BER www.berjournal.com ISSN: 2619-9491 BUSINESS AND ECONOMICS RESEARCH JOURNAL

Business and Economics Research Journal Vol. 17, No.3, 2026 pp. 433-445 doi: 10.20409/berj.2026.505

Do Financial Markets Predict Geopolitical Risk? Panel Causality Findings

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Abstract: *This study examines the relationship between global and country-specific geopolitical risk indices and stock market index returns in selected developed and developing countries. Monthly data on geopolitical risk indices and stock market indices for the period from January 2002 to February 2026 were analyzed using the Dumitrescu-Hurlin panel causality test. The findings indicate substantial differences in the direction and scope of the relationship between the variables. At the panel level, no causality is detected from geopolitical risk levels to stock market returns. However, unidirectional causality is identified from stock market returns to both global geopolitical risk and country-specific geopolitical risk levels. The country-specific findings show bidirectional causality between global geopolitical risk and stock market returns in Türkiye. Conversely, there is a unidirectional relationship running from stock market returns to global geopolitical risk in the United Kingdom, Japan, and South Africa. Similarly, unidirectional causality from stock market returns to country-specific geopolitical risk is observed for Brazil, China, and Germany.*

Keywords: Geopolitical Risk, Stock Market Returns, Dumitrescu-Hurlin Test, Financial Markets

JEL: G14, C33, F30

Received : 29 April 2026
Revised : 23 June 2026
Accepted : 14 July 2026

Type : Research

1. Introduction

In recent years, recurrent geopolitical risks have profoundly affected the global economy and politics. As defined by Caldara and Iacoviello (2022), geopolitical risk refers to risks arising from wars, and interstate tensions that disrupt international relations. These risks affect economic growth and financial market stability in the countries concerned, thereby becoming a critical factor for investors. A survey of 1,000 investors on the determinants of investment decisions shows that approximately 75% of participants were concerned about the economic consequences of various military and diplomatic conflicts worldwide and ranked geopolitical risk ahead of political and economic uncertainty in terms of investment disruptions (Gallup Survey, 2017). Consequently, many investment firms tend to pay close attention to the direction of their funds, particularly in regions most affected by uncertainties arising from geopolitical risk components. This, in turn, triggers volatility in global risky assets within the global financial cycle. From this perspective, it is important to assess the extent to which regional and global geopolitical risk affects the financial market (Salisu et al., 2022).

When global geopolitical risks increase, their potential impact on macroeconomic stability also rises. Research shows that geopolitical tensions reduce trade, increase exchange-rate volatility, and trigger net capital outflows, thereby giving rise to financial market risks (Gupta et al., 2019). An increase in geopolitical

Cite this article as: Doğan Başar, B., & Yürük, M. F. (2026). Do financial markets predict geopolitical risk? Panel causality findings. *Business and Economics Research Journal,* 17(3), 433-445. http://dx.doi.org/10.20409/berj.2026.505

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risks that obstruct cross-border trade and investment activities or intensify uncertainty may lead to the reallocation of capital flows, disruptions in supply chains, and the exposure of the economy to severe shocks. This may depress asset prices, constrain the intermediation capacity of financial institutions, and increase the likelihood of an adverse macro-financial feedback loop (Aiyar et al., 2023). Globally, financial markets are adapting to this new geopolitical environment, while uncertainties threaten economic recovery and stability, particularly in emerging economies (Soybilgen et al., 2019). Accordingly, institutions such as the European Central Bank and the International Monetary Fund (IMF) emphasize that geopolitical risks have significant effects on economic development and financial stability.

Geopolitical risk is generally expected to affect stock market returns. However, a reverse causal relationship can also emerge. Price movements in stock markets can quickly reflect investors' expectations regarding upcoming geopolitical developments. These movements can occur before they are reflected in news-based geopolitical risk indices. According to the efficient market hypothesis, financial markets quickly reflect publicly available information and future expectations in asset prices. In contrast, news-based geopolitical risk indices only reflect these developments to the extent that they are reflected in media reports. Therefore, the observed causality from stock market returns to geopolitical risk should not be interpreted as financial markets causing geopolitical events, but rather as a predictive priority arising from markets pricing these developments earlier.

The relationship between geopolitical risk and financial markets is highly important, yet it remains insufficiently examined. Conventional theory suggests that geopolitical shocks reduce investment, employment, and stock prices, increase market risks, and destabilize equity, futures, and banking sectors (Balcilar et al., 2018; Demir & Danisman, 2021). In addition, macroeconomic characteristics and the development of financial markets influence investors' responses to geopolitical shocks, leading to heterogeneous financial responses across countries (Hoque & Zaidi, 2020).

