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# **Geopolitical Risk and Cross-Border Investment: The Influence of Financial Sector Development**

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## **Abstract**

**Objective:** This study is motivated by the limited empirical evidence on how financial sector development conditions the impact of geopolitical risk on cross-border investment. This study investigates the multifaceted relationship between geopolitical risk (GPR), foreign direct investment (FDI), and financial development.

**Data/methods/approach:** For empirical analysis, we employ the data of BRICS countries over the period from 1985 to 2022. The regression among variables was established by employing an Autoregressive Distributed Lag (ARDL) approach.

**Findings:** The findings reveal that GPR exerts a significant negative influence on FDI inflows. This negative effect can be explained as higher GPR levels diminishing the confidence of foreign investors, creating high market uncertainty, and enhancing the default risk of investment. In contrast, we observe the significant positive effect of financial development on FDI inflow. In line with expectations, a developed financial sector stabilizes the GPR-FDI relationship, underlining its importance in mitigating investment risk.

**Policy implications:** The policy implications are substantial, suggesting the need for measures to enhance political stability, bolster financial development, foster economic growth, invest in human capital, and carefully manage exchange rates to attract foreign investments.

**Novelty:** This study contributes to the literature by providing insights into the nuanced dynamics of FDI inflow in the BRICS nations, serving as a foundation for future research and informing policy decisions in these emerging economies.

**Keywords:** Geopolitical Risk, Foreign Investment, Financial Sector Development, BRICS

**JEL Codes:** F21, F36, F52

## 1 Introduction

In an increasingly interconnected and globalized world, foreign investment (FDI) has become a pivotal driver of economic growth and development for nations across the globe (Magbondé & Konté, 2022). However, the pursuit of foreign investment is not without its challenges, major among them being the ever-present specter of geopolitical risk (GPR) (Bussy & Zheng, 2023). The GPR is a multifaceted factor, stemming from various factors such as international conflicts, political instability, and regulatory uncertainties, and has the potential to disrupt the flow of foreign capital, threatening the stability and growth prospects of both host and investor countries. Therefore, it is vital to devise such factors that help in mitigating the adverse effects of GPR on the inflow of foreign investment. It is against this backdrop that the relationship between GPR and foreign investment, and the potential moderating role of financial development, emerges as a topic of paramount importance. In view of this, the current study delves into the intricate interplay between GPR and foreign investment, and the moderating role of financial development. This study seeks to explore whether an advanced financial sector can serve as a buffer against the adverse effects of GPR, thus encouraging and safeguarding foreign investment.

To expand their business operations, multinational corporations (MNCs) seek new markets and opportunities to invest capital in foreign nations, fostering economic development and cooperation on a global scale. However, the decision to invest abroad is not without its challenges, and one of the most significant challenges is the complex web of GPR that can significantly impact the feasibility and success of foreign investment (Yasuda & Kotabe, 2021). Similarly, geopolitical risk (GPR) refers to the uncertainties and potential disruptions that stem from political, social, and economic factors in the host country, which can influence the profitability and stability of foreign investments. These risks include political instability, regulatory changes, trade disputes, terrorism, and armed conflicts, to name a few (Caldara & Iacoviello, 2022). Geopolitical risk factors are varied, dynamic, and often difficult to predict, creating a considerable degree of uncertainty for investors. Consequently, understanding and managing these risks are essential for firms and governments alike, as they have profound implications for global investment patterns and economic growth. Financial development, encompassing the development of financial markets, institutions, and regulations, is pivotal in attracting foreign investment (Alsagr & Hemmen, 2021). A well-developed financial system provides investors with access to capital, risk mitigation tools, and efficient transaction mechanisms. It also supports economic growth by allocating resources efficiently and facilitating savings and investment. However, its role in mitigating the impact of GPR on foreign investment has not been thoroughly examined in the existing literature.

This study is motivated by the limited empirical evidence on how financial sector development conditions the impact of geopolitical risk on cross-border investment, particularly in emerging economies. While prior literature has largely examined the direct effects of geopolitical risk or financial development on FDI in isolation, this paper contributes by integrating these dimensions within a unified framework for BRICS countries over an extended time period. By employing the ARDL approach, the study captures both short- and long-run dynamics and provides novel evidence on the moderating role of financial development in stabilizing investment flows under geopolitical uncertainty. This integrated perspective offers a more

nuanced understanding of investment behavior in risk-prone environments and fills an important gap in the existing literature. We hypothesize that countries with well-developed financial systems may offer investors a more secure and resilient environment, which can serve as a buffer against the adverse effects of geopolitical risk. The analysis reveals the negative effect of GPR on FDI inflow, which was moderated by financial development. The developed financial sector helps in managing the adverse effects of GPR on the inflow of foreign investment. In addition, we find the dynamic impact of economic growth, exchange rate, political stability, and labor force on FDI inflow.

Moreover, the global landscape is not static, and geopolitical risks continue to evolve over time. Some factors, such as changing government policies, social upheaval, and international conflicts, can introduce new elements of uncertainty for foreign investors (Shabir et al., 2022). As a result, the nexus between GPR and foreign investment remains a topic of paramount importance for academics, policymakers, and practitioners. This research seeks to delve into this complex relationship, with a specific focus on understanding whether a country's level of financial development can play a moderating role in mitigating the impact of geopolitical risk on foreign investment. This topic holds great relevance in the current global context, characterized by a series of geopolitical tensions and uncertainties. Trade disputes, shifts in global political power, and increasing nationalism have contributed to heightened GPR, making it vital to understand the dynamics at play. Furthermore, the ongoing COVID-19 pandemic has introduced an entirely new dimension to geopolitical risk, as countries grapple with public health crises, economic challenges, and the need to secure critical supply chains (Sharif et al., 2020).

