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Does geopolitical risk drive earnings management? Evidence from Low- and Middle-Income countries

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ABSTRACT

We examine the impact of geopolitical risk (GPR) on earnings management (EM) in low- and middle-income countries (LMICs). Using 257,659 firm-year observations from 16 LMICs (2002–2022) and System Generalized Method of Moments (System-GMM) estimations, we find that GPR significantly increases EM, especially under weak audit quality, low development, and high taxation. While EM buffers short-term shocks, it undermines transparency, underscoring the need for stronger institutions.

1. Introduction

Contemporarily, geopolitical risk (GPR) i.e. the risk associated with wars, terrorism, and interstate political tensions (Caldara and Iacoviello, 2022), has emerged as a critical macro-level source of uncertainty affecting corporate decision-making, especially in emerging and developing economies. This uncertainty increases the cost of capital, constrains credit supply, enhances managerial risk aversion and tax avoidance (Chowdhury et al., 2025; Ramesh and Athira, 2024) - forces that may significantly alter firm-level financial reporting practices and key policies such as capital structure, investment, and payout decisions (Nguyen et al., 2025; Zhao et al., 2025). Recent evidence further indicates that GPR has real implications for corporate financing, performance and valuation in emerging markets (Barman and Mahakud, 2025; Tang and Huang, 2025), underscoring the importance of studying its firm-level consequences.

Earnings management (EM) literature, rooted in the agency and institutional theories, consistently reports the entrenched behavior of managers under weaker governance or opportunistic incentives to meet performance benchmarks (Shen and Chih, 2007). While extant studies have documented how firms adjust accruals and real activities in response to political and economic policy uncertainty (Jain et al., 2021; Kim and An, 2025), financial crises (Filip and Raffournier, 2014) or election cycles (Goncalves et al., 2022) in advanced economies or single-country contexts, there is no explicit research examining how GPR affects managerial discretion in financial reporting in low- and middle-income countries (LMICs), where institutional safeguards are weaker.

This gap is especially salient given the increasing frequency and severity of geopolitical disturbances in LMICs, ranging from armed conflicts (Ukraine, India, Peru, Thailand, etc.) to domestic political unrest. Despite the widespread assumption that firms respond strategically to macro-level uncertainty (Wang and Wang, 2024; Choi et al., 2025; Wang et al., 2025), GPR captures cross-border and

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conflict-driven uncertainty, which may influence managerial behavior differently than domestic policy uncertainty. Contrasting our work with Gupta et al. (2025), who study political risk, and Kim and An (2025), who examine economic policy uncertainty, our research explores the effect of external international threats on EM in LMICs considering institutional heterogeneity such as audit quality (Big 4 vs. non-Big 4 auditors), human development (HDI), and taxation (ETR), through which GPR may influence reporting practices. We employ System Generalized Method of Moments (System-GMM) and alternative measures of geopolitical risk (historical GPR) to strengthen empirical validity. Finally, we assess how GPR-EM relationship shapes firm-level financial performance in these LMICs.

This study contributes to literature in several ways. First, to our knowledge, this is the first large-scale cross-country (257,659 firm-year observations across 16 LMICs from 2002 to 2022) study linking GPR to EM, reinforcing that uncertainty encourages opportunistic reporting. Second, we demonstrate that the effect of GPR on EM is stronger in firms with lower audit quality, in countries with lower human development conditions, and under higher effective taxation, supporting the view that institutional fragility amplifies managerial discretion. Third, we show that EM serves as a moderating mechanism through which firms partially shield performance from geopolitical shocks, although (as we caution) this may come at the expense of long-term transparency and credibility. These contributions extend the earnings management, uncertainty, and corporate political strategy literature by foregrounding GPR as a distinct and impactful determinant of reporting behavior in LMICs.

2. Data and methodology

We employ a large, unbalanced panel of 257,659 firm-year observations of publicly listed non-financial companies from 16 LMICs over 2002 to 2022, drawn from Compustat Global. The period corresponds to the availability of consistent country-level GPR data from Caldara and Iacoviello (2022) and comprehensive firm-level financial information across LMICs in our databases, covering a recent perspective of major geopolitical events (from financial crisis to Covid-19 pandemic, regional tensions, trade disputes and institutional reforms). Table 1 provides a detailed breakdown by country, year, and industry, illustrating heterogeneity across the sample.

Earnings management (*EM*) is proxied by discretionary accruals estimated using the Modified Jones Model regression (Dechow

Table 1
Sample distribution.