However, several gaps remain in the literature. Most studies assume a unidirectional relationship between geopolitical risk and financial markets and do not adequately account for the direction of causality. Moreover, most of these studies overlook the distinction between global and country-specific geopolitical risk. In addition, studies that examine the relationship between geopolitical risk and stock returns within a panel-data framework while accounting for country-specific differences are limited. While existing studies predominantly focus on the effects of geopolitical risk on financial markets, whether financial markets shape perceptions of geopolitical risk has been largely neglected. To address these gaps, this study makes three main contributions. First, it considers the relationship between geopolitical risk and stock market returns within the framework of both global and country-specific indicators, thereby accounting for a distinction that is often overlooked in the literature. Second, it employs the Dumitrescu-Hurlin panel causality test to reveal the direction of the relationship between the variables and analyzes whether causality is unidirectional or bidirectional. Finally, it is assessed whether financial markets react to information more quickly than indicators of geopolitical risk.

The aim of this study is to examine the relationship between global and country-specific geopolitical risk and stock market index returns in nine selected countries. Monthly data on geopolitical risk indices and stock market indices for the nine countries covering the period from January 1, 2002 to February 1, 2026 were analyzed using the Dumitrescu-Hurlin panel causality test. In this context, the country group included in the analysis consists of Brazil, China, Germany, the United Kingdom, India, Japan, Türkiye, the United States, and South Africa. These countries were selected to include both developed and developing economies, thereby creating a heterogeneous sample structure. Accordingly, the United States, the United Kingdom, Germany, and Japan represent developed markets, whereas Brazil, China, India, Türkiye, and South Africa are included as emerging economies. The fact that these countries represent different stock markets was also taken into account. Consistent with the research objective, this study enables a comparative analysis of the effects of geopolitical risks on markets of different sizes. Moreover, these countries were selected because they hold significant shares in the global financial system and are exposed to geopolitical developments at different levels. This diversity makes it possible to examine whether the relationship

between geopolitical risk and stock returns differs across countries. The findings indicate substantial differences in the direction and scope of the relationship between the variables.

The study is organized as follows: The second section reviews the economic literature. The third section introduces the geopolitical risk index. The fourth section presents the dataset, model, and econometric methodology. The fifth section reports the panel causality results for the global and country-specific geopolitical risk indices and stock market returns. The sixth section provides the conclusion and evaluations.

2. Literature Review

The relationship between geopolitical risk and financial markets has attracted increasing attention in the literature in recent years. In particular, the geopolitical risk index developed by Caldara and Iacoviello (2022) has become one of the key measures in empirical studies in this field. A large part of the studies conducted in this context shows that the relationship between geopolitical risk and financial markets differs across countries and market structures and does not display a homogeneous pattern.

The existing literature has examined the effects of geopolitical risk from multiple perspectives. Scholars have analyzed the effects of geopolitical risk on energy prices (Cunado et al., 2020; Su et al., 2021; Zheng et al., 2023), commodity markets (Gong & Xu, 2022), and investor sentiment (He, 2023). In addition, a limited number of studies have focused on sector-specific analyses of geopolitical risk, such as the pharmaceutical industry (Roscoe et al., 2020) and the tourism sector (Kazakova & Kim, 2021). On the other hand, the effects of geopolitical risks on country-level stock market returns have also been investigated (Akdag et al., 2019; Alqahtani et al., 2020; Emsen, 2022; Gkillas et al., 2018; Huynh & Khoa, 2026; Maimaitijiang et al., 2024; Marangoz et al., 2025; Oloko et al., 2021; Salisu et al., 2022; Sohag et al., 2022; Yang & Yang, 2021; Zhang et al., 2023)

Many studies in the literature show a negative relationship between geopolitical risk and stock returns (Alqahtani et al., 2020; Huynh & Khoa, 2026; Salisu et al., 2022; Sohag et al., 2022; Vurur & Ozdemir, 2023; Yang & Yang, 2021; Zhang et al., 2023). In periods of increased geopolitical uncertainty, investors tend to avoid risk. This, in turn, leads to declines in stock markets. Yang and Yang (2021) examined the effect of global geopolitical risk on stock returns. Their findings show that geopolitical risk shocks significantly affect stock returns, especially in the short run, but that these effects weaken over time. Vurur and Ozdemir (2023) examined the effects of global geopolitical risk and Türkiye-specific geopolitical risk on the BIST Tourism Index. The findings of that study show that geopolitical risks have a negative and significant long-run effect on tourism-sector stock returns in Türkiye. Nevertheless, some studies argue that this relationship varies across countries and market structures and does not exhibit a homogeneous pattern (Emsen, 2022; Marangoz et al., 2025; Oloko et al., 2021). Oloko et al. (2020) examined the hedging potential of South Korean stocks against global and country-specific geopolitical risks. The analysis results reveal that global and country-specific geopolitical risks are useful indicators of South Korean stock market returns. Emsen (2022) investigated the effects of geopolitical risks on stock market returns and volatility in ten Asian countries, including Türkiye. According to that study, high geopolitical risk decreases stock market indices in Türkiye, Korea, Russia, and Indonesia, while increasing them in India, Thailand, and the Philippines. In other words, changes in global geopolitical risk were observed to increase stock market volatility in India, Thailand, and the Philippines, while reducing it in Türkiye, South Korea, Russia, Indonesia, and Malaysia.

