The Impact of Country Uncertainty on Cross-Border Mergers and Acquisitions and FDI (Foreign Direct Investment)

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Abstract:

This study investigates how geopolitical risk, as quantified by the GPR index developed by Caldara and Matteo Iacoviello (2022), influences the inflow of foreign direct investment (FDI) as well as the industry-level reaction of cross-border mergers and acquisitions (CBMA). Expanding on Badakhsh's (2025) findings, which highlighted a negative relationship between GPR and country-level cross-border mergers and acquisitions, this study delves deeper by categorizing foreign direct investment into equity and debt types and analyzing sector-specific reactions in CBMA transactions. The findings indicate that increased geopolitical risk discourages foreign direct investment (FDI) inflows, especially in the form of equity investments, whereas debt-type FDI exhibits a positive response to increased levels of GPR. Additionally, increased GPR elicits negative responses from all sectors in the industry-level analysis, with the (Agriculture, Forestry, and Fishing) and Mining sectors showing the largest reactions, while the (Finance, Insurance, and Real Estate sectors) and Services sector show the least reaction.

Keywords:

Cross-Border Mergers and Acquisitions, Geopolitical Risk, FDI (Foreign Direct Investment)

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1. Introduction

This study aims to examine the impact of geopolitical risk on foreign direct investment (FDI) and industry-level cross-border mergers and acquisitions, serving as an extension to the previous study, Badakhsh (2025)[1], analyzing the impact of country uncertainty on country-level cross-border mergers and acquisitions. According to the findings of Badakhsh (2025), a higher GPR level in the target country depresses the number of cross-border mergers and acquisitions, corroborating the findings of previous research. When considering only inbound cross-border deals, Badakhsh (2025) found that the impact of the GPR index is more pronounced in distinction to cross-border deals including both inbound and outbound transactions. Nonetheless, the results regarding the total M&A activity diverged, indicating a positive reaction to the increased level of the GPR index. These results, although surprising to the extent that an increased level of risk might typically lead to a more cautious investment approach, are yet consistent with the findings of Shen, Liang, et al. (2021). The authors found that an increased level of GPR in the Chinese market was associated with positive M&A activity in the Chinese electrical power sector, attributing this positive reaction to the real options and prospect synergy effect mechanisms.

Drakos et al. (2024) argue in their study that geopolitical challenges, specifically the trade war between the United States and China, the conflict in the Middle East, and the Russia-Ukraine conflict, have increased the importance of geopolitical risk in the investment sector, impacting corporate decision-making processes and global foreign direct investment (FDI) trends.

Correspondingly, the International Monetary Fund (IMF) considers geopolitical risk a threat to global economic stability due to its detrimental impact on domestic production and foreign investments (World Bank Outlook, 2014). Global foreign direct investment (FDI) experienced a sharp decline in 2023, driven by the cautious stance of firms (United Nations, 2024). For

[1] Badakhsh (2025) refers to my main thesis, The Impact of Country Uncertainty on Cross Border Mergers and Acquisitions, submitted at Università Commerciale Luigi Bocconi in April 2025

instance, the U.S. experienced a 40% drop in CBMAs and a 6% decrease in overall FDI inflows, corresponding to half of the average over past 10 years (United Nations, 2024).

Previous research along with identifying other factors impacting FDI flows, found economic policy uncertainty, financial market development, as well as geopolitical risk as important determinants of FDI flows. Nguyen and Lee (2021) show that FDI even in countries with more developed financial markets, which promotes FDI inflows, reacts negatively in the face of higher level of economic policy uncertainty. Moreover, Bussy and Zheng (2023) also studied the impact of geopolitical risk on foreign direct investment (FDI), showing a negative relationship between FDI and geopolitical risk.

Rising geopolitical uncertainties have led to a tightening of regulations related to foreign direct investment (FDI) across many economies. For instance, in December 2023, Sweden introduced the Foreign Direct Investment Review Act (Sw. lag (2023:560) om granskning av utländska direktinvesteringar), establishing a comprehensive screening framework for foreign investments in the country. This development reflects a broader trend of governments imposing greater control over foreign investments to safeguard national interests. Similarly, in March 2019, the European Union (EU) adopted its first common FDI screening framework, and over the past decade, advanced economies worldwide have increasingly strengthened their national investment screening mechanisms (Chan et al., 2022). These policy shifts suggest a growing prioritization of national security and strategic autonomy over liberal investment flows. Globerman and Shapiro (1999), in their analysis of Canadian policy changes, found that initiatives promoting trade liberalization, such as the FTA and NAFTA agreements, had a positive effect on FDI inflows. By inference, the recent proliferation of restrictive investment policies may have the opposite effect, potentially leading to a decline in FDI activity.

According to a report from KPMG (2024), the number of global trade restrictions, impacting supply chains and limiting market access for organizations that operate internationally, has increased threefold between 2019 and 2024. The report also highlighted that by 2023, a total of 91 nations were involved in some form of conflict, which showed a significant rise from the 58 that were engaged in 2008, highlighting the increased level of geopolitical instability around the globe. Furthermore, the report analyzed the impact of geopolitical risk on the performance of key sectors, which revealed that sectors like Energy and Natural Resources are the most

vulnerable to geopolitical disturbances, and Infrastructure and Financial Services came in the second and third place in terms of vulnerability (KPMG, 2024).

Consequently, this study, in addition to analyzing the overall impact of GPR on FDI, aims to examine how geopolitical uncertainties impact industry-level cross-border M&A, while investigating the differing responses of industries to this risk factor. This approach builds upon Caldara and Iacoviello's (2022) study, which argues that the aggregated geopolitical risks could have an uneven impact on various sectors of the economy. Caldara and Iacoviello (2022) suggest that industries such as precious metals, oil, and defence that are more exposed to geopolitical risk show a decline in investments as geopolitical risks rise, while sectors like shipping and transportation experience a positive impact.

Furthermore, the research conducted by Choudhury in 2025 delves into how expected geopolitical risks, such as various geopolitical actions and threats, influence various sectors in the United States, focusing on how each sector reacts based on its level of global exposure. Industries that depend on global markets, including technology, energy, and agriculture, face greater risks due to their reliance on imports and exports, whereas sectors that are more localized, such as utilities, experience less impact. Furthermore, industries like basic materials and energy are vulnerable to changes in global geopolitical risk, while the consumer goods and services sectors are not influenced by geopolitical act but they may be impacted by geopolitical threats. The findings reveal how differently U.S. industries react to geopolitical risks (Choudhury, 2025).

Despite the increasing focus on geopolitical risk (GPR), research investigating the response of different industries to this risk factor remains scarce. Nevertheless, some contemporary research provides evidence for specific industries, as studied by Shen et al. (2021), who found a positive reaction in M&A activity in the Chinese energy sector to heightened GPR levels. On the contrary, findings by Omura et al. (2023) indicate that the GPR level in Australia has a negative impact on investments within the metal, mining, and energy sectors, attributing this reaction to these industries' need for heavy infrastructure investments as well as their dependence on international trade and supply chains.

Hence, this research seeks to fill the gap in literature by providing evidence on the impact of geopolitical risk (GPR) on foreign direct investment (FDI) flows, as well as its effect on industry-level cross-border mergers and acquisitions.

2. Literature Review

2.1 Impact of Geopolitical Risk on FDI

Yu and Wang (2023), using the geopolitical risk index introduced by Caldara and Iacoviello (2022), demonstrated that the geopolitical risk of a host country has a negative impact on foreign direct investment inflows into that country. This means that an increased GPR index can significantly obstruct FDI from investors (Yu and Wang, 2023). Goswami (2014) analyzed 146 countries worldwide and found that cultural conflicts, as well as countries' attitudes toward each other, play a significant role in the flow of FDI between nations, with deteriorating relationships deterring FDI flows. Bussy and Zheng (2023) indicated a negative correlation between rising geopolitical risk in the target country and the number of foreign direct investment (FDI) inflows into the country.

While nations with advanced financial markets are generally able to attract greater foreign direct investment (FDI) inflows, elevated levels of domestic economic policy uncertainty continue to serve as a significant deterrent to investment, as evidenced by Nguyen et al. (2021). Additionally, Nguyen et al. (2022) highlights the negative impact of GPR on FDI when analyzing eighteen developing nations. Kapopoulos et al. (2024) and Fania et al. (2020) also identified a negative relationship between foreign direct investment (FDI) and heightened levels of geopolitical risk (GPR).

2.2 Impact of Geopolitical Risk on Industries

Geopolitical uncertainty as a risk factor has become an increasingly significant factor influencing global financial markets, corporate decision-making, and investment strategies. Some industries, such as defense and petroleum, are particularly sensitive to geopolitical tensions, with firms in these sectors experiencing greater exposure to risk fluctuations. Table

A1[2] shows the exposure of various industries to changes in GPR level, retrieved from Caldara and Iacoviello's (2022) study.

For instance, petroleum companies have historically been vulnerable to fluctuations in geopolitical stability in the Middle East, while the airline industry continues to be affected by the threat of terrorist attacks following the events of 9/11 (Caldara and Iacoviello, 2022). In addition, Caldara and Iacoviello (2022) suggest that industries such as precious metals, and defense are generally negatively affected by rising geopolitical risk, while industries like shipping, and consumers may exhibit positive exposure.

Furthermore, Shen et al. (2021) provide an example of how the GPR index affects merger and acquisition activities in China's electric power market, concluding that a higher GPR is conducive to an increase in mergers within the industry. The researchers indicate that organizations consider their merger opportunities during times of instability by utilizing the real options theory. Trigeorgis (1996) argues that, from the perspective of real options theory, the value of an investment increases with higher levels of uncertainty, as it enhances the potential for future growth. Hence, elevated uncertainty may lead to greater investment due to the growth opportunities it presents.

According to an IMF report, increased geopolitical conflicts among nations, particularly between the United States and China, result in financial fragmentation, which restricts cross-border investment and threatens the stability of the international financial system. (Catalàn et, al., 2023). The financial sector is experiencing challenges from both direct financial disturbances, like elevated debt rollover risks and lower asset valuations, and indirect economic effects, including inflationary trends and supply chain issues, which ultimately weaken the profitability and risk-taking abilities of banks, particularly in developing regions. (Catalàn et al., 2023).

In their research, Rao et al. (2015) examined how the financial crisis of 2008 affected cross-border mergers and acquisitions across different industries and continents and found that both the number and value of these transactions decreased significantly after the crisis. According

[2] Table A1 is presented in the appendix section of the study.

to Rao et al. (2015), sectors such as manufacturing experienced a decline in cross-border mergers and acquisitions, while the service sector experienced a rise in such activities. On the other hand, the research by Coeurdacier et al. (2009) revealed that the volume of cross-border mergers and acquisitions increased sharply, influenced by financial liberalization, government initiatives, and regional collaborations. Nonetheless, the study also highlighted that the level of protection and entry barriers in the services industry present major challenges to cross-border mergers and acquisitions in this sector.

This research aims to initially provide evidence for the influence of GPR on FDI and subsequently explore how various industries respond differently to heightened levels of GPR in a country. Furthermore, the study intends to investigate cross-border mergers and acquisitions in greater detail by first analyzing the impact of GPR in the target country on inbound cross-border mergers and acquisitions across all industries, and then narrowing down the focus to study how GPR affects cross-border mergers and acquisitions between various countries within each industry.

3. Data

3.1 Cross-Border Mergers and Acquisitions Industry-Level Data

The data for analyzing cross-border mergers and acquisitions at the industry level utilizes the original dataset described in Badakhsh (2025), covering 34 countries and 22 years, from 2001 to 2022. However, for the industry-level analysis, the original data set on M&A data is categorized into 10 sectors following the two-digit Standard Industrial Classification (SIC) code.

3.2 FDI Data

The data regarding the foreign direct investment (FDI) is retrieved from the International Monetary Fund (IMF), covering 34 countries, similar to the cross-border mergers and acquisitions data; however, limited to a shorter time period, covering 14 years from 2009 to 2022, due to data availability constraints. The FDI data is broken down into different investment instruments; as such, in this study, I analyze both equity and debt instruments and the totality of FDI inflows. Equity positions in the FDI data refer to investments made through

equity contributions, reinvested earnings, revaluation of equity positions, and reverse accounts. On the other hand, the debt positions include investments made through debt securities such as loans, deposits, trade credits, and financial leases. It is important to note that changes in FDI positions may result from new transactions and valuation adjustments. One limitation of the dataset is that it does not allow filtering for cases where ownership crosses the 10% threshold during the year, an event that qualifies as FDI. Due to data constraints, such adjustments could not be made in this analysis. Future research should account for this limitation when more detailed ownership transaction data is available.

3.3 Control Variables

To support the empirical analysis, macroeconomic indicators such as exchange rates, GDP growth, corporate tax rates, interest rates, and bilateral trade were collected from Datastream, the World Development Indicators, the OECD, and the UN Comtrade database. Cultural, religious, and linguistic factors, along with geographical proximity, were sourced from Stulz and Williamson (2003) and mapsofworld.com. Stock market return indices were retrieved from Datastream. A more detailed description of the data is provided in Badakhsh (2025).

Table I. Sample Distribution by Industry

Year	Agriculture, Forestry, Fishing	Construction	Finance, Insurance, Real Estate	Manufacturing	Mining	Public Administration	Retail Trade	Services	Transportation & Public	Wholesale Trade	Total
2001	40	113	962	1,567	298	11	300	1,861	716	304	6,172
2002	33	105	1,090	1,517	321	8	266	1,472	624	310	5,746
2003	40	116	1,252	1,611	328	7	285	1,488	699	339	6,165
2004	49	100	1,373	1,794	451	9	321	1,817	730	320	6,964
2005	47	129	1,495	1,695	513	11	376	2,250	772	377	7,665
2006	48	148	1,740	1,957	678	12	368	2,393	827	415	8,586
2007	93	180	2,019	2,195	961	17	396	2,521	811	539	9,732
2008	58	145	1,420	1,918	844	19	307	2,000	719	480	7,910
2009	69	113	1,293	1,432	887	14	262	1,380	542	359	6,351
2010	74	151	1,646	1,672	1,051	15	268	1,657	724	511	7,769
2011	90	137	1,690	1,854	940	11	327	1,765	720	589	8,123
2012	80	146	1,647	1,640	748	15	273	1,627	690	544	7,410
2013	64	129	1,906	1,542	571	9	255	1,617	693	490	7,276
2014	85	165	2,104	1,794	531	13	309	1,997	791	552	8,341
2015	89	172	2,215	1,944	399	16	326	2,352	853	586	8,952
2016	90	192	2,321	1,854	394	11	363	2,074	814	643	8,756
2017	80	193	2,544	1,800	342	10	363	2,223	827	625	9,007
2018	96	189	2,257	1,819	331	9	348	2,244	835	648	8,776
2019	90	162	2,203	1,463	240	9	314	2,080	749	561	7,871
2020	86	180	1,862	1,444	265	9	256	1,990	721	430	7,243
2021	91	242	2,056	1,819	312	10	335	2,840	905	569	9,179
2022	95	176	1,646	1,534	282	11	250	2,199	678	477	7,348
Total	**1,587**	**3,383**	**38,741**	**37,865**	**11,687**	**256**	**6,868**	**43,847**	**16,440**	**10,668**	**171,342**
SIC %	**0.93%**	**1.97%**	**22.61%**	**22.10%**	**6.82%**	**0.15%**	**4.01%**	**25.59%**	**9.59%**	**6.23%**	**100.00%**

[1]SIC: Standard Industrial Classification.

M&As are occurring actively in various industries, including (Agriculture, Forestry, Fishing), Construction, (Finance, Insurance, Real Estate), Mining, Manufacturing, and Services. Services, Manufacturing, (Finance, Insurance, and Real Estate) are among the sectors that experienced a large number of deals during the period studied. The Services sector accounts for more than 25 % of the total number of transactions, while Manufacturing and (Finance, Insurance, and Real Estate) sectors account for more than 22 % of the total number of transactions respectively. Additionally, as shown in Table II, the Services, (Finance, Insurance, and Real Estate), Mining and Manufacturing are the sectors that have experienced the most fluctuations over the period of study, as indicated by their standard deviations.

Table II. Descriptive Statistics by Industry

Industry	Obs.	Mean	Median	SD	Min	Max
Agriculture, Forestry, Fishing	1,587	72	80	21	33	96
Construction	3,383	154	150	35	100	242
Finance, Insurance, Real Estate	38,741	1,761	1,715	427	962	2,544
Manufacturing	37,865	1,721	1,745	198	1,432	2,195
Mining	11,687	531	425	262	240	1,051
Public Administration	256	12	11	3	7	19
Retail Trade	6,868	312	312	44	250	396
Services	43,847	1,993	1,999	373	1,380	2,840
Transportation & Public Utilities	16,440	747	727	82	542	905
Wholesale Trade	10,668	485	501	112	304	648

4. Hypothesis Development

This section describes two main hypotheses based on the findings of prior empirical literature and contextual developments highlighted in the introduction and literature review. It

investigates the impact of geopolitical risk (GPR) on foreign direct investment (FDI) and the impact of GPR on ten different industries across 34 countries.

4.1 Geopolitical Risk and FDI Inflows

Empirical evidence provided by Yu and Wang (2023), Nguyen et al. (2021), and Kapopoulos et al. (2024) indicate that an increased level of GPR in a country reduces the attractiveness of that country to foreign investors and consequently is associated with a lower level of FDI inflows. These findings are also consistent with theories of risk aversion and investment under uncertainty, which implies delaying and canceling investments in periods of high levels of uncertainty. Additionally, the increased level of GPR has also recently induced changes in the regulatory realm, with countries imposing more monitoring tools to control the flow of investment from other nations. This phenomenon will undoubtedly have an impact on the flow of investments from foreign nations. An example of this could be the recently implemented regulations in Sweden, which more closely monitor investments crossing borders to the Swedish market, with more criteria and requirements imposed on sectors with the potential to cause threats to national security. Hence, to provide empirical evidence, H1 tests the impact of GPR on FDI flows, with the expectation of a negative relationship based on prior literature.

H1: *Higher geopolitical risk (GPR) in a target country is associated with lower foreign direct investment (FDI) inflows.*

4.2Geopolitical Risk and Industry-Level CBMA

Caldara and Iacoviello (2022) and Choudhury (2025) provide heterogeneous findings regarding the impact of geopolitical risk across different sectors. Their findings indicate that industries such as energy, metals, and defense are susceptible to geopolitical events, whereas utilities and localized services are more resilient. Additionally, Shen et al. (2021) identified a positive relationship between increased mergers and acquisitions and heightened levels of GPR in the Chinese energy sector. Omura et al. (2023), when investigating the reaction of capital expenditure to increase the GPR level in the Australian market, established a negative relationship between GPR and capital expenditure in the mining and metal sectors. Hence, based on the previous literature, it seems that GPR's impact across industries might vary, which will be investigated in this study through the following hypothesis.

