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INVESTMENT POLICY, GEOPOLITICAL RISK AND THE ROLE OF INSTITUTIONS: INTERNATIONAL EVIDENCE

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Abstract

In today's world, given the increasing importance of geopolitical risk (GPR), this study investigates the impact of GPR on corporate investment, or capital expenditure, of non-financial firms considering institutional settings. Utilising data on 337,399 firm-years from 42 countries for the period 1996-2021 (retrieved from Datastream), empirical findings show that firms in higher GPR countries present fewer investment opportunities. Namely, firms use capital expenditures as a substitute for GPR. Next, the negative impact of governance on capital expenditures across the whole sample remains for the firms in civil law countries. However, it reverts to positive for those in common law countries. In other words, capital expenditures are a substitute for (outcome of) governance in civil (common) law countries. Overall, investors should be concerned about the level of GPR, governance, and legal system when determining where to invest. Policymakers should consider GPR and institutional quality to attract foreign investors.

Keywords: *geopolitical risk, governance, investment, legal system*

I. INTRODUCTION

Just after the pandemic began winding down, nations awoke to an inflationary world. In addition, the Russia-Ukraine war has dragged the world into acute political and economic uncertainty. Therefore, geopolitical risk (GPR) has taken on particular importance.[1] The GPR relates to tensions, terrorist attacks, and wars across nations influencing international relations.[2] While the GPR has increasing importance, few studies have assessed the implications of the

[1] Ahmet Faruk Aysan et al., "The Ascent of Geopolitics: Scientometric Analysis and Ramifications of Geopolitical Risk," *Defence and Peace Economics* 34, no. 6 (2023): 791–809, https://doi.org/10.1080/10242694.2022.2062981.

[2] Dario Caldara and Matteo Iacoviell, "Measuring Geopolitical Risk," *American Economic Review* 112, no. 4 (April 1, 2022): 1194–1225, https://doi.org/10.1257/aer.20191823.

GPR on investment policy by a restricted sample.[3] Therefore, this study aims to fill the gap by investigating the role of GPR on capital expenditures across the globe to generalise the findings of previous research. Also, this article builds on the literature by exploring the effect of institutions and legal systems on investment decisions.

Investment policy may differ[4] other corporate policy decisions like debt, cash, and dividends. For instance, under and over-investment problems arise depending on managers' interests.[5] Previous research mentions exogenous shocks, uncertainties, or GPR influences on financial markets. For example, Saint Akadiri *et al.*[6] mention that GPR adversely influences the growth of economies. Le and Tran[7] also underlie the negative association between GPR and investment policy. However, the question of how the role of institutions in capital expenditures remains unanswered.

Utilising data from 337,399 firm-years from 42 countries over the period 1996-2021, this research explores the impact of geopolitical risk–GPR and governance–GOV on capital expenditures. Empirical findings show that firms in higher GPR countries have lower capital expenditures. Namely, firms utilise capital expenditures as a substitute for GPR. Later, the adverse influence of governance on capital expenditures across the whole sample is detrimental to firms in *civil law* countries. Nevertheless, it returns positive for those in *common law* countries. In other words, capital expenditures are a substitute for governance in *civil law* countries and vice versa for those in *common law* countries.

The contributions of these findings are manifold. First, this article establishes that GPR has had an absolute adverse influence on investment decisions across 42 countries by expanding the analysis of Le and Tran,[8] who focused on nine Asian countries. Second, this is the first study that scrutinises how the impact of GPR on capital expenditures shifts with the presence of institutional alteration at the country level. Last, the single and mutual influences of GPR and GOV on capital expenditures have been evaluated by dividing the sample according to the legal system's role.

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[3] Anh Tuan Le and Thao Phuong Tran, "Does Geopolitical Risk Matter for Corporate Investment? Evidence from Emerging Countries in Asia," *Journal of Multinational Financial Management* 62 (2021), https://doi.org/10.1016/j.mulfin.2021.100703.

[4] Ali Yavuz Polat, "Investor Bias, Risk and Price Volatility," *Journal of Economic Studies* 50, no. 7 (2023): 1317–35, https://doi.org/10.1108/JES-04-2022-0211.

[5] Stewart C Myers, "Determinants of Corporate Borrowing," *Journal of Financial Economics* 5, no. 2 (1977): 147–75.

[6] Seyi Saint Akadiri et al., "Does Causality between Geopolitical Risk, Tourism and Economic Growth Matter? Evidence from Turkey," *Journal of Hospitality and Tourism Management* 43 (2020): 273–77, https://doi.org/10.1016/j.jhtm.2019.09.002.

[7] Le and Tran, "Does Geopolitical Risk Matter for Corporate Investment? Evidence from Emerging Countries in Asia."

[8] *Ibid.*

The findings of this study have a number of practical implications. Managers should examine a trade-off between capital expenditures and other corporate decisions like debt, cash or dividend by considering the GPR and institutional variations of the sample countries. Shareholders should prefer countries with lower capital expenditures and higher corporate payouts. Investors should further take into account the level of GPR and GOV of countries to invest in. Policymakers should encourage exclusively foreign investors by enhancing country governance and reducing country risk. Practitioners and researchers may include the effects of corporate governance and institutional quality on investment decisions. As the theoretical implication of this study, the explanatory power of agency costs of capital expenditures changes counting the deviation in GPR, GOV, and legal system.

The rest of the paper is designed as follows: Section II reviews the literature; Sections III and IV draw the empirical strategy and the sample, respectively; Section V presents empirical findings; and Section VI concludes.

II. LITERATURE REVIEW

The research explores the impact of GPR on corporate investment while considering institutional differences, such as governance and legal systems, across the globe. Geopolitical events can serve as crucial signals to investors, influencing their decisions on whether a country is suitable for investment. GPR not only affects countries at the macro level but also has significant implications at the micro level for firms.

Previous studies have confirmed that GPR can significantly impact corporate finance policies, including capital structure,[9,10,11,12] cash

[9] Daniel Bradley, Christos Pantzalis, and Xiaojing Yuan, "Policy Risk, Corporate Political Strategies, and the Cost of Debt," *Journal of Corporate Finance* 40 (2016): 254–75, https://doi.org/10.1016/j.jcorpfin.2016.08.001.