On the other hand, a substantial part of the existing literature treats the effect of geopolitical risk on financial markets as unidirectional and examines the direction of causality only to a limited extent (Antonakakis et al., 2017; Balcilar et al., 2018; Bouri et al., 2019; Caldara & Iacoviello, 2022). In this context, although the assumption that geopolitical risk affects markets is widespread, whether financial markets influence perceptions of geopolitical risk has largely been neglected.

When evaluated within the framework of the efficient market hypothesis, financial markets are expected to price available information rapidly. However, findings on the direction of the relationship between geopolitical risk and market returns raise the question of whether markets drive geopolitical

developments or geopolitical risks affect markets. In this context, the limited number of empirical studies that reveal the direction of causality constitutes an important gap in the literature. To address these gaps, this study examines the relationship between geopolitical risk and stock returns within the framework of both global and country-specific risk indicators and identifies the direction of causality using panel data analysis. In addition, the findings thereby providing new evidence on the speed and direction of financial markets' response to information.

3. Geopolitical Risk Index

The Geopolitical Risk Index (GPR) of Caldara and Iacoviello (2022) is based on automated text searches conducted in the electronic archives of 10 newspapers (Chicago Tribune, Daily Telegraph, Financial Times, The Globe & Mail, The Guardian, Los Angeles Times, The New York Times, USA Today, The Wall Street Journal, and The Washington Post). Caldara and Iacoviello construct the index by expressing the number of articles related to adverse geopolitical events in each newspaper each month as a percentage of the total number of articles. In this context, GPR is an index that measures the general level of geopolitical risks on a global scale. This index is generally based on the frequency of events such as war, diplomatic tensions, and political uncertainty in international news. It also aims to reveal the development of systemic risk independently of countries and to measure the overall pressure on global financial markets.

By contrast, the Country-Specific Geopolitical Risk Index (GPRC), which is derived from the same methodological framework, is constructed by filtering news related to a specific country rather than global news flows and focuses only on geopolitical risk events that directly affect the relevant country. In other words, GPRC measures the level of geopolitical risk associated with a specific country. This index is based on the intensity of political risk, conflict, or diplomatic tensions in the news about that country. In this respect, GPRC offers a more micro-level analytical perspective by reflecting country-specific vulnerabilities and local market dynamics rather than macro-level global risk.

4. Data and Methodology

This study examines the relationship between global and country-specific geopolitical risk and stock market index returns in nine selected countries. The study uses monthly data on geopolitical risk indices and stock market indices for nine countries, covering a total of 2,610 observations for the period from January 1, 2002 to February 1, 2026. The countries included in the analysis and their stock market indices are presented in Table 1. These countries were selected because they represent diverse geographic regions such as Europe, Asia, America, and Africa, and encompass both developed and developing economies. The selected sample includes major developed markets (USA, Japan, Germany, and the United Kingdom) and leading emerging markets (China, India, Brazil, South Africa, and Türkiye) that account for a significant portion of global stock market capitalization and represent diverse institutional and economic environments. Furthermore, the selected countries have some of the world's largest and most influential stock exchanges in terms of market capitalization, trading volume, and their roles in the global financial system. The inclusion of both developed and developing markets allows the analysis to capture heterogeneous market structures and differences in exposure to geopolitical risks, offering a broader perspective on the relationship between geopolitical risk and stock market returns. Thus, the relationship between geopolitical risks and stock market index returns is examined more comprehensively, contributing to an analysis of differences in market dynamics. In addition, to create a balanced panel, only countries with complete and comparable data for all variables throughout the sampling period were included in the analysis.

Table 1. Countries Included in the Analysis and Stock Market Indices

Country Name	Index Name
Türkiye	BIST 100
Brazil	Bovespa
Germany	DAX
United Kingdom	FTSE 100
South Africa	FTSE/JSE All Share
India	Nifty 50
Japan	Nikkei 225
USA	S&P 500
China	Shanghai Composite

Note: Data on stock market indices were obtained from investing.com, whereas geopolitical risk data were retrieved from https://www.matteoiacoviello.com/gpr.htm

In the analysis process, cross-sectional dependence and homogeneity tests were first applied to the series. Subsequently, the stationarity levels of the series were determined using the CIPS unit root test developed by Pesaran (2007), and the Dumitrescu-Hurlin panel causality test was then conducted in line with the findings obtained.