H2: *The negative impact of geopolitical risk (GPR) on cross-border M&A varies by industry.*

5. Regression Analysis

The empirical analysis is designed following the methodology of Badakhsh (2025) to examine the impact of GPR on foreign direct investment (FDI) and industry-level cross-border mergers and acquisitions.

Equation (1) is constructed to test H1 by taking the relative difference between the acquiring nation's variables and the target nation's variables, thereby examining how relative changes in these variables impact FDI flows from the acquiring nation to the target nation.

$$\mathrm{FDI}_{i,j,t} = \beta_0 + \beta_1 \cdot \mathrm{Diff_GPR}_{i,j,t} + \lambda_k X_{i,j,t} + \theta_k C_{i,j,t} + \epsilon_{i,j,t} \quad (1)$$

The independent variable $\mathrm{FDI}_{i,j,t}$ in the regression model (1) is constructed in a similar way to the CBMA ratio used in Badakhsh (2025). Specifically, it is calculated as the share of FDI inflows from a particular country (i) to the target country (j) in year t, relative to the total FDI inflows received by the target country (j) from all countries in the same year. This variable not only reflects the proportion of FDI coming from each acquiring country but also captures the intensity of investment relationships between the acquiring and target country. $\mathrm{Diff_GPR}_{i,j,t}$ represents the difference in GPR index between the acquiring and target country, which is the main variable investigated in this study.

$C_{i,j,t}$ denotes a vector of differences in country-specific control variables between the acquirer and the target, including cultural factors such as language and religion, as well as geographical distance. $X_{i,j,t}$ represents the difference in country-level economic factors. Factors included in $X_{i,j,t}$ are interest rates, which indicate the cost of capital; GDP growth rate, which specifies the economic growth of countries; stock market performance, which reflects market valuation; currency exchange rates; bilateral trade (import and export) volumes, which indicate the economic relationship between countries; and tax rates, which represent the fiscal incentives or disincentives for investment.

$$\text{Industry CBMA Ratio}_{j,t} = \beta_0 + \beta_1 \cdot \text{GPR}_{j,t} + \lambda_k X_{j,t} + \epsilon_{j,t} \quad (2)$$

Equation (2) is constructed to test H2, aiming to investigate the impact of GPR on industry-level CBMA across ten industries. The variable $\text{Industry CBMA Ratio}_{j,t}$ in equation (2) is defined as the share of cross-border M&A deals in a given industry relative to the total number of both cross-border and domestic M&A deals within the same industry and year. Equation (2) is constructed to investigate how changes in the target nation affect the overall number of deals flowing into the country, regardless of the origin of the deal. Consequently, the independent variables include only the target nation's variables, making it appropriate for empirically examining the impact of GPR on inbound transactions.

$$\text{IndustryCBMA Ratio}_{i,j,t} = \beta_0 + \beta_1 \cdot \text{Diff_GPR}_{i,j,t} + \theta_k C_{i,j,t} + \lambda_k X_{i,j,t} + \epsilon_{i,j,t} \quad (3)$$

The variable $\text{IndustryCBMA Ratio}_{i,j,t}$ in equation (3) is defined as the share of cross-border M&A deals in a given industry originating from a specific country (among the 33 countries included in the study) relative to the total number of both cross-border (from the same acquiring country) and domestic—within that industry and year. The independent variable $\text{Diff_GPR}_{i,j,t}$ is defined as the difference between the geopolitical risk index of the acquirer and the target countries. As such, Equation (3) is constructed to investigate the impact of GPR at a more detailed level by accounting for the relative differences in variables between countries, while also allowing for both inbound and outbound transactions. This approach provides evidence on how GPR influences deal flows between nations.

6. Results

6.1 FDI Analysis

The results for the impact of the GPR index on the FDI inflows are presented in Tables III, IV, and V. Table III focuses on the total FDI inflow in each year sourcing from each of the 33 countries flowing into the target country, while Table IV only focuses on equity instruments and table V debt instruments. The analysis provides empirical results regarding the first hypothesis, while testing the hypothesis for the total FDI inflow as well as equity and debt instruments investments.

H1: *Higher geopolitical risk (GPR) in a target country is associated with lower foreign direct investment (FDI) inflows*

$$\mathrm{FDI}_{i,j,t} = \beta_0 + \beta_1 \cdot \mathrm{Diff_GPR}_{i,j,t} + \theta_k \mathrm{C}_{i,j,t} + \epsilon_{i,j,t} \quad (1)$$

Table III: Impact of Geopolitical Risk Index (GPR) on FDI (Inward Direct Investment Positions)

Table III presents the results of the regression analysis based on Equation (1), showing the impact of the GPR index on total FDI across country pairs over a 14-year period. A positive coefficient for Diff_GPR implies a negative impact on FDI, as Diff_GPR represents the difference between the acquiring nation's and the target nation's GPR. When the target country's GPR is relatively high, Diff_GPR becomes negative, and when multiplied by a positive coefficient, this results in a negative effect on FDI.

	Dependent Variable
	$\mathrm{FDI}_{i,j,t}$
$\mathrm{Diff_GPR}_{i,j,t}$	0.008***
	(0.001)
$\mathrm{Tax_rate}_{i,j,t}$	0.014***
	(0.004)
$\mathrm{Interest\ Rate}_{i,j,t}$	-0.143***
	(0.009)
$\mathrm{GDP_growth}_{i,j,t}$	-0.197***
	(0.012)
$\mathrm{Currency}_{i,j,t}$	0.001
	(0.003)
$\mathrm{Max\ (Import, Export)}_{i,j,t}$	0.541***
	(0.025)
$\mathrm{Stock\ Market\ Return}_{i,j,t}$	0.008***
	(0.002)
$\mathrm{Language}_{i,j,t}$	0.020***
	(0.004)
$\mathrm{Religion}_{i,j,t}$	0.016***
	(0.001)
$\mathrm{Log(distance)}_{i,j,t}$	-0.004***
	(0.001)
Constant	0.040
	(0.006)
Observations	14,466
R^2	0.346
Adjusted R^2	0.346
Note:	*p**p***p<0.01

Table III presents the results of the regression analysis examining the impact of GPR on the total FDI inflow into a target country (Inward Direct Investment). The results indicate that the

coefficient of the difference in GPR level between the acquirer and the target country is positive (0.008) and statistically significant at 1% level, indicating that a higher GPR level in the target country is associated with reduced FDI inflows into that country. The positive coefficient in table III implies a negative effect because the variable, $\text{Diff_GPR}_{i,j,t}$, is the difference between the GPR level of the acquirer country and that of the target country; thus, when the target country has a higher GPR value than the acquirer, $\text{Diff_GPR}_{i,j,t}$ will become negative, and multiplying it by the positive coefficient from the regression model results in a negative impact on $\text{FDI}_{i,j,t}$.

The results obtained for the total FDI inflow are consistent with the findings of previous literature. Empirical evidence provided by Yu and Wang (2023), Nguyen et al. (2021), and Kapopoulos et al. (2024) indicate that an increased level of GPR in a country reduces the attractiveness of that country to foreign investors and consequently is associated with a lower level of FDI inflows. These findings are also consistent with theories of risk aversion and investment under uncertainty, which implies delaying and canceling investments in periods of high levels of uncertainty.

Table IV: Impact of Geopolitical Risk Index (GPR) on FDI (Inward Equity Instrument Positions)

Table IV presents the results of the regression analysis based on Equation (1), showing the impact of the GPR index on equity-based FDI across country pairs over a 14-year period. A positive coefficient for Diff_GPR implies a negative impact on FDI, as Diff_GPR represents the difference between the acquiring nation's and the target nation's GPR. When the target country's GPR is relatively high, Diff_GPR becomes negative, and when multiplied by a positive coefficient, this results in a negative effect on FDI.

	Dependent Variable
	$\text{FDI}_{i,j,t}$
$\text{Diff_GPR}_{i,j,t}$	0.009***
	(0.001)
$\text{Tax_rate}_{i,j,t}$	0.015***
	(0.004)
$\text{Interest Rate}_{i,j,t}$	-0.137***
	(0.009)
$\text{GDP_growth}_{i,j,t}$	-0.202***
	(0.012)
$\text{Currency}_{i,j,t}$	0.004
	(0.003)
$\text{Max (Import, Export)}_{i,j,t}$	0.584***

	(0.025)
Stock Market $Return_{i,j,t}$	0.008***
	(0.002)
$Language_{i,j,t}$	0.021***
	(0.004)
$Religion_{i,j,t}$	0.015***
	(0.001)
$Log(distance)_{i,j,t}$	-0.004***
	(0.001)
Constant	0.037***
	(0.006)
Observations	14,499
R^2	0.369
Adjusted R^2	0.369
Note:	*p**p***p<0.01

Consistent with the results presented in Table III, FDI investments through equity instruments show significant coefficient at 1% level with a value of 0.009, implying that increased level of GPR in the target country leads to lower level of FDI inflows through equity investments in the target economy. Interestingly, the impact in terms of coefficient for equity investments is more pronounced than that of the total FDI investments.

Table V: Impact of Geopolitical Risk Index (GPR) on FDI (Inward Debt Instrument Positions)

Table V presents the results of the regression analysis based on Equation (1), showing the impact of the GPR index on debt-based FDI across country pairs over a 14-year period. A positive coefficient for Diff_GPR implies a negative impact on FDI, as Diff_GPR represents the difference between the acquiring nation's and the target nation's GPR. When the target country's GPR is relatively high, Diff_GPR becomes negative, and when multiplied by a positive coefficient, this results in a negative effect on FDI.

	Dependent Variable
	$FDI_{i,j,t}$
$Diff_GPR_{i,j,t}$	-0.020*
	(0.001)
$Tax_rate_{i,j,t}$	-0.127
	(0.004)
Interest $Rate_{i,j,t}$	-0.142
	(0.009)
$GDP_growth_{i,j,t}$	-0.282
	(0.012)
$Currency_{i,j,t}$	0.051
	(0.003)
Max $(Import, Export)_{i,j,t}$	0.238

	(0.025)
Stock Market $Return_{i,j,t}$	0.011
	(0.002)
$Language_{i,j,t}$	0.015
	(0.004)
$Religion_{i,j,t}$	0.0002
	(0.001)
$Log(distance)_{i,j,t}$	-0.039***
	(0.001)
Constant	0.360
	(0.006)
Observations	14,505
R^2	0.003
Adjusted R^2	0.002
Note:	*p**p***p <0.01

Results obtained for FDI investments through debt instruments (Table V) are shown to be significant at the 10% level, with a coefficient value of -0.02. However, the sign of the coefficient changes compared to the results for equity investment and total FDI inflows. The results indicate that an increased level of GPR in the target economy compared to that of the acquiring economy has a positive impact on the amount of FDI (debt instruments) from an acquiring economy as a percentage of total FDI inflows (debt instruments). This result is interesting, as debt instruments are characterized by a different risk and return profile than equity instruments. Additionally, it is worth noting that, in the case of debt instruments, the coefficients for other control variables become insignificant, implying that the model does not adequately capture the dynamics influencing the inflow of FDI through debt instruments. This appears to be a valuable finding for future research to further explore the determinants of FDI through debt instruments.

6.2 Industry Level CBMA Analysis

6.2.1 Industry Level Inbound CBMA Analysis

H2: *The negative impact of geopolitical risk (GPR) on cross-border M&A varies by industry.*

Table VI presents the impact of GPR on inbound cross-border mergers and acquisitions across ten different industries.

The results indicate that the coefficient of GPR is consistently negative and statistically significant at the 1% level for all the industries included in the study, with (Agriculture, Forestry, Fishing), Mining, Retail Trade, and Construction, having the highest negative coefficient. This suggests that cross-border mergers and acquisitions in these industries are highly sensitive to the changes in the geopolitical risk level of the target country. In contrast, sectors such as (Finance, Insurance, Real Estate), Services, Manufacturing, and Wholesale Trade show the least reaction to increased levels of GPR.

Nevertheless, a significant finding from the analysis is that all industries consistently react negatively to increased GPR in the target country, indicating that, regardless of the industry, cross-border mergers and acquisitions exhibit a deterrent effect when geopolitical risk rises.

These results are consistent with previous literature, which indicates a heterogeneous reaction to increased levels of GPR across different sectors. Caldara and Iacoviello (2022) and Choudhury (2025) presented evidence of varying impacts of geopolitical risk across sectors. Their findings indicate that industries such as energy, metals, and defense are particularly susceptible to geopolitical events, whereas utilities and localized services tend to be more resilient. Omura et al. (2023), in their investigation of capital expenditure responses to increased GPR in the Australian market, also found a negative relationship between GPR and capital expenditure in the mining and metal sectors.

$$\text{Industry CBMA Ratio}_{j,t} = \beta_0 + \beta_1 \cdot \text{GPR}_{j,t} + \lambda_k X_{j,t} + \epsilon_{j,t} \quad (2)$$

Table VI: Impact of Geopolitical Risk Index (GPR) on Inbound CBMA Ratio for Different Industries

Table VI presents the results of the regression analysis based on Equation (2), showing the impact of the GPR index on industry-level inbound cross-border mergers and acquisitions (CBMA) involving deals originating from 33 countries over a 22-year period. Industries are ordered from left to right based on the severity of their negative response to increases in the GPR index.

	Agriculture, Forestry, Fishing	Mining	Retail Trade	Construction	Transportation & Utilities	Public Administration	Wholesale Trade	Manufacturing	Finance, Insurance, Real Estate	Services
						$CBMA_{j,t}$				
$GPR_{j,t}$	-0.217***	-0.197***	-0.163***	-0.141***	-0.131***	-0.117***	-0.102***	-0.098***	-0.096***	-0.095***
	(0.022)	(0.014)	(0.015)	(0.016)	(0.013)	(0.042)	(0.012)	(0.010)	(0.009)	(0.010)
$Tax_rate_{j,t}$	0.423	1.099***	0.116	-0.272	0.234	-0.033	-0.223	-0.149	0.093	-0.338**
	(0.363)	(0.246)	(0.212)	(0.274)	(0.159)	(0.558)	(0.171)	(0.128)	(0.123)	(0.132)
$\text{Interest Rate}_{j,t}$	-0.080	-0.254	1.083***	1.042	-0.429	-0.068	-0.033	-0.262	0.139	0.139
	(0.611)	(0.267)	(0.335)	(0.640)	(0.357)	(1.789)	(0.285)	(0.189)	(0.213)	(0.268)
$GDP_growth_{j,t}$	-2.320***	-1.420***	-0.531	-1.947***	-1.120***	-0.640	-0.986**	-0.969***	-0.076	-0.426
	(0.732)	(0.387)	(0.389)	(0.566)	(0.340)	(1.348)	(0.394)	(0.288)	(0.255)	(0.285)
$Currency_{j,t}$	0.179	-0.023	-0.223	-0.442**	0.019	0.618	0.036	-0.094	-0.174**	-0.117
	(0.225)	(0.123)	(0.151)	(0.213)	(0.099)	(0.394)	(0.113)	(0.081)	(0.087)	(0.085)
$\text{Stock Market Return}_{j,t}$	0.039	0.092*	0.102	0.039	0.137***	0.457***	-0.044	0.003	-0.020	0.052
	(0.087)	(0.053)	(0.063)	(0.090)	(0.043)	(0.074)	(0.051)	(0.039)	(0.039)	(0.043)
Constant	0.682***	0.450***	0.486***	0.678***	0.450***	0.749***	0.646***	0.598***	0.364***	0.554***
	(0.089)	(0.067)	(0.054)	(0.066)	(0.041)	(0.112)	(0.045)	(0.033)	(0.030)	(0.034)
Observations	189	434	431	288	612	41	548	708	682	686
R^2	0.27	0.20	0.14	0.16	0.10	0.43	0.07	0.07	0.05	0.07
Adjusted R^2	0.24	0.19	0.13	0.15	0.09	0.33	0.06	0.06	0.04	0.06
Note:						*p**p***p <0.01				

6.2.2 CBMA Industry Level Analysis

Table VII presents the results of industry-level CBMA analysis for inbound and outbound transactions between country pairs for each industry. The results obtained show that the coefficients associated with the GPR index for the CBMA ratio in each sector are positive, reflecting a negative influence on the number of cross-border mergers and acquisitions. On the other hand, analyzing the size of the coefficients shows that some sectors have larger GPR index coefficients compared to others, suggesting that their vulnerability to changes in GPR levels differs. It must be noted that the reported results show the coefficient of the GPR as positive due to the construction of the variables, which takes the difference between the values of the acquirer and the value of the target nation. Therefore, in the case of Diff_GPR, if the GPR level of the acquiring nation is lower than that of the target, the Diff_GPR will yield a negative value, and when multiplied by a positive coefficient, the impact on the Industry CBMA ratio will be negative. Hence, positive coefficients imply that a relatively high GPR in the target country will have a negative impact on the cross-border ratio for a specific industry.

The GPR index coefficient for the (Agriculture, Forestry, and Fishing) sector stands at the highest value of 0.12, demonstrating a 1% level of statistical significance. This indicates that fluctuations in the GPR level within the target nation significantly influence the volume of cross-border mergers and acquisitions in these industries. The findings align with Choudhury's (2025) research, which indicates that sectors such as technology, energy, and agriculture, heavily dependent on international trade, are significantly affected by geopolitical uncertainties in the respective nation.

Additionally, the regression analysis reveals that the GPR index coefficient for the CBMA ratio within the Mining sector is positive at 0.11 and holds statistical significance at the 1% level. This implies that variations in the levels of geopolitical risk in the target country greatly influence the mining industry. The results of this study support the findings of Omura et al. (2023), who found that geopolitical risks adversely influence investment decisions in the metal, mining, and energy sectors. Additionally, the results for the (Finance, Insurance, and Real Estate) sectors are also in line with the conclusions of a report released by the IMF in 2023, which highlights that heightened geopolitical risks due to tensions between nations impact

cross-border investments, thereby affecting the financial sector through both direct and indirect influences (IMF, 2023).

