −7.71 **         |
| OIL                    | 0.194                | 3.02 ***         | 0.102            | 6.08 **                | −0.271            | −10.43 **        |
| OIL(-1)                | −0.162               | −2.53 **         | −0.055           | −3.27 **               | 0.235             | 9.47 **          |
| GPR                    | −0.049               | −2.36 **         | −0.005           | −2.05 **               | −0.075            | −3.04 **         |
| GPR(-1)                | 0.019                | 1.29             | −0.002           | −0.51                  | −0.005            | −0.80            |
| CGPR                   | −0.027               | −1.68 *          | −0.004           | −1.54                  | −0.006            | −1.52            |
| CGPR(-1)               | −0.058               | −3.14 ***        | −0.000           | −0.16                  | −0.006            | −2.17 **         |
| Log Sigma              | −3.477               | −27.01 ***       | −5.200           | −30.32 **              | −4.996            | −29.33 **        |

**Transition Matrix Parameters**

|                        | Coefficient | t-Statistic | LR Statistic | LR (Prob) | Akaike info criterion | LogLik | DW  |
|------------------------|-------------|-------------|--------------|-----------|-----------------------|--------|-----|
| P11-CGPR               | −1.70       | −1.99 **    |              |           |                       |        |     |
| P12-CGPR               | −4.09       | −1.92 *     |              |           |                       |        |     |
| P21-CGPR               | 2.12        | 1.84 *      |              |           |                       |        |     |
| P22-CGPR               | −1.24       | −0.48       |              |           |                       |        |     |
| P31-CGPR               | −2.75       | −1.76 *     |              |           |                       |        |     |
| P32-CGPR               | 9.04        | 1.04        |              |           |                       |        |     |

**Timing Varying Transition Probabilities and Time Varying Expected Durations**

|                        | Coefficient | t-Statistic | LR Statistic | LR (Prob) | Akaike info criterion | LogLik | DW  |
|------------------------|-------------|-------------|--------------|-----------|-----------------------|--------|-----|
| P11                    | 0.3707      | 1.38        |              |           |                       |        |     |
| P22                    | 0.4329      | 1.38        |              |           |                       |        |     |
| P33                    | 0.3095      | 1.38        |              |           |                       |        |     |

Note: LR-test is the linearity test. *, ** and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. CPI is consumer price index. EX, INT, and OIL are exchange rate, interest rate, and oil price factors, respectively. GPR and CGPR denote global geopolitical risk and country-specific geopolitical risk, respectively.

### Table 4. Results of Regime Switching Regression for Islamic Stock Market.

| Islamic | Low Volatility Regime |                  |                  | High Volatility Regime |                  |                  | Extreme Volatility Regime |                  |
|---------|-----------------------|------------------|------------------|------------------------|------------------|------------------|---------------------------|------------------|
|         | Coefficient           | t-Statistic      | Coefficient      | t-Statistic            | Coefficient      | t-Statistic      | Coefficient              | t-Statistic      |
| Constant| −0.004                | −0.37            | 0.009            | 3.45 **                | 0.019            | 3.90 **         |
| MKT(-1) | 0.056                 | 0.17             | 0.048            | 0.60                   | −0.130           | −1.37           |
| CPI     | 0.134                 | 0.23             | 0.053            | 0.34                   | −0.586           | −2.71 **        |
| EX      | 0.088                 | 0.17             | −0.245           | −1.36                  | −1.192           | −6.81 **        |
| INT     | −0.103                | −0.29            | 0.026            | 0.64                   | −0.319           | −3.34 **        |
| OIL     | 0.190                 | 1.38             | 0.056            | 2.76 **                | −0.063           | −1.50           |
| OIL(-1) | −0.223                | −1.88 *          | −0.028           | −1.05                  | 0.288            | 6.26 **         |
| GPR     | −0.021                | −1.15            | 0.005            | 1.05                   | −0.019           | −2.55 **        |
| GPR(-1) | 0.047                 | 1.29             | −0.008           | −2.18 **               | −0.019           | −2.61 **        |
| CGPR    | 0.000                 | 0.01             | −0.029           | −3.67 **               | −0.014           | −1.14           |
| CGPR(-1)| −0.005                | −0.13            | 0.008            | 1.90 *                 | −0.010           | −1.04           |
| Log Sigma| −3.163                | −22.18 ***       | −4.813           | −22.24 ***             | −4.364           | −20.64 ***      |
Table 4. Cont.

