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Geopolitical Risk and International Portfolio Investments: Findings from Emerging Market Economies*

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Abstract

Geopolitical risks function not only as country-specific shocks but also as global risk factors affecting international capital flows. This effect is particularly pronounced in emerging economies, which are more vulnerable to fluctuations in portfolio investments due to their fragile financial structures. This study investigates the impact of geopolitical risk on foreign portfolio investments in emerging market economies using a financial gravity model. The analysis covers foreign portfolio investments of 97 countries over the 2001–2024 period. To distinguish the effects of geopolitical risk on portfolio preferences and actual investment amounts, the financial gravity model is estimated using the Heckman Selection Model. The findings show that geopolitical risk significantly reduces foreign portfolio investments, as investors tend to avoid politically uncertain destinations. The results also reveal regional heterogeneity across emerging Asia, Europe, Latin America, and Africa, with investors in Latin America and Africa exhibiting the strongest responses to increases in geopolitical risk.

JEL Codes: C33, F51, G11

Keywords: Geopolitical Risk, Foreign Portfolio Investments, Gravity Model, Selection Model.

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Jeopolitik Risk ve Uluslararası Portföy Yatırımları: Yükselen Piyasa Ekonomilerinden Bulgular

Öz

Jeopolitik riskler yalnızca ülkeye özgü şoklar olarak değil, aynı zamanda uluslararası sermaye akımlarını etkileyen küresel risk faktörleri olarak da işlev görmektedir. Bu dinamik, özellikle nispeten kırılgan finansal yapıları nedeniyle portföy yatırımlarındaki dalgalanmalara daha duyarlı olan gelişmekte olan ekonomilerde daha belirgindir. Bu çalışma, finansal çekim modelini kullanarak, jeopolitik riskin yükselen piyasa ekonomilerinin yabancı portföy yatırımları üzerindeki etkisini araştırmaktadır. Model 97 ülkenin 2001-2024 yılları arasındaki toplam yabancı portföy yatırımları kullanılarak tahmin edilmektedir. Jeopolitik riskin portföy tercihi ve fiili portföy akımları üzerindeki etkisini ayrıştırmak için, finansal çekim modelinin tahmininde Heckman Seçim Modeli kullanılmaktadır. Bulgular, jeopolitik riskin yabancı portföy yatırımlarını önemli ölçüde azalttığını, yatırımcıların siyasi olarak belirsiz ortamlardan kaçınma eğiliminde olduğunu göstermektedir. Yatırımcılar özellikle jeopolitik riski yüksek olan yatırım destinasyonlarından kaçınmaktadırlar. Ayrıca bulgular jeopolitik riskin gelişmekte olan Asya, Avrupa, Latin Amerika ve Afrika bölgelerinin portföy yatırımları üzerindeki etkisinin farklılaştığını göstermektedir. Jeopolitik riskteki artıştan en fazla Latin Amerika ve Afrika bölgelerindeki yatırımcılar etkilenmektedir.

JEL Kodları: C33, F51, G11

Anahtar Kelimeler: Jeopolitik Risk, Yabancı Portföy Yatırımları, Çekim Modeli, Seçim Modeli.

Extended Summary

The significant increase in geopolitical risks in recent years has brought the dynamics of international capital movements back to the forefront. The Russia-Ukraine War, rising geopolitical tensions in the Middle East, the US-China trade war, and global security concerns demonstrate that international investment decisions are significantly shaped not only by economic indicators but also by political and geopolitical developments. Geopolitical risks alter investors' risk perception by increasing uncertainty, reduce international portfolio diversification, and redefine the direction of capital flows. This effect is particularly strongly felt in developing countries with more fragile financial markets. However, the current literature does not adequately reveal the heterogeneous effects of geopolitical risks on developing regions and how these effects differ between the investor country and the country of investment.

The main objective of this study is to comprehensively examine the impact of geopolitical risk on cross-border portfolio investments in emerging markets. The study assumes that geopolitical risks can affect not only the capital attraction capacity of the investing countries but also the propensity of the investing countries to invest abroad. Therefore, the effects of geopolitical risk on both the source and destination countries are evaluated separately in the analyses. Furthermore, considering that emerging markets are not a monolithic group, regional differences are also examined for Asia, Europe, Latin America, and Africa. Thus, the study reveals in which regions the impact of geopolitical risks on international portfolio investments is stronger.

This study utilizes bilateral portfolio investments data from 97 countries covering the period 2001-2024. The analyses are conducted within the framework of the financial gravity model. Considering the frequently encountered zero-investment observations in international portfolio investments and the two-stage nature of investment decisions, Heckman's (1979) Selection Model was chosen. This method allows for the estimation of investors' initial decision on whether to invest in a country and the subsequent investment volume after the decision to invest is made, by separating these factors. Thus, the impact of geopolitical risk on both the portfolio selection process and the investment amount can be evaluated simultaneously. Furthermore, the study controls for geographical, economic, and institutional factors affecting international portfolio investments to reveal the independent impact of geopolitical risk.

The findings show that geopolitical risk significantly reduces international portfolio investments in terms of both investment decisions and investment volume. Increased geopolitical uncertainty reduces investors' risk appetite towards foreign markets and restricts international capital movements. However, the impact of geopolitical risk differs between source and destination countries. Rising geopolitical risk in source countries reduces investors' willingness to invest abroad, while increased geopolitical risk in destination countries weakens the country's investment attractiveness and negatively affects foreign capital inflows. Regional analyses reveal that developing countries do not respond homogeneously to geopolitical risks. The findings show that Latin American and African countries are the most vulnerable regions to geopolitical shocks, while the impact remains relatively limited in Asian and emerging European countries. These results demonstrate that the impact of geopolitical risks on international portfolio investments varies significantly across country groups.

This study offers three fundamental contributions to the literature. First, it reveals the heterogeneous effects of geopolitical risks by examining emerging countries in regional sub-samples. Second, it explains the bidirectional interaction in international portfolio investments by separating the effects of geopolitical risk on the investor country and the invested country. Third, thanks to the Heckman Selection Model, the effects of geopolitical risks on both the probability of investing and the volume of investment are evaluated together. In this respect, the study provides a methodological and empirical contribution to the literature on the mechanisms through which geopolitical risks affect international portfolio investments. The findings also offer important implications for policy designs aimed at strengthening financial stability, improving institutional structures, and reducing the negative effects of geopolitical uncertainties on investor confidence, especially in emerging markets.

1. Introduction

Geopolitical risk can be defined as uncertainties arising from wars, terrorist incidents, diplomatic crises, military conflicts, and international political tensions (Caldara and Iacoviello, 2022). In addition, cyberattacks, declines in oil supply, trade and energy wars, economic sanctions, migration flows resulting from wars and internal conflicts, and political tensions are also considered within the scope of geopolitical risk (Wang, Wu and Xu, 2024). Recent events such as the Russia-Ukraine War, increasing geopolitical tensions in the Middle East, the US-China trade war, rising tensions in China-Taiwan relations, and deepening global security concerns have necessitated a reassessment of the impact of geopolitical risks on international financial investments.

Geopolitical risk affects international portfolio investments through various channels. The first can be described as “the flight to home effect” (Caporale and Menla-Ali, 2024). The flight to home effect stems from investors having more and higher-quality information about local assets, i.e., information asymmetry (Kang and Stulz, 1997). When geopolitical risks increase, investors tend to turn to local financial assets where they have more information, and foreign portfolio investments may decrease. The second channel is the flight to safe or high-quality financial assets (Forbes and Warnock, 2012). Geopolitical risk, by increasing uncertainty, can cause investors to turn to countries they perceive as safe havens or to high-quality financial assets. This effect varies between countries depending on country-specific factors such as international financial connections and global economic and trade relations (Milesi-Ferretti and Tille, 2011). The third channel is financial fragmentation. Geopolitical risk can lead to financial fragmentation (Converse and Mallucci, 2025; Alsadan, Alalmaee, Zehri and Ben Youssef, 2025). As global uncertainty increases due to geopolitical risk, fund portfolios become more concentrated, the number of countries invested in decreases, and cash assets increase (Albori, 2025). This indicates a decrease in global diversification. A more indirect channel is expropriation risk. Expropriation risk is a barrier to foreign investment (Akhtaruzzaman, Berg and Hajzler, 2017) because it reduces investors' confidence in the protection of property rights. Expropriation risk particularly affects foreign capital flows to countries with weak institutional structures (Li and Resnick, 2003; Asiedu and Lien, 2011). When geopolitical risk increases, expropriation risk may increase, especially for foreign investors, and portfolio investments may remain limited (Caporale and Menla-Ali, 2024).