Furthermore, the (Finance, Insurance, Real Estate), and Services sectors show the least reaction to increased levels of GPR. Nevertheless, a significant result obtained from the analysis is that all industries consistently react negatively to increased GPR in the target country, indicating that regardless of the industry, cross-border mergers and acquisitions show a deterrent effect when a country's geopolitical risk rises. These results are also consistent with the findings of the inbound regression in the previous section.

Across nearly all industries, the R-squared values are significantly high, ranging from 12% to 46%, reflecting that the independent variables have a strong explanatory power to predict the dependent variable—the industry cross-border merger and acquisition ratio (IndustryCBMA ratio)—in the regression analysis.

$$\text{IndustryCBMA Ratio}_{i,j,t} = \beta_0 + \beta_1 \cdot \text{Diff_GPR}_{i,j,t} + \theta_k C_{i,j,t} + \lambda_k X_{i,j,t} + \epsilon_{i,j,t} \quad (3)$$

Table VII: Impact of Geopolitical Risk Index (GPR) on CBMA Ratio for Different Industries

Table VII presents the results of the regression analysis based on Equation (3), showing the impact of the GPR index on industry-level inbound and outbound cross-border mergers and acquisitions (CBMA) across country pairs and industries over a 22-year period. Industries are arranged from left to right according to the severity of their negative response to increases in the GPR index. A positive coefficient for Diff_GPR implies a negative impact on CBMA, as Diff_GPR represents the difference between the acquiring nation's and the target nation's GPR. When the target country's GPR is relatively high, Diff_GPR becomes negative, and when multiplied by a positive coefficient, this results in a negative effect on CBMA.

	Agriculture, Forestry	Mining	Public Administration	Construction	Wholesale Trade	Retail Trade	Manufacturing	Transportation	Service	Finance, Insurance.
						$CBMA_{i,j,t}$				
$\text{Diff_GPR}_{i,j,t}$	0.120***	0.111***	0.097***	0.084***	0.068***	0.068***	0.054***	0.046***	0.042***	0.031***
	(0.016)	(0.007)	(0.027)	(0.010)	(0.004)	(0.006)	(0.002)	(0.003)	(0.002)	(0.002)
$\text{Tax_rate}_{i,j,t}$	0.118	-1.035***	0.946*	0.448**	0.188**	0.290**	0.105***	0.061	0.227***	0.022
	(0.248)	(0.110)	(0.518)	(0.186)	(0.078)	(0.113)	(0.031)	(0.060)	(0.036)	(0.031)
$\text{Interest Rate}_{i,j,t}$	-0.160	-0.153	1.284	-0.953	-0.504***	-1.509***	0.043	0.059	-0.223	-0.377***
	(0.487)	(0.196)	(1.772)	(0.630)	(0.185)	(0.289)	(0.065)	(0.177)	(0.139)	(0.093)
$\text{GDP_growth}_{i,j,t}$	2.902***	0.381	0.493	2.187***	1.403***	1.032***	0.702***	0.443**	0.027	-0.175*
	(0.604)	(0.240)	(1.315)	(0.495)	(0.207)	(0.245)	(0.076)	(0.198)	(0.097)	(0.097)
$\text{Currency}_{i,j,t}$	0.047	0.000	0.328	0.151	-0.013	0.126	0.053***	0.020	0.023	0.068***
	(0.126)	(0.067)	(0.331)	(0.125)	(0.056)	(0.082)	(0.020)	(0.043)	(0.026)	(0.025)
$\text{Max (Import, Export)}_{i,j,t}$	-0.709***	-0.191***	-0.552	-0.616***	-0.210***	-0.419***	0.062*	0.026	0.077*	0.059
	(0.169)	(0.063)	(0.377)	(0.116)	(0.067)	(0.081)	(0.037)	(0.056)	(0.042)	(0.045)
$\text{Stock Market Return}_{i,j,t}$	-0.101	-0.079**	-0.174	-0.191*	-0.090***	-0.256***	-0.075***	-0.152***	-0.052***	-0.079***
	(0.105)	(0.038)	(0.278)	(0.100)	(0.034)	(0.054)	(0.015)	(0.031)	(0.019)	(0.021)
ghphlöObservations	256	1180	41	468	1574	909	4304	1913	3497	2869
R^2	0.33	0.31	0.46	0.25	0.21	0.25	0.18	0.12	0.17	0.14
Adjusted R^2	0.30	0.30	0.28	0.23	0.20	0.25	0.18	0.11	0.17	0.14
Note:						*p**p***p <0.01				

	Agriculture, Forestry	Mining	Public Administration	Construction	Wholesale Trade	Retail Trade	Manufacturing	Transportation	Service	Finance, Insurance.
						$CBMA_{i,j,t}$				
	(0.105)	(0.038)	(0.278)	(0.100)	(0.034)	(0.054)	(0.015)	(0.031)	(0.019)	(0.021)
$Language_{i,j,t}$	-0.093*	-0.227***	-0.191	-0.034	-0.047**	-0.033	0.042***	-0.003	0.050***	0.021
	(0.055)	(0.022)	(0.140)	(0.043)	(0.023)	(0.033)	(0.015)	(0.021)	(0.016)	(0.015)
$Religion_{i,j,t}$	0.016	0.105***	-0.114	-0.026	0.018	-0.004	0.020***	0.029**	0.020***	0.021***
	(0.048)	(0.021)	(0.157)	(0.033)	(0.016)	(0.022)	(0.007)	(0.012)	(0.007)	(0.007)
$Log(distance)_{i,j,t}$	-0.114***	-0.115***	-0.052	-0.087***	-0.079***	-0.104***	-0.025***	-0.033***	-0.031***	-0.032***
	(0.021)	(0.012)	(0.058)	(0.015)	(0.007)	(0.010)	(0.003)	(0.006)	(0.003)	(0.003)
Constant	1.575***	1.321***	1.267**	1.197***	0.968***	1.192***	0.369***	0.472***	0.390***	0.377***
	(0.181)	(0.108)	(0.504)	(0.129)	(0.064)	(0.088)	(0.027)	(0.048)	(0.027)	(0.027)
Observations	256	1180	41	468	1574	909	4304	1913	3497	2869
R^2	0.33	0.31	0.46	0.25	0.21	0.25	0.18	0.12	0.17	0.14
Adjusted R^2	0.30	0.30	0.28	0.23	0.20	0.25	0.18	0.11	0.17	0.14
Note:						*p**p***p <0.01				

7. Conclusion

This study serves as an extension to the findings of Badakhsh (2025), which focused on the impact of GPR index on cross-border mergers and acquisitions. Consequently, this study provides evidence for the reaction of different modes of FDI, including equity and debt instrument, as well as industry-level CBMA to the heightened levels of geopolitical risk, which is characterized by trade tensions, military conflicts and increasing regulatory scrutiny, affecting the global investment flows.

The empirical analysis presented in this study confirmed the first hypothesis that increased levels of GPR in a target country negatively impacted FDI inflows. More specifically, an elevated level of GPR in the target country relative to the acquiring country is associated with reduced levels of FDI inflows. The results for the equity investment seem to be more pronounced compared to the total direct investments. The findings are in line with the existing literature, for instance research conducted by Yu and Wang, 2023; Nguyen et al., 2021; and Kapopoulos et al., 2024. The authors found that an increased level of GPR serves as a deterrent to long-term and strategic investments.

Nevertheless, an intriguing deviation from this pattern was observed in the case of FDI through debt instruments, which showed a positive reaction to increased GPR. This result suggests that in the presence of increased GPR in the target country, the target country might still experience an increased level of FDI through debt instruments. However, the model's explanatory power for debt-based FDI was not significant with most of the variables losing significance. Hence, this suggests that the model in this study does not provide valuable insights regarding debt-based FDI investments, therefore, it could be an avenue for further research.

At the industry level CBMA, the empirical results revealed that all sectors are negatively impacted by increased levels of geopolitical risk in the target country. This consistent negative relationship across sectors highlights that GPR serves as a systemic risk factor, deterring international investment regardless of the sector. However, the degree of reaction

differed across industries, providing support for Hypothesis 2, which proposed heterogeneous industry responses to GPR.

Industries such as (Agriculture, Forestry, and Fishing) and Mining experienced the strongest negative responses, as indicated by the largest coefficients in the IndustryCBMAratio regressions. These findings align with studies such as Omura et al. (2023) and Choudhury (2025), who note that sectors heavily reliant on international trade and global supply chains are particularly exposed to geopolitical disruptions. Conversely, sectors such as (Finance, Insurance, and Real Estate), Services, and (Transportation & Utilities) demonstrated more muted reactions, potentially due to their more localized nature or greater regulatory and operational resilience.

Additionally, it is noteworthy that the impact of GPR appears more pronounced in the inbound CBMA analysis compared to the country-pair CBMA analysis, which includes both inbound and outbound deals. In the inbound analysis, deals originate from all 33 countries, while the country-pair analysis captures bilateral deal flows. As expected, total inflows are more significantly affected by increased geopolitical risk, as captured by the inbound analysis, compared to the relative shifts in deal flows between countries. For example, the coefficient for the (Agriculture, Forestry, and Fishing) industry in the inbound CBMA analysis in absolute values is 0.217, whereas in the country-pair analysis, it is only 0.120. While this contrast is informative, it is important to note that the inbound analysis reflects the absolute level of GPR in the target country without considering the GPR level in the acquiring countries. In contrast, the country-pair analysis is based on the relative difference in GPR between the acquiring and target countries.

Hence, the findings of the study highlight the negative impact of increased level of GPR on investments, as measured by FDI and industry level mergers and acquisitions, thereby filling the gap in the literature at a time of heightened global geopolitical tensions.

8. Limitations

A key limitation in this study is to not be able to account for ownership threshold changes during the year in the FDI dataset. FDI statistics may include transactions where ownership crosses the 10% threshold, due to change in valuation thus leading to classification of these changes as FDI flows. Additionally, while the debt instrument findings are interesting, the model does not fully capture the factors influencing debt-based FDI, suggesting that additional variables such as credit ratings, and sovereign bond spreads might provide additional explanatory power to the model and hence provide insights on the determinants of FDI through debt instruments.

Moreover, while the focus on 34 countries and a 14-year period for FDI analysis provides valuable insights, expanding the scope to include developing countries with higher volatility or more recent data post-2022 could offer further insights, especially considering ongoing geopolitical developments.

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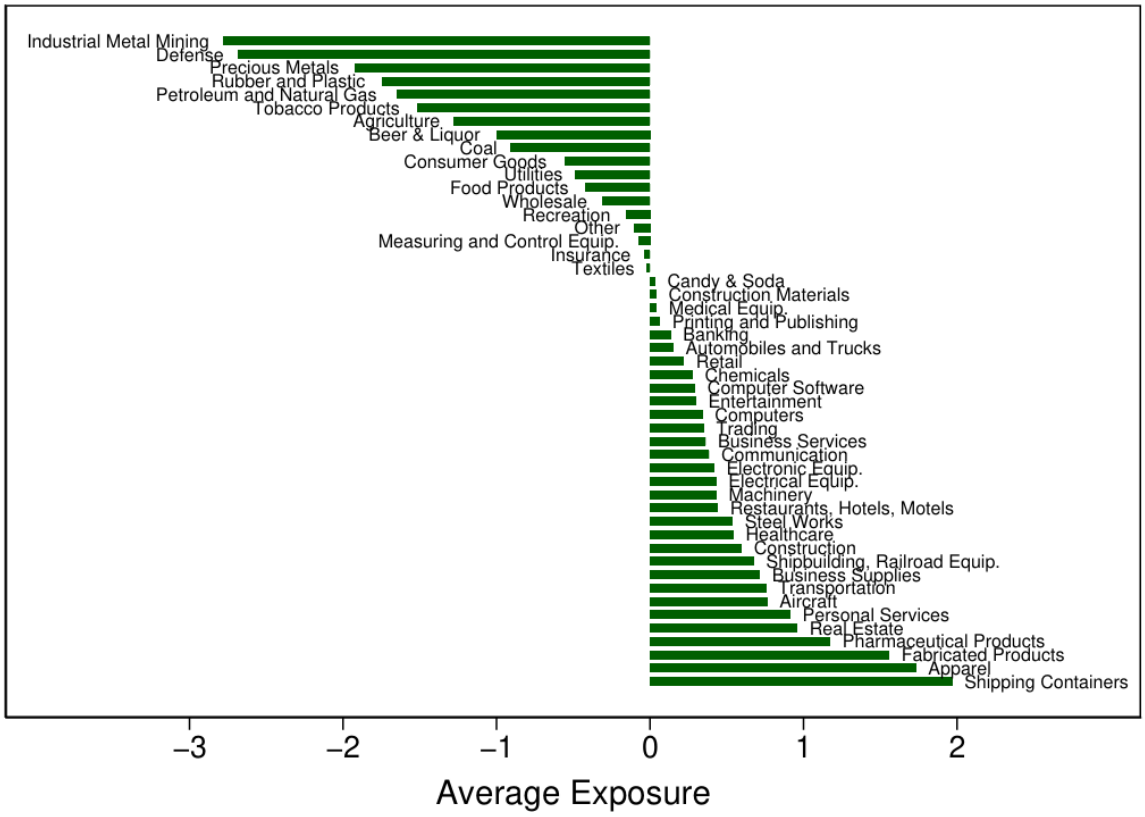
10.Appendix

A1. Exposure to GPR by Industry Using Stock Returns

The table below illustrates the exposure of different industries to changes in GPR level. The table is retrieved from the online appendix of Caldara and Iacoviello (2021)



A2.

Table below belongs to the summary of regression models showing the impact of GPR index on inbound CBMA ratio on each industry, without considering acquiring countries.

	Coefficient	Standard Error	t-Stat	P-value	Obs.	R^2
Agriculture, Forestry, Fishing	-0.21***	0.03	-7.42	0.00	199	26%
Mining	-0.20***	0.02	-9.30	0.00	446	19%
Retail Trade	-0.16***	0.02	-7.30	0.00	441	14%
Construction	-0.13***	0.02	-5.15	0.00	317	15%
Transportation & Utilities	-0.12***	0.02	-6.74	0.00	635	9%
Public Administration	-0.12***	0.04	-2.95	0.01	45	41%
Wholesale Trade	-0.10***	0.02	-4.94	0.00	557	7%
Manufacturing	-0.10***	0.02	-5.87	0.00	714	7%
Finance, Insurance, Real Estate	-0.10***	0.02	-5.73	0.00	692	5%
Services	-0.10***	0.02	-5.39	0.00	697	7%
Note:			*p**p***p <0.01			

Table shows the impact of GPR index on the CBMA ratio on industry level, considering both the acquiring and target country.

	Coefficient	Standard	t-Stat	P-value	Obs.	R^2
Agriculture, Forestry, Fishing	0.11***	0.02	6.64	0.00	260	30%
Public Administration	0.10***	0.03	3.01	0.01	41	46%
Mining	0.07***	0.01	10.15	0.00	1182	22%
Construction	0.07***	0.01	6.76	0.00	476	20%
Retail Trade	0.05***	0.01	8.43	0.00	909	22%
Wholesale Trade	0.04***	0.00	10.61	0.00	1579	15%
Manufacturing	0.03***	0.00	23.01	0.00	4314	24%
Transportation	0.02***	0.00	9.27	0.00	2035	15%
Services	0.02***	0.00	15.06	0.00	3497	19%
Finance, Insurance, Real Estate	0.02***	0.00	10.95	0.00	2871	14%
Note:			*p**p***p <0.01			

The Impact of Country Uncertainty on Cross-Border Mergers and Acquisitions

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The Impact of Country Uncertainty on Cross-Border Mergers and Acquisitions

Abstract:

This study investigates the impact of geopolitical risk (GPR) as an uncertainty index, measured through the GPR index developed by Caldara and Matteo Iacoviello (2022), on cross-border mergers and acquisitions (CBMA), revealing that higher GPR in a target country deters cross-border M&A activity. The findings highlight that a higher level of GPR in the target country decreases the number of cross-border mergers and acquisitions. Furthermore, country-specific analyses, including a focused case study on the United States, reinforces the negative relationship between GPR and inbound cross-border M&A flows. The empirical results are based on a comprehensive dataset of M&A deals spanning 34 countries over the period of 2001-2022, providing a foundation for examining the relationship between geopolitical risk and cross-border M&A activity.

Keywords:

Cross-Border Mergers and Acquisitions, Geopolitical Risk

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1. Introduction

The Increased level of economic protectionism, international conflicts, and changing global alliances, has brought geopolitical risk to the forefront as a significant risk impacting the investment landscape. A survey conducted by Wells Fargo/Gallup in 2017, found that 75% of the 1000 respondents expressed their concerns that increased geopolitical uncertainties might depress the level of investments in the US economy (Wells Fargo, 2017). However, there is a lack of previous studies in regard to the impact of geopolitical risk on investments such as cross-border mergers and acquisitions, which constitute a significant portion of the investment landscape. This study seeks to provide empirical evidence that will contribute to filling this gap in literature.

Historically, after the fall of the Berlin Wall and the end of the Cold War, the global economy experienced a wave of globalization, trade alliances, and free markets. However, in recent years, the economic landscape has shifted toward increasing protectionism, international conflicts, and the formation of new global alliances. The COVID-19 pandemic highlighted vulnerabilities in the global supply chain, which had been the foundation of the past decade's globalization (Deloitte, 2024).

The trade tensions between the US and China, which began in 2018, have been ongoing for nearly seven years, spreading geographically and drawing other countries into the dispute (The Economist, 2024). Additionally, the Russia-Ukraine war and the Israel-Gaza conflict have brought war back to center stage, introducing further global uncertainties (Deloitte, 2024).

The impact of recent geopolitical crises has underscored the importance of understanding and assessing geopolitical risk in M&A activities. These events serve as a reminder that geopolitical risk is a key factor affecting corporate investments, especially in emerging markets where institutional strength and regulatory stability can vary significantly. In emerging economies, where geopolitical risk is often more pronounced, the strength of national institutions plays a critical role in moderating the impact of such risks on M&A. Strong institutional frameworks may help mitigate some of the destabilizing effects of geopolitical events, but weaker systems may exacerbate them (Rao, S., Koirala, S., Aldhawyan, S., & Corbet, S., 2023).

In light of previous research and the recently heightened importance of geopolitical risk and its consequent impact on mergers and acquisitions, I aim to investigate the effects of geopolitical risk on cross-border mergers and acquisitions. Erel et al. (2012) found that the volume of cross-border mergers and acquisitions has experienced significant growth, almost doubling from 1998 to 2007. Although cross-border mergers occur for the same reason as domestic ones, to increase the combined value after merging with another company, Erel et al. (2012) indicates that firms who pursue cross-border acquisitions encounter a more complicated deal-making process. The complexity arises from factors like cultural and geographical differences, economic factors, trade relationships, and stock market valuation all of which can either inhibit or facilitate mergers (Erel et al. 2012).