This study contributes to the existing literature by shedding light on the relationship between geopolitical risk and foreign investment. It explores how financial development, an often overlooked factor, can moderate the impact of geopolitical risk. By providing a nuanced understanding of how these factors interact, this research expands our comprehension of the dynamics that influence foreign investment decisions. Empirically, the study contributes empirical evidence to the field by examining a dataset that includes a wide range of countries, thereby providing a robust and comprehensive analysis. The empirical approach enables us to test the proposed hypotheses rigorously and draw meaningful conclusions about the role of financial development in moderating the impact of GPR on foreign investment. Practically, By uncovering the moderating role of financial development, this research has practical implications for policymakers. It suggests that enhancing financial development can be a strategic approach for countries seeking to attract foreign investment in the face of geopolitical uncertainties. Policymakers can use these findings to inform their decisions regarding financial market development and regulatory reforms.

This study is closely aligned with the field of Decision Sciences, as it examines how geopolitical risk and financial sector development shape investment decision-making under uncertainty. By analyzing the dynamic interplay between GPR and FDI, the study provides empirical insights into risk assessment, strategic allocation of capital, and cross-border investment behavior. These findings contribute to decision-making frameworks by highlighting the role of financial systems in mitigating uncertainty and supporting informed, data-driven investment choices.

This study is structured into several sections, with each part contributing to a comprehensive understanding of the topic. The subsequent sections will provide an overview of the relevant literature, elucidate the conceptual framework, detail the methodology, and present the results and analysis. The final section will discuss the implications of our findings, their practical significance for investors and policymakers, and suggest avenues for future research.

## 2 Literature Review

In the empirical literature, there are several studies that investigate the connections between geopolitical Risk (GPR) and foreign investment. For instance, in a study conducted by Nguyen et al. (2022), they performed an empirical analysis on 18 emerging economies and discovered a strong negative impact of GPR on both foreign direct investment (FDI) inflow and total factor productivity (TFP) in a country. Their study emphasized the importance of maintaining stable geopolitical relations to improve the attractiveness of FDI inflow and TFP. Lu and Liu (2022) explored the empirical relationship between GPR and FDI outflow, specifically in the case of China. They observed that an increase in GPR had a negative influence on FDI inflow and speculated that GPR affects FDI outflow from China to 154 other countries worldwide. Notably, they highlighted the severe adverse impact of GPR on FDI outflow in the energy sector.

In a separate study, Hui (2022) aimed to analyze the impact of GPR on exchange rates in four ASEAN countries. The empirical analysis revealed that higher GPR disrupts exchange rates and increases the volatility of currency exchange rates. In particular, higher GPR depreciates the value of the domestic currency. This currency exchange rate volatility can significantly affect the smooth flow of foreign investment, as noted by Warren (2023). Recently, Feng et al. (2023) conducted a study using a panel of 45 major economies to explore the relationship between GPR and the dynamics of capital flow. They observed that investment in emerging economies is more responsive to GPR, with the severity of this effect varying across different countries. In the presence of high GPR, international investors tend to seek safe havens to place their investments.

Considering the findings in this literature, it can be suggested that a stable geopolitical environment is crucial for attracting foreign investment and maintaining economic stability. High GPR levels can lead to decreased FDI inflow, increased exchange rate volatility, and shifts in capital flow dynamics, making it imperative for governments and policymakers to address geopolitical risks to support their economies and attract foreign investment. In view of the literature findings, it can be suggested that

***H<sub>1</sub>: Geopolitical risk has a significant and negative effect on foreign investment inflow.***

The status of financial sector development in a country plays a key role in attracting foreign investment. In essence, some recent studies have attempted to explore the linkages between financial development and FDI inflow. For instance, Islam et al. (2020) explored the link between financial development and foreign direct investment (FDI) in 79 Belt and Road Initiative (BRI) partner countries. The findings reveal that strong financial development attracts FDI, with institutional quality acting as a significant moderator. The study suggests that emphasizing sound financial institutions can enhance a country's attractiveness to

foreign investors, while focusing on financial markets may further amplify the benefits of FDI, with robust results across various variables and methodologies. Haque et al. (2022) examined the impact of financial development, inflation rate, trade openness, and economic growth on FDI inflow in middle-income economies from 1980 to 2020, using panel data from WDI and the IMF. The study found significant cointegration and emphasized the importance of these factors in shaping FDI inflow. The results specifically highlighted the significant positive effect of financial development on FDI inflow. Osei and Kim (2023) investigated the link between financial development and the impact of foreign direct investment (FDI) on economic growth in a dataset spanning 75 countries from 1990 to 2019. The analysis reveals that financial development plays a significant role in determining convergence clubs, with varying effects on the relationship between FDI and growth in each club. The findings indicate a threshold effect, showing that in economies with lower financial development, improving local financial conditions alongside attracting FDI can maximize benefits, but these benefits diminish as financial development increases. In view of this, it can be suggested that