| Islamic         | Low Volatility Regime | High Volatility Regime | Extreme Volatility Regime |
|-----------------|-----------------------|------------------------|---------------------------|
|                 | Coefficient | t-Statistic | Coefficient | t-Statistic | Coefficient | t-Statistic |
| P11-CGPR        | −1.90       | −2.03 **    | LR Statistic | 16.034 ***   |
| P12-CGPR        | −3.79       | −1.30       | LR (Prob)   | 0.000        |
| P21-CGPR        | 4.78        | 1.21        | Akaike info criterion | −3.854 |
| P22-CGPR        | −4.36       | −2.21 ***   | LogLik      | 300.24       |
| P31-CGPR        | 0.06        | 0.02        | DW          | 1.846        |
| P32-CGPR        | 2.39        | 1.68 *      |             |             |

Timing Varying Transition Probabilities and Time Varying Expected Durations

|           | Coefficient | t-Statistic |       | Coefficient |       | Coefficient |       |
|-----------|-------------|-------------|------|-------------|------|-------------|------|
| P11       | 0.4147      | D1          | 4.856|
| P22       | 0.3332      | D2          | 1.785|
| P33       | 0.3330      | D3          | 1.607|

Note: LR-test is the linearity test. *, ** and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. CPI is consumer price index. EX, INT, and OIL are exchange rate, interest rate, and oil price factors, respectively. GPR and CGPR denote global geopolitical risk and country-specific geopolitical risk, respectively.

The transition parameters in P11-CGPR in Tables 3 and 4 suggest that an increase in country-specific political uncertainties reduces the probabilities of low volatility states. In other words, increases in country-specific political uncertainties are causing a shift to high low volatilities. The P22-CGPR in Tables 3 and 4 also highlights a similar pattern that the increase in country-specific political uncertainties is causing a shift to extreme volatility states. Furthermore, in the case of the conventional stock market, the time-varying probabilities and expected duration suggest that the high volatility regime will last longer than the low and extreme volatility regime. However, the Islamic stock market mostly stays in a low volatility regime.

Using coefficients related to the effects of global GPR, the empirical results show that global political instability has a negative and significant lag effect on conventional market returns in a low volatile state. However, in the low volatile state, it has a negligible contemporaneous and lag effect on the Islamic stock market. In a highly volatile environment, the global GPR has negligible negative effects on traditional stock returns, but significant negative lag effects on Islamic stock returns. The global GPR has adverse and significant contemporaneous effects on conventional stock returns in an extremely volatile state. It has significant contemporaneous and lag adverse effects on Islamic stock returns in the same state.

Focusing on a coefficient related to country-specific GPR, the empirical results show that it has negative significant contemporaneous and lag effects on conventional stock returns in the low volatile states, but it has an insignificant contemporaneous and lag effect on Islamic stock market returns in the same states. In a highly volatile state, it has negative significant lag effects on Islamic stock returns, but it has insignificant contemporaneous and lagged effects on conventional stock returns. Moreover, it has insignificantly negative contemporaneous effects on conventional stock returns in an extremely volatile state, but it has a significantly negative lag effect. In a similar condition to the Islamic stock market, it has insignificant and negative contemporaneous and lag effects on Islamic stock returns. The Markov switching regression points out the connection between geopolitical uncertainties and stock returns, highlighting the different exposure of conventional and Islamic stock markets to global and country-specific geopolitical uncertainty.

4.2. Market Condition Dependent Effects of Geopolitical Uncertainties

We have estimated the quantile regression with conditional distributions of 0.10, 0.30, 0.50, 0.70, and 0.90. Tables 5 and 6 present the estimated results of quantile regression. Regarding the effects of global geopolitical uncertainties, the empirical findings indicate
the importance and differences in the degree of exposure across the distribution quantities. In the case of the traditional stock market, it has a negative effect on stock returns across all the quantiles. However, the contemporaneous parameters are significant in the lower and upper tails. These suggest the dependence structure co-movements in lower and upper tails and independence structure in the intermediate tails. Thus, it affects stock returns negatively in bearish and bullish market conditions. The quantitative effects of global geopolitical uncertainties on Islamic stock returns, on the other hand, are exchange rate, interest rate, and oil price factors, respectively. GPR and CGPR denote global geopolitical risk and country-specific geopolitical risk, respectively.

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. CPI is consumer price index. EX, INT, and OIL are exchange rate, interest rate, and oil price factors, respectively. GPR and CGPR denote global geopolitical risk and country-specific geopolitical risk, respectively.