Cross-border mergers and acquisitions are considered to be inherently riskier in comparison to domestic deals due to the higher level of country risk involved in the cross-border transactions (Cao, Li, and Liu. 2023). Furthermore, the results from a survey conducted by Giambona et al. (2017) suggest that approximately 50% of firms avoid direct foreign investments due to political risks. In other words, firms act cautiously about cross-border M&A as real-world examples, such as restrictive policies on foreign acquisitions and economic sanctions have shown to lead to significant financial losses and increased transaction costs. These factors in turn might affect the M&A landscape negatively. The most recent similar case of how these geopolitical risks directly impact the businesses is when the sanctions against countries such as Iran and Russia imposed adverse financial impacts making companies to withdraw from these regions at a cost of heavy financial losses (Forestier, Lajoux, & Vega Dominguez, 2024).

Additionally, another strand of literature focusing on the flow of foreign direct investment (FDI), which includes cross-border mergers and acquisitions, has investigated the impact of geopolitical risk. Bussy and Zheng (2023) analyzed the response of foreign direct investment (FDI) to geopolitical risk, showing that increased level of geopolitical risk has a negative impact on the amount of FDI. In certain cases, there might even be direct political interference by countries that prevent the deal from progressing and hence introducing considerable risk of failure in M&A transactions. This type of interference is commonly observed in industries deemed

critical to national security, where governments restrict foreign ownership of domestic assets (Andreas Heinemann, 2012). In addition, as countries lean towards protectionist strategies, they impose hurdles for cross-border mergers and acquisition as countries prefer domestics to maintain ownership of companies (Dinc and Erel, 2013). These government interferences introduce additional challenges in deal-making, as they can cause the process to be delayed, and the costs associated with the deal execution to escalate significantly.

Many countries use their economies as tools to influence other nations' economies; therefore, having a good bilateral relationship with countries is an important factor for the success of cross-border mergers (Han et al. 2025). Conversely, increased geopolitical risk, which entails deteriorating relationships between countries, increases the risk involved in cross-border mergers and acquisitions (Hao et al. 2020). One such example that a government intervention impeded an M&A process is the blockage of Nippon Steel's proposed $14.9 billion acquisition of the U.S. Steel by the president of the United States in 2024, Joe Biden, who proclaimed that the decision was motivated by protecting the national interest of the U.S. (Reuters, 2025).

Apart from government interference, various transaction-related risks that influence the transaction process must also be carefully assessed during the due diligence process of the cross-border deals. These factors represent antitrust scrutiny, customer-related risks, vulnerabilities in the supply chain, cybersecurity threats, operational challenges, and potential reputational damage. If these risk factors prove insurmountable, they may eventually escalate into closing risk, blocking the deal from being completed. This is particularly relevant in deals involving sectors where national interests are strong, such as energy, defense, and telecommunications (Liu, Yichong, 2024). For instance, the energy sector is shown to be sensitive to geopolitical risks, as studies have shown that there is a correlation between geopolitical risk and M&A activity in the energy sector. Shen et al. (2021) have shown that there exists a positive relationship between the number of mergers in the Chinese energy sector and the increased level of geopolitical risk in China.

In addition to these issues, recent geopolitical crises, in particular the conflict between Ukraine and Russia, demonstrate the importance of geopolitical risk assessment in mergers and acquisitions transactions (OECD, 2022). Furthermore, the global economy has also faced several disruptions in the forms of the COVID-19 pandemic, political extremism, migration crises, etc., further

complicating the cross-border merger and acquisition process. Such events give way to reinforce that geopolitical risk is among the key factors determining the economic decisions made by corporations.

Rouine, I. (2022) found that firms take longer time to complete deals from countries with higher levels of political risk. As geopolitical tensions have become increasingly persistent, the impact of geopolitical risk assessment on deal success has increased significantly. Thus, investors and acquiring firms should adopt sophisticated risk assessment frameworks that incorporate geopolitical risk analysis, in order to increase the success of potential acquisitions.

This study aims to empirically analyze the impact of geopolitical risk, a subject that has not gained a high level of attention in previous research, on cross-border mergers and acquisitions. By examining cross-border transactions in 34 countries from 2001 to 2022, the study sheds light on how geopolitical risk shapes M&A behavior. The analysis looks at a period defined by some of the biggest geopolitical events of the last decade and shows how these developments have changed the landscape of cross-border mergers and acquisitions.

2. Literature Review

In mergers and acquisitions (M&A), the managers of the acquiring firm typically aim to combine the two firms such that their total value exceeds the sum of their values separately if the firms stand-alone (Erel et al. 2012). The goal of mergers and acquisition is to enhance value, which can be derived from several factors, such as the ability of companies to reduce contracting expenses and achieve enhanced production efficiencies by operating within a single organizational structure. The merged company can also benefit from greater market dominance, allowing for strategic price-setting and expanded market influence for the combined firm, which would be illegal if established using collusions between two separate firms. Additionally, mergers often provide tax benefits, such as tax shields that one firm holds but the other may lack (Patrick A Gaughan, 2017). However, it is worth noting that not all incentives create value, as acquisitions driven by empire-building goals or agency-related issues may destroy value (Patrick A Gaughan, 2017).

Mergers and acquisitions have been a central focus of corporate finance for a long time, with a significant amount of research historically focused on transactions that took place within the

United States. Seminal works, such as those by Jensen and Ruback (1983), Jarell, Brickley, and Netter (1988), and Betton, Eckbo, and Thorburn (2008), are particularly concentrated on the U.S. domestic deals and have studied various factors influencing deal outcomes. While the U.S. continues to experience a heavy volume of M&A activities annually, an exclusive focus on the U.S. domestic deals provides a limited perspective on a comprehensive picture of the global mergers and acquisition (M&A) trend. Some recent literature has expanded its scope, by studying deal-specific elements such as CEO characteristics (Hwang et al., 2020), the board of directors (Cai and Sevilir, 2012), cash holdings (Chen et al., 2020), auditing quality (Dounis, 2008) and corporate governance (Martynova and Renneboog, 2008).

While these factors give valuable insight into merger and acquisitions decisions, they focus primarily on internal governance and financial characteristics of firms alone. However, mergers and acquisitions are not solely driven by firm-specific attributes, external factors such as such as political risk, economic growth, and institutional and regulatory factors, also play a crucial role (Quyet, N., 2022). In particular, cross-border M&A transactions introduce additional complexities that stem from the broader economic, political, and cultural landscape of the firms' home countries (Kyvik, O., 2013).

2.1 Factors Influencing Cross-border Mergers and Acquisitions

Erel et al. (2022) highlights between 1991 and 2020, cross-border mergers and acquisitions have made up around 30% of the total number of global M&A transactions and 37% of the total volume and are likely to become more important as the world’s economies become more integrated. Although, both domestic and cross-border mergers and acquisitions occur for the same fundamental reason, to create higher combined value after the merger, cross-border mergers and acquisitions tend to involve a more complex deal process compared to domestic ones due to additional challenges introduced by national borders (Erel et al., 2012). For instance, factors considered as determinants of cross-border mergers and acquisitions are geographic and cultural differences, governance-related differences, quality of accounting disclosure, bilateral trade, stock market condition, and currency strength (Erel et al.,2012).

Erel et al., (2012) argue that geographic and cultural differences can increase the cost of mergers. Additionally, Ahern, Daminelli, and Fracassi, (2015), suggest that the geographical distance between the countries involved in merger and acquisition is a significant factor, as it often compounds other challenges, such as linguistics, and religious differences, which influence contracting costs in cross-border M&A deals. Research by Rose (2000) shows that the cost associated with a merger increases as the physical distance between the firms grows, making mergers more challenging across regions with significant cultural and geographic separation.

Factors such as market development level, valuation differences between markets, exchange rate fluctuations, variations in capital market integration, and currency strength are additional determinants of cross-border mergers and acquisitions (M&A) (Erel et al. 2012). According to a study conducted by Chari et. al (2009), firms from advanced markets may see potential advantages in acquiring targets in emerging markets, given weaker contracting environments may enable competitive opportunities. Moreover, if a company has an appreciating currency, it will find it less expensive to acquire foreign companies with weaker currencies, due to a favorable exchange rate (Erel et al. 2012). One of the most notable examples appeared in 2010, in which a strengthening Japanese YEN led to a rise in Japanese foreign acquisitions, as the currency appreciated and made foreign acquisitions affordable (The Economist, 2010).

Another important factor affecting cross-border M&A is the corporate governance structure. Mergers can create value when the legal protections that apply to the acquiring firm are also extended to the shareholders of the target firm, especially in cases where the country of the acquiring firm has better legal and accounting standards. Moreover, according to the governance theory, firms in countries with strong legal systems are likely to acquire firms in countries with weak governance systems, creating value-add for the shareholders of the target firm (Rossi and Volpin, 2004; Bris and Cabolis, 2008). In addition, Ferreira, Massa et al. (2010) when studying the role of foreign institutional investors in cross-border mergers and acquisitions, found that foreign institutional ownership facilitates cross-border M&As, especially in countries with weaker legal institutions.

Moreover, Lee, K. H. (2018) posits that the unpredictability of returns from cross-border mergers and acquisitions, stemming from political instability, compels acquirers to seek compensation for

the heightened risk. This necessity enhances their negotiating leverage, allowing them to adjust the acquisition price to a more favorable and profitable level.

The research conducted by (Hao et al. 2020) studies the impact of geopolitical risk factors on cross-border mergers and acquisitions, finding a negative relationship between the two variables. Cao et al. (2023) use military alliances as a proxy of how high or low geopolitical risks of countries are and analyze its influence on cross-border M&A in their study. Their findings suggest that the outcome of reduced geopolitical risk by military alliance with the military superpowers indicate positive inbound acquisitions.

In the same vein, Aleksanyan, Hao, Vagenas-Nanos, and Verwijmeren (2021) evaluating the impact of the quality of relationship between countries on cross-border mergers, found that higher number of state visits between countries is associated with higher number of deals in-between countries. This is consistent with the idea of higher number of visits between countries will imply friendly relationships between countries. Bonaime, Gulen, and Ion (2018) provide evidence that firms pursue deals in countries experiencing less policy uncertainty when their own domestic market is exposed to high policy uncertainty. The authors relate this strategy to the risk management measures that companies adopt to hedge themselves from uncertainty impacts in their home market.

2.1.1 Behavioral Models in M&A Decision-making

Focusing on mergers and acquisitions, Shleifer and Vishny (2003) introduced a behavioral model of firms' deviations from intrinsic values. They conclude that firms with undervalued equity are more likely to be acquired, and firms with overvalued equity are more likely to pursue acquisitions. This “mispricing” allows acquirers to capitalize on overvaluation and create value by transferring additional wealth to shareholders. In this model, managers possess private information about the true values of both the target and acquirer firms, which influences the M&A activity. Building on this concept, Baker, Foley, and Wurgler (2009) studied mispricing including foreign direct investment (FDI). Baker et al. (2009) introduced the “cheap asset”, where undervalued firms in host nations attract foreign buyers, and “cheap finance” where firms with overvalued stock leverage their valuation advantage for overseas acquisitions. Their findings

support the concept of cheap finance, which argues that it is the high valuations of stock in the acquiring country that fuels the cross-border deals, rather than the low stock values in the target country.

Kindleberger (1969) suggests that cross-border M&A becomes more probable with increased predicted earnings or decreased capital costs in the acquiring country. For example, declining currency values in export-driven domestic markets can increase revenue, attracting foreign acquirers. Changes in stock prices or exchange rates also play a role in cross-border mergers and acquisitions. Froot and Stein (1991) explain that lasting changes in relative valuations between countries can decrease capital costs under foreign ownership, enabling competitive bids in cross-border M&A.

2.1.2 The Role of Foreign Direct Investment (FDI) in Cross-border M&A

Studies conducted by Klein and Rosengren (1994), and Dewenter (1995) have examined foreign direct investment (FDI) as a measurement tool for analyzing cross-border mergers and acquisitions, particularly investigating how movements in the exchange rate impact FDI flows within the US economy. Krugman (2000) introduced the concept of "Fire-Sale FDI," where companies from economically distressed countries are acquired by firms from more advanced economies at prices below intrinsic value. Aguiar and Gopinath (2005), along with Acharya, Shin, and Yorulmazer (2010), identified a similar occurrence during the East Asian Financial Crisis, a finding that was also noted by Alquist, Mukherjee, and Tesar (2010). These studies include documentations that foreign entities made large acquisitions of East Asian firms during this period. The difference in valuation, whether related to the stock market itself or currency differences, emphasizes the impact of exchange rate and market valuation when it comes to cross-border M&A.

2.2 Geopolitical Risk

“Geopolitical risk” refers to analyzing how geographical and economic elements influence political and international relations, typically divided into broad and narrow categories (Hossain et al., 2024). The broad definition of geopolitical risk includes a wide range of factors such as political instability, religious tensions, anti-globalization movements, and natural disasters like

earthquakes, cyclones, and extreme heat conditions (Bohl et al., (2017) and Engle et al., (2020)). The narrow definition of geopolitical risk, on the other hand, is defined by Caldara and Iacoviello (2022) and refers to the potential threats, real events, and escalation of negative events associated with terrorism, conflict, and tension among countries. This describes all power contests, encompassing institutions and organizations that may lead to the pursuit of power such as territorial takeover, diplomatic confrontation, or economic sanction (Caldara and Iacoviello, 2022). Geopolitical risk and its importance for international economic activities and security have received increased attention following the recent events, such as Russia-Ukraine crisis (Rao et al. 2023). The Russia-Ukraine war led to heightened political uncertainty and had a negative impact on the economy, causing European stock markets to decline (Ahmed et al. 2023), and changing the global investment landscape by impacting investor sentiment (OECD, 2022).

To quantify such uncertainties or risks, Caldara and Iacoviello (2022) established the GPR index, which can highlight specific features of geopolitical risk and offer a simple but standardized measurement of the geopolitical risk both across countries and over time. Caldara and Iacoviello (2022), developed this index by analyzing the number of articles about military activities, political tensions, and threats discussed in the news, thus providing a quantifiable metric of geopolitical risk. Based on the GPR index, Caldara and Iacoviello (2022) show that higher geopolitical risk (GPR) periods are matched with a reduction in investment and employment. The authors further, decomposed the GPR index into the geopolitical threats index (GPT) and the geopolitical acts index (GPA) and found that both the threat (GTP) and the realization (GPA) of geopolitical events drive the adverse consequences of the GPR index. This supports theories in which the expectations of future negative events shape business and financial cycles, signaling the broader implications of geopolitical uncertainty economically (Caldara & Iacoviello, 2022).

Building upon Caldara and Iacoviello's (2022) findings, Hao et al. (2022), studied the impact of GPR events on the U.S. economy and found a negative relationship between the GPR index and mergers and acquisitions activity, both in domestic and cross-border acquisition activities. Furthermore, Hao et al. (2022), also examined the effects of GPT and GPA and found results that are consistent with those of (Caldara & Iacoviello, 2022).

Additionally, Baker, Bloom and Davis (2016) constructed the policy uncertainty index (the EPU index), a proxy for movements in policy-related economic uncertainty, based on the occurrence of certain key words associated with future changes in the federal tax code, economic outlook, government spending and inflation that are mentioned in the news articles as a proxy for policy uncertainty in the US. Nguyen & Phan (2017) used the EPU index to study the impact of policy uncertainty on mergers and acquisitions. They found a negative relationship between the index and in-bound cross-border M&As. Additionally, Gregoriou, Nguyen, et al. (2021) observed that M&A volumes decline when uncertainty in the target country exceeds that of in the acquirer's country, as higher uncertainty in the target nation deters inbound acquisitions.

The GPR index, on the other hand, designed to measure geopolitical risk at the national level, has not been frequently applied when it comes to its impact on cross-border mergers and acquisitions. Studies such as Clance et al. (2019), focus on GPR's macroeconomic impact, particularly the role geopolitical risk plays in predicting recessions. Their study found that geopolitical act (GPA) enhances the probability of future recessions. Bouoiyour et al. (2019), Demirer et al. (2019), and Su et al. (2019) examined the effect of geopolitical risk on oil prices. Additionally, Bouras et al. (2019) studied the impact of the GPR index on the stock market, finding a positive effect on stock market volatility. Similarly, Demir et al. (2019) explored the influence of geopolitical risk on inbound tourism, identifying a negative impact. Various other studies have analyzed the broader implications of the GPR index across multiple industries.

In the context of mergers and acquisitions, some studies suggest that geopolitical risk may have a positive impact on M&A activity, encouraging companies to pursue mergers as a strategic response to uncertainty. For instance, studies by Hartman (1972), Abel (1983), and Caballero (1991), suggest that under perfectly competitive markets with risk-neutral firms and returns to scale, uncertainty in output prices can raise the investment level. Supporting this argument, a study by Garfinkel & Hankins (2011) documented a positive association between the level of cash flow uncertainty and merger waves, especially in M&As. This has been attributed to risk management strategies, in which higher uncertainty leads managers to reduce risk through vertical integration.

Similarly, research conducted by Shen, Liang, et al. (2021), includes a study of the impact of the GPR index on mergers and acquisition activity in China's electric power sector, and reveals that

increased levels of GPR can drive mergers in this industry. The authors explain that companies assess their merger prospects during uncertainty using the real options theory. In essence, if uncertainty is high, there are reasons to invest now for possibly higher returns in the future, albeit at higher risk; but if investment is delayed, which reduces risk, returns will also be lower (Schwartz et al., 2004). Indeed, the impact of geopolitical uncertainty on M&A activity is twofold, as the management team's preference for the risk-return profile of each opportunity would dictate whether the outcome is positive or negative. However, in many cases, firms may choose to avoid investments during periods of heightened geopolitical risk (GPR), as documented by Giambona et al. (2017), who found that a common risk management approach during such periods is to refrain from investment.

Furthermore, Rao et al., (2023), studying emerging economies, suggests that geopolitical risk has a positive effect on the frequency of domestic mergers and acquisitions deals, however, the size of the M&A deals is negatively impacted. Cao et al. (2023), on the other hand studied the impact of geopolitical risk on cross-border merger and acquisition transactions, by using the presence of military alliances as proxy for this risk, they found that existence of military alliances reduces geopolitical threats, which in turn positively impacts the volume of cross-border M&A transactions. Furthermore, policymakers have also emphasized geopolitical risk as part of an "uncertainty trinity" alongside economic and policy uncertainty, with significant economic effects (Carney, 2016).