The impact of geopolitical risk on international portfolio investments may be more pronounced for emerging markets (Feng, Han, Vigne and Xu, 2023; Hudecz, Lauwers, Mimir and Schiliuk, 2024; Agoraki, Wu, Xu and Yang, 2024; Airaudo, De Soyres, Richards and Santacreu, 2025; Yang, Feng and Chen, 2026). This is because these markets have weaker institutional quality and relatively more closed and fragile financial markets (Cao, Li and Liu, 2023; Choi and Havel, 2025). Emerging countries do not respond homogeneously to geopolitical risks, and these responses vary across

regions. Emerging European, Middle Eastern, and African countries are more sensitive to geopolitical risks, and their portfolio weightings are rapidly decreasing due to this risk (Converse and Mallucci, 2025).

The aim of this study is to analyze the impact of geopolitical risk on cross-border portfolio investments for emerging markets. In this context, the study estimates a financial gravity model using bilateral portfolio investments from 97 countries between 2001 and 2024. Heckman's (1979) Selection Model, which allows for the modeling of both portfolio choice and the portfolio investment process, is used to estimate the gravity model. The gravity model is applied to subsamples covering emerging countries in Asia, Europe, Latin America, and Africa. Furthermore, the model separates the impact of geopolitical risk for source and destination countries.

The findings show that geopolitical risk is not only a country-specific element of uncertainty but also a global factor reshaping international portfolio investments. Geopolitical risk has a negative impact on both portfolio choice and the investment process. The impact is particularly above average for emerging markets. Geopolitical risk has different effects for source and destination countries. For source countries, geopolitical risk reduces investors' risk appetite, weakening foreign investment decisions; while for destination countries, increased uncertainty reduces the country's investment attractiveness, limiting capital inflows. The impact of geopolitical risk shows regional heterogeneity. Despite the increase in geopolitical risk, the most vulnerable regions are Latin American and African countries.

This study contributes to the literature in several ways. First, using a broad set of countries, it reveals the heterogeneous impact of geopolitical risk on portfolio investments in emerging regions. It also analyzes whether the impact of geopolitical risk on international portfolio investments differs depending on whether the emerging region is the investor (source country) or the investment country (destination). Finally, thanks to the Heckman Selection Model, the impact of geopolitical risk on portfolio investments can be evaluated both at the portfolio selection and investment stages. Studies using this approach are limited in the relevant literature. This study aims to contribute to filling this gap.

The following section presents the literature on the impact of geopolitical risk on financial investments. The third section outlines the theoretical framework of the financial gravity model used in this study. The fourth section presents the empirical equations used in the estimation. The fifth section presents and discusses the results of the empirical models. The final section is the conclusion.

2. Literature Review

The relationship between political conditions and international investment has long been examined in the literature. Early studies mainly focused on foreign direct investment (FDI) and showed that political instability reduces foreign investment by increasing the risks faced by international investors (Schneider and Frey, 1985). Subsequent studies extended this literature by considering different dimensions of political and institutional risk. Busse and Hefeker (2007), for example, showed that government stability, internal and external conflict, corruption, ethnic tensions, law and order, democratic accountability, and bureaucratic quality are important determinants of FDI. However, the sensitivity of international investments to political and institutional conditions may differ according to the type of capital flow. Albuquerque (2003) argues that FDI is more difficult to expropriate and therefore less sensitive to changes in country financing conditions than other international capital flows. Similarly, Daude and Fratzscher (2008) find that portfolio investments are considerably more sensitive to the quality of host-country institutions than FDI. Durnev, Enikopolov, Petrova and Santarosa (2015) also show that political instability affects the composition of international investment by changing the relative attractiveness of different forms of foreign investment. More directly, Cao (2009) demonstrates that domestic political institutions are relevant to cross-border portfolio investment decisions, while Kwabi, Boateng, Wonu, Kariuki and Du (2023) find that political uncertainty reduces international equity portfolio flows. These studies show that the literature has gradually moved from examining the general effects of political instability and political risk on foreign investment toward investigating the sensitivity of portfolio investments to political and institutional uncertainty.

More recently, this literature has expanded to geopolitical risk, particularly following the development of the geopolitical risk index by Caldara and Iacoviello (2022). This development has made it possible to examine more directly how geopolitical tensions, threats, and conflicts affect investment decisions and international capital flows. Increased uncertainty associated with geopolitical risks can lead investors to avoid foreign financial markets (Caporale and Menla-Ali, 2024) and seek safe havens (Ji, 2025). Recent empirical evidence supports this phenomenon. In general, recent studies have focused on the effects of geopolitical risk on firm behavior and international capital movements.

The presence of geopolitical risks affects firms' production decisions and, in particular, their equity investments. Kim, Park and Kwon (2019) examined the impact of geopolitical risks originating from North Korea on the equity investments of 505 firms traded on the South Korean stock exchange. Their findings show that as geopolitical risk increases, the share of foreign investors decreases, while the share of domestic investors increases. The authors attribute this to the increased information asymmetry, which heightens the risk perception of foreign investors. Similarly, Jung, Lee and Lee (2021)

examined the impact of geopolitical risk originating from North Korea on the stock returns of companies in South Korea. Their findings show that increased geopolitical risk reduces stock returns, and this effect is more pronounced in large-scale firms with high domestic investor share and high fixed asset intensity. Tan, Cavlak, Cebeci and Güneş (2022) examined the impact of geopolitical risk on institutional investments in Türkiye for 164 manufacturing firms traded on the Istanbul Stock Exchange. The findings show that geopolitical risk reduces corporate investment, and this effect is particularly stronger in young and small-scale firms that do not pay dividends. Guo (2024) shows that geopolitical risk negatively affects the internationalization performance of manufacturing firms traded on the Chinese A-share market. The findings reveal that this effect is particularly stronger in firms operating in developing countries along the Belt and Road route and those with joint venture investments. Wang et al. (2024) examined the impact of geopolitical risk on corporate investment of 9,088 firms traded on the NYSE, NASDAQ, and AMEX during the period 1987Q1–2016Q3. The findings show that geopolitical risk reduces corporate investment, and this effect is stronger in firms with high market power; and weaker in firms with a high labor-to-capital ratio and a high capacity to substitute capital with labor. Nguyen, Nguyen and Hoang (2025), in their study covering 15,696 US firms during the period 1985–2023, revealed that geopolitical risk reduces corporate investment efficiency. The findings show that the negative impact of geopolitical threat on investment efficiency is stronger than that of geopolitical actions.