Table 5. Results of Quantile Regression for Conventional Stock.

|               | Bearish Market | Normal Market | Bullish Market |
|---------------|----------------|---------------|----------------|
| **\( \tau = 0.10 \)** | **\( \tau = 0.3 \)** | **\( \tau = 0.50 \)** | **\( \tau = 0.70 \)** | **\( \tau = 0.90 \)** |
| **Constant** | -0.041 \( (5.23) *** \) | -0.006 \( (1.32) ** \) | 0.009 \( (2.82) *** \) | 0.020 \( (6.35) *** \) | 0.039 \( (8.70) *** \) |
| **MKT(-1)** | 0.175 \( (0.01) \) | -0.091 \( (0.80) \) | -0.107 \( (-1.07) \) | -0.051 \( (-0.33) \) | -0.045 \( (-0.54) \) |
| **CPI** | -0.298 \( (-2.16) ** \) | -0.103 \( (-0.85) \) | -0.128 \( (-1.06) \) | -0.073 \( (-0.28) \) | -0.445 \( (-1.97) \) |
| **EX** | -0.207 \( (-1.04) \) | -0.677 \( (-3.84) *** \) | -0.812 \( (-4.84) *** \) | -0.666 \( (-2.39) ** \) | -0.889 \( (-3.30) *** \) |
| **INT** | -0.134 \( (-2.82) *** \) | -0.026 \( (-0.50) \) | 0.007 \( (0.14) \) | -0.036 \( (-0.12) \) | -0.125 \( (-0.59) \) |
| **OIL** | 0.046 \( (0.88) \) | 0.052 \( (1.36) \) | 0.061 \( (1.98) ** \) | 0.050 \( (1.10) \) | -0.042 \( (-0.92) \) |
| **OIL(-1)** | 0.082 \( (1.96) ** \) | 0.026 \( (0.64) \) | -0.022 \( (-0.67) \) | 0.006 \( (0.01) \) | 0.024 \( (0.48) \) |
| **GPR** | -0.020 \( (-1.99) ** \) | -0.007 \( (-1.14) \) | -0.000 \( (-0.08) \) | -0.005 \( (-0.77) \) | -0.012 \( (-2.01) ** \) |
| **GPR(-1)** | -0.016 \( (-1.15) \) | -0.001 \( (-0.18) \) | -0.002 \( (-0.37) \) | -0.007 \( (-1.11) \) | 0.000 \( (0.01) \) |
| **CGPR** | -0.011 \( (-2.36) ** \) | -0.001 \( (-0.16) \) | -0.004 \( (-0.62) \) | -0.002 \( (-0.37) \) | -0.005 \( (-0.78) \) |
| **CGPR(-1)** | -0.011 \( (-1.27) \) | -0.004 \( (-0.52) \) | -0.004 \( (-0.64) \) | -0.003 \( (-0.56) \) | -0.007 \( (-0.48) \) |
| **Pseudo R-squared** | 0.1800 | 0.1108 | 0.0889 | 0.1269 | 0.1308 |
| **Adjusted R-squared** | 0.1136 | 0.0377 | 0.0139 | 0.0560 | 0.0602 |
| **Quasi-LR statistic** | 25.88 *** | 20.45 *** | 18.63 ** | 25.45 *** | 20.40 ** |

Table 6. Results of Quantile Regression for Islamic Stock Market.

|               | Bearish Market | Normal Market | Bullish Market |
|---------------|----------------|---------------|----------------|
| **\( \tau = 0.10 \)** | **\( \tau = 0.3 \)** | **\( \tau = 0.50 \)** | **\( \tau = 0.70 \)** | **\( \tau = 0.90 \)** |
| **Constant** | -0.037 \( (-5.74) *** \) | -0.013 \( (-2.43) *** \) | 0.009 \( (2.51) *** \) | 0.019 \( (5.92) *** \) | 0.045 \( (7.80) *** \) |
| **MKT(-1)** | 0.094 \( (0.65) \) | 0.034 \( (0.21) \) | -0.007 \( (-0.07) \) | -0.078 \( (-0.92) \) | -0.018 \( (-0.16) \) |
| **CPI** | -0.075 \( (-0.58) \) | -0.130 \( (-1.18) \) | -0.029 \( (-0.16) \) | -0.147 \( (-0.48) \) | -0.720 \( (-3.10) \) |
Table 6. Cont.