Given the limited research on the impact of geopolitical risk on cross-border mergers and acquisitions, this study contributes to the literature by identifying GPR's impact on cross-border mergers and acquisitions and demonstrating its dynamic effects on global M&A activity. The study aims to examine the impact of geopolitical risk as a country uncertainty index by incorporating Caldara and Iacoviello's (2022) GPR index, which captures the difference in geopolitical risk between target and acquirer countries in a merger and acquisition deal. According to Caldara and Iacoviello's (2022) findings, an increase in the GPR index is associated with a reduction in future investment and employment rates.

3. Data

In light of the previous studies to measure the impact of geopolitical risk, in this study, I collect data for M&A transactions. The data sample incorporates a series of variables relevant to the study in order to control other factors affecting M&A deals. In particular, the data includes variables that prior literature has found to be important factors in determining how many M&A deals occur between countries. Such variables include macroeconomic indicators, indicative of the economic status of the countries, and also cultural, religious, geographical, and linguistic factors. I also include stock market performance as another control variable in the analysis. To ensure transparency, this section outlines the data collection process step by step.

3.1 Merger and Acquisition Data

The research is based on a collection of M&A transaction data from the Security Data Corporation's (SDC) database for Merger and Corporate Transactions, a resource frequently used by academics to access historical data on transactions. The data sample includes 22 years of merger and acquisition transactions across 34 nations, covering the timeframe from January 1, 2001, to December 31, 2022. The data sample excludes privatizations, purchases of remaining interests, purchases of stakes, repurchases, exchange offers, self-tenders, recapitalizations, spinoffs, tender offers, leveraged buyouts, and transactions with undisclosed deal values.

This is based on the data collection methodology utilized by Erel et al. (2012). The restriction of the data sample to 34 countries was necessitated by the lack of detailed data for other nations to perform empirical analysis. An additional criterion for the selection of transaction data in the sample was to include only deals with a transaction value exceeding 1 million euros. This approach ensures that the analysis focuses exclusively on transactions involving substantial investments.

3.2 Macroeconomic Data

Data on the exchange rates for the currencies of target and acquirer countries are obtained from WM/Reuters via Datastream, with the prices taken at 4:00 p.m. Greenwich Mean Time. Data on bilateral trade was retrieved from the United Nations Commodity Trade Statistics Database to capture trade relationships between countries. To assess economic growth, data on Gross

Domestic Product (GDP) growth was used, obtained from the World Development Indicators database. Data for the corporate income tax rates comes from the Organization for Economic Co-operation and Development (OECD). Also, country-specific interest rates were obtained from Datastream.

3.3 Culture, Language, Religion, and Geographical Proximity

Stulz and Williamson (2003) looked at how cultural, religious and linguistic factors affect investors' decisions and also made it known that these effects are substantial. Thus, this research uses data on these variables from a dataset compiled by Stulz and Williamson (2003). In addition, latitudes and longitudes for capital cities for each country were received from mapsofworld.com and used to calculate the great-circle distance between country pairs to obtain a measure of geographical proximity.

3.4 Stock Market Data

Erel et al. (2012) have extensively studied stock market valuations on mergers and acquisitions. who found a significant association between the performance of country-level stock markets and M&A activity. Their results confirm that firms in countries with strong capital market performance are more prone to acquire firms in countries that experience strong stock market declines. To incorporate this relationship, stock market data for all countries in this study were obtained by retrieving stock market return indices for each country from Datastream.

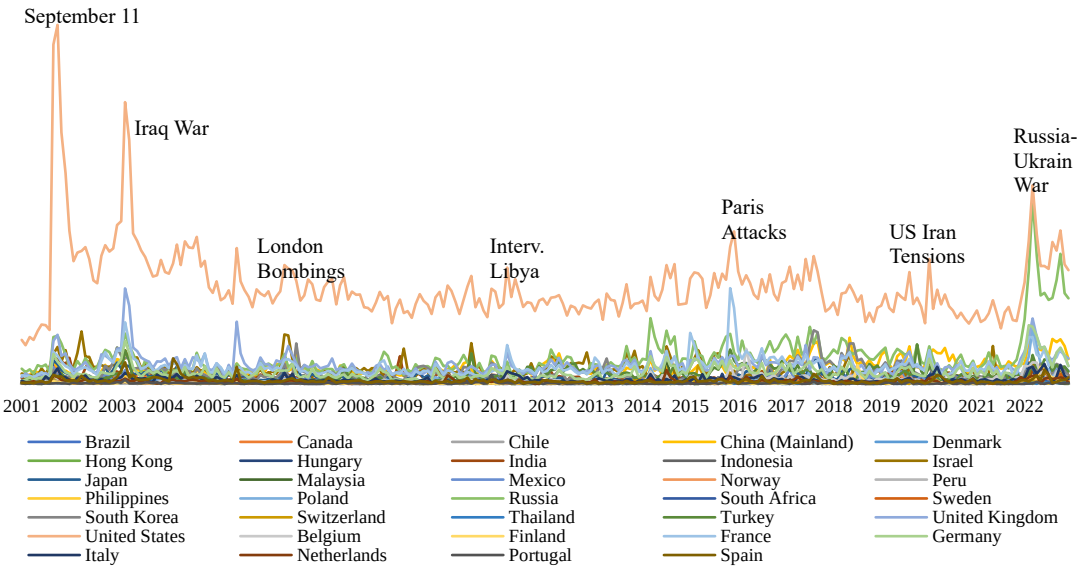
3.5 Geopolitical Uncertainty Data

In order to measure geopolitical uncertainty in this study, I use the Geopolitical Risk Index (GPR index) constructed by Caldara and Iacoviello (2022). The index is a measurement of the frequency of articles mentioning topics such as wars, terrorism, and tensions among countries, which entails consequences on the international relationship between countries. Newspaper articles in Caldara and Iacoviello's (2022) methodology are categorized into eight categories: War Threats, Peace Threats, Military Buildups, Escalation of War, and Terror Acts. Thereafter, the index is constructed by taking a division of the geopolitical risk associated with articles by the total number of articles published in a month, which consequently provides a percentage as a measurement of the

geopolitical risk in a specific month. In this study, we retrieve the GPR index from the matteoiacoviello.com website for the 34 countries to be analyzed in this study. As an illustration figure, I show the historical geopolitical index for a selected number of countries.

Figure I: Geopolitical Risk Country Level Index

Figure I illustrates key episodes of geopolitical tension that resulted in significant spikes in the GPR index. Notable examples include the sharp increase following the 9/11 terrorist attacks, the Iraq War, and heightened tensions between the US and Iran in 2022.



In this study, as the focus is on the annual flow of M&A transactions, the GPR index is averaged over the year and incorporated into the empirical analysis.

4. Empirical Analysis

4.1 Hypothesis Development

Geopolitical risk, defined as uncertainty arising from political tensions, international conflicts or shifts in the balance of global power among states, has recently received growing interest for its potential significance to the flows of goods and services and financial capital across countries (Caldara and Iacoviello, 2022). Cross-border mergers and acquisitions (CBMAs) are transactions that are complex in nature with interrelating elements that can be impacted by multiple factors, such as the economic stability, institutional governance, and geopolitical risk of the countries involved. However, as it was pointed out at the beginning of this paper, there is currently a shortage of research exploring the impact of geopolitical risks on CBMAs. Therefore, this paper aims to fill that gap by addressing this topic through an empirical analysis.

As Caldara and Iacoviello (2022) note, geopolitical risk embeds uncertainty over the future stability of countries that impacts investor deterrence from entering such markets. Following the intuitions presented in Caldara and Iacoviello (2022), Cao, Li, and Liu (2023) extend this understanding by showing an increased number of military alliances that reduce the risk of geopolitical risk leads to an increased number of cross-border mergers and acquisitions. These are consistent with more general findings by Nguyen and Phan (2017) that economic and policy uncertainties decrease the acquisitiveness of the targets, thus impacting M&A activity negatively. Furthermore, Hao et al. (2020) found a negative relationship between the increased level of geopolitical risk and merger activity in the US economy.

Moreover, studies highlight the aspect of risk perception between acquirer and target countries. For instance, Rossi and Volpin (2004) show that acquirers are reluctant to enter deals in economies with weak institutions or high-risk, particularly when their home economies provide more favorable conditions.

Julio and Yook (2012) also document that political and economic uncertainty postpones or deters capital investment resoundingly, suggesting the widespread effects of uncertainty on corporate investment. They documented that firms reduce investments during the periods of high uncertainty imposed by the election periods in the US economy.

Based on these findings presented in the previous studies, this paper tests the following hypotheses:

H1: *Having a higher GPR in a target country (j)compared to that of acquirer country(i), the number of cross-border mergers and acquisition between country (j) and (i) will be adversely impacted*

This hypothesis was developed based on previous findings and is designed to find out if the geopolitical risk will increase the uncertainty of cross-border mergers and acquisitions and proposes that the existence of geopolitical risk increases uncertainty about cross-border M&A, and thus makes the integration and valuation of acquisitions difficult or risky. In other words, when the GPR level in a target country is significantly higher than the GPR of the acquirer country, it creates an asymmetric risk perception between the parties, which can discourage a potential deal. The hypothesis is aligned with the findings by Caldara and Iacoviello (2022) and Cao, Li, and Liu (2023), who suggest that firms tend to avoid markets where geopolitical instability increases.

H2: *Inbound mergers and acquisitions in a target country (j) is impacted negatively due to higher level of GPR in the target compared to that of the acquiring country*

This hypothesis highlights the negative impact of geopolitical risk on inbound investments. The target country, being characterized with a higher GPR level indicates that it has potential operational disruptions, regulatory barriers, or adverse policy shifts that would deter foreign acquirers. Consequently, as Ferreira, Massa, and Matos (2010) argue, the quality and stability of institutions are vital determinants of M&A flows, and, with higher levels of GPR, these characteristics are diminished, thus a decline in inbound M&A activity might be observed. Nguyen & Phan (2017) used the EPU index to study the impact of policy uncertainty on mergers and acquisitions. They found a negative relationship between the index and in-bound cross-border M&As. Additionally, Gregoriou, Nguyen, et al. (2021) observed that M&A volumes decline when uncertainty in the target country exceeds that in the acquirer's country, as higher uncertainty in the target nation deters inbound acquisitions. Bonaime, Gulen, and Ion (2018) provide evidence that firms pursue deals in countries experiencing less policy uncertainty when their own domestic market is exposed to high policy uncertainty.

H3: *Having a higher GPR in a country is associated with a lower level of mergers and acquisitions numbers*

This hypothesis underscores the wider macroeconomic effects of geopolitical risk. This results in low levels of inbound M&A and a lower chance of outbound M&A activity due to the increased risk profile of the country, leading to reduce the confidence of investors. Julio and Yook (2012) and Bloom, Bond, and Van Reenen (2007), demonstrate that uncertainty interrupts corporate planning and investment efforts, which might lead to a lower level of M&A activity. Additionally, this hypothesis is also supported by previous research underlying hypothesis 1 and 2.

H4: Higher *GPR level in the US is associated with a lower inflow of cross-border mergers in the US economy*

This hypothesis seeks to increase granularity in the analysis by concentrating on a single country with an advanced economy - the United States. This is due to the pivotal role of the U.S. in the global capital markets as well as the nuanced perspective added by how GPR impacts the U.S. cross-border M&A activity. Hao et al. (2022), after studying the effects of GPR on the U.S. economy, found an adverse relationship between the GPR index both domestic and cross-border M&A activity.

4.2 Variables Explanation

4.2.1 Dependent Variables

The dependent variable is the number of cross-border deals in year t $\left(\text{Deals}_{\text{ijt}}\right)$ in which the target is from country j and the acquirer is from country i(where $i \neq j$) scaled by sum of the number of domestic deals in target country j $(\text{Deals}_{\text{jjt}})$ and the number of the cross-border deals between target country j and acquirer i $(\text{Deals}_{\text{ijt}})$. This variable is constructed based on the methodology suggested by Erel, Liao, et al. (2012).

$$\text{CBMA Ratio}_{\text{i,j,t}} = \frac{\text{Deals}_{\text{ijt}}}{\left(\text{Deals}_{\text{jjt}}\right) + \left(\text{Deals}_{\text{ijt}}\right)} \quad (1)$$

As an example, there have been 571 domestic deals in United States in 2022, and 63 cross-border deals between United States and Canada in 2022, which yields a CBMA_Ratio of 9.94%.

$$\text{CBMA Ratio}_{\text{CAD,USA,2023}} = \frac{\text{Deals}_{\text{CAD,USA,2023}}}{\left(\text{Deals}_{\text{USA,USA,2023}}\right) + \left(\text{Deals}_{\text{CAD,USA,2023}}\right)} = \frac{63}{571 + 63} = 9.94\%$$

While for the same period the number of CBMA Ratio for India, with 13 cross-border deals, yields a CBMA Ratio of 2.23%. On the contrary, due to trade tensions between USA and China the ratio is at 0.87% and 5 cross-border deal.

Figure II: Inbound Cross-Border Deals to the U.S. from China

Figure II depicts the number of inbound cross-border deals where the target company is based in the United States and the acquiring company is from China. It also highlights key events that have influenced the relationship between China and the United States.

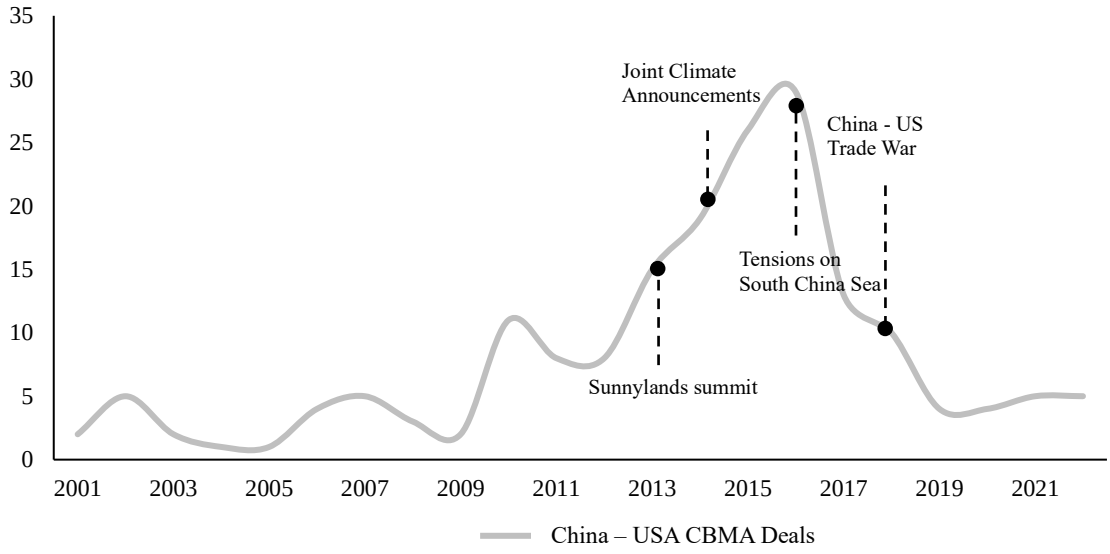
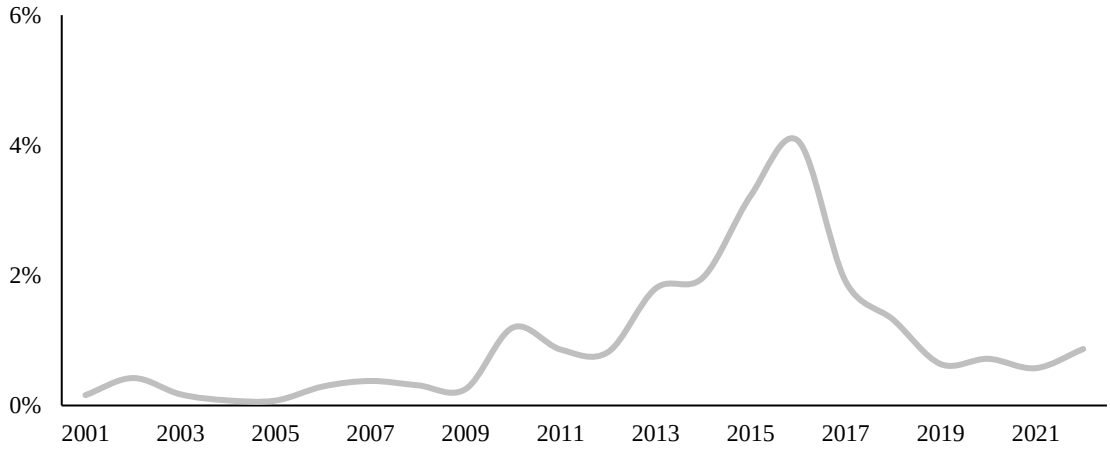


Figure III: China and the U.S. CBMA Ratio

Figure III presents the CBMA Ratio for China and the U.S., calculated using the methodology proposed by Erel, Liao, et al. (2012). It demonstrates how the CBMA Ratio effectively captures the trend in the number of deals between the two countries.



Through this methodology the value for the dependent variable will be bound between zero and one. Furthermore, Erel, Liao et al. (2012) highlights that by including domestic deals in the denominator, it is possible to implicitly control for factors that might impact both domestic and cross-border deals.

4.2.2 Independent Variables

The choice of independent variables has been predominantly based on the variables that Erel, Liao et al. (2012) have shown to play a significant role in cross-border mergers and acquisitions (M&A). These include economic factors such as exchange rates, GDP growth, Tax, Interest Rate, Stock Market, and Bilateral trade.