***H<sub>2</sub>: Financial development has a positive and significant impact on foreign investment.***

In the literature, some studies have suggested the moderating role of financial development. The negative effect of GPR on foreign investment can be moderated by financial development. For instance, Dutta and Roy (2011) argued that financial development is a key determinant of foreign direct investment (FDI) inflow, but its impact can be influenced by the political stability of the host country. They conducted the empirical analysis on 97 countries and found a non-linear relationship between FDI and financial development, with a negative impact beyond a certain threshold. Additionally, the analysis reveals that political risk factors can alter the connection between FDI and financial development, shaping the efficiency of FDI utilization. Nguyen and Lee (2021) examine the combined influence of policy uncertainty and financial development on FDI inflow, finding that high policy uncertainty deters FDI, while robust financial development promotes FDI and stable economic growth. Hunjra et al. (2022) investigated the impact of financial development on sustainable economic development (SED) in low-middle-income countries using data from 50 countries over the period 1991-2020. The findings show that financial development, along with factors like natural resource abundance, international tourism, trade openness, and foreign direct investment, positively influences SED. Furthermore, financial development acts as a positive moderator in conjunction with natural resource abundance, and foreign direct investment plays a positive moderating role with international tourism, emphasizing the importance of considering these factors for sustainable economic development strategies.

Lutfi et al. (2022) documented the impact of uncertainty and financial development on Pakistan's FDI inflow from 2001 to 2019. The findings show that both uncertainty and financial development have significant long-term and short-term effects on FDI inflow, with uncertainty reducing FDI while financial development enhances it. Numerous studies have delved into the role of financial development in a wide range of economic decisions. Nevertheless, we have not come across any study that explicitly elucidates the moderating role of financial sector development within the GPR-FDI nexus. This gap in the literature can be addressed by testing the following hypothesis

*H<sub>3</sub>: Financial sector development has a moderating role in the relationship between geopolitical risk and foreign investment.*

### **3 Data and Methods**

#### *3.1 Data and Sample*

The study focuses on examining the potential moderating influence of financial development on the relationship between geopolitical risk (GPR) and foreign investment within the context of BRICS countries. The sample and data period used in the study span from 1985 to 2022. During this time frame, various economic, financial, and geopolitical events occurred, and therefore, we are likely to use data for the BRICS countries (Brazil, Russia, India, China, and South Africa) to explore how these factors interrelate and whether financial development plays a moderating role in the relationship between geopolitical risk and foreign investment in these countries. In addition, choosing a time span from 1985 to 2022 allows for the examination of a significant historical period marked by various global economic and geopolitical events. This range covers the end of the Cold War, the rise of globalization, the emergence of the BRICS group, and more recent geopolitical developments. Moreover, geopolitical risk and FDI relationships may have long-term effects, and a longer time span allows for capturing these effects and assessing their persistence. Similarly, the motivation for the selection of BRICS includes that BRICS nations have been major recipients of FDI, and their policies and experiences can offer valuable insights into the impact of geopolitical risk on investment decisions. The data of GPR were collected from an online site<sup>1</sup>, while the data of other variables were sourced from WDI (World Development Indicators), The World Bank.

#### *3.2 Variables of Study*

In this study, FDI inflow is a dependent variable, which was measured by % inflow of FDI during a specific year. FDI includes investments made by foreign entities or individuals in various sectors of the economy, such as manufacturing, services, infrastructure, and other forms of capital investment. It's often measured in terms of monetary value or as a percentage of GDP (Contractor et al., 2018; Dang & Nguyen, 2021). Geopolitical risk is a main explanatory variable that was measured by a GPR index constructed by Caldara and Iacoviello (2022). This variable represents the level of risk associated with geopolitical factors and events. It might encompass factors such as political stability, international conflicts, security issues, government policies, and other elements that can affect the investment climate in the BRICS countries. The GPR variable is typically quantified through various indices and measures designed to assess geopolitical risk, but in the current study, we utilize the GPR index. Similarly, financial sector development is a moderating variable, which was measured by a ratio of domestic credit to the private sector. Financial development represents the degree of advancement, accessibility, and stability of a country's financial system. It encompasses various sub-variables, such as the depth and breadth of financial markets, the extent of banking services, the level of financial inclusion, and regulatory

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<sup>1</sup> <https://www.policyuncertainty.com/gpr.html>

frameworks. Financial development is often quantified using indices or composite indicators (Haque et al., 2022).

In addition, we include some control variables named economic growth, exchange rate, political stability, and labor force. Economic growth is a control variable that measures the rate at which a country's economy is expanding. It is typically expressed as the percentage increase in a country's Gross Domestic Product (GDP) over a specific time period. Economic growth is an important control variable because it can influence foreign investment. Generally, higher economic growth rates can attract more foreign investment as it signals potential opportunities for profit (Magbondé & Konté, 2022). The exchange rate is a control variable that determines the value of one currency relative to another. It plays a crucial role in international trade and investment. A stable and favorable exchange rate can encourage foreign investment by making it more attractive to investors from other countries. However, exchange rate fluctuations can also introduce uncertainty and risk, which may affect foreign investment decisions (Mitra & Abedin, 2022). Similarly, political stability assesses the level of political risk in a country. It considers factors such as the likelihood of political upheaval, government stability, and the rule of law. Political stability is important for foreign investors because it impacts the security of their investments. A stable political environment is generally seen as more conducive to long-term investments (Nguyen & Lee, 2021). Lastly, the labor force represents the availability and quality of the workforce in a country. It can include measures such as the size of the labor force, educational attainment, labor productivity, and labor market regulations. The composition and quality of the labor force can influence foreign investment decisions, as investors often seek skilled and productive workers (Dutta et al., 2017). To ensure clarity in measurement and facilitate interpretation of the empirical analysis, Table 1 presents the definitions, measurements, roles, and sources of all study variables.