[10] Khandokar Istiak and Apostolos Serletis, "Risk, Uncertainty, and Leverage," *Economic Modelling* 91 (2020): 257–73, https://doi.org/10.1016/j.econmod.2020.06.010.

[11] Suntichai Kotcharin and Sakkakom Maneenop, "Geopolitical Risk and Corporate Cash Holdings in the Shipping Industry," *Transportation Research Part E: Logistics and Transportation Review* 136 (2020), https://doi.org/10.1016/j.tre.2020.101862.

[12] Chi Chuan Lee, Chien Chiang Lee, and Shunyi Xiao, "Policy-Related Risk and Corporate Financing Behavior: Evidence from China's Listed Companies," *Economic Modelling* 94 (2021): 539–47, https://doi.org/10.1016/j.econmod.2020.01.022.

holdings,[13,14,15,16,17,18] and investment[19] decisions. For example, the cost of debt may rise for firms in risky geopolitical regions,[20] leading to higher leverage levels for commercial banks during periods of macroeconomic policy uncertainty and GPR.[21] Conversely, shipping firms across the globe may experience negative effects on their financing decisions due to GPR.[22]

In the context of cash holdings, hospitality firms in higher GPR countries tend to hold lower cash reserves,[23] while globally listed shipping companies increase their cash holdings when GPR rises.[24] Similar positive associations between cash holdings and GPR have been observed for Chinese,[25] Korean,[26] and Saudi Arabian[27] non-financial firms.

Regarding investment policy, there is evidence of a negative relationship between GPR and firms' capital expenditures in emerging Asian economies.[28] However, the impact of GPR on corporate investment has not been examined worldwide, and the literature lacks exploration of how institutional differences, including governance and legal systems, may interact with GPR in influencing investment decisions.

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[13] Ender Demir, José María Díez-Esteban, and Conrado Diego García-Gómez, "The Impact of Geopolitical Risks on Cash Holdings of Hospitality Companies: Evidence from Emerging Countries," *Journal of Hospitality and Tourism Management* 39 (2019): 166–74, https://doi.org/10.1016/j.jhtm.2019.04.004.

[14] Kotcharin and Maneenop, "Geopolitical Risk and Corporate Cash Holdings in the Shipping Industry."

[15] Chien Chiang Lee and Chih Wei Wang, "Firms' Cash Reserve, Financial Constraint, and Geopolitical Risk," *Pacific Basin Finance Journal* 65 (2021), https://doi.org/10.1016/j.pacfin.2020.101480.

[16] Kai Hua Wang et al., "Does Geopolitical Risk Uncertainty Strengthen or Depress Cash Holdings of Oil Enterprises? Evidence from China," *Pacific Basin Finance Journal* 66 (2021), https://doi.org/10.1016/j.pacfin.2021.101516.

[17] Jae Hyun Cho, "The Effect of Geopolitical Risk on Corporate Cash Holdings: Evidence from Korea," *Applied Economics Letters*, 2023, https://doi.org/10.1080/13504851.2023.2176442.

[18] Moncef Guizani, Dorra Talbi, and Gaafar Abdalkrim, "Economic Policy Uncertainty, Geopolitical Risk and Cash Holdings: Evidence from Saudi Arabia," *Arab Gulf Journal of Scientific Research* 41, no. 2 (2023): 183–201, https://doi.org/10.1108/AGJSR-07-2022-0109.

[19] Le and Tran, "Does Geopolitical Risk Matter for Corporate Investment? Evidence from Emerging Countries in Asia."

[20] Bradley, Pantzalis, and Yuan, "Policy Risk, Corporate Political Strategies, and the Cost of Debt."

[21] Istiak and Serletis, "Risk, Uncertainty, and Leverage."

[22] Suntichai Kotcharin and Sakkakom Maneenop, "Geopolitical Risk and Shipping Firms' Capital Structure Decisions in Belt and Road Initiative Countries," *International Journal of Logistics Research and Applications* 23, no. 6 (2020): 544–60, https://doi.org/10.1080/13675567.2020.1766003.

[23] Demir, Díez-Esteban, and García-Gómez, "The Impact of Geopolitical Risks on Cash Holdings of Hospitality Companies: Evidence from Emerging Countries."

[24] Kotcharin and Maneenop, "Geopolitical Risk and Corporate Cash Holdings in the Shipping Industry."

[25] Lee and Wang, "Firms' Cash Reserve, Financial Constraint, and Geopolitical Risk."

[26] Cho, "The Effect of Geopolitical Risk on Corporate Cash Holdings: Evidence from Korea."

[27] Guizani, Talbi, and Abdalkrim, "Economic Policy Uncertainty, Geopolitical Risk and Cash Holdings: Evidence from Saudi Arabia."

[28] Le and Tran, "Does Geopolitical Risk Matter for Corporate Investment? Evidence from Emerging Countries in Asia."

Thus, the research investigates the interplay between GPR, institutional differences, and corporate investment across the globe. By analysing how geopolitical events influence investment behaviour in the presence of diverse governance and legal systems, this study contributes valuable insights into the complex relationship between GPR and corporate decision-making. Understanding these dynamics can assist policymakers, investors, and businesses in navigating the challenges and opportunities arising from GPR and fostering more informed investment strategies.

III. EMPIRICAL STRATEGY

This research examines the role of GPR and governance on capital expenditures at firm-and country-levels.

III.A. Firm-level Analysis

First, the empirical model for the firm-level analysis is:

$$CAPEX_{ij,t} = \beta_0 + \beta_1 GPR_{j,t} + \beta_2 GOV_{j,t} + \beta_3 SIZE_{i,t} + \beta_4 MBR_{i,t} + \beta_5 CFA_{i,t} + \beta_6 LEV_{i,t} + a_{ij} F_i + \varepsilon_{ij,t} \quad (1)$$

where, $CAPEX_{ij,t}$ is capital expenditures for firm i in country j at time t, $GPR_{j,t}$ is for country j at time t,[29] $GOV_{j,t}$ is for country j at time t,[30] $SIZE_{i,t}$ is for firm i at time t, $MBR_{i,t}$ is for firm i at time t, $CFA_{i,t}$ is for firm i at time t, $LEV_{i,t}$ is for firm i at time t, $a_{ij} F_i$ is firm fixed effects, and $\varepsilon_{ij,t}$ is the error term.