Among the key variables considered are:

$$\text{Currency}_{i,j,t} = \left(\text{Exchange Rate Return}_{i,t}\right) - \left(\text{Exchange Rate Return}_{j,t}\right) \quad (2)$$

$$\text{Stock Market Return}_{i,j,t} = \left(\text{Stock Market Return}_{i,t}\right) - \left(\text{Stock Market Return}_{j,t}\right) \quad (3)$$

$$\text{GDP_growth}_{i,j,t} = \text{GDP_growth}_{i,t} - \text{GDP_growth}_{j,t} \quad (4)$$

$$\text{Tax_rate}_{i,j,t} = \text{Tax_rate}_{i,t} - \text{Tax_rate}_{j,t} \quad (5)$$

$$\text{Max (Import, Export)}_{i,j,t} \quad (6)$$

$$\text{Interest Rate}_{i,j,t} = \text{Interest Rate}_{i,t} - \text{Interest Rate}_{j,t} \quad (7)$$

Furthermore, Ahern, Daminelli et al. (2015) provided evidence that language and religion significantly impact cross-border M&A. Erel, Liao et al. (2012) found that geographical proximity is also a significant variable in determinants of cross-border mergers and acquisitions.

$$\text{Language}_{i,j}\text{: dummy variable} \tag{8}$$

$$\text{Religion}_{i,j}\text{: dummy variable} \tag{9}$$

$$\text{Log(distance)}_{i,j} = 2r \cdot \arctan 2\left(\sqrt{a}, \sqrt{1-a}\right) \tag{10}$$

$$a = \sin^2\left(\frac{\Delta\phi}{2}\right) + \cos(\phi_i) + \cos(\phi_j) + \sin^2\left(\frac{\Delta\lambda}{2}\right)$$

$$\Delta\phi\text{: Difference in latitude } (lat_j - lat_i)$$

$$\Delta\lambda\text{: Difference in longitude } (lon_j - lon_i)$$

The primary independent variable in this study is the difference in the geopolitical risk index (GPR) between the acquiring and target countries. This variable is calculated by subtracting the GPR of the target country from that of the acquiring country, aiming to assess its impact on cross-border mergers and acquisitions between the two nations.

$$\text{Diff_GPR}_{i,j,t} = \text{GPR}_{i,t} - \text{GPR}_{j,t} \tag{11}$$

4.3 Descriptive Statistics

4.3.1 General overview of Cross-border mergers

Between 2001 and 2022, a significant portion of the overall M&A activity was attributed to cross-border mergers, which is represented in Figure IV. As illustrated in Figure IV, cross-border deals experienced a decline in volume after the stock market crash in 2000, which then gradually recovered and continued to grow both in number and value (Figure IV and Figure V) until the financial crisis struck in 2008. Looking the Figure V and IV, we can observe a similar trend during the COVID-19 pandemic, with the number of cross-border mergers sharply declining, which is followed by a period of increased cross-border transactions in 2021. In 2022, the figures are once more reflecting a decline, primarily caused by the Russia-Ukraine war, which commenced in 2022.

Likewise, the value of cross-border mergers demonstrated in the Figure V, follows the same patterns, which aligns with variation in volume of transactions. Overall, cross-border mergers comprised 25% to 38% of total M&A activity for the period

Figure IV: Number of Cross-Border Deals

Figure IV illustrates the number of cross-border deals for the 34 countries included in the study, as well as the number cross-border deals as a percentage of the total number of deals

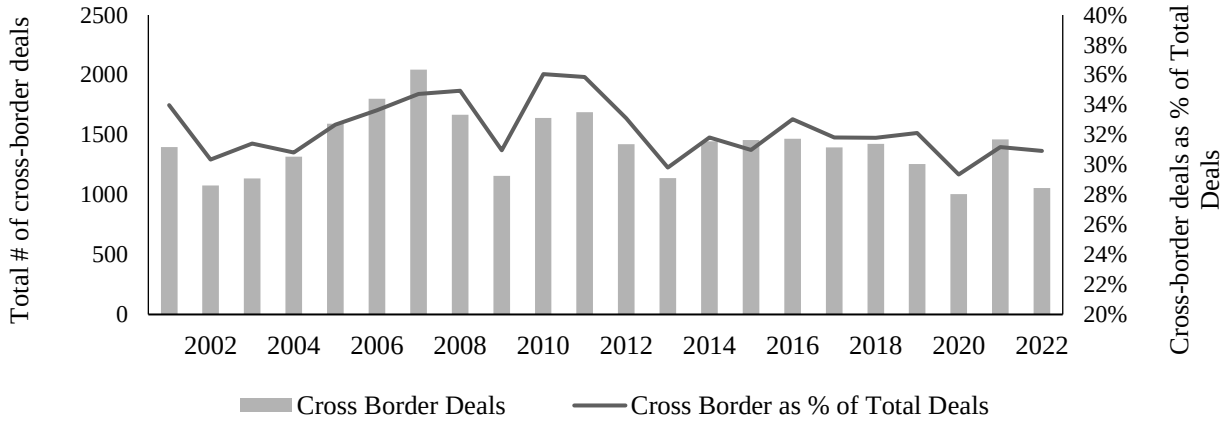


Figure V: Value of Cross-Border Deals

Figure V illustrates the value of cross-border deals, as well as the value of cross-border deals as percentage of total value of deals for 34 countries over a period of 22 years.

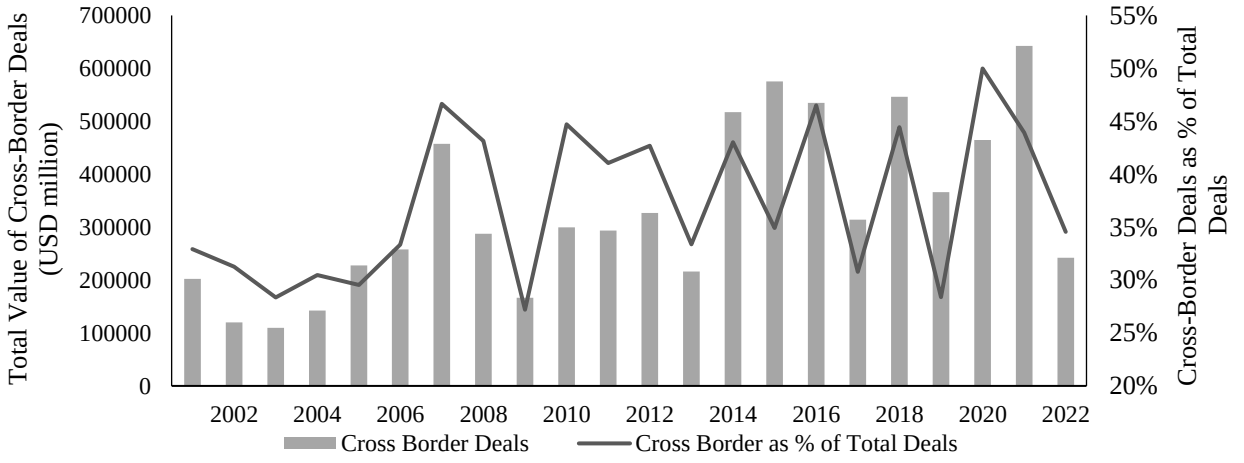


Table I: Number of Mergers by Country Pairs

Table I displays the number of mergers between countries during the period 2001 to 2022. The columns represent the acquiring countries, while the rows indicate the target countries. The diagonal cells show the number of domestic mergers within each country, whereas the off-diagonal cells represent the number of cross-border deals between different countries

	Acquirer Country																																
Target Country	BR	CA	CE	CH	DN	HK	HU	IN	ID	IS	JP	MA	MX	NO	PE	PH	PO	RU	ZA	KO	SW	CH	TH	TU	GB	US	BE	FI	FR	DE	IT	NL	PR	ES	Total
Brazil	921	57	32	12	4	10		12		8	28	3	25	11	2	1	1	2	4	5	9	13	2		54	168	8	5	42	17	28	9	10	43	1546
Canada	9	4288	6	47	9	19		21		10	28	8	6	9	3	1	5	5	11	12	26	25	2	2	170	1048	5	4	45	15	12	22	1	10	5884
Chile	6	35	128	2				3			4		4	3	10				2		3	2			10	34			4	4	4		1	18	277
China	1	32	1	9255	5	589		6	5	4	58	23				6	1	1		61	11	17	4	2	60	205	5	8	28	17	9	9	1	6	10430
Denmark		9	1	6	112	5		4		4	9			43			3		1	1	90	7			42	65		19	10	12	5	8		3	459
Hong Kong		15		229	5	586		2	1	2	25	18		1		4			2	9	3	3	6		28	69	1	3	5	4	1	3		1	1026
Hungary		2		2			27	1		1				1			8	1			5			1	7	11	1		5	12		4		1	90
India		14		5	5	3		971		2	46	11	1	6			1	2	3	12	10	16	5		52	154	5	7	32	38	10	8	1	7	1427
Indonesia		8		12		25		9	218		25	44				3				14	1	1	12	1	15	14	1		2	4		1			410
Israel		23		10	2	2		3		140	4		1							1	3	4		1	14	166		1	9	6		2		1	393
Japan	1	5		33	2	7		8		3	4744	3		1						35	5	6	3	1	14	65	1		10	10	2	4		2	4965
Malaysia	1	4		17		18		5	5		37	793	1			9		1	1	4	3	8	10		8	14	3	2	6	3		1		2	956
Mexico	5	132	6	4	3	1		5		3	5		118		2	4		1			4				18	91	3	1	4	5	5	1		19	440
Norway	3	17		4	20		1	2		2	4		2	407			2	1		1	106	5	1		63	67	2	27	5	12	5	7	1	4	771
Peru	4	52	17	3		3				1			3		58				1			4			6	14	1		2			1		7	177
Philippines		6				10		1	1		7	4	1			150			1	4			5		3	17								1	211
Poland	1	6		3	12	1		2		7			1	8			367		1	4	10	3	2	2	34	28		4	19	15	8	10	5	11	564
Russia		8		4	4	1		4		3	5		2	1			5	488	1	6	12	3		4	32	30	1	10	10	6	9	18		2	669
South Africa		20		8		6		12		3	5	1						2	329	2	7	7		1	70	19	3	1	5	8	3	7		5	524
South Korea		4		19	2	17		3		2	52	1		1					1	2849	7	8			13	69	2	1	11	11	2	6	1	1	3083
Sweden		27		11	29	6		4		1	10	1		111		1	3			1	728	13		1	82	107	1	57	17	28	7	18	1	9	1274
Switzerland		20		13	8	3	1	18		6	19	2		5			1	2	4	3	16	75			41	107	4	1	20	30	17	5		4	425
Thailand				6	1	5		4	2		30	14				1				3	2	1	231		6	6	1	2	4	1	1	1			322
Turkey	1	6		2	1	1	2	5			17	4	1				4	4	4	4	5		1	278	25	36	5	3	9	5	8	5	3	6	445
UK	13	202		56	25	25	1	98	1	27	105	16		47		3	4	7	46	13	135	38	8	1	5292	1101	30	19	141	104	64	67	3	44	7736
US	39	1752	11	182	59	81	1	254	2	177	496	20	48	55		19	2	18	31	119	210	202	13	11	1512	20698	53	51	272	236	88	141	2	76	26931
Belgium	1	13	2	3	3	1		7		2	9	1	1	5			1	1	1		12	8	1		48	61	65	3	25	13	7	21	1	7	323
Finland		16		5	6	1		6		1	7	2		26				3	1		100	4			27	37	1	214	7	10	1	5		6	486
France	2	31		36	11	8	1	23		7	33		3	17			2	2	4	6	52	33	4	1	157	294	41	7	699	51	47	31	6	54	1663
Germany	2	60	1	62	18	9	1	42		15	51	7	2	26		2	19	5	5	5	77	50	4	1	220	393	14	31	73	360	45	36	3	26	1665
Italy	4	12		35	5	6	2	16	1	8	28	3		6	1		7	5	1	2	28	22	3	3	84	130	9	9	44	26	864	28	1	38	1431
Netherlands	6	33	1	21	13	7	1	18		8	18	6		10		1	2	5	6	4	53	15	3	3	128	165	30	13	33	38	17	146		9	813
Portugal	3	5		1				5			2		1	1			2	1		2	5	1	3		15	10			6	3	5	1	103	36	211
Spain	3	25	3	15	7	3		11		10	16	1	14	18	1	3	7			1	43	13	1	2	120	107	16	3	68	38	42	17	24	640	1272
Total	1026	6939	209	10123	371	1459	38	1585	236	457	5927	986	235	819	77	208	447	557	461	3183	1781	607	324	316	8470	25600	312	506	1672	1142	1316	643	168	1099	79299

As shown in Table I, geographical proximity is a key driver of cross-border M&A activity. Deals between countries in close proximity are notably higher than deals involving countries with greater geographical distances. For instance, in the sample period, Sweden does 111 deals with its neighbor Norway versus just one deal with Malaysia, a nation that lies much further away. Indeed, the data suggest the same pattern holds for European countries, as the volume of deals with other countries within Europe exceeds those with countries in the other regions, making geographical proximity an important factor when studying cross-border transactions.

Table II: M&A Deal Statistics by Target Country

Target Nation	All Deals	Cross-Border Deals	
	Number	Number	Number (% of All Deals)
Brazil	1546	625	40%
Canada	5884	1596	27%
Chile	277	149	54%
China (Mainland)	10430	1175	11%
Denmark	459	347	76%
Hong Kong	1026	440	43%
Hungary	90	63	70%
India	1427	456	32%
Indonesia	410	192	47%
Israel	393	253	64%
Japan	4965	221	4%
Malaysia	956	163	17%
Mexico	440	322	73%
Norway	771	364	47%
Peru	177	119	67%
Philippines	211	61	29%
Poland	564	197	35%
Russia	669	181	27%
South Africa	524	195	37%
South Korea	3083	234	8%

Sweden	1274	546	43%
Switzerland	425	350	82%
Thailand	322	91	28%
Turkey	445	167	38%
United Kingdom	7736	2444	32%
United States	26931	6233	23%
Belgium	297	232	78%
Finland	486	272	56%
France	1663	964	58%
Germany	1665	1305	78%
Italy	1431	567	40%
Netherlands	813	667	82%
Portugal	211	108	51%
Spain	1272	632	50%

Tables II and III provide the descriptive statistics for the cross-border mergers and acquisitions dataset. The number of observations for the CBMA ratio, accounting for time variation between 2001 and 2022, totals 24,277. In contrast, when the entire period is considered without accounting for time variation, the number of observations is 1122.

Table III: Summary of the Number of Cross-Border Mergers and Acquisitions

	Obs	Mean	Median	Std.Dev	Min	Max
Panel A: whole sample for the period 2001-						
Cross-Border Ratio	24277	0.032	0.00	0.10	0.00	1.00
Annual GPR Index Difference	24277	-0.003	0.00	0.77	-4.66	4.66

Panel B: whole sample total of period 2001-						
Cross-Border Ratio	1122	0.030	0.01	0.07	0.00	0.59
Average of GPR Index Difference	1122	0.000	0.00	0.74	-2.95	2.95

5. Regression Analysis

Building on prior research on the determinants of cross-border mergers and acquisitions, such as Carril-Caccia et al. (2022), which examines the border effect on mergers and acquisitions, Coeurdacier et al. (2009), which analyzes the impact of financial liberalization and government policies on cross-border M&A, and Erel et al. (2012), which explores the broader determinants of cross-border M&A, I employ an OLS regression to investigate the impact of geopolitical risk (GPR) on cross-border deals.

Yang, Hao and Yaşar (2023), on the other hand, implemented various methodologies, including zero-inflated Poisson regression, Tobit regression and OLS regression to address the challenge of excessive zeros in cross-border M&A datasets, however their findings suggested that while OLS regression can be affected by heteroskedasticity due to prevalence of zeros in the dependent variable, the results still are consistent with those obtained using more sophisticated methods. This confirms the appropriateness of OLS regression for examining cross-border M&A activity, despite some potential challenges with data distributions.

$$\mathrm{CBMARatio}_{i,j,t} = \alpha + \beta_1 \cdot \mathrm{Diff_GPR}_{i,j,t} + \phi_k \mathrm{C}_{i,j,t} + \lambda_k \cdot \mathrm{X}_{i,j,t} + \mathrm{e}_{i,t} \qquad (12)$$

The variable $\mathrm{CBMARatio}_{i,j,t}$ represents the proportion of cross-border mergers and acquisitions where country *i* is the acquirer and country *j* is the target in a given period. $\mathrm{Diff_GPR}_{i,j,t}$ is defined as the difference between the geopolitical risk index of the acquirer and the target countries, emphasizing how geopolitical discrepancies influence M&A

decisions. $C_{i,j,t}$ denotes a vector of differences in country-specific control variables between the acquirer and the target, including cultural factors such as language and religion, as well as geographical distance. This variable captures the effects of cultural proximity and geographic accessibility on the likelihood of cross-border M&A.

In the regression model, country-level economic factors that may affect M&A activity are captured by the term $X_{i,j,t}$. Factors included in $X_{i,j,t}$. are interest rates, which indicate the cost of capital; GDP growth rate, which specifies the economic growth of countries; stock market performance, which reflects market valuation; currency exchange rates; bilateral trade (import and export) volumes, which indicate the economic relationship between countries; and tax rates, which represent the fiscal incentives or disincentives for investment. By incorporating these factors, the model ensures to capture a wide range of economic, cultural and geographic influences on cross-border M&A activity.

6. Results

H1: *Having a higher GPR in a target country (j) compared to that of acquirer country(i), the number of cross-border mergers and acquisitions between country (j) and (i) will be adversely impacted*

Firstly, to test the above hypothesis, I conduct an OLS regression analysis using aggregated values of the variables over the entire period, without accounting for time-specific effects, to examine whether the number of cross-border mergers and acquisitions is negatively affected by higher levels of GPR in a target country. Secondly, to capture the temporal variations in the variables and enhance the robustness of the analysis, I also perform OLS regression incorporating time variation for the variables.

Time-Invariant Regression Analysis

As a first step, I consider the totality of the dataset and remove time-variance from the data in order to focus only on the number of cross-border M&As. Consequently, equation (12), which includes time-variance, is modified into equation (13) after removing the time subscript. In the equation (13) $\mathrm{CBMARatio}_{i,j}$, the cross-border merger and acquisition ratio,

indicates the number of cross-border deals for a country pair over the entire period divided by the sum of domestic and cross-border deals for the same period. This adjustment provides a holistic view of M&A activity across the entire dataset, offering insights into aggregate trends rather than period-specific fluctuations.

$$\text{CBMARatio}_{i,j} = \alpha + \beta_1 \cdot \text{Diff_GPR}_{i,j} + \phi_k C_{i,j} + \lambda_k \cdot X_{i,j} + e_i \quad (13)$$

Similarly, the independent variables used in equation (13) are also recalibrated forms of variables in equation (12), with the time subscript removed. The geopolitical risk difference, $\text{Diff_GPR}_{i,j}$, has been constructed by taking the average of the difference in the geopolitical risk index between the acquirer and target countries over the entire period. The macroeconomic variables, which are presented as $X_{i,j}$ in the OLS model represent the average of the differences of the macroeconomic variables such as interest rates, GDP growth, stock market performance, currency exchange rates, bilateral trade, and tax rates over the entire period for each country.