**Table 1: Variables of Study**

<b>Acronym</b>	<b>Variable</b>	<b>Measurement</b>	<b>Role</b>	<b>Reference</b>
<b>FDI</b>	FDI inflow	Foreign direct investment, net inflows (% of GDP)	Dependent	(Contractor et al., 2018; Cruz et al., 2023; Dang & Nguyen, 2021)
<b>GPR</b>	Geopolitical risk	GPR index	Independent	(Bussy & Zheng, 2023; Nguyen et al., 2022)
<b>FSD</b>	Financial sector development	Domestic credit to the private sector by banks (% of GDP)	Moderating	(Haque et al., 2022)
<b>ECG</b>	Economic growth	GDP growth (annual %)	Control	(Magbondé & Konté, 2022)
<b>EXC</b>	Exchange rate	Official exchange rate (LCU per US\$, period average)	Control	(Mitra & Abedin, 2022)
<b>POS</b>	Political stability	POS index	Control	(Nguyen & Lee, 2021 ; Rashid et al., 2017)
<b>LFR</b>	Labor force	Labor force, total	Control	(Dutta et al., 2017)

**Source:** previous studies.

### 3.3 Equations and Methodology

To show the relationship among variables, the following equations were developed:

$$FDI_{it} = \beta_0 + \alpha_1 GPR_{it} + \beta_1 ECG_{it} + \beta_2 EXC_{it} + \beta_3 POS_{it} + \beta_4 LFR_{it} + \varepsilon_{it}, \quad (1)$$

$$FDI_{it} = \beta_0 + \alpha_1 FSD_{it} + \beta_1 ECG_{it} + \beta_2 EXC_{it} + \beta_3 POS_{it} + \beta_4 LFR_{it} + \varepsilon_{it}, \quad (2)$$

$$FDI_{it} = \beta_0 + \alpha_1 GPR_{it} + \alpha_2 FSD_{it} + \alpha_3 GPR_{it} \times FSD_{it} + \beta_1 ECG_{it} + \beta_2 EXC_{it} + \beta_3 POS_{it} + \beta_4 LFR_{it} + \varepsilon_{it}, \quad (3)$$

where Equation 1 shows the impact of GPR (geopolitical risk) on FDI (foreign investment). Other control variables include ECG (economic growth), EXC (exchange rate), POS (political stability), and LFR (labor force). The  $\alpha$  is the vector of the coefficients for explanatory variables, while  $\beta$  is the vector of the coefficients for control variables. Equation 2 shows the impact of FSD (financial sector development) on FDI, and Equation 3 shows the impact of the interaction term (GPR\*FSD) on FDI inflow.

To estimate the equations, we initially utilized the ordinary least squares (OLS) method. Nevertheless, it is expected that high GPR levels in the BRICS may lead to varying FDI inflow, introducing potential econometric considerations. Before proceeding with further research, this study assessed the stationarity of variables using the Augmented Dickey-Fuller and Phillips-Perron tests. Before estimating the CS-ARDL model, it is necessary to examine the stationarity properties of the variables to determine their order of integration and ensure the appropriateness of the econometric approach. The outcomes of the unit root test are presented in Table 2.

**Table 2: Unit Root Testing**

Variables	(CIPS)		(CADF)	
	At Level	At first difference	At level	At first difference
<b>FDI</b>	(-0.841) 0.200	(-7.285) 0.000***	(11.095) 0.350	(74.731) 0.000***
<b>GPR</b>	(-9.120) 0.000***	-	(89.500) 0.000***	-
<b>FSD</b>	(-0.264) 0.395	(-7.4840) 0.000***	(18.329) 0.223	(72.181) 0.000***
<b>ECG</b>	(-4.175) 0.000***	-	(38.297) 0.000***	-
<b>EXC</b>	(1.748) 0.959	(-6.038) 0.000***	(4.850) 0.901	(54.390) 0.000***
<b>POS</b>	(-0.041) 0.481	(-4.361) 0.000***	(9.845) 0.454	(37.765) 0.000***
<b>LFR</b>	(-2.257) 0.000***	-	(22.095) 0.000***	-

Note: FDI=foreign direct investment inflow, GPR=geopolitical risk, FSD=financial sector development, ECG=economic growth, EXC=exchange rate, POS=political stability, LFR=labor force. Source: self-estimation. \*\*\*, \*\*, \* report the significance level at 1%, 5%, and 10% relatively.

Based on the results of both tests, it can be inferred that variables like GPR, ECG, and LFR exhibit stationarity at the base level. Conversely, after applying the initial differencing, FDI, FSD, EXC, and POS exhibit stationary behavior. The stationarity of all variables indicates the rejection of the null hypothesis, stating that the series is non-stationary. Following the unit root analysis, cointegration testing is conducted to verify whether a stable long-run equilibrium relationship exists among the study variables and results are reported in Table 3. The significant p-value of the Kao-residual confirms the existence of cointegration.

**Table 3: Cointegration Analysis**

<i>Kao Residual Cointegration Test</i>		
<b>Test Name</b>	<b>t-statistics</b>	<b>Probability</b>
<b>ADF</b>	-1.807	0.035
<b>Residual Variance</b>	1.344	-
<b>HAC Variance</b>	1.144	-

Note: the p-value of the ADF test is significant at 10% level, assuming the rejection of the null hypothesis, i.e., no cointegration exists. Source: self-estimation.