While time-series analysis examines relationships separately, panel data analysis accounts for interactions across countries in order to obtain more advanced results. Therefore, panel data analysis was applied in this study. The DH test, a panel causality test developed by Dumitrescu and Hurlin (2012), is used to determine the causal relationship between two variables. This test accounts for both cross-sectional dependence and heterogeneity. As a highly flexible method, it can also be applied to balanced and unbalanced panels. The linear panel regression model used to test panel causality is presented in Equation (1) and Equation (2):

$$RETURN_{it} = \alpha_i + \sum_{k=1}^{k} \gamma_{ik} \, RETURN_{it-k} + \sum_{k=1}^{k} \beta_{ik} \, GPR_{it-k} + \varepsilon_{it} \quad (1)$$

$$RETURN_{it} = \alpha_i + \sum_{k=1}^{k} \gamma_{ik} \, RETURN_{it-k} + \sum_{k=1}^{k} \beta_{ik} \, GPRC_{it-k} + \varepsilon_{it} \quad (2)$$

In these equation, RETURN denotes the stock market return of country i in period t; GPR denotes the global level of geopolitical risk in period t-k; GPRC denotes the level of geopolitical risk of country i in period t-k; α_i denotes unit fixed effects; k denotes the number of lag lengths; γ_{ik} and β_{ik} denote the autoregressive and slope parameters, respectively; and ε_{it} denotes the error term. Model 1 represents the relationship between stock market returns and the global geopolitical risk level, whereas Model 2 represents the relationship between stock market returns and the country-specific geopolitical risk level. In addition, while GPR reflects the general level of geopolitical risks on a global scale, GPRC measures the intensity of geopolitical risk news related to the relevant country. Unlike the country-specific GPRC index, the global GPR index takes the same values across all countries because it measures shared global geopolitical risk. Therefore, model 1 aims to capture the impact of global geopolitical shocks shared by all countries in the sample, while model 2 focuses on country-specific geopolitical conditions.

Table 2. Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maksimum	Number of Observations
RETURN	0.0077	0.0595	-0.3553	0.2603	2,610
GPR	107.877	37.098	58.421	358.711	2,610
GPRC	0.618	0.842	0.004	9.004	2,610

According to Table 2, the volatility of GPR, which represents global geopolitical risk, is higher than that of GPRC, which represents country-specific geopolitical risk.

5. Empirical Findings

The causal relationship between global and country-specific geopolitical risk and stock market index returns is investigated using a panel data approach. As emphasized by Hsiao (2007), panel data analysis offers several advantages over relying solely on time-series or cross-sectional methods. These advantages include increased parameter stability, the ability to control for unobserved heterogeneity, reduced estimation bias, the examination of both individual and collective behavior, and the presentation of the data within a robust and comprehensive framework. Therefore, panel data methodology is a robust method for addressing complex research questions, accounting for unobservable factors, and obtaining more accurate estimates.

The analysis begins with the homogeneity test conducted using the Delta test. As presented in Table 3, all test statistics are significant at the 1% significance level and indicate heterogeneity.

Table 3. Homogeneity / Heterogeneity Test Results

	Delta	Delta(adj)
RETURN	10,594 (0.000)***	10,649 (0.000)***
GPR	11,352 (0.000)***	11,411 (0.000)***
GPRC	24,972 (0.000)***	25,102 (0.000)***

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

In the next stage of the analysis, the existence of cross-sectional dependence was examined using two widely used tests that are appropriate for the structure of the data. As presented in Table 4, the results of both tests provide strong evidence against the null hypothesis of cross-sectional independence at the 1% level. Considering the results of both tests, cross-sectional dependence is observed across the three panels. This means that shocks to any variable have the potential to spill over to other countries. Examining cross-sectional dependence is important for selecting econometric techniques that explicitly account for such dependence in subsequent analyses. In this context, the unit root and panel causality tests to be used in the remainder of this study should be second-generation tests.

Table 4. Cross-Sectional Dependence Test Results (Constant & Trend)

	CDLM	CDLMadj
RETURN	7,371.7 (0.000)***	864.51 (0.000)***
GPR	10,440 (0.000)***	1,226.1 (0.000)***
GPRC	1,696 (0.000)***	195.62 (0.000)***

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

Subsequently, as shown in Table 5, the stationarity of the panel data is evaluated using second-generation panel unit root tests. Since cross-sectional dependence was detected among the data forming the panel for the variables used in the study, the stationarity of the series was examined using the CADF test developed by Pesaran (2007), one of the second-generation unit root tests used when cross-sectional dependence is present. The CADF test is consistent in both T>N and N>T cases. Stationarity is tested for each series by comparing the test statistic values with the CADF critical values reported by Pesaran (2007).

Table 5. CADF Panel Unit Root Test Results

Variable	Level		First Difference	
	Constant	Constant & Trend	Constant	Constant & Trend
RETURN	-1.701	-1.688	-6.190***	-6.420***
GPR	-5.704***	-5.691***		
GPRC	-5.824***	-6.392***		

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

When panel data are used, the series should not contain unit roots. In other words, they should be stationary. As seen in Table 5, stock market returns are not stationary at the level value [I(0)]. The findings confirm that the stock market return variable does not appear to be stationary at levels but becomes stationary after first differencing. This result indicates that short-term unexpected developments in the stock market return series during the period examined, both in the panel and in the cross-sectional units constituting the panel, have persistent effects. On the other hand, the global geopolitical risk level and country-specific geopolitical risk level variables are stationary at their level values at the 1% significance level, that is, they are I(0).