By concentrating on long-term trends and averages, this modified model provides a comprehensive insight into the determinants that drive cross-border M&A, disregarding the temporary fluctuations seen in the CBMA ratio.

Table IV: Cross-Sectional Analysis of Geopolitical Risk Index's (GPR) Impact on Cross-Border Mergers and Acquisition (CBMA)

	Dependent Variable			
	$\text{CBMA Ratio}_{i,j}$			
	Model 1	Model 2	Model 3	Model 4
$\text{Diff_GPR}_{i,j}$	0.035***	0.034***	0.022***	0.025***
	(0.005)	(0.005)	(0.005)	(0.005)
$\text{Tax_rate}_{i,j}$		0.027	0.007	0.008
		(0.024)	(0.023)	(0.023)
$\text{Interest Rate}_{i,j}$		0.035	0.183***	0.160***
		(0.063)	(0.066)	(0.062)
$\text{GDP_growth}_{i,j}$		0.023	-0.048	-0.034
		(0.059)	(0.062)	(0.058)

$Currency_{i,j}$		-0.119*	-0.235***	-0.221***
		(0.069)	(0.069)	(0.066)
$Max\ (Import, Export)_{i,j}$			0.501***	0.400***
			(0.077)	(0.075)
$Stock\ Market\ Return_{i,j}$			0.067***	0.062***
			(0.020)	(0.019)
$Language_{i,j}$				0.030**
				(0.014)
$Religion_{i,j}$				0.013***
				(0.005)
$Log(distance)_{i,j}$				-0.014***
				(0.003)
Constant	0.030***	0.030***	0.016***	0.132***
	(0.002)	(0.002)	(0.002)	(0.024)
Observations	1,122	1,122	1,122	1,122
R^2	0.137	0.142	0.290	0.336
Adjusted R^2	0.137	0.138	0.285	0.330
Note:				*p**p***p<0.01

Table IV presents the results based on the OLS regression from Equation (13). The models start with a basic version (Model 1) and become more detailed in Models 2, 3 and 4 by adding macroeconomic, financial, and cultural variables.

Table IV indicates that in all four OLS models, GPR coefficients from the regression analysis are always positive and highly significant at the 1% level. The values of the coefficients vary from 0.035 in Model 1, where the regression model includes only GPR as independent variable to 0.025 in Model 4 where several various variables are included. The regression models showed positive coefficients for the GPR ratio, which suggests an inverse relationship between the GPR of the target country and the CBMA ratio, meaning that an increase in the geopolitical risk ratio in the target country is associated with a decrease in the CBMA ratio.

This implies that when the difference between the GPR index of the acquiring country and the target country is positive, meaning that the GPR index of the acquirer is higher than that of the target country, the level of the CBMA ratio will be impacted positively. To clarify further, since $Diff_GPR_{i,j}$ represents the difference between the GPR index of acquirer and the target country. A positive coefficient for the GPR index implies that when the GPR index level in an acquirer country is higher than that of the target, the impact on CBMA ratio will be positive. Because a positive $Diff_GPR_{i,j}$ value multiplied by a positive coefficient will result in a positive CBMA ratio. Conversely, if the target country's GPR level is higher than the acquirer's, $Diff_GPR_{i,j}$ becomes negative, and when multiplied by the positive coefficient, this results in a negative impact on the CBMA ratio. Therefore, a positive coefficient for $Diff_GPR_{i,j}$ suggests that a higher GPR in the target country negatively affects cross-border mergers for the target country.

The results in Table IV indicate that a 1% increase in the target country's Geopolitical Risk (GPR) index relative to the acquirer country leads to a 0.025% decrease in the cross-border M&A ratio, as shown in Model 4. This suggests that countries with lower geopolitical risk are more attractive to foreign investors, encouraging cross-border M&A activity, while higher geopolitical risk discourages investment and reduces cross-border transactions. These results are consistent with the previous work by Gregoriou, Nguyen, et al. (2021), who showed more uncertainty in the target country reduces inbound acquisitions. Caldara and Iacoviello (2022) reached similar results and found a negative correlation between geopolitical risk, investment and employment. Furthermore, these results corroborate the findings of Nguyen and Phan (2017) and Paudyal, Thapa, et al. (2021), who shed light on the negative effects of uncertainty regarding economic or policy environments on cross-border M&A. The results are also in line with the findings of Cao, Li, and Liu (2023), who found that increased policy uncertainty is associated with lower level of investment. More specifically, the results provide similar evidence as the findings of Hao et al. (2020) who found a negative relationship between GPR and cross-border mergers. Although, a great number of previous studies have highlighted policy uncertainty rather than specifically

examining GPR index, but the results are still relevant since the two variables reveal similar features, even though they are different in nature.

The tax rate variable shows a positive coefficient across all four models, but it is not statistically significant. When interest rates are included in Models 3 and 4, they reveal a statistically significant positive relationship, particularly at the 1% level in Model 4. This finding implies that higher interest rates in target countries may decrease cross-border mergers which is in line with the findings of Erel, Liao et al. (2012). Additionally, the GDP growth rate difference between the target nation and the acquiring nation shows a negative correlation with a coefficient of -0.034 in Model 4, implying lower GDP growth in the target compared to the acquiring nation has a negative impact on the CBMA ratio. This aligns with the findings of Erel, Liao et al. (2012), which showed that the acquirers are more likely to acquire firms belonging to countries with relatively high GDP growth rates. The absence of statistical significance, however, across all models indicates that positive economic growth is indeed a good sign but can be outweighed by other macroeconomic factors or firm-specific ones within the cross-border M&A context. Exchange rate differentials, on the other hand, have become an important driver of CBMA. The negative and statistically significant coefficients for exchange rates in Models 3 and 4 suggest that acquirers from countries with weaker currencies are more likely to target firms in countries with stronger currencies. This observation contradicts the findings of Erel, Liao et al. (2012), and Froot and Stein (1991) who suggest that the appreciation of acquiring countries' exchange rates relative to target nations is associated with higher cross-border mergers and acquisitions between the nations.

Cross-border M&As are complex, so many factors affect the deal process, not only macroeconomic and financial factors such as GDP, geopolitical risk, exchange rates and tax rates, but also cultural and geographical factors of both the acquirer and the target country also have a significant impact. Thus, cultural factors such as language and religion which were included in Model 4, yield positive and statistically significant coefficients at the 5% and 1% levels, meaning that if the acquirer and target country have the same language and religion, this may reduce transaction costs and facilitate the M&A processes.

In addition, to examine the geographical effect, geographical proximity was entered into the model (Model 4). The model shows a clear negative coefficient for geographical proximity as presented in Table IV, suggesting that mergers and acquisitions between the acquirer and target companies' home countries become less likely as the distance between home countries increases.

The import and export variable included in Model 3 and Model 4, with positive coefficients in both, being 0.501 for Model 3 and 0.400 for Model 4, and they are both significant at the 1% level. This result emphasizes the importance of trade ties in facilitating cross-border M&As.

The stock market return variable, which serves as an indicator of equity market valuation, demonstrates a statistically significant positive coefficient. This relationship implies that greater valuation in the acquiring country is associated with a higher CBMA ratio. This result is consistent with the findings of Baker, Foley, and Wurgler (2009), which suggest that countries with higher valuations are incentivized to pursue cross-border M&A activity by targeting countries with lower stock market valuations.

As the R-squared and adjusted R-squared ratios are important for understanding the explanatory power of independent variables in the model, it is valuable to see how these ratios increase as more variables are included in the model. Overall, the adjusted R-squared values improve from 0.137 in Model 1 to 0.33 in Model 4, reflecting the enhanced explanatory power of the models as additional variables are incorporated. The consistent significance of the constant term across all models further suggests the presence of baseline factors not captured by the included variables, which could be firm-specific factors.

Time-Variant Regression Analysis

To provide additional insight to the impact of geopolitical risk on cross border mergers and acquisitions, I utilize equation (12) which takes into account time variation of variables. Hence, this methodology captures the dynamic nature of cross-border mergers and acquisitions and geopolitical risk.

$$\mathrm{CBMARatio}_{i,j,t} = \alpha + \beta_1 \cdot \mathrm{Diff_GPR}_{i,j,t} + \phi_k C_{i,j,t} + \lambda_k \cdot X_{i,j,t} + e_{i,t} \quad (12)$$

In the time-variant OLS model, presented as equation (12), the $\mathrm{CBMARatio}_{i,j,t}$ represents the proportion of cross-border M&A deals in a given time period, with the subscript t representing the time, provides a dynamic ratio of CBMA activity. In this equation, the variable $\mathrm{Diff_GPR}_{i,j,t}$ is recalculated for each time period, reflecting the evolving difference in geopolitical risk between the acquirer and target countries. Similarly, $C_{i,j,t}$ denotes fixed country-specific control variables, such as language, religion, and geographical distance, and finally, $X_{i,j,t}$ captures time-variant macroeconomic factors, including interest rates, GDP growth rates, stock market performance, currency exchange rates, bilateral trade volumes, and tax rates.

This approach allows for capturing the time-varying dynamics of geopolitical risk and other determinants of CBMA with the model. The influence of both geopolitical risk and macroeconomic variables undoubtedly changes over time, and using a time-variant model allows us to analyze these changes and assess their potential impact on CBMA activity across different periods. A geopolitical crisis or financial shock, for example, could radically change the M&A landscape. As illustrated in Figure II, there has been a notable reduction in cross-border deals coming from China to the U.S., which corresponds with the U.S.-China trade war. The time-variant approach also accounts for temporal heterogeneity, as the factors influencing CBMA may vary across periods, such as pre- and post-financial crises. By including a temporal dimension, the model can identify how sensitivities to variables like GPR change over time.

Several prominent studies provide a strong rationale for adopting a time-variant approach. For instance, Baker, Foley, and Wurgler (2009) highlight how stock market valuations influence cross-border M&A decisions, evolving with economic cycles. Froot and Stein (1991) explore time-sensitive interactions between exchange rates and foreign investment, showing how changes in global financial markets affect M&A activity. They conclude that countries with weaker currencies become more attractive to foreign investors from stronger-currency countries looking to acquire assets.

Table V: Panel Analysis of Geopolitical Risk Index's (GPR) Impact on Cross-Border Mergers and Acquisition (CBMA)

	Dependent variable:			
	$CBMA\ Ratio_{i,j,t}$			
	Model 1	Model 2	Model 3	Model 4
$Diff_GPR_{i,j,t}$	0.034***	0.033***	0.022***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)
$Tax_rate_{i,j,t}$		0.027***	0.026***	0.030***
		(0.007)	(0.007)	(0.007)
$Interest\ Rate_{i,j,t}$		-0.047***	-0.013*	-0.019***
		(0.007)	(0.007)	(0.007)
$GDP_growth_{i,j,t}$		0.008	0.005	0.012
		(0.014)	(0.013)	(0.014)
$Currency_{i,j,t}$		0.007**	0.007**	0.006
		(0.004)	(0.004)	(0.004)
$Max\ (Import, Export)_{i,j,t}$			0.497***	0.400***
			(0.022)	(0.024)
$Stock\ Market\ Return_{i,j,t}$			-0.010***	-0.010***
			(0.002)	(0.003)
$Language_{i,j}$				0.042***
				(0.008)
$Religion_{i,j}$				0.018***
				(0.002)
$Log(distance)_{i,j}$				-0.011***
				(0.001)
Constant	0.032***	0.032***	0.017***	0.111***
	(0.001)	(0.001)	(0.001)	(0.009)
Observations	24,277	24,277	24,277	24,099
R^2	0.067	0.069	0.141	0.159
Adjusted R^2	0.067	0.069	0.141	0.159
Note:				*p**p***p<0.01

The results from the regression analysis presented in Table V, which account for time variation, are consistent with the findings from the time-invariant analysis. Both regression models indicate that GPR has positive coefficients, demonstrating that acquirers are more

willing to take stakes in companies in the regions with lower geopolitical risk, with statistical significance at the 1% level. The coefficient for the GPR index in Table V, Model 4, is 0.021, which is comparable in magnitude to the time-invariant model, which yielded a coefficient of 0.025. This indicates that a 1% increase in the GPR of the target country relative to the acquiring country in a year corresponds to a 0.021% decrease in the CBMA ratio. Conversely, a 1% higher GPR in the acquiring country in a year relative to the target country implies a 0.021% increase in the CBMA ratio with that country.

H2: *Inbound mergers and acquisitions in a target country (j) is impacted negatively due to higher level of GPR in the target compared to that of the acquiring country*

After studying the impact of the GPR index in cross-border mergers and acquisitions by including cases where a country acts both as an acquirer and as a target, this section narrows down the focus by studying only inbound mergers and acquisitions, where a country acts as the target. Hence, in this section I analyze how an increase in the geopolitical risk (GPR) index for a specific country affects inbound acquisitions in that country. The section employs the same methodology as the previous analysis, with one key difference: the dependent variable now represents the proportion of total cross-border M&A deals targeting a specific country in a given year, scaled by the total number of M&A deals occurring in that country during the same year. With the study examining 34 countries, the acquirers in this context may consist of the other 33 nations that are seeking to make inbound acquisitions in the target country. The objective of this regression analysis is to determine whether a rise in the GPR index for a target country correlates with a shift in the number of cross-border M&A activity.

Table VI: Impact of GPR on Inbound Cross-Border Mergers and Acquisitions

	Dependent variable:
	CBMA Ratio$_{j,t}$
GPR$_{j,t}$	-0.111***
	(0.010)
Tax_rate$_{j,t}$	-0.039
	(0.122)

Interest $Rate_{j,t}$	-0.149
	(0.165)
$GDP_growth_{j,t}$	-0.706***
	(0.273)
$Currency_{j,t}$	-0.060
	(0.073)
Stock Market $Return_{j,t}$	0.040
	(0.035)
Constant	0.564***
	(0.032)
Observations	748
R^2	0.074
Adjusted R^2	0.067
Note:	*p**p***p<0.01

The result from the analysis of inbound mergers and acquisitions is presented in Table IV and shows that geopolitical risk (GPR) has a significantly negative impact on the cross-border M&A ratio (CBMA_Ratio) for the countries analyzed, with a coefficient of -0.111, and a statistical significance level of 1%, with robust standard errors reported in parentheses. The negative coefficient from this model is also significant from an economic perspective, meaning a one-unit increase in the GPR index correlates with a 0.111% decrease in the level of inbound cross border mergers and acquisitions ratio in that country.

While the results support the hypothesis that higher GPR is associated with lower CBMA_Ratio, the R-squared value of the regression model is relatively low, which is an indication of independent variables' poor explanatory quality which is a limitation in the model, likely stemming from the absence of country- and firm-specific factors that could better capture the variation in cross-border M&A activity.

H3: *Having a higher GPR in a country is associated with a lower level of mergers and acquisitions number*

In this section, I also aim to conduct a regression analysis examining the relationship between the level of geopolitical risk (GPR) and changes in the overall number of M&A

deals, both cross-border and domestic deals included. The analysis aims to explain the impact of GPR on total deal number per country to get an idea of its broader effects on M&A activity.

Table VII: Impact of GPR on Overall M&A Activity

	Dependent variable:
	Log (Number of M&A Deals)
$GPR_{j,t}$	1.283***
	(0.095)
$Tax_rate_{j,t}$	0.929*
	(0.552)
$Interest\ Rate_{j,t}$	-3.951***
	(0.684)
$GDP_growth_{j,t}$	2.322*
	(1.275)
$Currency_{j,t}$	-0.260
	(0.347)
$Stock\ Market\ Return_{j,t}$	-0.315**
	(0.160)
Constant	3.244***
	(0.145)
Observations	748
R^2	0.334
Adjusted R^2	0.328
Note:	*p**p***p<0.01

Table VI demonstrates the results from a regression analysis testing whether geopolitical risk (GPR) affects total deal number in a country. Notably, the findings for the impact of GPR on the total number of deals, including both cross- border and domestic transactions in a country, diverge from those observed in the context of cross-border mergers alone. The coefficient for GPR is positive and significant at the 1% level, with a value of 1.283, suggesting that a 1% increase in GPR may cause a 1.283% increase in annual deal number in a country. These findings are consistent with those of Rao et al. (2023), who found a similarly strong positive relationship between GPR and domestic M&A activity during the

examined period. The authors conducted a more detailed investigation, which revealed that while cross-border deals were negatively affected by geopolitical risk (GPR), domestic deals, on the other hand, experienced a positive impact. Hence, a positive coefficient obtained in this regression analysis is in line with the Rao et al. (2023) findings for domestic deals. As such, in testing hypothesis 3, since both domestic and cross-border deals are included, the positive impact of GPR on the total number of M&A deals might stem from domestic deals reacting positively to high GPR levels. This is further supported by the evidence provided by Shen, Liang, et al. (2021), who investigated the impact of GPR on the electric power sector in China and found a significant positive relationship.

H4: *Higher GPR level in the US is associated with a lower inflow of cross-border mergers in the US economy*

I also look closer to a specific country to investigate how GPR impacts the level of cross border in that country, for that I look into the US economy since, the number of deals is by far larger than other countries.

Table VIII: Impact of GPR on Inbound Cross-Border Mergers and Acquisition for the US

	Dependent variable:
	$CBMA\ Ratio_{i,US,t}$
$Diff_GPR_{i,US,t}$	0.001***
	(0.0004)
$Tax_rate_{i,US,t}$	0.007**
	(0.003)
$Interest\ Rate_{i,US,t}$	-0.026***
	(0.006)
$GDP_growth_{i,US,t}$	-0.042***
	(0.011)
$Currency_{i,US,t}$	0.001
	(0.002)
$Max\ (Import, Export)_{i,US}$	0.073***
	(0.011)
$Stock\ Market\ Return_{i,US,t}$	0.001
	(0.001)

$\text{Language}_{i,US}$	0.064***
	(0.003)
$\text{Religion}_{i,US}$	0.001
	(0.001)
$\text{Log(distance)}_{i,US}$	0.003***
	(0.001)
Constant	-0.023***
	(0.008)
Observations	726
R^2	0.829
Adjusted R^2	0.826
Note:	*p**p***p<0.01

Results from Table V show that the impact of GPR on the cross-border deals in the US obtains a positive coefficient of 0.001 significant at 1% level. Economically, the results suggest that 1% increase in the GPR level of the US compare to the acquiring nations, entails 0.001% decrease in the CBMA ratio. This suggests that as the difference in the GPR index between the acquiring nation and the United States increases, indicating that the level of geopolitical risk in the United States is lower than in the acquiring country, the cross-border M&A (CBMA) ratio tends to rise. These findings are in line with the previous research regarding the level of uncertainty and the inflow of investments in a country. Julio and Yook (2012) and Bloom, Bond, and Van Reenen (2007), and others demonstrate that uncertainty interrupts corporate planning and investment efforts, leading to an observable drop in M&A activity

To provide further granularity, I also conduct a regression analysis using the monthly cross-border M&A ratio to examine the impact of developments in the GPR index on cross-border activity at a more detailed, month-by-month level. The CBMA ratio in this analysis is calculated as the total number of cross-border mergers and acquisitions scaled by the total number of mergers and acquisitions that occurred in a month in the US. Thus, in this case, I choose not to differentiate between the countries that are acquiring, rather, I assess the cumulative number of inbound cross-border deals. In addition, the GPR variable denotes the monthly index that reflects the GPR for the economy of the United States.