Geopolitical risk also has significant effects on capital flows. In the literature, this effect is examined within the framework of different financial assets and types of capital flows. Cao et al. (2023) examined the impact of geopolitical risk on international corporate acquisition activities during the 1990–2010 period. The findings show that military alliances between countries reduce geopolitical risk, thereby increasing corporate acquisition activities. Furthermore, it was found that this effect is more pronounced in countries with weak institutional and legal structures. Cai, Cheng and Li (2024) examined the impact of the US-China trade war on the portfolio preferences of Chinese households during the 2017–2019 period. The findings show that geopolitical risk increases risk aversion, reducing investments in risky financial assets, and that this effect is stronger in export-intensive cities. Ece and Çadırcı (2024) examined the relationship between Türkiye's net portfolio investments and geopolitical risk during the April 2018–May 2022 period. The findings show that geopolitical risk increases net portfolio investments in the short term but decreases them in the long term. This is explained by investors seeking high returns in the short term, while the preference for safe havens becomes dominant in the long term. Catalán, Fendoglu and Tsuruga (2024) examine the relationship between geopolitical alignment and cross-border portfolio investments using a gravity model. Their findings show that greater geopolitical distance between countries reduces bilateral portfolio investment, indicating that geopolitical fragmentation can negatively affect international financial integration. Hao, Prapan,

Gavriilidis and Vagenas-Nanos (2025) examined bilateral cross-border merger and acquisition (M&A) flows for 43 countries between 1988 and 2023. The findings show that M&A flows increased between country pairs with low geopolitical risk distances, while high geopolitical risk distances reduced these flows. Furthermore, it was determined that firms in countries with high geopolitical risk preferred lower-risk countries for hedging purposes. Niepmann and Shen (2025) examined the relationship between banking flows of US banks and geopolitical risk. The findings show that banks reduced their cross-border lending to countries with high geopolitical risk, but continued to lend through their foreign subsidiaries. Additionally, it was found that banks that increased their local lending activities in geopolitically risky countries saw a decrease in their domestic lending. Zhang, Xue, Li and Tan (2025) examine the relationship between bond fund investments and geopolitical risk in 50 countries for the period January 2004–June 2022. According to the study, high geopolitical risk leads to lower cross-border bond flows. Furthermore, the findings reveal that well-developed bond markets mitigate the impact of geopolitical risk through the liquidity channel. Parcon-Santos and Tancangco (2026) investigated the impact of geopolitical risk on trade and portfolio investments among RCEP member countries during the period 2016–2023. The findings show that geopolitical risk affects economic relations within the union asymmetrically, with the strongest negative impact occurring on portfolio investments.

The impact of geopolitical risks on portfolio investments varies depending on country groups. Portfolio investments in emerging countries are more sensitive to geopolitical risk because these country groups have high financial fragility, relatively low institutional quality, and less closed capital markets (Cao et al., 2023; Choi and Havel, 2025). Caporale and Menla-Ali (2024) examined the impact of geopolitical risk on cross-border portfolio investments between the US and 41 developed and developing countries during the period January 1992–November 2022. The findings show that geopolitical risk particularly reduces equity portfolio inflows, with this effect occurring more rapidly in developed economies and with a delay in developing countries. Furthermore, increased geopolitical risk reduces bond inflows from developing countries to the US and equity outflows from the US to developing countries. Choi and Havel (2025) examined the relationship between US portfolio investments and geopolitical risk in 25 developing and 16 developed countries during the period 1994–2022. Their findings show that increased geopolitical risk reduces US equity and debt investment only in developing countries, and this effect is stronger in countries geographically close to the US. Zehri, Ben Ammar and Ben Youssef (2025) investigated the impact of geopolitical risk on debt, equity, and portfolio flows using capital flows from 55 countries during the period 1990–2023. Their findings show that geopolitical risk increases debt and portfolio inflows while decreasing equity inflows, and also accelerates capital outflows. These effects were found to be stronger in developing countries. Yang et al. (2026) examined the relationship between cross-border capital flows and geopolitical risk in 43 developed and developing countries during the period

1985–2021. The findings show that advanced economies are more resilient to geopolitical shocks, with increased geopolitical risk reducing foreign direct investment while increasing foreign portfolio investment. Furthermore, it was found that FinTech penetration in developing countries amplifies this negative effect, while capital account restrictions weaken it.

3. Theoretical Background

The empirical strategy of this study is grounded in the gravity model for financial asset trade. Okawa and van Wincoop (2012) reconstructed the theoretical framework of the structural gravity model, a model primarily employed in trade contexts, to encompass bilateral financial assets across nations. The gravity model incorporates $N + 2$ financial assets. The authors derived the theoretical gravity model on N financial assets. These assets may comprise risky securities, such as stocks, corporate bonds, long-term debt securities, or bank securities. One of the $N + 2$ financial assets is defined as a risk-free asset, such as a treasury bill, whereas the other is designated a global asset that provides hedging against global risks. In the model under consideration, the financial asset is issued by country *i*. Country *j* is the investing country, insofar as it is the source of the investment. Country *i* is the destination country where financial assets are realized.

The total financial asset investment by investors from country *j* in country *i* is dependent on the general equilibrium price when the financial markets are cleared, with the total financial asset demand $\sum_{j=1}^{N} X_{ij} = S_i$:

$$X_{ij} = \frac{S_i E_j}{E} \frac{\Pi_i P_j}{\tau_{ij}} \quad (1)$$

The aforementioned equation constitutes the structural gravity model equation for bilateral financial asset trading. In equality,

$$\frac{1}{P_j} = \sum_{i=1}^{N} \frac{\Pi_i}{\tau_{ij}} \frac{S_i}{S} \quad (2)$$

$$\frac{1}{\Pi_i} = \sum_{j=1}^{N} \frac{P_j}{\tau_{ij}} \frac{E_j}{E} \quad (3)$$

The equation (1) indicates that bilateral financial asset trade is contingent on two factors. The first is the size factor, which is expressed as the total financial assets issued by country j (E_j) and the financial asset supply of country i (S_i), divided by the world's total stock supply or demand (E). The second is relative financial costs. Relative financial cost consists of the bilateral financial cost between countries *i* and *j* (τ_{ij}) and the multilateral resistance factors (Π_i and P_j). Thus, relative financial cost takes into account not only the bilateral financial cost between countries *i* and *j*, but also their financial costs relative to alternative financial asset trade partners. Relative financial

costs may arise from several factors, including geographical distance, trade volume, the use of a common official language, the existence of a common border, the adoption of a similar legal system, the use of a common currency, and financial regulations, time zone differences, and the existence of trade unions.

While Okawa and van Wincoop (2012) define multilateral resistance (MR) as a financial cost, Bergin and Pyun (2012, 2016) refer to MR in terms of the relative attractiveness of investing in other countries. These two definitions result in different effects of MR on bilateral financial asset trade. If MR represents a financial cost, then bilateral financial asset trade should decrease as the cost increases. Conversely, if MR represents relative investment attractiveness, then increased financial attractiveness should increase bilateral asset trade. Empirical evidence suggests that MR increases bilateral financial asset trade. Bergin and Pyun (2012, 2016) calculated the term MR as positive for equity holdings, Besedeš, Goldbach and Nitsch (2024) for inflows and outflows of financial assets, Mercado Jr (2023) for portfolio asset flows, and Camarero, Muñoz and Tamarit (2025) for equity and bond portfolio investments.

In the empirical equation of the financial gravity model, the presence of exporter and importer fixed effects (Head and Mayer, 2014) hinders the identification of the impact of country-specific policies on bilateral investments. Therefore, to obtain unbiased estimates of the effects of democracy and different types of democracy, a two-stage estimation strategy was adopted, following Freeman, Larch, Theodorakopoulos and Yotov (2025). In the first stage, estimation of a structural gravity model was performed for bilateral portfolio investments, using geographical distance, a common border, a common language and colony variables as proxies for bilateral financial costs. For this purpose, the Poisson Pseudo Maximum Likelihood (PPML) estimator developed by Silva and Tenreyro (2006) was used, following Freeman et al. (2025). This estimator is particularly suitable when bilateral financial investments contain many zero observations. Using OLS would exclude these observations after logarithmic transformation, potentially leading to biased estimates (Frankel, Stein and Wei, 1997). In contrast, the PPML estimator accommodates zero values and remains robust in the presence of heteroskedasticity. The initial estimated model is as follows:

$$TP_{ij,t} = \exp(\beta_0 + \beta_1 lnDISTANCE_{ij} + \beta_2 CONTIGUITY_{ij} + \beta_3 COMMONLANGUAGE_{ij} + \beta_4 COLONY_{ij}) \quad (4)$$

In Equation (4), $lnDISTANCE_{ij}$ represents the geographical distance between the two countries, $CONTIGUITY_{ij}$ indicates whether the countries share a common border, $COMMONLANGUAGE_{ij}$ indicates whether they share a common language, and $COLONY_{ij}$ represents the existence of a historical colonial relationship between them. At this stage, estimated values were obtained for both direct financial costs and multilateral resistance (MR) terms. These estimates include the MR effects arising from the general equilibrium relationship of bilateral portfolio investments in the model. In

the second stage of estimation, the MR estimates obtained in the first stage were used as control variables. Consequently, the impact of country-specific variables on portfolio flows is moderated by MR terms (Freeman et al., 2025). The Selection Model was used in both stages, following Freeman et al. (2025). Estimated outward ($\widehat{MR_out}_{i,t}$) and inward ($\widehat{MR_in}_{j,t}$) multilateral investment resistance terms are used in all models. In addition to the estimated MR terms for source and destination countries, a time dummy variable is also controlled in all models.