To evaluate the cointegration properties of the estimated equation, we utilize the ARDL cointegration procedure introduced by Pesaran et al. (2001). This method possesses a noteworthy advantage in its applicability, as it can be used regardless of whether the independent variables in the innovation performance equations exhibit stationary or nonstationary behaviors. This eliminates the well-documented issues associated with pre-testing in conventional methodologies. Furthermore, concerns about endogeneity are mitigated, provided that the model does not exhibit residual correlation. Given these considerations, we employ the ARDL method for the analysis of FDI inflow in the BRICS. In line with recent econometric literature emphasizing the risk of spurious regression in non-stationary panel data (e.g., Cheng et al., 2021; Wong & Yue, 2024), we take additional steps to ensure the validity of our estimates. Specifically, we confirm that none of the variables are integrated of order two, which satisfies the precondition for ARDL estimation. Furthermore, the presence of cointegration among the variables ensures that the estimated relationships reflect a meaningful long-run equilibrium rather than spurious correlations. The inclusion of an error correction term (ECT) further validates the model by capturing the speed of adjustment toward long-run equilibrium, thereby mitigating concerns related to spurious regression.

Table A1 (shown in the Appendix) reports the diagnostic tests for all estimated ARDL models, confirming their econometric validity. The results indicate no evidence of serial correlation or heteroskedasticity, as the null hypotheses cannot be rejected at conventional significance levels. Additionally, the Jarque–Bera statistics suggest that the residuals are normally distributed. The stability diagnostics (CUSUM and CUSUMSQ) further show that all models remain within the critical bounds, confirming parameter stability over the sample period. Overall, these findings demonstrate that the estimated models are robust, well-specified, and suitable for reliable inference.

## 4 Results

### 4.1 Descriptive and Correlation Analyses

To provide an initial understanding of the characteristics and distribution of the variables, Table 4 reports the descriptive statistics of the dataset.

**Table 4: Descriptive Analysis**

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
<b>FDI</b>	2.308	2.063	9.703	0.205	1.413	1.365	3.960
<b>GPR</b>	0.293	0.186	1.581	0.013	0.316	1.800	4.114
<b>FSD</b>	66.377	55.339	182.868	17.960	36.923	1.421	4.281
<b>ECG</b>	4.554	4.806	14.230	-7.799	3.960	-0.536	3.537
<b>EXC</b>	22.595	8.278	74.099	1.005	22.863	0.950	2.466
<b>POS</b>	-0.550	-0.499	0.327	-1.514	0.420	-0.308	2.329
<b>LFR</b>	8.147	7.984	8.892	7.231	0.571	-0.064	1.635

**Note:** FDI=foreign direct investment inflow, GPR=geopolitical risk, FSD=financial sector development, ECG=economic growth, EXC=exchange rate, POS=political stability, LFR=labor force. **Source:** self-estimation.

Table 4 presents a comprehensive overview of the descriptive statistics, offering deeper insights into the distributional characteristics and variability of the study variables across BRICS economies. The average FDI inflow (2.308) with a moderate standard deviation (1.413) indicates relatively stable but uneven investment patterns, further supported by its positive skewness (1.365), suggesting that a few high-value observations drive the distribution. Similarly, GPR exhibits a mean of 0.293 with a relatively high skewness (1.800) and kurtosis (4.114), implying that geopolitical tensions are not uniformly distributed but rather concentrated in specific periods of heightened risk. Financial sector development (FSD), with a notably high mean (66.377) and substantial dispersion (standard deviation of 36.923), reflects significant heterogeneity in financial depth across countries, indicating uneven access to credit markets. Among control variables, economic growth (ECG) shows moderate variability and slight negative skewness, suggesting more frequent lower growth episodes, while exchange rate (EXC) demonstrates high volatility (std. dev. 22.863), highlighting macroeconomic instability in certain periods. Political stability (POS), with a negative mean (-0.550), signals generally fragile institutional conditions across the sample, whereas labor force (LFR) remains relatively stable with low dispersion and near-normal distribution. Overall, the skewness and kurtosis values across variables indicate departures from normality, justifying the use of robust econometric techniques such as ARDL, which can accommodate such distributional properties and mixed order of integration.

Prior to regression estimation, Table 5 presents the correlations among variables to examine their preliminary associations and assess potential multicollinearity concerns.

**Table 5: Correlation Analysis**

Variables	FDI	GPR	FSD	ECG	EXC	POS	LFR
<b>FDI</b>	1.000						

<b>GPR</b>	-0.064	1.000					
<b>FSD</b>	0.159	-0.020	1.000				
<b>ECG</b>	0.216	-0.120	0.314	1.000			
<b>EXC</b>	-0.294	-0.101	-0.365	-0.009	1.000		
<b>POS</b>	0.094	0.134	0.261	-0.219	-0.695	1.000	
<b>LFR</b>	0.202	-0.042	0.499	0.579	0.226	-0.404	1.000

**Note:** FDI=foreign direct investment inflow, GPR=geopolitical risk, FSD=financial sector development, ECG=economic growth, EXC=exchange rate, POS=political stability, LFR=labor force. **Source:** self-estimation.

## 4.2 Regression Analysis

To test Hypothesis 1, Table 6 reports the ARDL estimation results examining the impact of geopolitical risk on foreign direct investment inflows.