|                | Bearish Market | Normal Market | Bullish Market |
|----------------|----------------|---------------|----------------|
|                | $\tau = 0.10$ | $\tau = 0.3$  | $\tau = 0.50$  | $\tau = 0.70$  | $\tau = 0.90$  |
| EX             | $-0.151$, $(-3.05)$ *** | $-0.050$, $(-0.83)$ | $0.004$, $(0.007)$ | $-0.020$, $(-0.25)$ | $0.058$, $(0.78)$ |
| INT            | $0.119$, $(3.14)$ *** | $0.063$, $(1.16)$ | $-0.010$, $(-0.27)$ | $-0.013$, $(-0.33)$ | $0.055$, $(0.91)$ |
| OIL            | $-0.016$, $(-2.49)$ ** | $-0.007$, $(-0.99)$ | $-0.003$, $(-0.45)$ | $-0.001$, $(-0.21)$ | $-0.010$, $(-1.22)$ |
| OIL(-1)        | $0.013$, $(1.43)$ | $-0.009$, $(-1.29)$ | $0.001$, $(0.17)$ | $0.002$, $(0.32)$ | $-0.012$, $(-1.16)$ |
| GPR            | $-0.018$, $(-2.43)$ ** | $-0.006$, $(-0.84)$ | $0.001$, $(0.27)$ | $-0.002$, $(-0.42)$ | $-0.005$, $(-0.41)$ |
| GPR(-1)        | $0.017$, $(2.43)$ ** | $0.005$, $(0.83)$ | $0.001$, $(0.26)$ | $-0.002$, $(-0.42)$ | $-0.046$, $(0.40)$ |
| CGPR           | $-0.015$, $(-2.47)$ ** | $0.003$, $(0.41)$ | $-0.006$, $(-1.06)$ | $-0.009$, $(-1.84)$ | $-0.006$, $(0.42)$ |
| CGPR(-1)       | $0.2106$, $0.1246$ | $0.092$, $0.0757$ | $0.079$, $0.0700$ | $0.0003$, $0.0001$ |
| Pseudo R-squared | $37.20$, $***$ | $22.88$, $**$ | $19.71$, $**$ | $16.75$, $*$ | $8.88$ |

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. CPI is consumer price index. EX, INT, and OIL are exchange rate, interest rate, and oil price factors. GPR and CGPR denote global geopolitical risk and country-specific geopolitical risk, respectively.

Regarding the country-specific GPR, it has negative effects on conventional and Islamic stock returns throughout the quantiles; but, for both stocks, the coefficients are significant in the lower quantiles. Thus, the results suggest the dependence structure co-movement in bearish market conditions and the independence structure in bullish and average market conditions. Therefore, these findings provide new insight that Malaysian stocks are highly volatile to its country’s specific geopolitical uncertainty in bearish stock market conditions.

5. Discussion

As expected, we evidenced a tendency of the Malaysian conventional and Islamic stock markets to react negatively towards the increase in the global GPR and country-specific GPR. These empirical results are reinforced by macro-economic theories. The theories argued that the effects of uncertainty are reflected on the state of the economy, the composition of the economy, and the types of stock markets. In line with macro-economic theories, it can be said that GPR events are known for their negative consequences; in such events, investors in the Malaysian market reduce investments and closely observe the macro-economic conditions and stock markets. Therefore, the negative effects of global GPR and country-specific GPR appeared in the Malaysian cases. Furthermore, the results are also linked to Hoque and Zaidi [16], as it is evident that Malaysia’s stock market appears to respond negatively to global economic policy uncertainty and that the response differs across states of volatility. Thus, the current finding lends strong support to the findings of Hoque and Zaidi [16], claiming that not only do global level uncertainties exhibit negative exposures on stock return but Malaysia’s specific political uncertainties also reflect negatively on stock return. Furthermore, our findings are in line with those of Das et al. [4], Hoque and Zaidi [5], and Kannadhasan and Das [17]. The current findings are opposite those of Balcilar et al. [2], Bouras et al. [3], Bouri et al. [20], and Hedström et al. [21].
as these empirical studies exhibited insignificant effects of geopolitical uncertainties on stock returns.

The responses of stock markets to global and domestic uncertainties are unique and dependent on underlying principles and factors. The past extant studies have presented that conventional and Islamic stock markets respond heterogeneously to risk factors and uncertainties. These empirical studies lend strong support to our findings of a heterogeneous response of conventional and Islamic stock markets to global GPR and country-specific GPR. Therefore, the findings add important insights that Malaysian conventional and Islamic stock markets are likely to respond differently to global GPR and country-specific GPR. As a result, in this case, this study demonstrated that the effects of geopolitical uncertainty on stock returns are market specific.