Panel A: country-wise sample distribution							
Country	N	%	c.f.	Country	N	%	c.f.
Argentina	1348	0.52	0.52	Malaysia	22,087	8.57	84.65
Brazil	7228	2.81	3.33	Peru	1986	0.77	85.42
China	81,441	31.61	34.94	Philippines	3778	1.47	86.88
Colombia	861	0.33	35.27	Thailand	13,543	5.26	92.14
Egypt	2501	0.97	36.24	Türkiye	6704	2.60	94.74
Indonesia	10,448	4.05	40.30	Ukraine	209	0.08	94.82
India	89,329	34.67	74.97	Vietnam	7232	2.81	97.63
Mexico	2853	1.11	76.07	South Africa	6111	2.37	100.00
				Total	257,659	100.00	
Panel B: year-wise sample distribution							
Year	N	%	c.f.	Year	N	%	c.f.
1990	212	0.08	0.08	2008	8026	3.11	30.68
1991	536	0.21	0.29	2009	8338	3.24	33.92
1992	581	0.23	0.52	2010	8607	3.34	37.26
1993	798	0.31	0.83	2011	9307	3.61	40.87
1994	1,144	0.44	1.27	2012	9,922	3.85	44.72
1995	2,083	0.81	2.08	2013	10,325	4.01	48.73
1996	2,795	1.08	3.16	2014	10,631	4.13	52.86
1997	4,133	1.60	4.77	2015	10,813	4.20	57.05
1998	4,576	1.78	6.54	2016	11,156	4.33	61.38
1999	4,654	1.81	8.35	2017	11,582	4.50	65.88
2000	4,780	1.86	10.20	2018	12,063	4.68	70.56
2001	5,286	2.05	12.26	2019	12,441	4.83	75.39
2002	5,692	2.21	14.46	2020	12,764	4.95	80.34
2003	6,054	2.35	16.81	2021	12,846	4.99	85.33
2004	6,408	2.49	19.30	2022	12,833	4.98	90.31
2005	6,697	2.60	21.90	2023	12,883	5.00	95.31
2006	7,038	2.73	24.63	2024	12,088	4.69	100.00
2007	7,567	2.94	27.57	Total	257,659	100.00	
Panel C: industry-wise sample distribution							
Industry	N	%	c.f.	Industry	N	%	c.f.
Communication	10,781	4.18	4.18	Industrials	67,661	26.26	67.49
C. Discretionary	49,671	19.28	23.46	IT	28,525	11.07	78.56
C. Staples	27,927	10.84	34.30	Materials	52,285	20.29	98.85
Health Care	17,847	6.93	41.23	Real Estate	2957	1.15	100.00
				Total	257,659	100.00	

Note. This table presents the sample distribution by country, year, and GICS industry classification in Panels, A, B and C, respectively.

et al., 1995). Total accruals (*TACC*), defined as net income minus cash flow from operations, are regressed on changes in revenues (*REV*) adjusted for receivables (*AR*), property, plant, and equipment (*PPE*), and return on assets (*ROA*), following Kothari et al. (2005) to control for performance-related bias, as below. All firm-level variables are scaled by total assets (*A*) for comparability.

$$\frac{TAcc_{i,t}}{A_{i,\ t-1}} = \alpha_0 + \ \alpha_1 \frac{1}{A_{i,\ t-1}} + \ \alpha_2 \frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,\ t-1}} + \ \alpha_3 \frac{PPE_{i,t}}{A_{i,\ t-1}} + \alpha_3 \frac{ROA_{i,t}}{A_{i,\ t-1}} + \ \epsilon_{i,\ t} \tag{1}$$

Geopolitical risk (*GPR*) is measured using Caldara and Iacoviello (2022) index, which quantifies the frequency of newspaper articles related to geopolitical tensions, wars, and terrorism. The monthly country-level index is averaged annually, then log-transformed to smooth volatility, mitigate skewness, and allow percentage-change interpretation of coefficients. We also incorporate the alternative index measure historical GPR (*GPRH*).

Control variables, consistent with prior EM and uncertainty studies (Francis et al., 2014; Flores et al., 2016; Chowdhury et al., 2025), include lagged earnings, corruption perception index, gross domestic product (GDP) per capita, and firm-level indicators i.e., sales growth, cash holdings, retained earnings, equity, ROA, earnings per share (EPS), and effective tax rate (ETR - defined as total tax expense over pre-tax income). See Appendix Table A1 for variables definitions.

We estimate the following dynamic model using the two-step System GMM, which accommodates endogeneity, lagged dependence, and unbalanced panels (Arellano and Bover, 1995):

$$EM_{i,t} = \alpha_0 + \beta_1 EM_{i,t-1} + \beta_2 GPR_{c,t} + \beta_3 X_{i,t} + \ \gamma_c + \delta_t + \varepsilon_{i,t} \tag{2}$$

where $EM_{i,t}$ denotes discretionary accruals, $GPR_{c,t}$ is the log of annual average geopolitical risk, and $X_{i,t}$ represents the vector of control variables. Country (γ_c) and year (δ_t) fixed effects are included. This approach is especially appropriate given the potential simultaneity

Table 2
Baseline estimation.