To understand the joint impact of GPR and GOV, equation 1 revised including interaction term GPR x GOV as follows:

$$CAPEX_{ij,t} = \beta_0 + \beta_1 GPR_{j,t} + \beta_2 GOV_{j,t} + \beta_3 GPR_{j,t} xGOV_{j,t} + \beta_4 SIZE_{i,t} + \beta_5 MBR_{i,t} + \beta_6 CFA_{i,t} + \beta_7 LEV_{i,t} + a_{ij} F_i + \varepsilon_{ij,t} \quad (2)$$

where, $GPR_{j,t} xGOV_{j,t}$ is the interaction term of GPR and GOV.

III.B. Panel Data Models

Three main panel data models are (i) pooled ordinary least squares–POLS, (ii) fixed effects–FE, and (iii) random effects–RE. Previous research shows

[29] Caldara and Iacoviell, "Measuring Geopolitical Risk."

[30] Daniel Kaufmann, Aart Kraay, and Massimo Mastruzzi, "The Worldwide Governance Indicators: Methodology and Analytical Issues," *Hague Journal on the Rule of Law* 3, no. 2 (2011): 220–46, https://doi.org/10.1017/S1876404511200046.

that FE is preferable to RE when the observation numbers are larger, and the number of years is smaller. Specifically, some diagnostic tests are applied to choose the best panel data model. First, the smaller Akaike Information Criterion–AIC and Bayesian Information Criterion–BIC demonstrate the most reliable model by comparing the POLS and FE. Second, Hausman and Overid tests assess whether FE is preferable to RE.[31]

IV. THE SAMPLE

The GPR data of Caldara and Iacoviello[32] shapes both country- and firm-level data. The GPR index utilising news related to a country or city is accessible monthly retrieved from 1985/1990 to 2020. While the GPR index has been constructed for 43 countries, the data for Venezuela is insufficient for regression analyses, which is why the sample includes 42 countries (Argentina, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, Denmark, Egypt, Finland, France, Germany, Hong Kong, Hungary, India, Indonesia, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, Norway, Peru, Philippines, Poland, Portugal, Russia, Saudi Arabia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Tunisia, Turkiye, Taiwan, Ukraine, United Kingdom, United States).

Next, to examine the role of institutions, the mean of six Worldwide Governance Indicators (WGI), which are the control of corruption, government effectiveness, political stability, regulatory quality, rule of law, and voice and accountability developed by Kaufmann et al.[33] is used. WGI has been established from surveys held in over 200 countries comprising international organisations, non-governmental organisations, private sector firms, survey institutes, and think tanks. WGI data is available for years 1996, 1998, 2000 and then annually has been announced since 2002. For the years (i) 1997, (ii) 1999, and (iii) 2001, the average of years (i) 1996 and 1998, (ii) 1998 and 2000, and (iii) 2000 and 2002, respectively. Also, WGI varies from –2.5 (poor governance) to +2.5 (good governance).

Considering country-level limitations, firm-level data is retrieved from Thomson Reuters Eikon – Worldscope. Since non-financial firms have different accounting structures from financial firms, including utility firms, this study only focuses on non-financial firms. Given all restrictions above, the final sample consists of 397,399 firm-years from 26,491 firms in 42 countries for the period 1996-2021.

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[31] Hasan Tekin and Ali Yavuz Polat, "Is Leverage a Substitute or Outcome for Governance? Evidence from Financial Crises," *International Journal of Emerging Markets* 18, no. 4 (2023): 1007–30, https://doi.org/10.1108/IJOEM-03-2020-0297.

[32] Caldara and Iacoviell, "Measuring Geopolitical Risk."

[33] Kaufmann, Kraay, and Mastruzzi, "The Worldwide Governance Indicators: Methodology and Analytical Issues."

Table 1.
Sample Composition by Country and Year

Country	*N*	*Country*	*N*	*Country*	*N*	*Country*	*N*
Argentina	747	France	6,680	Netherlands	1,266	Sweden	3,924
Australia	16,094	Germany	6,458	Norway	2,235	Switzerland	2,271
Belgium	1,121	Hong Kong	15,433	Peru	952	Thailand	6,855
Brazil	2,377	Hungary	231	Philippines	2,025	Tunisia	429
Canada	19,166	India	24,713	Poland	3,368	Turkiye	3,032
Chile	1,658	Indonesia	5,342	Portugal	595	Taiwan	22,266
China	32,849	Israel	969	Russia	1,384	Ukraine	146
Colombia	289	Italy	1,840	Saudi Arabia	1,227	United Kingdom	9,102
Denmark	1,575	Japan	46,176	South Africa	843	United States	52,296
Egypt	1,416	Malaysia	11,091	South Korea	22,318	TOTAL	337,399
Finland	1,715	Mexico	1,495	Spain	1,430		
Year	***N***	***Year***	***N***	***Year***	***N***	***Year***	***N***
1996	3,266	2003	8,948	2010	15,110	2017	18,963
1997	3,534	2004	9,654	2011	15,827	2018	19,855
1998	4,246	2005	10,937	2012	16,249	2019	21,057
1999	4,850	2006	12,415	2013	16,371	2020	22,189
2000	6,435	2007	13,379	2014	16,878	2021	17,865
2001	7,381	2008	13,947	2015	17,469	TOTAL	337,399
2002	8,408	2009	14,329	2016	17,837		

Note. This table presents observation numbers (N). **Source.** Worldscope, Caldara and Iacoviello (2022).

The dependent variable is capital expenditure–CAPEX, that is capital expenditures to total assets.[34][35] The main explanatory variables are geopolitical risk–GPR and governance–GOV. GPR is the natural logarithm of the GPR index of Caldara and Iacoviello.[36] GOV is the annual average of six components of Worldwide Governance Indicators–WGI.[37] Following previous research,[38] firm size–SIZE, the market-to-book ratio–MBR, cash flow–CFA, and leverage–LEV are also included as the control variables. SIZE

[34] Hasan Tekin and Ali Yavuz Polat, "Is Saving Vital? Evidence from the Financial Crisis," *Economics and Business Letters* 9, no. 2 (2020): 124–34, https://doi.org/10.17811/ebl.9.2.2020.124-134.