Moreover, other control variables are associated exclusively with the US, rather than reflecting the difference between the US and the acquiring countries.

Table IX: Impact of GPR on Cross-Border Merger and Acquisition Regression for the US

	Dependent variable:
	$\text{CBMA Ratio}_{US,t}$
$GPR_{US,t}$	-0.011***
	(0.003)
$\text{Stock Market Return}_{US,t}$	0.013
	(0.080)
$GDP_growth_{US,t}$	0.486**
	(0.216)
$\text{Currency}_{US,t}$	0.096
	(0.765)
$\text{Interest Rate}_{US,t}$	-0.274
	(0.245)
Constant	0.281***
	(0.015)
Observations	263
R^2	0.066
Adjusted R^2	0.048
Note:	*p**p***p<0.01

Table IX presents the results of the regression analysis investigating the impact of geopolitical risk (GPR) and other economic variables on the monthly cross-border M&A ratio (CBMA Ratio) for the U.S. economy.

The coefficient for the U.S. GPR index is negative (−0.011) and statistically significant at the 1% level. The result implies that as the level of geopolitical risk in the US economy increases, the level of CBMA ratio decreases on a monthly basis. It indicates that for every unit increase in GPR index, there can be a consequential 0.011% decrease in the CBMA Ratio, highlighting the negative impact of geopolitical risk on cross-border M&A activities.

7. Regression Model Validation Test

In the regression analyses, I conduct preliminary tests to validate the reliability of the regression results, focusing on multicollinearity and heteroskedasticity. Multicollinearity test, presented in Figure VII, indicates that there is no multicollinearity with variance inflation factor (VIF) for all independent variables significantly lower than 10.

Figure VI: Correlation Matrix of Independent Variables

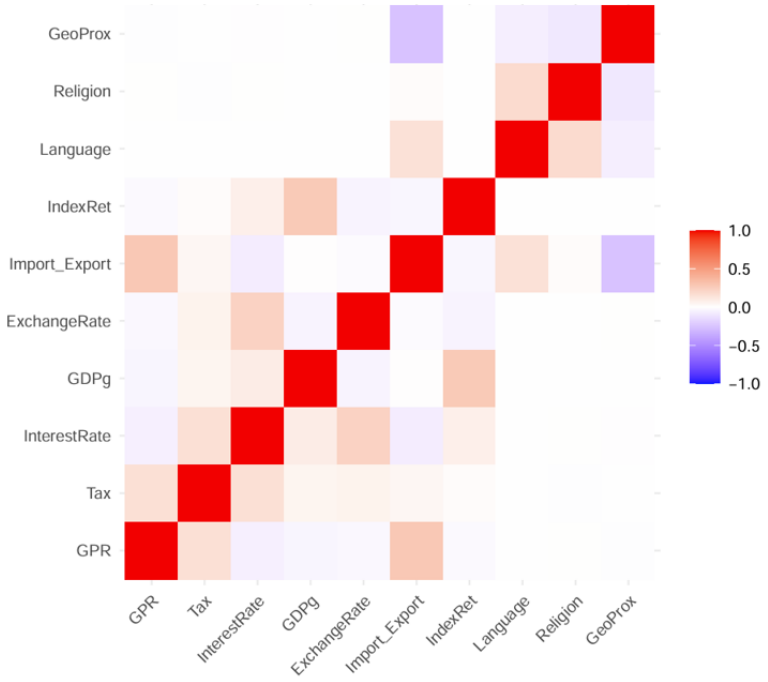


Figure VII: Variance Inflation Factor

	VIF
Diff_GPR	1.182
Tax_rate	1.070
Interest Rate	1.129
GDP_growth	1.058
Currency	1.073
Max (Import, Export)	1.284
Stock Market Return	1.086
Language	1.064
Religion	1.047
Log(distance)	1.137

Since, the Breusch-Pagan test indicates the presence of heteroskedasticity in model, robust standard errors are employed in all regression analysis models to ensure reliable interference. Implementing robust standards errors, such as those proposed by White (1980) is a common method to correct for heteroscedasticity, which otherwise can make the results from regression model unreliable and difficult to interpret. These heteroscedasticity-robust standard errors provide valid inference regardless of the form of heteroscedasticity, which makes them applicable to cross-border analyses.

To address the heteroscedasticity in the regression model and ensure the reliability of the results, I applied robust standard errors, to adjust the variance- covariance matrix. This adjustment allows accurate statistical inference despite the heteroskedasticity. Consequently, the results from regression analyses presented in this study include robust standard errors to account for this issue and improve the validity of the findings.

8. Conclusion

In this study, I analyze 34 countries over a 22-year period to investigate the impact of geopolitical risk (GPR) on cross-border mergers and acquisitions (CBMA), using the GPR index developed by Caldara and Iacoviello, (2022). Geopolitical risk is a highly relevant yet under-researched topic in today's global landscape, emphasizing the significance of geopolitical stability in international investment decisions.

By testing four main hypotheses, this study provides empirical evidence that sheds light on how GPR drives cross-border deals. The first hypothesis to test in this study is to show that an increased level of GPR in the target country is associated with lower cross-border deals. Secondly, to confirm that the impact of GPR on inbound cross-border deals is negative. Thirdly, a higher level of GPR depresses the domestic and cross-border deal numbers within a country. Lastly, an increase in the GPR index leads to a lower inflow of cross-border deals in the U.S. economy.

The empirical results from the time-invariant models (Table IV) reveal that a 1% decrease in the geopolitical risk (GPR) of the target country relative to the acquiring country leads

to a 0.025% increase in the cross-border mergers and acquisitions (CBMA) ratio (Model 4). Thus, a target country's GPR is inversely related to its attractiveness for cross-border deals, indicating that a lower GPR makes the target country more appealing for acquisition activities. In addition, including time variability strengthens this argument as we look at the changes in the variables over time for the period of 22 years. The GPR coefficients consistently remain positive and significant at the 1% level, even in the time-variant models. As can be seen in Model 4 (Table V), a 1% increase in the GPR of the target country in a year relative to that of the acquiring country results in a decrease in the CBMA ratio of 0.021%. These findings highlight the significant aspect of how geopolitical risks are affecting cross-border investment decisions, while also emphasizing the importance of stability in encouraging global economic engagement.

The findings confirm previous studies, including Caldara and Iacoviello (2022), which show that an increase in GPR is associated with a reduction in investment levels. It further supports the results of Cao et al. (2023), who examined the influence of geopolitical risk on cross-border merger and acquisition deals and discovered that military alliances can reduce geopolitical threats and therefore lead to enhanced cross-border mergers and acquisitions.

Furthermore, when focusing on the inbound mergers and acquisitions activity, the findings show that an increase in the level of GPR level in a country can result in a significant decrease in the number of cross-border deals that target the country. This highlights the deterrent effect of geopolitical instability on foreign investment, which limits a country's ability to integrate into global M&A markets. The findings are consistent with Ferreira et al. (2010), Nguyen & Phan (2017), and Gregoriou, Nguyen, et al. (2021) who suggest that the number of mergers and acquisitions declines significantly when uncertainty in the target country exceeds that of in the acquirer's country, as higher uncertainty in the target nation deters inbound acquisitions. In addition, the United States case study further exemplifies how lower geopolitical risk, relative to acquirer countries, draws in a greater number of cross-border deal flows. The study of the U.S. case supports the findings of Hao et al.

(2022), who also found a negative relationship between the GPR index and the U.S. M&A activities.

These findings emphasize the critical importance of geopolitical stability in fostering cross-border investment. Suggesting, countries with a lower GPR are better positioned to attract foreign acquirers, as reduced uncertainty enhances both deal feasibility and investor confidence. The results align closely with additional prior research, which has shown that geopolitical uncertainty increases perceived risks, discourages investment, and disrupts cross-border deal flows. For instance, Julio and Yook (2012) and Bloom, Bond, and Van Reenen (2007), and others demonstrate that uncertainty interrupts corporate planning and investment efforts, leading to an observable drop in M&A activity. Nguyen & Phan (2017) by using EPU index found a negative relationship between the index and in-bound cross-border M&As. Bonaime, Gulen, and Ion (2018) provide evidence that firms pursue deals in countries experiencing less policy uncertainty when their own domestic market is exposed to high policy uncertainty.

Additionally, when investigating the impact of GPR on overall M&A activity, including domestic and cross-border deals in a country, the results have shown a positive impact. This is consistent with the findings of Roa et al. (2023) for overall M&A activity, as well as the findings of Shen, Liang, et al. (2021) regarding the positive impact of GPR on the electric power sector in China.

By identifying GPR as an important factor that can disrupt a cross-border M&A deal, thus this study contributes to understanding the implication of geopolitical dynamics in the context of mergers and acquisition activity at an international level. In conclusion, the findings in this study significantly reinforce the results presented in extensive previous research. Therefore, further research in the area is necessary to build on the findings of this research to explore how organizations adapt their M&A strategies in response to geopolitical uncertainty. Moreover, examining the role of mitigating factors, such as trade agreements and measures to enhance political stability, could provide further insights into

whether these measures act as a counterbalance to the challenges posed by geopolitical risk.

9. Limitations & Future Research

In this paper, I have included a substantial number of deals over a wide time period to gain a comprehensive understanding of the dynamics that geopolitical risk entails in the context of cross-border mergers and acquisitions. The timespan in this study is limited to 22 years from 2001 to 2022, it is worth considering an extension of the period for the regression analysis because geopolitical risk does not fluctuate significantly from year to year, so including additional years in the analysis would likely refine the results and enhance their robustness. Since, due to limited access to data and scarcity of time, this study does not include deal- and firm-specific factors, future research could build on its findings by exploring the impacts of GPR on cross-border M&A at a more granular level by including deal-level data and accounting data for firm-specific characteristics to gain deeper insight into the dynamics of geopolitical risk in international investment decisions. Additionally, a large number of previous research have used FDI as a proxy for cross-border mergers and acquisitions. Therefore, future research could investigate how FDI responds to fluctuations in the GPR index and provide additional evidence to build a comprehensive understanding of the relationship between GPR and the investment landscape on an international level.

Furthermore, to study the impact of the GPR index on cross-border M&A transactions, I employ the methodology suggested by Erel et al. (2012) to construct the dependent variable, CBMA ratio. Although this method has seen extensive use in studies of cross-border M&A, a recent paper by Yang et al. (2023) proposes alternative methodologies, more appropriate given the unique nature of cross-border M&A data. In particular, cross-border M&A datasets typically contain a high number of zeros (those pairs of countries which do not have deals). Methodologies such as Poisson regression or zero-inflated Poisson regression are therefore recommended for more directly analysis of these dynamics in such cases (Yang, Hao, and Yaşar, 2023).

Poisson regression, which takes into account the number of occurrences in data, is able to provide solutions for the problem of frequent zero data points in the data. Furthermore, zero-inflated Poisson regression is another model that provides distinction between structural zeros and random zeros. Structural zeros refer to instances where no deals occurred, while random zeros refer to occurrences where deals could have happened but did not. Through application of these methods in future analyses, it is possible to provide further robustness checks and provide statistical results for the impact of GPR on cross-border mergers and acquisitions, while taking into account the distributional characteristics of the data.

10. Robustness Tests

In order to establish the reliability of the results I will also conduct a regression analysis conducted in Table V by adding time fixed effect and want to ensure that the effect of time is also appropriately taken into account. Table VI represents the regression conducted on all deals during the period 2001 to 2022 with addition of time fixed effect.

Table X: Impact of GPR on Cross-Border Mergers and Acquisition with Time Fixed Effect

	Dependent variable:
	$CBMA\ Ratio_{i,j,t}$
$Diff_GPR_{i,j,t}$	0.021***
	(0.002)
$Tax_rate_{i,j,t}$	0.030***
	(0.008)
$Interest\ Rate_{i,j,t}$	-0.019**
	(0.009)
$GDP_growth_{i,j,t}$	0.013
	(0.023)
$Currency_{i,j,t}$	0.006
	(0.007)
$Max\ (Import, Export)_{i,j,t}$	0.399***
	(0.018)
$Stock\ Market\ Return_{i,j,t}$	-0.011
	(0.007)

$Language_{i,j}$	0.042***
	(0.008)
$Religion_{i,j}$	0.018***
	(0.001)
$Log(distance)_{i,j}$	-0.011***
	(0.001)
Time FE	Included
Observations	22,099
R^2	0.159
Adjusted R^2	0.158
Note:	$^{*}p^{**}p^{***}p<0.01$

From Table V, it is observable that the coefficient for GPR is still positively significant at 1% which indicates that even after the time effect is taken into account, the results provide evidence that GPR has a significant impact on cross-border mergers and acquisitions.

In the interest of excluding the possibility that the GPR incorporates the effect of other uncertainties that might cause the identified negative relationship, I also include the EPU which is the policy uncertainty index of Baker et al. (2016), employed by Bonaime et al. (2018) and Nguyen and Phan (2017). Additionally, the Political Risk Service Index developed by the International Country Risk Guide is also included in the analysis in order to investigate whether these other uncertainty indices impact the cross-border mergers in countries.

Table XI: Cross-Border Merger and Acquisition Regression Analysis with Other Uncertainty Indices

	Dependent variable:		
	$CBMA\ Ratio_{i,j,t}$		
	(1)	(2)	(3)
$Diff_GPR_{i,j,t}$			0.024***
			(0.002)
$Diff_EPU_{i,j,t}$	0.002		0.001
	(0.002)		(0.002)
$Diff_PRS_{i,j,t}$		0.087***	0.076***

		(0.007)	(0.007)
$Tax_rate_{i,j,t}$	0.012	0.081***	0.037***
	(0.015)	(0.015)	(0.013)
$Interest\ Rate_{i,j,t}$	-0.057*	0.004	-0.008
	(0.031)	(0.033)	(0.032)
$GDP_growth_{i,j,t}$	0.031	0.129***	0.167***
	(0.037)	(0.037)	(0.038)
$Currency_{i,j,t}$	-0.006	0.003	0.011
	(0.009)	(0.009)	(0.009)
$Max\ (Import, Export)_{i,j,t}$	0.317***	0.301***	0.190***
	(0.032)	(0.032)	(0.032)
$Stock\ Market\ Return_{i,j,t}$	-0.011**	-0.016***	-0.013**
	(0.005)	(0.005)	(0.005)
$Language_{i,j}$	0.029***	0.023**	0.034***
	(0.011)	(0.011)	(0.010)
$Religion_{i,j}$	0.031***	0.029***	0.025***
	(0.004)	(0.004)	(0.004)
$Log(distance)_{i,j}$	-0.013***	-0.012***	-0.016***
	(0.002)	(0.002)	(0.002)
Constant	0.136***	0.127***	0.170***
	(0.022)	(0.020)	(0.020)
Observations	5,005	5,005	5,005
R^2	0.113	0.168	0.207
Adjusted R^2	0.111	0.166	0.205
Note:		*p**p***p<0.01	

Table XI shows that even though EPU is statistically insignificant when entered alone into the regression, the sign is consistent with that of GPR — and this suggests that increasing economic uncertainty is correlated with a decrease in the cross-border mergers and acquisitions (CBMA) ratio between target and acquirer countries. This means a lower inflow of cross-border mergers in nations with greater levels of economic uncertainty. The Political Risk Index (PRS) yields similar results. However, the significance of EPU wanes when all indices are added to the regression at once (GPR and PRS remain statistically significant with positive coefficients). It indicates that geopolitical risk and political risk,

as identified by these specific indices, still negatively impact the inflow of cross-border M&A deals into target countries with higher-risk levels.

Also, Di Giovanni (2005) and Head and Ries (2007) used Tobit regressions to show that cultural and geographical closeness plays an important role in determining cross-border M&As. Building on their approach, I re-estimate the regression used in Table V and present the results in Table XII using a Tobit regression model as a robustness test.

Table XII: Tobit Regression Analysis for Impact of GPR on Cross-Border Mergers and Acquisitions

	Dependent Variable
	$\text{CBMA Ratio}_{i,j,t}$
(Intercept) × 1	0.169***
	(0.020)
logSigma	-1.484***
	(0.011)
$\text{Diff_GPR}_{i,j,t}$	0.012***
	(0.002)
$\text{Tax_rate}_{i,j,t}$	0.093***
	(0.022)
$\text{Interest Rate}_{i,j,t}$	-0.216***
	(0.034)
$\text{GDP_growth}_{i,j,t}$	-0.131*
	(0.060)
$\text{Currency}_{i,j,t}$	0.010
	(0.014)
$\text{Max (Import, Export)}_{i,j,t}$	1.070***
	(0.033)
$\text{Stock Market Return}_{i,j,t}$	-0.031**
	(0.009)
$\text{Language}_{i,j}$	0.090***
	(0.012)
$\text{Religion}_{i,j}$	0.058***
	(0.005)
$\text{Log(distance)}_{i,j}$	-0.046***
	(0.002)
Num.Obs.	22099
AIC	11645.6
BIC	11741.6

Tobit regression results show the GPR index is statistically significant at a 1% level. In particular, the coefficient falls from 0.021 in OLS in Table V (Model 4) to 0.012 in Tobit. This change in magnitude does not affect the direction of the relationship, which is consistent with the OLS regression findings and, thus, confirms the robustness of the results.

The robustness tests conducted in this study confirm the reliability of the findings, demonstrating that the relationship between geopolitical risk (GPR) and cross-border mergers and acquisitions (CBMA) remains statistically significant across various models. By incorporating time fixed effects, economic policy uncertainty (EPU), and the Political Risk Service Index (PRS), the analysis highlights that GPR consistently has a negative impact on CBMA activity in a target country. Furthermore, the results from Tobit regression reinforce these findings, with the direction of the GPR coefficient remaining consistent.

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