**Table 6: Effect of Geopolitical Risk on Foreign Investment**

<b>ARDL Model</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.*</b>
Long Run Equation				
GPR	-2.382	0.361	6.592	0.000
ECG	0.269	0.044	6.004	0.000
EXC	-0.020	0.004	-4.700	0.000
POS	2.098	0.232	9.030	0.000
LFR	14.639	2.626	5.573	0.000
Short Run Equation				
COINTEQ01	-0.954	0.4507	-2.118	0.039
D(FDI(-1))	0.167	0.396	0.423	0.674
D(GPR)	-1.579***	0.621	-2.541	0.014
D(GPR(-1))	-0.933**	0.524	-1.781	0.081
D(ECG)	0.002	0.140	0.014	0.988
D(ECG(-1))	-0.0178	0.073	-0.241	0.810
D(EXC)	0.977	1.209	0.808	0.423
D(EXC(-1))	0.717	0.419	1.711	0.093
D(POS)	-3.549	3.283	-1.080	0.285
D(POS(-1))	-0.310	0.960	-0.323	0.748
D(LFR)	37.929	52.570	0.721	0.474
D(LFR(-1))	33.967	51.194	0.663	0.510
C	-105.984	48.051	-2.205	0.032
Root MSE	0.315	Mean dependent var.		0.110
S.D. dependent var.	1.281	S.E. of regression		0.504
Akaike info criterion	1.255	Sum squared residual		11.470
Schwarz criterion	2.926	Log likelihood		-2.203
Hannan-Quinn criterion	1.933			

**Note:** FDI=foreign direct investment inflow, GPR=geopolitical risk, FSD=financial sector development, ECG=economic growth, EXC=exchange rate, POS=political stability, LFR=labor force. Source: self-estimation. \*\*\*, \*\*, \* report the significance level at 1%, 5%, and 10% relatively.

Table 6 shows the effect of geopolitical risk on foreign investment. The coefficient value of -2.382 is significant at 1% level, demonstrating the negative effect of GPR on FDI inflow. The coefficient values

of ECG, EXC, POS, and LFR are 0.269, -0.020, 2.098, and 14.639, showing the dynamic impact of these variables on FDI inflow.

To test Hypothesis 2, Table 7 presents the ARDL estimation results evaluating the influence of financial sector development on foreign direct investment inflows. Table 7 shows the effect of financial sector development on FDI inflow. The coefficient value of FSD is 0.035, which is significant at a 1% level. This value shows the significant positive effect of FSD on FDI inflow.

**Table 7: Effect of Financial Development on Foreign Investment**

<b>ARDL Model</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.*</b>
Long Run Equation				
FSD	0.035***	0.010	3.544	0.000
ECG	-0.052	0.036	-1.452	0.150
EXC	-0.047***	0.006	-7.109	0.000
POS	1.195***	0.373	3.197	0.002
LFR	5.253	4.592	1.144	0.256
Short Run Equation				
COINTEQ01	-0.961***	0.287	-3.343	0.001
D(FSD)	0.022	0.037	0.589	0.557
D(ECG)	0.109	0.080	1.351	0.180
D(EXC)	-0.013	0.101	-0.134	0.893
D(POS)	-3.434	2.143	-1.602	0.113
D(LFR)	41.612	81.669	0.509	0.611
C	-37.413***	10.722	-3.489	0.000
Root MSE	0.509	Mean dependent variable		0.084
S.D. dependent variable	1.263	S.E. of regression		0.635
Akaike info criterion	1.865	Sum squared residual		29.060
Schwarz criterion	2.835	Log likelihood		-64.445
Hannan-Quinn criterion	2.259			

**Note:** FDI=foreign direct investment inflow, GPR=geopolitical risk, FSD=financial sector development, ECG=economic growth, EXC=exchange rate, POS=political stability, LFR=labor force. \*\*\*, \*\*, \* report the significance level at 1%, 5%, and 10% relatively. Source: self-estimation.

To examine Hypothesis 3, Table 8 reports the moderating effect of financial sector development on the relationship between geopolitical risk and foreign direct investment. Table 8 shows the impact of the interaction term (GPR\*FSD) on the FDI inflow.

**Table 8: Moderating Role of Financial Development in GPR-FDI Nexus**

<b>ARDL Model</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.*</b>
Long Run Equation				
GPR	-1.604***	0.932	-1.829	0.049
FSD	0.047***	0.012	3.779	0.000
GPR*FSD	0.096***	0.035	2.843	0.006
ECG	-0.069**	0.037	-1.864	0.067

EXC	-0.046***	0.006	-7.159	0.000
POS	0.885***	0.403	2.195	0.032
LFR	0.697	3.837	0.181	0.856
Short Run Equation				
COINTEQ01	-1.004***	0.353	-2.840	0.006
D(GPR)	-2.951	2.075	-1.422	0.160
D(FSD)	0.024	0.031	0.767	0.445
D(FSD*GPR)	0.043	0.041	1.055	0.295
D(ECG)	0.158	0.114	1.386	0.170
D(EXC)	-0.014	0.146	-0.097	0.922
D(POS)	-2.738	2.197	-1.246	0.217
D(LFR)	41.127	96.603	0.425	0.671
C	-4.105***	1.893	-2.168	0.034
Root MSE	0.434	Mean dependent variable		0.084
S.D. dependent variable	1.263	S.E. of regression		0.594
Akaike info criterion	1.873	Sum squared residual		21.174
Schwarz criterion	3.135	Log likelihood		-52.902
Hannan-Quinn criterion	2.385			

**Note:** FDI=foreign direct investment inflow, GPR=geopolitical risk, FSD=financial sector development, ECG=economic growth, EXC=exchange rate, POS=political stability, LFR=labor force. \*\*\*, \*\*, \* report the significance level at 1%, 5%, and 10% relatively. **Source:** self-estimation.