This study aims to determine the direction of the causal effect through the Dumitrescu-Hurlin (DH) panel causality test, which is an extension of the traditional Granger causality test. This technique stands out for its capacity to account for coefficient variation across panel data units and is therefore highly suitable for evaluating data in settings with limited time dimensions and cross-sectional dependence. In this study, panel causality analysis was conducted between stock market returns and the global geopolitical risk level, and between stock market returns and the country-specific geopolitical risk level, using the Dumitrescu-Hurlin methodology. The details of the analysis are presented in the following tables, respectively. Before applying the Dumitrescu-Hurlin panel causality test, the optimal lag length was determined using the Akaike information criterion (AIC). The AIC results showed that the optimal lag length for all models was one (k=1). Therefore, the basic Dumitrescu-Hurlin panel causality analysis was estimated with a single lag (k=1). Furthermore, robustness analyses were performed using lag lengths of k=2 and k=3, and the relevant results are presented in Appendix (Table A1).

Table 6. Dumitrescu-Hurlin Panel Causality Test Results for GPR → RETURN

Country	Wald Statistic	Probability
Brazil	0.080	0.781
China	0.030	0.868
Germany	0.140	0.713
United Kingdom	1.350	0.247
India	0.070	0.787
Japan	0.960	0.329
Türkiye	**4.100****	**0.044**
United States	0.000	0.973
South Africa	0.040	0.847
Zbar	-0.527	0.598
Z-Bar Tilde Statistic	-0.536	0.592

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

Table 6 reports the causality results from the global geopolitical risk level to stock market returns. According to these results, when the Zbar statistics are examined, no causal relationship is found from the global geopolitical risk level to stock market returns. When the country-specific causality relationship between the variables is considered, causality from geopolitical risk to stock market returns is observed only in Türkiye. The empirical findings indicate that global geopolitical risk policies should not be ignored when

formulating stock market-related policies in Türkiye. In other words, financial markets in Türkiye can be said to be more sensitive to geopolitical developments. For the other countries, no causality relationship from the global geopolitical risk level to their stock market returns is obtained.

Table 7. Dumitrescu-Hurlin Panel Causality Test Results for RETURN → GPR

Country	Wald Statistic	Probability
Brazil	0.460	0.499
China	0.000	0.955
Germany	0.420	0.516
United Kingdom	**3.78***	**0.053**
India	0.960	0.329
Japan	**3.320***	**0.070**
Türkiye	**3.250***	**0.072**
United States	0.300	0.585
South Africa	**3.350***	**0.068**
Zbar	**1.614***	**0.098**
Z-Bar Tilde Statistic	**1.579***	**0.089**

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

Table 7 presents the causality results from stock market returns to the global geopolitical risk level. According to these results, when the Zbar statistics are examined, causality is detected from stock market returns to the global geopolitical risk level. When the country-specific causality relationship between the variables is considered, causality from stock market returns to the global geopolitical risk level is observed for the United Kingdom, Japan, Türkiye, and South Africa. This situation can be interpreted as indicating that stock market returns in these countries affect the global geopolitical risk level. In other words, financial markets in these countries may act as an indicator of global geopolitical risk.

Table 8. Dumitrescu-Hurlin Panel Causality Test Results for GPRC → RETURN

Country	Wald Statistic	Probability
Brazil	0.630	0.429
China	0.330	0.565
Germany	0.220	0.639
United Kingdom	1.600	0.207
India	0.000	0.970
Japan	0.350	0.552
Türkiye	2.360	0.125
United States	0.050	0.819
South Africa	0.060	0.812
Zbar	-0.8004	0.4235
Z-Bar Tilde Statistic	-0.8054	0.4206

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

Table 8 reports the causality results from the country-specific geopolitical risk level to stock market returns. According to these results, when the Zbar statistics are examined, no causal relationship is found from the country-specific geopolitical risk level to stock market returns. When the country-specific causality relationship between the variables is considered, no causality is detected in any country.

Table 9. Dumitrescu-Hurlin Panel Causality Test Results for RETURN → GPRC

Country	Wald Statistic	Probability
Brazil	**7.470*** **	**0.001**
China	**2.590***	**0.077**
Germany	**4.060****	**0.0182**
United Kingdom	1.45	0.2365
India	1.17	0.311
Japan	1.55	0.2147
Türkiye	1.01	0.3669
United States	1.71	0.1829
South Africa	2.25	0.1074
Zbar	**4.7505*** **	**0.000**
Z-Bar Tilde Statistic	**4.6625*** **	**0.000**

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

Table 9 presents the causality results from stock market returns to the country-specific geopolitical risk level. According to these results, when the Zbar statistics are examined, causality is detected from stock market returns to the country-specific geopolitical risk level. When the country-specific causality relationship between the variables is considered, causality from stock market returns to the country-specific geopolitical risk level is observed for Brazil, China, and Germany. This situation can be interpreted as indicating that stock market returns in these countries affect the country-specific geopolitical risk level.