[35] Le and Tran, "Does Geopolitical Risk Matter for Corporate Investment? Evidence from Emerging Countries in Asia."

[36] Caldara and Iacoviell, "Measuring Geopolitical Risk."

[37] Hasan Tekin, "How Optimal Cash Changed by the Global Financial Crisis? A Multi-Country Analysis," *Economics and Business Letters* 9, no. 2 (2020): 114–23, https://doi.org/10.17811/ebl.9.2.2020.114-123.

[38] Le and Tran, "Does Geopolitical Risk Matter for Corporate Investment? Evidence from Emerging Countries in Asia."

is the natural logarithm of total assets.[39] MBR is the sum of total assets and the market value of equity minus the book value of equity divided by total assets.[40] CFA is the sum of pre-tax income and depreciation divided by total assets.[41] LEV is total debt divided by total assets.[42] Table A1 presents the definitions of all variables. Table 1 shows the sample composition by country and year, presenting observation numbers.

Table A2 illustrates the descriptive statistics and correlation matrix. Variance Inflation Factors (VIF) show whether the sample faces multicollinearity problems. Since all VIF values are smaller than five, there is no multicollinearity issue.[43]

Table A3 presents the mean of GPR and GOV for each country in the sample. The United States (US) has the highest GPR with 2.727. Russia, the United Kingdom (UK), and China follow the US with 0.707, 0.546, and 0.528, respectively. On the other hand, Latin American countries including Chile (0.015), Peru (0.022), and Argentina (0.023) as well as Portugal (0.019), have the lowest GPR. Considering the variation in GOV, Russia (–0.729) and China (–0.466) have the lowest GOV, and a higher GPR. However, the US has a higher GOV with 1.25, following developed European countries and Australia (1.563).

V. EMPIRICAL FINDINGS

This section presents and discusses both univariate and multivariate analyses at country- and firm-levels.

V.A. Univariate Analysis

First, the sample is divided into lower-GPR (below the mean of GPR) and higher-GPR (above the mean of GPR), considering variation by country and year. Then, the sample is categorised into poor GOV and good GOV below

[39] Hasan Tekin and Fatih Güçlü, "Environmental, Social, Governance Investing, COVID-19, and Corporate Performance in Muslim Countries," *Journal of Islamic Monetary Economics and Finance* 9, no. 1 (2023): 107–32, https://doi.org/10.21098/jimf.v9i1.1592.

[40] Hasan Tekin and Ali Yavuz Polat, "Do Market Differences Matter on Dividend Policy?," *Borsa Istanbul Review* 21, no. 2 (2021): 197–208, https://doi.org/10.1016/j.bir.2020.10.009.

[41] Hasan Tekin and Huseyin Burgazoglu, "How Do Corporate Sustainability and Pandemic Affect Cash Holdings in Muslim Countries?," *Journal of Islamic Monetary Economics and Finance* 8, no. 4 (2022): 615–36, https://doi.org/10.21098/jimf.v8i4.1649.

[42] Hasan Tekin, "Market Differences and Adjustment Speed of Debt, Equity, and Debt Maturity," *Australian Journal of Management* 46, no. 4 (2021): 629–51, https://doi.org/10.1177/0312896220968266.

[43] Hasan Tekin et al., "Cash Management, Governance, and the Global Financial Crisis: Evidence from Developing Asia," *Asian Economics Letters* 2, no. 4 (2021), https://doi.org/10.46557/001c.27135.

and above the mean of GOV, respectively, accounting for the differences by country and year.

Table 2 shows how the mean of capital expenditures varies across the level of GPR and GOV. In poor GOV countries, firms in lower GPR countries have lower capital expenditures by 0.008 (at the 1%) than those in higher GPR countries. In other words, when the institutional quality is poor, capital expenditure decisions are the outcome of GPR. Contrary to this result, the picture differs in good GOV countries. Especially firms in lower GPR countries have higher capital expenditures by 0.015 (at the 1%) than those in higher GPR countries. Namely, firms use capital expenditures as a substitute for GPR.

Next, firms in lower GPR countries use capital expenditures as the outcome of GOV by 0.02 (at the 1%). However, capital expenditures are a substitute for GOV in higher GPR countries by 0.003 (at the 1%).

Table 2.
Univariate Analysis: The Role of GPR and GOV

	Lower GPR	Higher GPR	t-test
Poor GOV	0.048	0.056	–***
Good GOV	0.068	0.053	+***
t-test	–***	+***	

Note. This table presents univariate analyses for capital expenditures by dividing the sample above and below the mean of GPR (higher-lower) and GOV (good-poor). GPR: Geopolitical risk, GOV: Governance. Variables are defined in Table A1. *** indicates significance at 1%.

Considering the additional institutional variation, the univariate analyses in Table 2 repeated, dividing the sample into *Civil* and *Common law* countries in Table 3.

Table 3.
Univariate Analysis: The Role of GPR, GOV and Law

	Civil law		**Common law**		**Differences**				
GPR →	Lower	Higher	Lower	Higher	*t-tests*				
	(1)	(2)	(3)	(4)	(1) – (2)	(3) – (4)	(1) – (3)	(2) – (4)	
Poor GOV	0.047	0.056	0.051	0.054	–***	–***	–***	+***	
Good GOV	0.042	0.047	0.085	0.054	–***	+***	–***	–***	
t-tests	+***	+***	–***						

Note. This table presents univariate analyses for capital expenditures by dividing the sample above and below the mean of GPR (higher-lower) and GOV (good-poor) across Civil- and Common-law countries. GPR: Geopolitical risk, GOV: Governance. Variables are defined in Table A1. *** indicates significance at 1%.