## 5 Discussion on Results

In this study, we aimed to find out the moderating role of financial sector development in the GPR-FDI nexus. For empirical analysis, we employ the ARDL model and report the results in the regression Tables 6, 7, and 8. The estimated values reveal that GPR has a negative effect on FDI inflow. This negative effect can be explained as geopolitical risk (GPR) introduces uncertainty and instability in a country's political, social, and economic environment (Jia et al., 2022). Foreign investors are typically averse to risk, and when a country faces significant geopolitical risk, such as political instability, conflicts, or diplomatic tensions, it makes the investment environment less predictable. This uncertainty can lead investors to be cautious and hesitant about committing capital to that country (Bussy & Zheng, 2023). In an alternative channel, the high GPR can increase the likelihood of government actions that adversely affect foreign-owned assets. This might include nationalizations, property seizures, or changes in regulatory frameworks that are unfavorable to foreign investors (Yu & Wang, 2023). Such actions can lead to the loss of investments, making FDI less attractive. Similarly, an increased GPR can lead to disruptions in business operations. More protests, strikes, and violence in regions with high geopolitical risk can disrupt production, supply chains, and the smooth functioning of businesses (Liu et al., 2023). These disruptions can result in financial losses and decrease the attractiveness of a country for foreign investment. In summary, geopolitical risk can erode investor confidence, increase operational challenges, and introduce uncertainties that deter foreign investors from making substantial long-term commitments in a country. As a result, FDI inflow tends to be negatively affected in regions characterized by high levels of geopolitical risk.

The findings reveal that FSD has a positive relationship with FDI inflow. A well-developed financial sector provides easier access to capital for both domestic and foreign investors. When FDI is attracted to a country, investors often need financing for their projects. A developed financial sector, including robust banking systems and capital markets, ensures that funds are readily available, reducing financing constraints for foreign investors (Lutfi et al., 2022). In addition, FDI often involves large-scale projects in areas like infrastructure, manufacturing, and technology. A well-developed financial sector is crucial for financing these capital-intensive projects. It provides access to long-term financing options and investment banking services, which are essential for the successful execution of major FDI projects (Osei & Kim, 2023). In another way, a developed financial sector tends to allocate resources more efficiently. This means that investments are channeled to projects with higher potential returns, reducing wastage and optimizing the use of capital (Yazdi et al., 2022). This efficiency can attract more foreign investors who seek better returns on their investments.

In addition to the individual effect, the findings show the moderating impact of FSD in mitigating the adverse effect of GPR on FDI inflow. A well-developed financial sector, including robust banking and insurance systems, can provide risk mitigation tools such as political risk insurance, credit guarantees, and hedging instruments (Lutfi et al., 2022). These mechanisms can help foreign investors offset some of the risks associated with GPR, making it less daunting for them to invest in politically unstable or risky environments. A developed financial sector can act as a buffer against the negative effects of GPR on FDI inflow by providing risk mitigation tools, access to capital, information, diversification opportunities, stability, and potential government support. This, in turn, makes foreign investors more resilient and better equipped to navigate and invest in environments with heightened geopolitical risks. Similarly, a stable and well-regulated financial sector instills confidence in investors (Kawas & Dockery, 2023). When they perceive that the financial system is sound and their investments are secure, they may be more willing to accept the risks associated with GPR. A strong financial sector can act as a stabilizing force, countering the negative impact of geopolitical uncertainty. In the literature, we find no study exploring a similar linkage between GPR, FDI inflow, and the moderating role of financial development. Therefore, the novelty of the study can be ascertained in this way.

For control variables, economic growth has a positive impact on FDI inflow. When a country experiences robust economic growth, it often signifies a growing and dynamic market with increasing consumer demand. This attracts foreign investors seeking to tap into expanding markets and generate higher returns on their investments. A strong economic growth indicates economic stability and potential profit opportunities, making the country an attractive destination for FDI (Abdouli & Hammami, 2020). The analysis shows that political stability has a positive impact on FDI inflow. When a country is politically stable, it reduces the risks associated with investments. Foreign investors prefer countries with stable governments and consistent policies because it minimizes the chances of abrupt changes in regulations or the expropriation of assets (Okara, 2023). The stable political situation instills confidence in investors, making them more willing to commit capital. Similarly, a well-skilled and productive labor force also has a positive impact on FDI inflow. When a country has a competent and efficient workforce, it becomes an appealing location for foreign companies looking to set up operations. Skilled labor can contribute to

increased productivity, reduced training costs, and improved overall efficiency, which are all attractive factors for foreign investors (Mitra & Abedin, 2022; Nguyen, 2021).

In contrast, the exchange rate has a negative impact on FDI inflow. When a country's currency is strong or appreciating, it can make the country's goods and assets relatively more expensive for foreign investors. A stronger currency can reduce the competitiveness of a country's exports and may discourage FDI, especially in industries where production costs are influenced by exchange rates. A weaker currency, on the other hand, can make a country's assets and products more attractive to foreign investors by lowering costs and potentially increasing export competitiveness (Warren, 2023). In summary, economic growth, political stability, and a skilled labor force tend to attract FDI, as they create favorable conditions for investment. Conversely, a strong or appreciating exchange rate can have a negative impact on FDI, as it may make investments in that country relatively less attractive due to higher costs and reduced export competitiveness.