6. Conclusion and Recommendations

This study examines the relationship between global and country-specific geopolitical risk and stock market index returns in nine selected countries (Brazil, China, Germany, the United Kingdom, India, Japan, Türkiye, the United States, and South Africa). Monthly data on geopolitical risk indices and stock market indices for the nine countries covering the period from January 1, 2002 to February 1, 2026 were analyzed using the Dumitrescu-Hurlin panel causality test. The findings indicate substantial differences in the direction and scope of the relationship between the variables.

First, when the overall causality of the countries considered is examined, no causality is detected from geopolitical risk levels to stock market returns, whereas unidirectional causality is detected from stock market returns to both global geopolitical risk and country-specific geopolitical risk levels. Accordingly, at the panel level, the direction of causality is one-sided and runs from financial markets to geopolitical risk. This finding should be considered not as a cause of geopolitical events by financial markets, but as a predictive priority. According to the efficient market hypothesis, markets rapidly price all available information, and new information (for example, geopolitical risk) directly affects returns. Therefore, financial markets instead of waiting for geopolitical developments, price in expectations related to these developments in advance. Therefore, geopolitical risk indicators reflect this pricing in the markets with a lag. This result is consistent with previous studies suggesting that financial markets may anticipate geopolitical developments (Akdag et al., 2019; Chen et al., 2026; Ucler & Ozsahin, 2020; Schlosky et al., 2024; Sekmen, 2020; Sheng et al., 2025; Yilmazkuday, 2024).

When the country-specific results are examined, global geopolitical risk and returns in Türkiye are mutually interactive. In other words, there is bidirectional causality in this country. On the other hand, a unidirectional relationship running from stock market returns to global geopolitical risk exists in the United Kingdom, Japan, and South Africa. Similarly, for Brazil, China, and Germany, unidirectional causality runs from returns to country-specific geopolitical risk. These findings provide statistical evidence that financial markets price in information related to geopolitical developments. Specifically, the finding of unidirectional causality from stock market returns to geopolitical risk in countries such as the United Kingdom, Japan, South Africa, Brazil, China, and Germany provides statistical evidence that geopolitical risk indicators respond to market information with a delay. The bidirectional causality identified for Türkiye can be interpreted as indicating

that information flow is not entirely efficient and that there is a reciprocal interaction between geopolitical risk and market returns. Overall, the findings support the view that market efficiency differs across countries but that, in most cases, financial markets respond more rapidly than geopolitical risk indicators.

In line with the findings, there are important implications for both policymakers and investors. The most important finding here is that markets contribute to the pricing of geopolitical developments in advance. Therefore, it is recommended that policymakers monitor market indicators as an early warning system and formulate policies accordingly. On the other hand, the fact that the global geopolitical risk level is more influential on stock market returns than the country-specific geopolitical risk level shows that investors focus on global geopolitical developments rather than local news flows. This indicates that global risk factors should be considered in the formulation of macro-level policies.

This study has some limitations. First, the analysis is limited to specific countries and selected stock indices. Including different country groups and alternative financial indicators in the analysis may yield different results. Second, the geopolitical risk indicators used in the study consist of news-based indices. Future studies could contribute to the literature by using different risk indicators. Finally, the present study examines the causal relationship using the Dumitrescu-Hurlin panel causality method. Future research could analyze the relationships between variables more comprehensively by using causality approaches such as the Toda-Yamamoto to examine heterogeneous dynamics in more detail.

Declarations and Disclosures

Ethical Responsibilities of Authors: The authors of this article confirm that their work complies with the principles of research and publication ethics.

Conflicts of Interest: No potential conflict of interest was reported by the authors.

Funding: The authors received no financial support for the preparation and/or publication of this article.

Author Contributions: The authors confirm contribution to the article as follows: Conceptualization and design, M. F. Yürük; data collection, M. F. Yürük; analysis of data and interpretation of results, B. Doğan Başar; writing the first draft of the manuscript, B. Doğan Başar; review and editing, B. Doğan Başar. The manuscript/article was read and approved by all the authors, and all authors accepted responsibility for their article.

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References

Akdağ, S., Yıldırım, H., & Kesebir, M. (2019). Jeopolitik risk ile borsa endeksleri arasındaki ilişki: Panel eşbütünleşme ve panel nedensellik analizi. In: *Siyasi, sosyal ve kültürel yönleriyle Türkiye ve Rusya* (pp. 57-72).