4. Empirical Models

The structural assumptions of Heckman (1979)'s Selection Model are more relevant to the financial investment behaviors. The rationale underlying the investment decision is predicated on the investor's propensity for risk, and as such, the investment in a particular country is expected to occur only if the perceived risk for that country is deemed "acceptable" by the investor, in accordance with their risk aversion.

Selection Model allows investors to choose an equity portfolio in two stages. In the first stage, investors decide whether to invest and in the second stage, they decide how much to invest (Gómez-Herrera, 2013). In the initial phase, the association between geopolitical risk and investors' reluctance to invest in a particular nation will be analyzed through the utilization of a latent probability function, also known as the Probit Model. The probability of this occurrence is determined by the geopolitical risk variables, which function as drivers of investor risk. In the subsequent stage of the research, the neutral effect of geopolitical risk on financial flows will be estimated.

The empirical models are based on bilateral equity portfolio investments of 97 countries (*Appendix A*) from 2001 to 2024 ($24x97x96$). International portfolio investments consist of investments made by investors in the source country in financial assets in the destination country. Therefore, investment decisions are influenced by the economic, financial, and political conditions of both the source and destination countries. Geopolitical risk affects the tendency of investors in the source country to invest abroad, while it can alter the destination country's capacity to attract foreign capital. For this reason, geopolitical risk variables are examined separately for source and destination countries in this study. In this regard, Model (1) focuses on the effect of the geopolitical risk of the source country on bilateral investments.

$$lnTP_{ij,t} = \beta_0 + \beta_1 RTA_{ij,t} + \beta_2 OPEN_DIST_{ij,t} + \beta_3 CORRELATION_{ij,t} + \beta_4 COMRELIGION_{ij} + \beta_5 LEGALOR_{ij} + \beta_6 GPR_{i,t} + \beta_7 \widehat{MR_out}_{i,t} + \beta_8 \widehat{MR_in}_{j,t} + \varepsilon_{ij,t} \quad \text{(Model 1)}$$

In Model (1), $lnTP_{ij,t}$, represents the foreign portfolio investments made by source country *i* in destination country *j* during period *t*. $RTA_{ji,t}$ is a bilateral time-varying dummy variable that equals 1 if countries i and j are both members of a Regional Trade Agreements (RTAs) in a given year. Since RTAs promote trade, they can reduce information asymmetries between partner countries. In this context, RTAs can act as an information channel. Countries harmonize their trade policies for RTA membership. Another channel through which RTAs influence financial investments is the hedging channel (Yücer and Atıcı Ustalar, 2018). In addition, RTA members may have similar business cycles. If investors' behavior is dominated by a risk diversification motive, I can expect them to invest in non-member countries and RTAs to reduce bilateral financial flows.

$OPEN_DIST_{ij,t}$ represents the financial openness gap between the two countries which is similar to Raguideau-Hannotin (2023) institutional distance approach. Capital openness is calculated taking into account the presence of multiple exchange rates, restriction on current and capital account transactions, and the requirement of the surrender of export proceeds (Chinn and Ito, 2008). The level of financial market integration is important for investors to calculate expected returns in global financial markets. The expected returns are determined by a combination of local and global risk sources (Karolyi and Stulz, 2003). As financial markets open, local investors can reduce local risks by diversifying their portfolios internationally. Financial openness is one of the factors increasing portfolio investment between countries. So, bilateral investments are expected to decrease as the financial gap between source and destination countries widens.

According to Markowitz (1952), the correlation between the financial assets of different countries is one of the key parameters in the portfolio preferences of international investors. To this end, Model (1) examines the stock market correlations between the countries of source and destination between 2001-2024. $CORRELATION_{ij,t}$ represents the stock market correlations of countries *i* and *j* in period *t*, respectively. The following formulas are used to calculate the correlations between source and destination countries: $Corelation_{ij,t} = corr\ (R_{i,t}, R_{j,t})$. $R_{i,t}$ and $R_{j,t}$ are the average annual returns of countries *i* and *j*, respectively. According to international portfolio theory, investors prefer to invest in markets with low correlation in order to diversify their risks. As the correlation between the stock markets of two countries increases, the benefit of international diversification decreases, and cross-border portfolio investments are expected to decline. Therefore, the effect of the $CORRELATION_{ij,t}$ variable on portfolio investments is expected to be negative.

$COMRELIGION_{ij}$ is the religious proximity index obtained by adding the products of the shares of Catholics, Protestants and Muslims in the source and destination countries. It is bounded between 0 and 1 and is maximal if the country pair has a religion that (1) comprises a vast majority of the population and (2) is the same in

both countries. The existence of a high degree of cultural proximity is indicative of an increase in the circulation of information between partner countries, in addition to an increase in bilateral investments between them (Grinblatt & Keloharju, 2001; Aggarwal, Kalpper and Wysocki, 2012; Malik, 2024).

In Model (1), The $LEGALOR_{ij}$ variable is a dummy variable that takes a value of 1 if the source and destination countries share the same legal origin (English, German, French, or Scandinavian); otherwise, it takes a value of 0. Legal origins are crucial in explaining a country's laws regarding creditor rights, shareholder rights, property rights, and the development level of its banking and stock markets (Beck, Demirgüç-Kunt and Levine, 2003). Shared legal origins can support cross-border investments (Lane and Milesi-Ferretti, 2007; Guiso, Sapienza and Zingales, 2009). $LEGALOR_{ij}$ is expected to increase equity portfolio investments between countries.

In model (1), $GPR_{i,t}$ is the geopolitical risk index of origin country. The index is developed by Caldara and Iacoviello (2022). The GPR index is based on the frequency of news coverage in international newspapers related to war, terrorism, military conflicts, diplomatic tensions, and other geopolitical events. The index is calculated by dividing the number of news articles containing keywords related to geopolitical risk by the total number of news articles over a specific period, and standardizing this to a long-term average equal to 100. Increases in the index indicate a rise in global geopolitical uncertainty and risk levels.

Increased geopolitical risk in the source country can raise investors' risk perception and limit international investment activities. In an environment of increased uncertainty, investors rebalance their portfolios, avoid risky assets, and turn to safer investment instruments. During periods of increased uncertainty and geopolitical tension, investors' risk appetite decreases, capital flows slow down, and there is an increased tendency towards assets considered safe havens (Forbes and Warnock, 2012; Pastor and Veronesi, 2013; Baker, Bloom and Davis, 2016). Therefore, geopolitical risk in the source country is expected to have a negative impact on bilateral portfolio investments.

Developing countries are more susceptible to geopolitical risks due to their more fragile financial markets, higher volatility of capital flows, and greater sensitivity to external shocks (Ahmed and Zlate, 2014). For this purpose, Model (1a) examines whether the impact of geopolitical risk in the source country on bilateral portfolio investments differs in developing countries.

$$lnTP_{ij,t} = \beta_0 + \beta_1 RTA_{ij,t} + \beta_2 OPEN_DIST_{ij,t} + \beta_3 CORRELATION_{ij,t} + \beta_4 COMRELIGION_{ij} + \beta_5 LEGALOR_{ij} + \beta_6 GPR_{i,t} + \beta_7 EM_i + \beta_8 GPR_{i,t} * EM_i + \beta_9 \widehat{MR_out}_{i,t} + \beta_{10} \widehat{MR_in}_{j,t} + \varepsilon_{ij,t} \quad \text{(Model 1a)}$$

The EM_i variable indicates whether the source country is a developing economy. The variable equals 1 if the source country is a developing country and 0 otherwise. This variable was included in the model interactively with the $GPR_{i,t}$ $(GPR_{i,t} * EM_i)$ to examine whether the impact of geopolitical risk on portfolio investments differs between developing and developed economies.