In *Civil law* countries, capital expenditures are higher for firms in risky countries, demonstrating a similar shift across governance levels. Therefore, firms in *Civil law* countries use capital expenditures as an outcome of GPR. The picture varies for firms in *Common law* countries. When GOV is poor, capital expenditures are the outcome of GPR. However, in strong institutions, firms use capital expenditures as a substitute for GPR. Also, firms in risky and *Common law* countries do not consider the institutional quality in making investment policy. Table A3 summarises the univariate analyses conducted across the whole sample (in Table 2), *Civil* and *Common law* countries (in Table 3).

V.B. Multivariate Analysis

First, to understand how GPR and GOV affect markets, the baseline analysis has been done for each country in the sample. For brevity, firm-level control factors are included in the empirical model, whereas only the coefficients of GPR and GOV are reported. According to the results shown in Table 4, the relationship between capital expenditures and GPR is negative in 23 countries (*Australia, Brazil, Canada, Chile, China, Germany, Denmark, Hong Kong, Indonesia, Italy, Malaysia, Mexico, Netherlands, Norway, Peru, Philippines, Poland, Russia, Saudi Arabia, Spain, Switzerland, UK, US*), positive in six countries (*Finland, Hungary, India, Thailand, Turkiye, Taiwan*), but insignificant in 13 countries (*Argentina, Belgium, Colombia, Egypt, France, Israel, Japan, Portugal, South Africa, South Korea, Sweden, Tunisia, Ukraine*). Based on these findings, it appears that firms mainly use CAPEX as a substitute for GPR.

On the other hand, the association between capital expenditures and GOV are positive for firms in 21 countries, negative in 11 countries, but trivial in ten countries. Contrary to the substitute effect of GPR, GOV has an outcome effect on capital expenditures. Considering the joint impact of GPR and GOV on capital expenditures, both factors negatively affect firms in *Chile, China, Hong Kong, Indonesia, Norway, Saudi Arabia* and positively affect firms in *Finland* and *Thailand*.

After the country-by-country analysis in Table 4, Table 5 shows the main analyses for the whole sample at the firm level. Hausman and Overid tests assess whether the null hypothesis that "*Difference in coefficients not systematic*" and "*Test of overidentifying restrictions: fixed effect–FE vs. random effect–RE*" are not rejected. According to these diagnostic test results, FE is the proper model for the sample.

The firm-level analysis reveals interesting insights into the relationship between GPR, GOV, and control factors on corporate investment (CAPEX). The results indicate that GOV has a negative association with CAPEX (with

the coefficient –0.005 at 1%), suggesting that firms may view governance practices as a substitute for making substantial capital investments. In other words, when governance is strong and effective, firms may feel more confident in relying on internal mechanisms and decision-making processes, leading to reduced reliance on external investments such as CAPEX.

However, the positive impact of the interaction term GPR x GOV is observed in the firm-level analysis in column 2. This implies that even at the firm level, the presence of geopolitical risk can amplify the impact of governance practices on investment decisions. In other words, the effect of strong governance practices in mitigating the negative influence of GPR on CAPEX remains consistent at the firm level.

Additionally, the firm-level analysis reveals different associations between CAPEX and control factors. While CAPEX is negatively related to firm size (SIZE) and positively associated with market-to-book ratio (MBR) at the firm level, these relationships differ from the country-level analysis. Cash flow (CFA) and leverage (LEV) do not demonstrate significant associations with CAPEX at the firm level. These contrasting results highlight the importance of firm-level factors when examining the relationship between GPR, governance, and investment decisions.

Overall, the firm-level analysis provides valuable insights into the nuanced relationships among GPR, governance, and investment decisions for individual firms. The results suggest that strong governance practices can act as a substitute for CAPEX, but the positive impact of effective governance in mitigating the negative effects of GPR remains consistent across both country and firm levels. The varying associations of CAPEX with control factors at the firm level further emphasize the need for comprehensive analyses that consider both macroeconomic and firm-specific factors in understanding investment behaviour.

To investigate the role of GPR and GOV on CAPEX considering the legal system, the firm-level analyses in Table 5 are rerun by dividing the sample into *Civil* and *Common law* countries in Table 6. Similar to the primary findings, GPR has a clear negative impact on CAPEX. Nevertheless, GOV has a substitute and outcome effect on CAPEX of firms in *Civil* and *Common law* countries, respectively. While firms with higher CFA and LEV in *Civil law* countries have higher CAPEX, and vice versa for those in *Common law* countries. Especially, columns 5 and 6 in Table 6 show the coefficients of GPR, GOV, GPR x GOV, and control factors by using the *suest* code in Stata. From Civil to Common law countries, the differences between coefficients are significant, that is why, factors affecting capital expenditures vary across legal systems.

Table 4.
Multivariate Analysis: Baseline Results by Country

Country	*GPR*	*GOV*	*Country*	*GPR*	*GOV*
Argentina	−0.068	0.035***	Mexico	−0.126***	0.022***
	(0.166)	(0.010)		(0.023)	(0.008)
Australia	−0.161***	0.209***	Netherlands	−0.199***	0.150***
	(0.043)	(0.030)		(0.065)	(0.019)
Belgium	−0.004	0.040**	Norway	−0.199*	−0.212***
	(0.022)	(0.021)		(0.102)	(0.040)
Brazil	−0.112**	0.044***	Peru	−0.430***	0.001
	(0.046)	(0.007)		(0.112)	(0.017)
Canada	−0.224***	0.029	Philippines	−0.235***	0.042***
	(0.031)	(0.020)		(0.054)	(0.010)
Chile	−0.469***	−0.016*	Poland	−0.097***	−0.011
	(0.107)	(0.009)		(0.035)	(0.009)
China	−0.012***	−0.087***	Portugal	−0.012	0.061***
	(0.003)	(0.004)		(0.108)	(0.011)
Colombia	0.009	0.002	Russia	−0.026***	−0.014
	(0.085)	(0.018)		(0.007)	(0.032)
Germany	−0.059***	0.167***	Saudi Arabia	−0.088***	−0.145***
	(0.006)	(0.013)		(0.017)	(0.023)
Denmark	−0.863***	0.151***	South Africa	0,070138889	0.112***
	(0.147)	(0.024)		(0.121)	(0.017)
Egypt	−0.001	0.056***	South Korea	−0.001	−0.043***
	(0.018)	(0.014)		(0.002)	(0.004)
Finland	0.123*	0.042**	Spain	−0.081***	0.069***
	(0.065)	(0.020)		(0.026)	(0.011)
France	−0.006	0.006	Sweden	0.012	−0.048**
	(0.004)	(0.010)		(0.047)	(0.019)
Hong Kong	−0.126***	−0.011***	Switzerland	−0.102***	0.074***
	(0.011)	(0.003)		(0.039)	(0.021)
Hungary	0.654**	0.060	Thailand	0.027***	0.014***
	(0.326)	(0.040)		(0.054)	(0.004)
Indonesia	−0.575***	−0.082***	Tunisia	−0.028	−0.088**
	(0.056)	(0.006)		(0.037)	(0.037)
India	0.129***	−0.079***	Turkiye	0.022**	−0.008
	(0.010)	(0.006)		(0.010)	(0.008)
Israel	0.016	−0.007	Taiwan	0.112***	−0.074***
	(0.013)	(0.021)		(0.015)	(0.003)