Alqahtani, A., Bouri, E., & Vo, X. V. (2020). Predictability of GCC stock returns: The role of geopolitical risk and crude oil returns. *Economic Analysis and Policy*, *68*, 239-249. https://doi.org/10.1016/j.eap.2020.09.017

Antonakakis, N., Gupta, R., Kollias, C., & Papadamou, S. (2017). Geopolitical risks and the oil-stock nexus over 1899–2016. *Finance Research Letters*, *23*, 165-173. https://doi.org/10.1016/j.frl.2017.07.017

Aiyar, S., Chen, J., Ebeke, C. H., Garcia-Saltos, R., Gudmundsson, T., Ilyina, A., Kangur, A., Kunaratskul, T., …, & Trevino, J. P. (2023). Geo-economic fragmentation and the future of multilateralism. International Monetary Fund. https://doi.org/10.5089/9798400229046.006

Balcılar, M., Bonato, M., Demirer, R., & Gupta, R. (2018). Geopolitical risks and stock market dynamics of the BRICS. *Economic Systems*, *42*(2), 295-306. https://doi.org/10.1016/j.ecosys.2017.05.008

Bouri, E., Demirer, R., Gupta, R., & Marfatia, H. A. (2019). Geopolitical risks and movements in Islamic bond and equity markets: A note. *Defence and Peace Economics*, *30*(3), 367-379. https://doi.org/10.1080/10242694.2018.1424613

Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. *American Economic Review*, *112*(4), 1194-1225. https://doi.org/10.1257/aer.20191823

Chen, R., Yang, L., & Zhang, X. (2026). Geopolitical risk and the cross-section of stock returns: International evidence. *Journal of International Money and Finance*, *162*, 103526. https://doi.org/10.1016/j.jimonfin.2026.103526

Cunado, J., Gupta, R., Lau, C. K. M., & Sheng, X. (2020). Time-varying impact of geopolitical risks on oil prices. *Defence and Peace Economics*, *31*(6), 692-706. https://doi.org/10.1080/10242694.2018.1563854

Demir, E., & Danisman, G. O. (2021). The impact of economic uncertainty and geopolitical risks on bank credit. *The North American Journal of Economics and Finance*, 57, 101444. https://doi.org/10.1016/j.najef.2021.101444

Emsen, H. S. (2022). Effects of geopolitical risks and political uncertainties on stock markets: Country specific new generation panel data analysis for developing Asian countries. *Journal of Process Management and New Technologies*, *10*(1-2), 82-101.

Gallup Survey. (2017). Wells Fargo/Gallup Survey: Geopolitical risks greater threat to investments than the economy, investors say. https://newsroom.wf.com/news-releases/news-details/2017/Wells-FargoGallup-Survey-Geopolitical-Risks-Greater-Threat-to-Investments-Than-the-Economy-Investors-Say/default.aspx (Access Date: 17.02.2026).

Gkillas, K., Gupta, R., & Wohar, M. E. (2018). Volatility jumps: The role of geopolitical risks. *Finance Research Letters*, *27*, 247-258. https://doi.org/10.1016/j.frl.2018.03.014

Gong, X., & Xu, J. (2022). Geopolitical risk and dynamic connectedness between commodity markets. *Energy Economics*, *110*, 106028. https://doi.org/10.1016/j.eneco.2022.106028

Gupta, R., Gozgor, G., Kaya, H., & Demir, E. (2019). Effects of geopolitical risks on trade flows: Evidence from the gravity model. *Eurasian Economic Review*, *9*(4), 515-530. https://doi.org/10.1007/s40822-018-0118-0

He, Z. (2023). Geopolitical risks and investor sentiment: Causality and TVP-VAR analysis. *The North American Journal of Economics and Finance*, *67*, 101947. https://doi.org/10.1016/j.najef.2023.101947

Hoque, M. E., & Zaidi, M. A. S. (2020). Global and country-specific geopolitical risk uncertainty and stock return of fragile emerging economies. *Borsa Istanbul Review*, *20*(3), 197-213. https://doi.org/10.1016/j.bir.2020.05.001

Huynh, T. T., & Khoa, B. T. (2026). Geopolitical risk and stock returns: Evidence from an emerging market. *South Asian Journal of Macroeconomics and Public Finance*, 15(1). https://doi.org/10.1177/22779787251413868

Kazakova, A., & Kim, I. (2021). Geopolitical-risk and economic policy—Uncertainty impacts on tourist flows from neighboring countries: A wavelet analysis. *Sustainability*, *13*(24), 13751. https://doi.org/10.3390/su132413751

Maimaitijiang, S., Shen, Y., & Yao, X. (2024). Impacts of geopolitical risk on China stock market: A dynamic resilience analysis. *Procedia Computer Science*, *242*, 318-325. https://doi.org/10.1016/j.procs.2024.08.224

Marangoz, C., Gerekan, B., Yılmaz, E., & Bulut, E. (2025). Disentangling geopolitical risks: A quantile approach to geopolitical risk indices' impacts on stock markets. *Finance Research Letters*, *77*, 107113. https://doi.org/10.1016/j.frl.2025.107113