Model (1b) investigates whether the impact of geopolitical risk in the source country on bilateral portfolio investments differs among developing regions. Model (1b) is as follows:

$$lnTP_{ij,t} = \beta_0 + \beta_1 RTA_{ij,t} + \beta_2 OPEN_DIST_{ij,t} + \beta_3 CORRELATION_{ij,t} + \beta_4 COMRELIGION_{ij} + \beta_5 LEGALOR_{ij} + \beta_6 GPR_{i,t} + \beta_7 EM_ASIA_i + \beta_8 GPR_{i,t} * EM_ASIA_i + \beta_9 EM_EUROPA_i + \beta_{10} GPR_{i,t} * EM_EUROPA_i + \beta_{11} EM_LATINA_i + \beta_{12} GPR_{i,t} * EM_LATINA_i + \beta_{13} EM_AFRICA_i + \beta_{14} GPR_{i,t} * EM_AFRICA_i + \beta_{15} \widehat{MR_out}_{i,t} + \beta_{16} \widehat{MR_in}_{j,t} + \varepsilon_{ij,t} \quad \text{(Model 1b)}$$

In Model (1b), the interactions between the geopolitical risk variable and regional dummy variables representing Asian, European, Latin American, and African countries are included in the model. These interaction variables show the extent to which the impact of geopolitical risk on portfolio investments differs for each region compared to developed countries. Developing regions differ in terms of financial market depth, institutional structure, dependence on external financing, and exposure to global shocks. Therefore, the impact of geopolitical risk-related uncertainties on international portfolio investments is expected to differ between regions. In particular, the impact of geopolitical risk is predicted to be stronger in regions that are more dependent on capital flows and have higher financial vulnerabilities (Fratzscher, 2012).

Models (2), (2a) and (2b) examine the impact of geopolitical risk on destination countries. While geopolitical risk in the source country affects investors' decisions to invest abroad, geopolitical risk in the destination country directly reflects the attractiveness and risk level of the market in which the investment is made. Therefore, the impact of geopolitical risk is expected to differ between source and destination countries. Increased geopolitical risk in a destination country can raise the country's risk premium through political instability, security concerns, and economic uncertainties, causing foreign investors to avoid that market (Busse and Hefeker, 2007). Furthermore, since investors tend to move their capital to safer markets during periods of uncertainty, destination countries with high geopolitical risk may attract less portfolio investment (Bekaert, Ehrmann, Fratzscher and Mehl, 2014). The issue of whether this effect differs between developing countries and regions is analyzed in Models (2a) and (2b), respectively, through the interactions of geopolitical risk with destination country and region dummies. Models (2), (2a) and (2b) are defined as follows.

$$lnTP_{ij,t} = \beta_0 + \beta_1 RTA_{ij,t} + \beta_2 OPEN_DIST_{ij,t} + \beta_3 CORRELATION_{ij,t} + \beta_4 COMRELIGION_{ij} + \beta_5 LEGALOR_{ij} + \beta_6 GPR_{j,t} + \beta_7 \widehat{MR_out}_{i,t} + \beta_8 \widehat{MR_in}_{j,t} + \varepsilon_{ij,t} \quad \text{(Model 2)}$$

$$lnTP_{ij,t} = \beta_0 + \beta_1 RTA_{ij,t} + \beta_2 OPEN_DIST_{ij,t} + \beta_3 CORRELATION_{ij,t} + \beta_4 COMRELIGION_{ij} + \beta_5 LEGALOR_{ij} + \beta_6 GPR_{j,t} + \beta_7 EM_j + \beta_8 GPR_{j,t} * EM_j + \beta_9 \widehat{MR_out}_{i,t} + \beta_{10} \widehat{MR_in}_{j,t} + \varepsilon_{ij,t} \quad \text{(Model 2a)}$$

$$lnTP_{ij,t} = \beta_0 + \beta_1 RTA_{ij,t} + \beta_2 OPEN_DIST_{ij,t} + \beta_3 CORRELATION_{ij,t} + \beta_4 COMRELIGION_{ij} + \beta_5 LEGALOR_{ij} + \beta_6 GPR_{j,t} + \beta_7 EM_ASIA_j + \beta_8 GPR_{j,t} * EM_ASIA_j + \beta_9 EM_EUROPA_j + \beta_{10} GPR_{j,t} * EM_EUROPA_j + \beta_{11} EM_LATINA_j + \beta_{12} GPR_{j,t} * EM_LATINA_j + \beta_{13} EM_AFRICA_j + \beta_{14} GPR_{j,t} * EM_AFRICA_j + \beta_{15} \widehat{MR_out}_{i,t} + \beta_{16} \widehat{MR_in}_{j,t} + \varepsilon_{ij,t} \quad \text{(Model 2b)}$$

The variables used in the empirical models and their data sources are presented in Table (1).

Table 1. Variables and data sources

Variables	Symbol	Data Source
Bilateral portfolio Investment	$TP_{ij,t}$	International Monetary Fund's (IMF) Coordinated Portfolio Investment Survey (CPIS) database
Geopolitical Risk Index	GPR_t	Caldara and Iacoviello (2022)
Regional Trade Agreements	$RTA_{ij,t}$	Egger and Larch (2008) Regional Trade Agreements database
Capital Openness Gap	$OPEN_DIST_{ij,t}$	Chinn and Ito (2008)
Stock Market Correlation	$CORRELATION_{ij,t}$	World Bank's Global Financial Development database
Common Religion	$COMRELIGION_{ij}$	CEPII Gravity database
Legal Origin	$LEGALOR_{ij}$	CEPII Gravity database
Geographic Distance	$DISTANCE_{ij}$	CEPII Gravity database
Contiguity	$CONTIGUITY_{ij}$	CEPII Gravity database
Common Language	$COMMONLANGUAGE_{ij}$	CEPII Gravity database
Colony	$COLONY_{ij}$	CEPII Gravity database

Source: Prepared by the author.

The results of the empirical models presented in this section are reported and discussed in the following section.

4. Empirical Findings

This section presents the prediction results of the Heckman Selection Model. Before estimating the Heckman model, selection bias statistics are also checked and presented in Table (2). Inverse Mills' Ratio (IMR) or Heckman's lambda is added to the model to correct for selection bias (Heckman, 1979). However, for the Heckman model to be applicable, the relationship between the selection and outcome equations is crucial. The rho coefficient measures the correlation between the selection and outcome equations. If rho is non-zero, the selection and outcome equations are not independent. In this case, the use of the Heckman model is meaningful because selection bias is present. Conversely, if rho is zero, the selection and outcome equations are uncorrelated and there is no selection bias (Helpman, Melitz and Rubinstein, 2008). The rho coefficient in the estimation results is non-zero, indicating that Heckman can be used in modelling cross-border equity portfolio investments.

Table 2. Control for selection bias

	Model 1	Model 2
Rho	-0.894*** (0.000)	-0.915*** (0.000)
Naive Breusch-Pagan Test	2151.22 (0.000)	2146.55 (0.000)
Demeaned Breusch-Pagan Test	5650.33 (0.000)	7323.68 (0.000)
Hausman Test	30.64 (0.000)	40.95 (0.000)
MCC Control	1.51 (0.384)	1.39 (0.317)

Notes: The values in parentheses are probability values for the respective test statistic.

When applying the Heckman model to panel data, heteroskedasticity must be considered (Biglaiser, Hicks and Huggins, 2008). The model can be estimated using either Full Information Maximum Likelihood (FIML) or Limited Information Maximum Likelihood (LIML). Following Wooldridge (2010), the LIML estimator is preferred when heteroskedasticity is present, provided that the Minimal Consistency Condition (MCC) holds. Under this condition, LIML remains consistent with robust standard errors (Carlson and Zhao, 2025).

To determine the appropriate estimator, heteroskedasticity is first tested in the outcome equation. Under the assumption of no sample selection, the naive Breusch and

Pagan (1979) test is employed (Carlson and Zhao, 2025), and the results indicate heteroskedasticity in all models. Since this test is not generally valid under sample selection, Carlson and Zhao (2025) recommend the demeaned Breusch and Pagan (1979) test. The results again revealed heteroskedasticity in all outcome equations.