As we are expecting the Malaysian stock markets to respond asymmetrically and heterogeneously, both Markov switching regression and quantile regression show that the responses of the Malaysian stock markets to global geopolitical uncertainties are not the same, and they are volatility state specific and market condition specific. Such effects could be due to the uniqueness of a geopolitical event and the different time span as well as due to structural changes and shifts in the economy and stock market [7,12–15]. Furthermore, looking from the investors’ behavior perspective, the risk appetite of a market participant is different across the following market conditions: (i) bull market vs. bear market; (ii) low volatility vs. high volatility. Therefore, different market reflection on global geopolitical uncertainties can be observed in the markets. Thus, such responses of Malaysian stock markets to global geopolitical uncertainties are expected. Moreover, the current findings are also related to Das et al. [4] and Kannadhasan and Das [17], that emerging stock markets do not respond similarly to global geopolitical uncertainties, and they depend on the bull and bear market. In addition, the current findings are similar to Lee [23] for finding evidence of a tail dependence reaction of the stock market to geopolitical risk. These findings are also supported by the study of Hoque and Zaidi [5], as they evidenced the volatility state varying effects of geopolitical uncertainties on the stock market returns of fragile economies. In addition, our study also found asymmetric and heterogenous responses of Malaysian stock markets to country-specific GPR, which also infers that they are market specific and market condition specific. The findings are in line with the study of Hoque and Zaidi [5].

The stock markets responses to global and domestic uncertainties are not similar and the level of degree is also different. In most cases, the domestic uncertainties are likely to dominate over global uncertainties because of interdependency and due to being country specific. However, an interesting finding that we have observed is that global political uncertainties dominate over domestic political uncertainties. The reason for this could be that Malaysia has been a politically stable country compared to other Asian countries. The dominant influence of global political uncertainties is the consequence of global integration.

6. Conclusions

Understanding how the effects of global and country-specific geopolitical uncertainties vary across the stock markets, structures, and conditions is of great importance for investors, where the knowledge could be used to promote asset pricing and a well-diversified global portfolio. This research has, therefore, examined, using Markov switching and quantile regression, the impacts of global and country-specific GPR on conventional stock market returns and Islamic stock market returns in Malaysia. The empirical findings revealed that the effects of global and country-specific geopolitical uncertainties on conventional and Islamic stock returns in Malaysia are mostly negative. In addition, the empirical evidence suggests that the effects and exposures differ across volatility states and market structure, implying the presence of asymmetric dependence in the co-movements of stock returns and geopolitical uncertainties. Thus, the behavior of stock markets in Malaysia has exhibited a nonlinear association with geopolitical uncertainties. In addition, the empirical results also demonstrated that the exposures and reaction of conventional and Islamic stock returns to geopolitical uncertainties are unequal, which is also another confirmation of the existence
of asymmetric behavior. Henceforth, our study adds important insights to the body of knowledge in the context of different principle-based stock prices’ response to geopolitical uncertainties and the context of the emerging markets. Our study also strongly lends support to the studies of Bouras et al. [3], Das et al. [4], and Hoque and Zaidi [5], and our study also takes the literature one step forward.

**Practical Implications**

The empirical results may be advantageous to several economic actors for different purposes. Firstly, investors can use the insights for hedging risk. For example, our results highlight the market sensitivities to global geopolitical uncertainty, which is an external force. Investors can now easily decide whether to invest in the Malaysian stock market based on market volatility and developments, as well as global geopolitical uncertainty. Secondly, country-specific geopolitical uncertainties are important for Malaysia because their exposures are high on stock market returns. With any market development, it would be wise for investors not to invest in the Malaysian stock market when country-specific geo-political uncertainties are high. Thirdly, the findings could be useful to policy makers in understanding the transmission or spill effects of global and country-specific geopolitical uncertainties. In addition, policy makers should give more attention to Malaysia’s specific geopolitical uncertainties than global ones as they are related to the Malaysian economy and trade. As a result, policymakers should pay close attention to market developments as well as Malaysian and global geopolitical uncertainty levels when making financial decisions. In extremely volatile conditions, investors panic about market decline or conditions. In such conditions, if Malaysia’s specific and global geopolitical uncertainty level reaches its highest point, that kind of uncertainty will add more panic to the investors. As a result, policymakers must be prepared with policy measures to deal with such conditions; otherwise, the market panic could lead to a market crash.

For further studies, researchers can focus on a sectoral level approach to understand how each sector reacts to global and domestic geopolitical uncertainty. Furthermore, future studies may also consider investigating the spillover effects or hedging markets that are exposed to the global and domestic geopolitical risk uncertainty.

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