Table 4.
Multivariate Analysis: Baseline Results by Country Continued

Country	*GPR*	*GOV*	*Country*	*GPR*	*GOV*
Italy	−0.043**	0.041***	Ukraine	0.005	0.089**
	(0.021)	(0.009)		(0.017)	(0.034)
Japan	0.002	0.014***	United Kingdom	−0.011***	0.102***
	(0.002)	(0.001)		(0.004)	(0.006)
Malaysia	−0.047***	0.003	United States	−0.003***	0.084***
	(0.017)	(0.006)		(0.000)	(0.003)

Note. This table presents baseline multivariate analyses for each country in the sample by employing firm fixed effect–FE. CAPEX: Capital expenditures, GPR: Geopolitical risk, GOV: Governance. Variables are defined in Table A1. Standard errors shown by parentheses (). *, ** and *** indicate significance at 10%, 5%, and 1%, respectively.

Table 5.
The Role of GPR and GOV on Capital Expenditures: Firm-level Analysis

	Dependent variable: CAPEX	
	-1	**-2**
GPR	–0.005***	–0.035***
	(0.000)	(0.001)
GOV	–0.005***	–0.013***
	(0.001)	(0.001)
GPR x GOV		0.024***
		(0.001)
SIZE	–0.007***	–0.006***
	(0.000)	(0.000)
MBR	0.001***	0.002***
	(0.000)	(0.000)
CFA	0.001	0.000
	(0.001)	(0.001)
LEV	0.001	0.001
	(0.001)	(0.001)
Constant	0.153***	0.149***
	(0.002)	(0.002)
Hausman test (FE vs. RE)	872.34***	970.56***
Overid test	884.65***	989.33***
# of observation	337,399	337,399
# of country	–	–
# of firm	26,491	26,491

Note. This table presents the impact of GPR, GOV, and their joint impact GPR x GOV on capital expenditures across 26,491 firms by employing firm fixed effect–FE. CAPEX: Capital expenditures, GPR: Geopolitical risk, GOV: Governance, SIZE: Firm size, MBR: Market-to-book ratio, CFA: Cash flow, LEV: Leverage, FE: Fixed effect. Variables are defined in Table A1. Standard errors shown by parentheses (). *, ** and *** indicate significance at 10%, 5%, and 1%, respectively.

The use of an instrumental variable estimator in Table A4, specifically the generalised methods of moments (GMM) system proposed by Blundell and Bond, is a robust approach to address the endogeneity issue in the analysis.[44] By introducing instrumental variables and lagged explanatory control firm-level variables, the study aims to mitigate potential biases in the estimation caused by endogeneity. The key findings from this bias-corrected approach reaffirm the negative impact of both GPR and GOV on capital expenditures (CAPEX). Despite controlling for potential endogeneity, the results remain consistent with the firm-fixed effect estimates reported in Table 5.

This strengthens the validity and reliability of the study's findings and provides further evidence that GPR and GOV indeed play significant roles in shaping firms' investment policies. The robustness of the results after addressing endogeneity concerns enhances the credibility of the research and bolsters the confidence in the reported relationships among the variables.

By employing an instrumental variable estimator and conducting a bias-corrected variable approach, the study demonstrates its commitment to rigorous statistical methods and ensures the internal validity of the findings. This approach contributes to the methodological rigor of the research and enhances the overall quality and credibility of the empirical analysis.

Table 6.
The Role of GPR and GOV on Capital Expenditures: Civil- vs. Common-law

	Dependent variable: CAPEX					
	Civil law		**Common law**		**Difference**	
	-1	**-2**	**-3**	**-4**	**(5) = (1) – (3)**	**(6) = (2) – (4)**
GPR	–0.018***	–0.027***	–0.003***	–0.026***	–0.015***	–0.001***
	(0.001)	(0.001)	(0.001)	(0.002)		
GOV	–0.022***	–0.024***	0.025***	0.011***	–0.047***	–0.035***
	(0.001)	(0.001)	(0.002)	(0.003)		
GPR x GOV		0.015***		0.017***		–0.002***
		(0.002)		(0.002)		
SIZE	–0.006***	–0.006***	–0.005***	–0.005***	–0.001***	–0.001***
	(0.000)	(0.000)	(0.000)	(0.000)		
MBR	0.001***	0.001***	0.002***	0.002***	–0.001***	–0.001**
	(0.000)	(0.000)	(0.000)	(0.000)		
CFA	0.031***	0.030***	–0.008***	–0.008***	0.039***	0.038***
	(0.001)	(0.001)	(0.001)	(0.001)		

[44] Richard Blundell & Stephen Bond, "Initial conditions and moment restrictions in dynamic panel data models," *Journal of Econometrics*, 87, no. 1 (1998): 115-143.