Next, the Hausman (1978) test is used to compare the efficiency of the FIML and LIML estimators. The null hypothesis is rejected, indicating that FIML is not efficient under heteroskedasticity and that LIML is preferred if MCC holds. Finally, MCC is tested following Carlson and Zhao (2025), and the results confirmed that the condition holds for all models. Therefore, the LIML estimator is adopted for the Heckman estimations.

Table (3) presents the estimation results regarding the impact of geopolitical risk on bilateral portfolio investments. The selection stage results show the factors affecting the probability of establishing a portfolio investment relationship between countries. According to the results, regional trade agreements (RTAs) increase the probability of portfolio investment relationships, while the openness difference ($OPEN_DIST_{ij,t}$) and the correlation between stock markets ($CORRELATION_{ij,t}$) reduce this probability. In addition, the probability of establishing a portfolio investment relationship is higher between countries with a common legal origin.

The RTA coefficient is positive at the selection stage but negative and significant at the outcome stage. This result indicates that regional trade agreements may affect the decision to invest and the amount invested differently. Greater trade integration among RTA members can facilitate bilateral economic relationships and increase the probability of establishing a portfolio investment relationship. However, greater trade integration may also increase business cycle synchronization among member countries (Duval, Cheng, Oh, Saraf and Seneviratne, 2014; Gong and Kim, 2018). Higher synchronization can reduce the diversification benefits of investing across these countries. Therefore, investors seeking international portfolio diversification may allocate a smaller amount of their portfolio to RTA partner countries despite the higher probability of investing in these countries. This finding suggests that the sign reversal reflects the different roles of RTAs at the portfolio selection and investment stages.

The negative coefficient of the $OPEN_DIST_{ij,t}$ variable reveals that increasing the openness differences between countries reduces portfolio investments. Similarly, the negative correlation between stock markets shows that investors are turning to markets with low correlation in order to gain a diversification advantage. The variables of common religion and common legal origin have positive and significant coefficients. These results demonstrate that cultural and institutional similarities encourage cross-border portfolio investments by reducing information costs.

Geopolitical risk variables exhibit negative and statistically significant coefficients in both the selection and outcome phases. In Model (1), the geopolitical risk

index ($GPR_{i,t}$) of the source country is negative ($GPR_{i,t}$= -0.078) in the selection phase but significant at 5%. This finding indicates that an increase in geopolitical risk in the source country reduces the likelihood of establishing a portfolio investment relationship between the countries. In the outcome phase, the $GPR_{i,t}$ variable is also negative ($GPR_{i,t}$= -0.452) and significant at 1%. This result reveals that even after an investment relationship is established, increases in geopolitical risk in the source country continue to reduce investors' cross-border portfolio investments.

Table 3. Effects of origin and destination geopolitical risk on bilateral portfolio investments

$lnTP_{ij,t}$	(1) Selection Stage Model 1	(2) Outcome Stage Model 1	(3) Selection Stage Model 2	(4) Outcome Stage Model 2
$RTA_{ij,t}$	0.618***	-0.784***	0.613***	-0.761***
	(0.032)	(0.021)	(0.038)	(0.027)
$OPEN_DIST_{ij,t}$	-0.220***	-0.566***	-0.270***	-0.624***
	(0.053)	(0.071)	(0.047)	(0.066)
$CORRELATION_{ij,t}$	-0.532***	-0.113*	-0.541***	-0.140***
	(0.020)	(0.059)	(0.017)	(0.025)
$COMRELIGION_{ij}$	0.100	0.758***	0.071	0.531***
	(0.165)	(0.050)	(0.158)	(0.065)
$LEGALOR_{ij}$	0.172***	0.547***	0.165***	0.560***
	(0.011)	(0.031)	(0.035)	(0.029)
$GPR_{i,t}$	-0.078**	-0.452***		
	(0.039)	(0.072)		
$GPR_{j,t}$			-0.108***	-0.928***
			(0.028)	(0.086)
$\widehat{MR_out}_{i,t}$		-0.144***		-0.141***
		(0.036)		(0.038)
$\widehat{MR_in}_{j,t}$		-0.138***		-0.136***
		(0.047)		(0.054)
$lnTP_{ij,t-1}$	0.132***		0.139***	
	(0.004)		(0.004)	
Constant	0.620***	10.461***	0.659***	9.405***
	(0.043)	(0.651)	(0.040)	(0.516)
Mills Ratio	-20.261*** (1.239)		-17.228*** (0.876)	
Observations	67.041		67.041	

Notes: * p<0.01, ** p<0.05, *** p<0.1 indicate 1%, 5% and 10% statistical significance levels, respectively. Values in parentheses are robust standard errors.

The results of Model (2) in Table (3) show that geopolitical risk in the destination country has a strong deterrent effect on international portfolio investments. The negative

and statistically significant $GPR_{j,t}$ variable ($GPR_{j,t}$=-0.108) in the selection phase indicates that countries with high levels of geopolitical risk are less preferred by foreign investors. In other words, investors tend to prefer more geopolitically stable countries when building their portfolios. The negative coefficient obtained in the conclusion phase ($GPR_{j,t}$= -0.928) shows that geopolitical risk negatively affects not only the investment decision but also the size of the investment. Accordingly, as geopolitical risk increases in the destination country, both the probability of establishing new investment relationships decreases and the volume of existing bilateral portfolio investments decreases. The findings are consistent with those of Wang et al. (2024), Guo (2024), Ece and Çadırcı (2024), Nguyen et al. (2025), Zehri et al. (2025) and Zhang et al. (2025).

Furthermore, the fact that the geopolitical risk coefficients of the destination country are greater than those of the source country, both in the selection and outcome phases, indicates that investors place greater emphasis on the risk level of the country in which they invest when making their decisions. In other words, while investors are affected by geopolitical developments in their own countries, they consider the geopolitical risks of the countries where they will direct their investments more closely. Therefore, the deterrent effect of geopolitical risk on portfolio investments is more strongly evident in destination countries.

Theoretically, the strong stability of financial asset investments is related to the fact that an investor's entry into a foreign financial market involves a sunk cost. These sunk costs make the investment decision partially irreversible. Sunk costs can arise from the procedures required for taxes, licenses, and registration in a foreign country, as well as the costs of obtaining information used to evaluate the attractiveness of a foreign market, such as the country's legislation, the quality of institutions, the level of investor protection, and political stability, to decide on foreign market entry (Cooper and Kaplanis, 1986). A sunk information cost is a one-time cost that an investor does not incur in subsequent periods. This means that a previous investment in a foreign country increases the likelihood of future investments in the same country. This is because investing in a country where previous investments have been made is less costly than the costs incurred in finding a new country (Drakos, Kyriazidou and Polycarpou, 2014). Therefore, when estimating the Selection Model, the lagged value of portfolio investments across countries ($lnTP_{ij,t-1}$) is used. This variable controls for state dependency on portfolio investments. The coefficient is estimated to be positive in all models.

According to Table (3), the multilateral resistance terms of the source and destination countries in all models are positive and statistically significant. A positive $\widehat{MR_out}_{i,t}$suggests that investors from the source country have access to more investment opportunities in global financial markets. Furthermore, a positive $\widehat{MR_in}_{j,t}$ suggests that investors are turning to more attractive destinations for diversification purposes. Similar conclusions were reached by Bergin and Pyun (2012,

2016), Besedeš et al. (2024), Mercado Jr (2023) and Camarero et al. (2025). Furthermore, the negative and statistically significant Mills ratio in both models suggests the presence of sample selection bias and confirms the appropriateness of using the Heckman approach.