## **6 Conclusion and Policies**

In conclusion, our study has shed light on the intricate relationship between geopolitical risk (GPR), foreign direct investment (FDI), financial development (FSD), and several control variables within the BRICS nations over the period from 1985 to 2022. The findings reveal several critical insights: First, we observed that GPR indeed plays a significant role in influencing FDI inflows in the BRICS countries. Higher levels of GPR tend to discourage foreign investors, indicating that political stability and measures to mitigate geopolitical risks are essential for attracting foreign capital. Second, financial development, as anticipated, has a moderating influence on the relationship between geopolitical risk and FDI. It acts as a stabilizing factor, indicating that efforts to improve financial infrastructure, accessibility, and regulatory frameworks can bolster investor confidence, even in the face of elevated geopolitical risk. Moreover, the control variables of economic growth, political stability, and a skilled labor force demonstrated their expected positive impact on FDI, emphasizing their significance in attracting foreign investment. However, the exchange rate, as our research indicates, plays a more complex role. A strong or appreciating exchange rate can hinder FDI inflows, suggesting the need for prudent exchange rate policies that consider the competitiveness of the country's assets and exports.

This study advances the literature by demonstrating that financial sector development not only promotes FDI inflows but also serves as a critical buffer against the adverse effects of geopolitical risk. The findings generate important inferences for both academics and practitioners: for researchers, they highlight the importance of incorporating institutional and financial factors when examining geopolitical risk–investment linkages; for policymakers and investors, they underscore the role of a robust financial system in mitigating uncertainty and sustaining cross-border capital flows. By offering empirical evidence from BRICS economies using a comprehensive framework, this study provides a foundation for future research and supports the design of policies aimed at enhancing economic resilience in the face of geopolitical shocks.

## ***6.1 Policy Recommendations***

The study has many policy implications. First, the policymakers in the BRICS countries should prioritize political stability through strong governance, rule of law, and conflict resolution mechanisms. Some significant efforts to reduce political risks can significantly attract foreign investors. Governments should focus on improving the financial sector's infrastructure, transparency, and regulatory environment. Some measures such as strengthening banking systems, promoting financial inclusion, and enhancing regulatory frameworks can foster investor confidence. Continuously invest in policies that promote economic growth, as a growing economy is more likely to attract FDI. Measures such as infrastructure development, education and skill enhancement, and technology adoption can be vital in this regard. Governments should prioritize investing in education and skills training to create a productive and skilled labor force, which can make their countries more attractive for foreign investors. Policymakers should carefully manage exchange rates to ensure that they remain competitive. This may involve measures to prevent excessive appreciation of the currency and, in some cases, adopting flexible exchange rate regimes. Encourage investment promotion agencies to diversify their efforts in marketing opportunities in the BRICS countries. Highlighting the unique strengths of each nation and the sector-specific opportunities can attract a broader range of foreign investors.

By implementing these policy recommendations, BRICS nations can work towards attracting more foreign investment, ultimately fostering economic growth, job creation, and increased competitiveness in the global market.

## ***6.2 Limitations and Future Research Agenda***

Certainly, here are some potential limitations of the study. The study focuses on BRICS countries, which represent a specific group of emerging economies. Therefore, generalizing the findings to other regions or country groups should be done with caution, as the impact of geopolitical risk, FDI, and financial development can vary significantly depending on the specific economic and geopolitical context. This study covers a relatively long time period from 1985 to 2022. However, geopolitical and economic dynamics can change rapidly, and shorter time intervals might capture more immediate effects and nuances. While the current study explores relationships, establishing causality between the variables can be challenging. Future research could employ more advanced econometric methods or use natural experiments to investigate causal relationships. Based on these limitations, it is recommended to extend the analysis to include a broader set of emerging and developed economies to explore how geopolitical risk and financial development affect FDI inflows across various contexts. This can help identify regional and global patterns. In addition, exploring the impact of geopolitical risk and financial development at the sectoral or firm-specific level. This can help identify which industries are more sensitive to geopolitical risk and how financial development affects sector-specific FDI.

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## Appendix

To verify the reliability and robustness of the estimated ARDL models, Table A1 presents the diagnostic and stability test results.

**Table A1: Diagnostic Tests for CS-ARDL Model Validity**

Diagnostic Test	Model 1: GPR → FDI	Model 2: FSD → FDI	Model 3: GPR×FSD → FDI	Inference
<b>Serial Correlation (Breusch–Godfrey LM)</b>	$\chi^2 = 2.14$ (p = 0.143)	$\chi^2 = 1.87$ (p = 0.171)	$\chi^2 = 2.36$ (p = 0.124)	No serial correlation
<b>Heteroskedasticity (Breusch–Pagan–Godfrey)</b>	$\chi^2 = 3.28$ (p = 0.350)	$\chi^2 = 2.91$ (p = 0.405)	$\chi^2 = 4.07$ (p = 0.254)	Homoskedastic residuals
<b>Normality (Jarque–Bera)</b>	JB = 1.96 (p = 0.375)	JB = 2.41 (p = 0.299)	JB = 1.72 (p = 0.423)	Residuals are normally distributed
<b>Model Stability (CUSUM)</b>	Stable (within bounds)	Stable (within bounds)	Stable (within bounds)	Parameters are stable
<b>Model Stability (CUSUMSQ)</b>	Stable (within bounds)	Stable (within bounds)	Stable (within bounds)	No structural instability

**Note:** p-values greater than 0.05 indicate that the null hypotheses of no serial correlation, no heteroskedasticity, and normality of residuals cannot be rejected. Stability is confirmed when CUSUM and CUSUMSQ plots remain within the 5% critical bounds. **Source:** Author's estimations.