Table 6.
The Role of GPR and GOV on Capital Expenditures: Civil- vs. Common-law
Continued

	Dependent variable: CAPEX					
	Civil law		Common law		Difference	
	-1	-2	-3	-4	(5) = (1) – (3)	(6) = (2) – (4)
LEV	0.011***	0.011***	–0.004***	–0.004***	0.015***	0.015***
	(0.001)	(0.001)	(0.001)	(0.001)		
Constant	0.154***	0.153***	0.103***	0.115***	0.051***	0.038***
	(0.003)	(0.003)	(0.004)	(0.004)		
Hausman test	142.06***	1669.76***	497.69***	331.93***		
Overid test	97.22***	1676.26***	503.06***	337.63***		
# of observation	179,61	179,61	156,562	156,562		
# of firm	13,125	13,125	13,267	13,267		

Note. This table presents the impact of GPR, GOV, and their joint impact GPR x GOV on capital expenditures for firms in Civil law countries in columns 1-2, those in Common law countries in columns 3-4, and the differences of coefficients in columns 5-6. by employing firm fixed effect–FE. CAPEX: Capital expenditures, GPR: Geopolitical risk, GOV: Governance, SIZE: Firm size, MBR: Market-to-book ratio, CFA: Cash flow, LEV: Leverage, FE: Fixed effect, RE: Random effect. Variables are defined in Table A1. Standard errors shown by parentheses (). *, ** and *** indicate significance at 10%, 5%, and 1%, respectively.

V.C. Sample Composition

To understand whether the sample composition affects the empirical findings, the main analysis at the firm-level (column 3 in Table 5) redone for the weighted sample in column 1 and excluding the US, Japan, and China in columns 2-4, respectively.

GPR has a negative impact on CAPEX, and vice versa for GOV. When the US (15.5%), Japan (13.7%), and China (9.7%) that have the highest portion are excluded from the sample, the GPR and GOV are qualitatively similar in column 1 but different in column 2. Once China, which has poor GOV (–0.46), is eliminated from the sample, GOV has a complimentary effect on CAPEX. Moreover, firm-level controls slightly differ for the weighted sample and excludes US firms.

Table 7.
Sample Composition and the Weighted Sample

	Dependent variable: CAPEX			
	Weighted Sample	**Excluding US**	**Excluding Japan**	**Excluding China**
	-1	**-2**	**-3**	**-4**
GPR	–0.015***	–0.020***	–0.005***	–0.004***
	(0.005)	(0.001)	(0.000)	(0.000)
GOV	0.006**	–0.015***	–0.005***	0.002**
	(0.003)	(0.001)	(0.001)	(0.001)
SIZE	0.001*	–0.007***	–0.007***	–0.006***
	(0.001)	(0.000)	(0.000)	(0.000)
MBR	0.003**	0.002***	0.001***	0.002***
	(0.001)	(0.000)	(0.000)	(0.000)
CFA	0.070***	0.002**	0.000	–0.001
	(0.011)	(0.001)	(0.001)	(0.001)
LEV	0.033***	0.003***	–0.000	–0.000
	(0.009)	(0.001)	(0.001)	(0.001)
Constant	0.019**	0.167***	0.154***	0.137***
	(0.009)	(0.003)	(0.003)	(0.003)
# of observation	337,399	285,103	291,223	304,55
# of firm	26,491	21,705	23,903	23,392

Note. This table presents the impact of GPR and GOV on capital expenditures across the weighted sample in column 1 and excluding the US, Japan, and China in columns 2-4, respectively by employing firm fixed effect–FE. CAPEX: Capital expenditures, GPR: Geopolitical risk, GOV: Governance, SIZE: Firm size, MBR: Market-to-book ratio, CFA: Cash flow, LEV: Leverage, FE: Fixed effect, RE: Random effect. Variables are defined in Table A1. Standard errors shown by parentheses (). *, ** and *** indicate significance at 10%, 5%, and 1%, respectively.

VI. CONCLUDING REMARKS

This study investigates how geopolitical risk–GPR and governance–GOV impact capital expenditures across the globe. Employing 337,399 firm-years from 42 countries for the period 1996-2021, the findings demonstrate firms in higher GPR countries have lower capital expenditures. In other words, firms use capital expenditures as a substitute for GPR. Then, the governance negatively associated with capital expenditures through the whole sample. This result is in line with firms in *civil law* countries. Nevertheless, the governance positively relates to capital expenditures for those in *common law* countries. Namely, capital expenditures are an outcome of (substitute for) governance in *common* (*civil*) *law* countries.

The empirical findings of this study contribute significantly to the existing literature in several ways.

1. Extending the Scope of GPR Impact: The study expands on previous research by confirming that geopolitical risk (GPR) has a consistently negative impact on investment policy across a broader range of countries (42 countries). While prior studies focused on specific regions or a limited number of countries, this study provides a more comprehensive understanding of how GPR influences capital expenditures across various economies.
2. Institutional Variation and GPR: This research addresses the gap in the literature by examining how the role of GPR on capital expenditures changes concerning the existence of institutional variation at the country level. By considering the impact of different legal systems (Civil and Common law) alongside GPR, the study offers valuable insights into the complex interplay between GPR and institutional factors on firms' investment decisions.
3. Joint Effects of GPR and GOV: This study is the first to assess both the separate and joint effects of GPR and governance (GOV) on capital expenditures. By analysing these factors together, the research sheds light on how GPR and governance interact to influence firms' investment policies and provides a more nuanced understanding of the drivers behind investment decisions.

The findings of the study have important theoretical implications by showcasing that the explanatory power of agency costs in capital expenditures is not constant but varies depending on the levels of GPR and corporate governance as well as varying legal systems. This highlights the complexity of investment decisions and emphasises the need to consider the interplay of various factors that impact firms' investment policies. The practical implications of this study are manifold for different stakeholders:

1. Managers: Managers should be aware of the trade-off between investment and other corporate decisions, such as capital structure and cash holdings, considering the influence of GPR and institutional differences in different countries. Understanding these factors can help managers make informed decisions that align with the specific challenges and opportunities present in each market.
2. Stakeholders: Stakeholders, including shareholders and potential investors, should consider the risk levels and institutional quality of countries they plan to invest in. Countries with lower investment and higher cash disgorging may indicate higher geopolitical risk, and stakeholders should be cautious while making investment decisions.