Table 4. The effects of geopolitical risk in emerging markets on bilateral portfolio investments

$lnTP_{ij,t}$	(1) Selection Stage Model 1a	(2) Outcome Stage Model 1a	(3) Selection Stage Model 1b	(4) Outcome Stage Model 1b
$RTA_{ij,t}$	0.610***	-0.764***	0.613***	-0.661***
	(0.032)	(0.014)	(0.030)	(0.035)
$OPEN_DIST_{ij,t}$	-0.105***	-0.522***	-0.270***	-0.624***
	(0.056)	(0.074)	(0.047)	(0.066)
$CORRELATION_{ij,t}$	-0.562***	-0.612**	-0.541***	-0.140***
	(0.020)	(0.284)	(0.017)	(0.020)
$COMRELIGION_{ij}$	0.147**	0.870**	0.071	0.531*
	(0.066)	(0.438)	(0.058)	(0.065)
$LEGALOR_{ij}$	0.178***	0.536***	0.161***	0.560***
	(0.040)	(0.042)	(0.035)	(0.039)
$GPR_{i,t}$	-0.042***	-0.480***		
	(0.006)	(0.052)		
EM_i	-0.103***	-0.116***		
	(0.082)	(0.085)		
$GPR_{i,t} * EM_i$	-0.161***	-0.118***		
	(0.049)	(0.028)		
$GPR_{j,t}$			-0.108***	-0.528***
			(0.008)	(0.026)
EM_j			-0.201***	-0.247***
			(0.073)	(0.069)
$GPR_{j,t} * EM_j$			-0.142***	-0.204***
			(0.009)	(0.021)
$\widehat{MR_out}_{i,t}$		-0.148***		-0.141***
		(0.033)		(0.038)
$\widehat{MR_in}_{j,t}$		-0.133***		-0.136***
		(0.040)		(0.034)
$lnTP_{ij,t-1}$	0.121***		0.139***	
	(0.005)		(0.004)	
Constant	0.768***	10.432***	0.659***	9.405***
	(0.053)	(0.683)	(0.040)	(0.516)
Mills Ratio	-20.880*** (1.504)		-17.227*** (0.876)	
Observations	67.041		67.041	

Notes: * p<0.01, ** p<0.05, *** p<0.1 indicate 1%, 5% and 10% statistical significance levels, respectively. Values in parentheses are robust standard errors.

Table (4) presents the estimation results examining whether the impact of geopolitical risk differs in emerging markets. Model (1a) shows the relationship between source country investments and Model (2a) shows the relationship between destination country investments and geopolitical risk.

Examining the results of Model (1a), it is seen that geopolitical risk in the source country reduces both portfolio preference and investment volume. While $GPR_{i,t}$ value was -0.042 in the selection stage and -0.480 in the outcome stage. In addition, the fact that the source country is an emerging market also has a negative effect on both portfolio preference and investment volume. Emerging market investors have weaker outward-oriented portfolio investment tendencies. This situation may have arisen due to high information asymmetries, financial constraints, and institutional barriers in these countries (Beck and Demirgüç-Kunt, 2006; Yildiz, 2021). The interaction variable ($GPR_{i,t} * EM_i$), which shows the effect of geopolitical risk on the source emerging markets, negatively affects both the portfolio preference process and investment volume.

As shown in Table (4), an increase in geopolitical risk reduces the probability of portfolio investment by 0.04 on average, while the corresponding effect for emerging markets is 0.20 ($GPR_{i,t} * EM_i = -0.161$). When the outcome stage is considered, an increase in geopolitical risk reduces bilateral portfolio investments by 0.48, while the total effect increases to 0.60 for emerging markets. Increased geopolitical risk further restricts bilateral portfolio investments in emerging markets. This result supports the expectation that developing countries are more sensitive to external shocks and changes in investor sentiment. The findings are consistent with those of Caporale and Manla-Ali (2024), Choi and Havel (2025), Zehri et al. (2025), and Yang et al. (2026).

The results of Model (1a) in Table (4) similarly reveal that the impact of geopolitical risk in the destination country is stronger in emerging markets. In the selection stage, the $GPR_{i,t}$ variable (-0.108) and the $GPR_{i,t} * EM_i$ interaction variable (-0.142) are negative and significant. This finding indicates that an increase in geopolitical risk in emerging markets reduces the likelihood of foreign investors choosing the country as an investment destination even more. In the outcome stage, the $GPR_{i,t}$ coefficient was estimated as -0.528 and the $GPR_{j,t} * EM_j$ as -0.204. Accordingly, increases in geopolitical risk reduce the current portfolio investment volume in emerging destination markets by 0.73 more strongly than the average.

When the findings from Table (4) are evaluated generally, the negative impact of geopolitical risk on portfolio investments is more pronounced in emerging markets, both in source and destination countries. However, considering the magnitude of the interaction coefficients, this effect is seen to be particularly stronger in destination countries. This result shows that international investors attach particular importance to the geopolitical and political stability of the countries in which they will invest, and that

geopolitical uncertainties in emerging markets create higher costs for foreign capital inflows.

Table 5. Regional heterogeneity in the impact of geopolitical risk on bilateral portfolio investments

	(1) Selection Stage	(2) Outcome Stage		(3) Selection Stage	(4) Outcome Stage
$lnTP_{ij,t}$	Model 2a	Model 2a	$lnTP_{ij,t}$	Model 2b	Model 2b
$RTA_{ij,t}$	0.535***	-0.718***	$RTA_{ij,t}$	0.612***	-0.672***
	(0.033)	(0.021)		(0.030)	(0.036)
$OPEN_DIST_{ij,t}$	-0.140***	-0.530***	$OPEN_DIST_{ij,t}$	-0.287***	-0.654***
	(0.058)	(0.041)		(0.048)	(0.021)
$CORRELATION_{ij,t}$	-0.527***	-0.581**	$CORRELATION_{ij,t}$	-0.034***	-0.209***
	(0.020)	(0.271)		(0.008)	(0.016)
$COMRELIGION_{ij}$	0.161**	0.322*	$COMRELIGION_{ij}$	0.166**	0.433***
	(0.069)	(0.168)		(0.062)	(0.072)
$LEGALOR_{ij}$	0.134***	0.571***	$LEGALOR_{ij}$	0.213***	0.548***
	(0.041)	(0.056)		(0.036)	(0.058)
$GPR_{i,t}$	-0.049***	-0.438***	$GPR_{j,t}$	-0.091***	-0.457***
	(0.004)	(0.042)		(0.029)	(0.032)
EM_ASIA_i	0.124***	0.498***	EM_ASIA_j	0.207***	0.341***
	(0.037)	(0.084)		(0.046)	(0.062)
$GPR_{i,t} * EM_ASIA_i$	-0.240***	-0.225***	$GPR_{j,t} * EM_ASIA_j$	-0.113***	-0.295***
	(0.041)	(0.061)		(0.015)	(0.043)
EM_EUROPA_i	0.123**	0.254***	EM_EUROPA_j	0.168***	0.280***
	(0.050)	(0.032)		(0.063)	(0.055)
$GPR_{i,t} * EM_EUROPA_i$	-0.155***	-0.126***	$GPR_{j,t} * EM_EUROPA_j$	-0.140***	-0.105***
	(0.046)	(0.028)		(0.047)	(0.017)
EM_LATINA_i	-0.188***	-0.247***	EM_LATINA_j	-0.231***	-0.347***
	(0.058)	(0.064)		(0.073)	(0.059)
$GPR_{i,t} * EM_LATINA_i$	-0.355***	-0.317***	$GPR_{j,t} * EM_LATINA_j$	-0.316*	-0.382**
	(0.039)	(0.089)		(0.072)	(0.087)
EM_AFRICA_i	-0.249***	-0.302***	EM_AFRICA_j	-0.265***	-0.249***
	(0.017)	(0.078)		(0.083)	(0.074)
$GPR_{i,t} * EM_AFRICA_i$	-0.205***	-0.348***	$GPR_{j,t} * EM_AFRICA_j$	-0.202***	-0.317***
	(0.051)	(0.064)		(0.053)	(0.081)
$\widehat{MR_out}_{i,t}$		-0.135***	$\widehat{MR_out}_{i,t}$		-0.137***
		(0.039)			(0.045)
$\widehat{MR_in}_{j,t}$		-0.124***	$\widehat{MR_in}_{j,t}$		-0.118***
		(0.030)			(0.032)
$lnTP_{ij,t-1}$	0.128*		$lnTP_{ij,t-1}$	0.141*	
	(0.004)			(0.004)	
Constant	0.717***	10.304***	Sabit	0.632***	9.446***
	(0.046)	(0.678)		(0.045)	(0.500)
Mills Ratio	-20.856*** (1.336)			-16.535*** (0.908)	
Observations	67.041			67.041	

Notes: * p<0.01, ** p<0.05, *** p<0.1 indicate 1%, 5% and 10% statistical significance levels, respectively. Values in parentheses are robust standard errors.