Oloko, T. F., Olaniran, A. O., & Lasisi, L. A. (2021). Hedging global and country-specific geopolitical risks with South Korean stocks: A predictability approach. *Asian Economics Letters*, *2*(3). https://doi.org/10.46557/001c.24418

Roscoe, S., Skipworth, H., Aktas, E., & Habib, F. (2020). Managing supply chain uncertainty arising from geopolitical disruptions: Evidence from the pharmaceutical industry and Brexit. *International Journal of Operations & Production Management*, *40*(9), 1499-1529. https://doi.org/10.1108/IJOPM-10-2019-0668

Salisu, A. A., Lasisi, L., & Tchankam, J. P. (2022). Historical geopolitical risk and the behaviour of stock returns in advanced economies. *The European Journal of Finance*, *28*(9), 889-906. https://doi.org/10.1080/1351847X.2021.1968467

Sekmen, T. (2020). Gelişmekte olan ülkelerde jeopolitik riskler ve borsa davranışları: zamanla değişen nedensellik yaklaşımı. *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi*, *21*(2), 359-381. https://doi.org/10.17494/ogusbd

Sheng, J., Sun, Z., & Wang, Q. (2025). Geopolitical risk and stock returns. Available at *SSRN 5207012*.

Schlosky, M. T. T., Karadas, S., & Stivers, A. (2024). Forecasting US stock returns conditional on geopolitical risk and business cycles. *International Review of Financial Analysis*, *96*, 103707. https://doi.org/10.1016/j.irfa.2024.103707

Sohag, K., Hammoudeh, S., Elsayed, A. H., Mariev, O., & Safonova, Y. (2022). Do geopolitical events transmit opportunity or threat to green markets? Decomposed measures of geopolitical risks. *Energy Economics*, *111*, 106068. https://doi.org/10.1016/j.eneco.2022.106068

Soybilgen, B., Kaya, H., & Dedeoglu, D. (2019). Evaluating the effect of geopolitical risks on the growth rates of emerging countries. *Economics Bulletin*, *39*(1), 717-725.

Su, C. W., Khan, K., Umar, M., & Zhang, W. (2021). Does renewable energy redefine geopolitical risks?. *Energy Policy*, *158*, 112566. https://doi.org/10.1016/j.enpol.2021.112566

Ucler, G., & Ozsahin, Ş. (2020). Jeopolitik risk ve borsa endeksinin nedensellik analizi: gelişmekte olan ülkeler üzerine bootstrap panel nedensellik testi. *Muhasebe ve Finansman Dergisi*, (87), 167-180. https://doi.org/10.25095/mufad.756266

Zheng, D., Zhao, C., & Hu, J. (2023). Impact of geopolitical risk on the volatility of natural resource commodity futures prices in China. *Resources Policy*, *83*, 103568. https://doi.org/10.1016/j.resourpol.2023.103568

Zhang, Y., He, J., He, M., & Li, S. (2023). Geopolitical risk and stock market volatility: A global perspective. *Finance Research Letters*, *53*, 103620. https://doi.org/10.1016/j.frl.2022.103620

Vurur, N. S., & Özdemir, L. (2023). Küresel ve Türkiye jeopolitik risklerin BİST turizm endeksine etkisinin karşılaştırılması. *Uluslararası İktisadi ve İdari İncelemeler Dergisi*, (C-iasoS 2022 Özel Sayısı), 163-174. https://doi.org/10.18092/ulikidince.1224580

Yang, J., & Yang, C. (2021). The impact of mixed-frequency geopolitical risk on stock market returns. *Economic Analysis and Policy*, *72*, 226-240. https://doi.org/10.1016/j.eap.2021.08.008

Yilmazkuday, H. (2024). Geopolitical risk and stock prices. *European Journal of Political Economy*, *83*, 102553. https://doi.org/10.1016/j.ejpoleco.2024.102553

Appendix

Table A1. Robustness Analysis of the Dumitrescu–Hurlin Panel Causality Test Using Alternative Lag Lengths

Direction of Causality	Lag	Z-bar	Z-bar Tilde	p-value
GPR → RETURN	1	-17.615	-17.547	0.0793
	2	-16.821	-16.794	0.0931
	3	-13.277	-13.325	0.1827
RETURN → GPR	1	0.1476	0.131	0.8958
	2	-0.555	-0.5685	0.5697
	3	-0.551	-0.5683	0.5698
GPRC → RETURN	1	-0.498	-0.5071	0.6121
	2	-12.682	-12.714	0.2036
	3	-18.223	-18.191	0.0689
RETURN → GPRC	1	47.505	46.625	0.0000
	2	-0.84	-0.8492	0.3958
	3	0.7509	0.7127	0.4760

Note: The baseline model was estimated using one lag, selected based on the Akaike Information Criterion (AIC). As a robustness check, the Dumitrescu–Hurlin panel causality test was re-estimated using lag lengths of two and three.

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