3. Policymakers: Policymakers can promote foreign investment by focusing on improving governance standards and addressing geopolitical risks. Creating a favourable and stable business environment can attract foreign investors and stimulate economic growth.
4. Practitioners and Researchers: Incorporating the influence of both country governance and corporate governance in investment policy research can lead to a more comprehensive understanding of the factors that drive firms' investment decisions. This can enrich the literature and provide valuable insights for practitioners seeking to optimize their investment strategies.

Overall, the study's contributions provide valuable insights for various stakeholders, helping them navigate investment decisions in the context of geopolitical risk and institutional variations. The findings underscore the importance of considering a wide range of factors when evaluating firms' investment policies and highlight the need for further research in this area.

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APPENDIX

Table A1.
Variable Definitions

Variables	Symbols	Definitions and Sources
Dependent		
Capital expenditures	CAPEX	Capital expenditures (WC04601) / total assets (WC02999)
Explanatory		
Geopolitical risk	GPR	The natural logarithm of geopolitical risk[45]
Governance	GOV	Annual average score of the mean of six governance indicators [(control of corruption + government effectiveness + political stability + regulatory quality + rule of law + voice and accountability) / 6] from −2.5 (poor) to +2.5 (good) governance.
Control		
Firm size	SIZE	The log of total assets (WC02999)
Market-to-book	MBR	[Total assets (WC02999) − book value of equity (WC03501) + market value of equity (WC08001)]/ total assets (WC02999)
Cash flow	CFA	[Pre-tax income (WC01401) + depreciation (WC02401)] / total assets (WC02999)
Leverage	LEV	Total debt (WC03255)/ total assets (WC02999)

Table A2.
Descriptive Statistics and Correlation Matrix

Panel A. Descriptive Statistics	**CAPEX**	**GPR**	**GOV**	**SIZE**	**MBR**	**CFA**	**LEV**
Mean	0.057	0.618	0.813	13.902	2.410	0.005	0.228
Median	0.031	0.189	1.130	14.152	1.321	0.069	0.177
SD	0.085	0.973	0.757	3.666	3.401	0.278	0.231
Minimum	0	0.003	-0.952	4.205	0.366	-1	0
Maximum	1	4.679	1.947	26.764	20.072	0.998	1
Panel B. Correlation Matrix	**CAPEX**	**GPR**	**GOV**	**SIZE**	**MBR**	**CFA**	**VIF**
GPR	−***						1.13
GOV	+***	+***					1.12
SIZE	−***	−***	−***				1.51
MBR	+***	+***	+***	−***			1.31
CFA	−***	−***	−***	+***	−***		1.48
LEV	+***	+***	−***	+***	+***	−***	1.08

Note. This table presents descriptive statistics in Panel A and correlation matrix in Panel B. Variance Inflation Factors (VIF) show whether the sample face any multicollinearity problem. As all VIF values smaller than five, there is no multicollinearity issue. Variables are defined in Table A1. *** indicates significance at 1%. Source. Caldara and Iacoviello (2022), Kaufmann et al. (2011), and Worldscope.

[45] *Caldara and Iacoviell, "Measuring Geopolitical Risk."*

Table A3.
Means of GPR and GOV by Civil- and Common-law Countries

	GPR	GOV		GPR	GOV		GPR	GOV
Civil law	**0.258**	**0.647**				**Common Law**	**1.023**	**1.005**
Country			*Country*			*Country*		
Argentina	0.023	-0.184	Netherlands	0.062	1.688	Australia	0.079	1.563
Belgium	0.105	1.296	Norway	0.043	1.738	Canada	0.112	1.601
Brazil	0.047	-0.069	Peru	0.022	-0.261	Hong Kong	0.049	1.340
Chile	0.015	1.052	Philippines	0.047	-0.359	India	0.196	-0.212
China	0.528	-0.460	Poland	0.063	0.706	Malaysia	0.037	0.341
Colombia	0.042	-0.344	Portugal	0.019	1.075	South Africa	0.044	0.212
Denmark	0.027	1.767	Russia	0.707	-0.729	Thailand	0.044	0.988
Egypt	0.206	-0.714	Saudi Arabia	0.248	-0.310	United Kingdom	0.546	1.430
Finland	0.028	1.826	South Korea	0.345	0.786	United States	2.727	1.250
France	0.523	1.167	Spain	0.087	0.924			
Germany	0.319	1.483	Sweden	0.047	1.703			
Hungary	0.023	0.685	Switzerland	0.045	1.737			
Indonesia	0.043	-0.397	Tunisia	0.037	-0.208			
Italy	0.121	0.590	Turkiye	0.044	-0.185			
Japan	0.212	1.232	Taiwan	0.275	-0.247			
Mexico	0.116	-0.214	Ukraine	0.169	-0.633			

Note. This table presents means of GPR and GOV by country specifying whether the country in Civil or Common law. GPR: Geopolitical risk, GOV: Governance. Source. Caldara and Iacoviello (2022), Kaufmann et al. (2011), and Worldscope.

Table A4.
Endogeneity Issues: System Generalised Methods of Moments (GMM)

	Dependent variable: CAPEX
	-1
L.CAPEX	0.327***
	(0.008)
GPR	–0.006***
	(0.001)
GOV	–0.011***
	(0.002)
L.SIZE	–0.004***
	(0.000)
L.MBR	0.002***
	(0.000)
L.CFA	0.022***
	(0.002)
L.LEV	–0.026***
	(0.002)
AR(2)	0.283
Hansen test	0.774
# of instruments	406
# of observations	310,978
# of firm	24,781

Note. This table presents the impact of GPR and GOV on capital expenditures across 24,781 firms by employing system generalised methods of moments (GMM) including lagged control firm-level variables. CAPEX: Capital expenditures, GPR: Geopolitical risk, GOV: Governance, SIZE: Firm size, MBR: Market-to-book ratio, CFA: Cash flow, LEV: Leverage, AR(2): Second-order Auto-regressive. Variables are defined in Table A1. Standard errors shown by parentheses (). *, ** and *** indicate significance at 10%, 5%, and 1%, respectively.

Table A5.
Univariate Analysis: The Summary

	Whole sample		**Civil law**		**Common law**	
GPR →	Lower	Higher	Lower	Higher	Lower	Higher
GOV	Outcome	Substitute	Substitute	Substitute	Outcome	–

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