The models presented in Table (5) measure whether the impact of geopolitical risk on portfolio investments differs among emerging regions. Model (1b) presents the estimation results for the source country, and Model (2b) presents the estimation results for the destination country. In both models, the geopolitical risk variables were found to be negative and statistically significant, thus indicating that geopolitical risk reduces both portfolio preference and investment volume.

According to the results of Model (1b), the impact of geopolitical risk in the source country differs across regions. At the selection stage, an increase in geopolitical risk reduces the probability of portfolio investment by 0.29 in emerging Asia, 0.20 in emerging Europe, 0.40 in Latin America, and 0.25 in Africa. The strongest negative effect is observed in Latin America, while the effect is relatively more limited in Europe. Similarly, at the outcome stage, the strongest effects are observed in Latin America ($GPR_{i,t} * EM_{LATINA_i} = -0.317$) and Africa ($GPR_{i,t} * EM_{AFRICA_i} = -0.348$). These findings show that the regional effects of geopolitical risk differ depending on whether emerging markets are considered as source or destination countries. Therefore, the source–destination distinction should be taken into account when evaluating regional differences in the effects of geopolitical risk.

Model (2b) in Table (5) results reveal similar but stronger effects in terms of destination countries. The highest impact of geopolitical risk during the selection phase is seen in Latin America (-0.316) and Africa (-0.202). In the conclusion phase, the estimated interaction coefficients for Latin America (-0.382) and Africa (-0.317) show that foreign investors react more strongly to increases in geopolitical risk in these regions. In contrast, the negative impact of geopolitical risk continues but is at a lower level in developing Asian and European countries.

When the model results are evaluated generally, it can be said that the negative impact of geopolitical risk on portfolio investments is observed in all regions, but this effect is particularly more pronounced in Latin American and African countries. This situation can be attributed to the fact that these regions are more susceptible to political and economic vulnerabilities and are perceived as riskier by international investors (Aggarwal, Klapper and Wysocki, 2005; IMF, 2026).

6. Conclusion

This study focuses on the impact of geopolitical risk on international portfolio investments. It also presents findings on the effect of geopolitical risk on investments in emerging market regions. In this context, a gravity model is used to model bilateral portfolio investments. The model estimates the impact of geopolitical risk using the Heckman Selection Model, which allows for separate estimation of portfolio choice and investment processes.

Overall, the estimation results show that geopolitical risk is an important risk factor that investors consider both when deciding whether to invest internationally and when determining the amount of investment. Countries with higher geopolitical risk are less likely to attract international portfolio investments and receive lower amounts of investment. Furthermore, investors in countries with higher geopolitical risk tend to invest less abroad. Thus, geopolitical risk affects international portfolio investments through both source and destination countries. These findings also indicate that investors in countries with high geopolitical risk have more limited opportunities to hedge this risk through international portfolio diversification.

The analysis also shows that the effect of geopolitical risk is stronger in emerging markets and heterogeneous across emerging regions. An increase in geopolitical risk reduces both the probability and amount of portfolio investment more strongly in emerging markets than in the overall sample. Moreover, the regional findings show that the effect differs depending on whether emerging markets are considered as source or destination countries. Latin America and Africa generally show greater sensitivity to geopolitical risk, while the effect is relatively more limited in Europe. These findings demonstrate that the impact of geopolitical risk on international portfolio investments is not homogeneous across emerging markets. Therefore, both regional differences and the position of emerging markets as source or destination countries are important in evaluating the effects of geopolitical risk on international portfolio investments.

The extant literature on the subject offers an analysis of the relationship between geopolitical risk and portfolio investments, albeit for a relatively small number of country observations. The findings of this study are presented for a more extensive group of countries. Moreover, the study contributes to the extant literature by revealing the impact of geopolitical risk on both investing and host countries. Finally, the findings are consistent with recent studies showing that geopolitical risk negatively affects international portfolio investments. Caporale and Menla-Ali (2024) find that geopolitical uncertainty reduces cross-border equity flows, while Choi and Havel (2025) show that geopolitical risk reduces foreign portfolio investments in emerging markets. Similarly, the findings of this study show that geopolitical risk negatively affects both the probability and amount of international portfolio investments. However, the results also reveal that this effect differs across emerging regions and depending on whether emerging markets are considered as investing or host countries. Therefore, the study contributes to the literature by categorizing emerging markets by region and revealing the heterogeneous effects of geopolitical risk on international portfolio investments.

This study has some limitations. First, geopolitical risk is measured using a news-based index, and therefore the findings depend on the ability of this index to capture geopolitical uncertainty. Second, the analysis considers aggregate portfolio investments and does not distinguish between different types of financial assets. Future studies may separately examine equity and debt portfolio investments. In addition, country-specific

geopolitical risk measures may be used to examine whether the effects of geopolitical risk differ according to institutional quality, financial development, and capital market characteristics.

The study findings also lead to several policy recommendations. First, since geopolitical risk limits the benefits of international portfolio diversification, local financial assets gain importance, particularly in emerging markets. Therefore, policies that increase financial market depth, improve market liquidity, and expand investment alternatives can strengthen the resilience of domestic financial markets against geopolitical shocks. At the same time, increasing the integration of financial markets with the world, reducing transaction and information costs, improving transparency, and strengthening investor protection can reduce the uncertainty faced by international investors. Finally, since the findings show that the effects of geopolitical risk differ across emerging regions, policies should also take into account the financial structure, external financing dependence, and geopolitical vulnerability of each region. These policies can support investor confidence and contribute to financial resilience during periods of increasing geopolitical uncertainty.

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Appendices

Appendix A. Country list

No.	Country Name	No.	Country Name	No.	Country Name	No.	Country Name
1	Albania	**26**	Finland	**51**	Mali	**76**	Sierra Leone
2	Argentina	**27**	France	**52**	Malta	**77**	Singapore
3	Australia	**28**	Georgia	**53**	Mauritius	**78**	Slovakia
4	Austria	**29**	Germany	**54**	Mexico	**79**	Slovenia
5	Barbados	**30**	Ghana	**55**	Mongolia	**80**	Solomon Islands
6	Belgium	**31**	Greece	**56**	Mozambique	**81**	South Africa
7	Benin	**32**	Guatemala	**57**	Namibia	**82**	Spain
8	Bolivia	**33**	Honduras	**58**	Netherlands	**83**	Sri Lanka
9	Bosnia and Herzegovina	**34**	Hungary	**59**	New Zealand	**84**	Suriname
10	Botswana	**35**	Iceland	**60**	Niger	**85**	Sweden
11	Brazil	**36**	India	**61**	Nigeria	**86**	Switzerland
12	Bulgaria	**37**	Indonesia	**62**	North Macedonia	**87**	Taiwan
13	Burkina Faso	**38**	Ireland	**63**	Norway	**88**	Tanzania
14	Cabo Verde	**39**	Israel	**64**	Panama	**89**	Timor-Leste
15	Canada	**40**	Italy	**65**	Papua New Guinea	**90**	Trinidad and Tobago
16	Chile	**41**	Jamaica	**66**	Paraguay	**91**	Türkiye
17	Colombia	**42**	Japan	**67**	Peru	**92**	Ukraine
18	Croatia	**43**	Kenya	**68**	Philippines	**93**	UK
19	Cyprus	**44**	Latvia	**69**	Poland	**94**	USA
20	Czechia	**45**	Lebanon	**70**	Portugal	**95**	Uruguay
21	Denmark	**46**	Lesotho	**71**	Republic of Korea	**96**	Vanuatu
22	Dominican Republic	**47**	Lithuania	**72**	Republic of Moldova	**97**	Zambia
23	Ecuador	**48**	Luxembourg	**73**	Romania		
24	El Salvador	**49**	Malawi	**74**	Senegal		
25	Estonia	**50**	Malaysia	**75**	Serbia		