Variables	Aggregate Results		Income groups		
	(1) Main IV	(2) Alternate IV	(3) Low	(4) Lower-Middle	(5) Upper-Middle
EM$_{t-1}$	0.925***	0.892***	0.666***	−0.537***	0.891***
	(23.13)	(54.94)	(4.31)	(−4.88)	(19.81)
GPR	0.625***		154.476***	4.795***	0.315*
	(3.33)		(4.22)	(10.27)	(1.79)
GPRH		0.606***			
		(6.74)			
CORRUPTION_RANK	−0.105	−0.076	2.861	−1.351***	−0.057
	(−1.23)	(−1.64)	(0.86)	(−4.22)	(−0.90)
GDP-CAPITA	0.008**	0.001***	0.416	−0.046***	−0.012**
	(2.46)	(3.19)	(1.21)	(−5.05)	(−1.98)
SALES_GROWTH	−8.422	−0.942	1.376	−10.689**	−4.084
	(−1.56)	(−1.34)	(0.26)	(−2.50)	(−0.46)
CASH	−6.409***	−0.241***	−1.257***	−4.448***	−4.458***
	(−18.09)	(−8.12)	(−3.43)	(−11.75)	(−7.86)
RETAINED_EARNINGS	0.362***	0.040***	0.045	0.606***	−0.138
	(2.97)	(4.41)	(0.51)	(3.22)	(−0.75)
EQUITY	0.814***	−0.005	0.380***	0.247***	0.634***
	(13.00)	(−0.85)	(4.45)	(3.40)	(6.81)
ROA	−0.874	−0.396	464.515	−4.720***	−7.185
	(−1.54)	(−1.09)	(1.57)	(−5.57)	(−1.53)
EPS	13.325**	3.369***	−1.438	18.318***	103.292***
	(2.04)	(4.52)	(−0.30)	(2.70)	(4.89)
ETR	0.532	−0.164	0.036	−1.590	−0.401
	(0.69)	(−0.39)	(0.03)	(−1.33)	(−0.32)
Observations	142,572	142,572	9334	65,439	67,738
Number of companies	12,959	12,959	2212	7939	7833
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes
AR1 *(p-value)*	0.000	0.000	0.001	0.000	0.000
AR2 *(p-value)*	0.120	0.321	0.120	0.245	0.134
Hansen-*J (p-value)*	0.526	0.332	0.750	0.323	0.119
Difference in Hansen *J (p-value)*	0.879	0.102	0.520	0.383	0.258
F-stat *(p-value)*	0.000	0.000	0.000	0.000	0.000

Note: This table reports the results of a System-GMM estimation examining the effect of geopolitical risk (GPR) on earnings management (EM). Columns (1) and (2) present the results for the alternative measures GPR and GPRH respectively. Columns (3 – 5) present the sub-sample analysis for the countries based on their income levels. The results of alternative independent variables (IV) for income groups are excluded for brevity. Asterisk ***, ** and * denote statistical significance at 1 %, 5 % and 10 % respectively.

between geopolitical risk and earnings management, as well as the persistence of earnings behavior over time. Moreover, the two-step variant improves efficiency and provides robust standard errors, making it a reliable choice for inference in our context.

In addition to examining the direct effects, we investigate the moderating role of GPR and EM on firm performance (measured by ROA) motivated by the premise that external uncertainty and internal reporting practices may jointly shape firm outcomes:

$$ROA_{i,t} = \alpha_0 + \beta_1 ROA_{i,t-1} + \beta_2 EM_{i,t} + \beta_3 GPR_{c,t} + \beta_4 EM_{i,t} x GPR_{c,t} + \beta_5 X_{i,t} + \gamma_c + \delta_t + \varepsilon_{i,t} \quad (3)$$

3. Results

The empirical results show that GPR significantly drives EM behavior among firms in LMICs, with clear variations across institutional and country settings. Table 2 indicates a significant positive coefficient on GPR, supporting the hypothesis that firms facing geopolitical uncertainty are more likely to manipulate earnings. Economically, one standard deviation increase in GPR corresponds to 0.6 % rise in EM. Cross-country comparisons show that the GPR–EM effect is most pronounced in low- and lower-middle-income economies, where the same increase in GPR raises EM by up to 1.5–2 %, compared to only 0.03 % in upper-middle-income countries despite their higher average GPR levels (Fig. 1), suggesting that stronger institutions and governance in relatively wealthier LMICs restrain opportunistic behavior, even amid elevated risk. This aligns with the agency theory and managerial opportunism hypothesis, which suggest that managers, under weak monitoring, engage in EM to signal stability or meet benchmarks when risks escalate (Flores et al., 2016; Gupta et al., 2025). Hansen and AR (2) tests confirm instrument validity and absence of second-order autocorrelation.

Average GPR across country groups (Fig. 1) suggests that upper-middle-income economies may be more exposed to geopolitical tensions, possibly due to their strategic economic and political positioning, regional conflicts, or transitional institutional structures. In contrast, low-income countries likely reflect chronic instability and global security concerns but less fluctuation in global geopolitical dynamics, whereas lower-middle-income countries may benefit from relative institutional improvements and reduced exposure to high-profile geopolitical events.

Table 3 examines heterogeneity. Panel A highlights audit quality as an external monitoring factor: firms audited by non-Big4 auditors show a stronger GPR–EM relationship, consistent with weaker oversight and greater accounting flexibility (Becker et al., 1998). By contrast, the relationship is weaker among Big4-audited firms due to stricter audit and higher financial reporting transparency, confirming that audit quality acts as a protective mechanism, reducing opportunism under uncertainty, consistent with the external governance literature (Francis et al., 2014).

Panel B shows that institutional capacity and socio-economic development (proxied by HDI: Human Development Index) mitigates

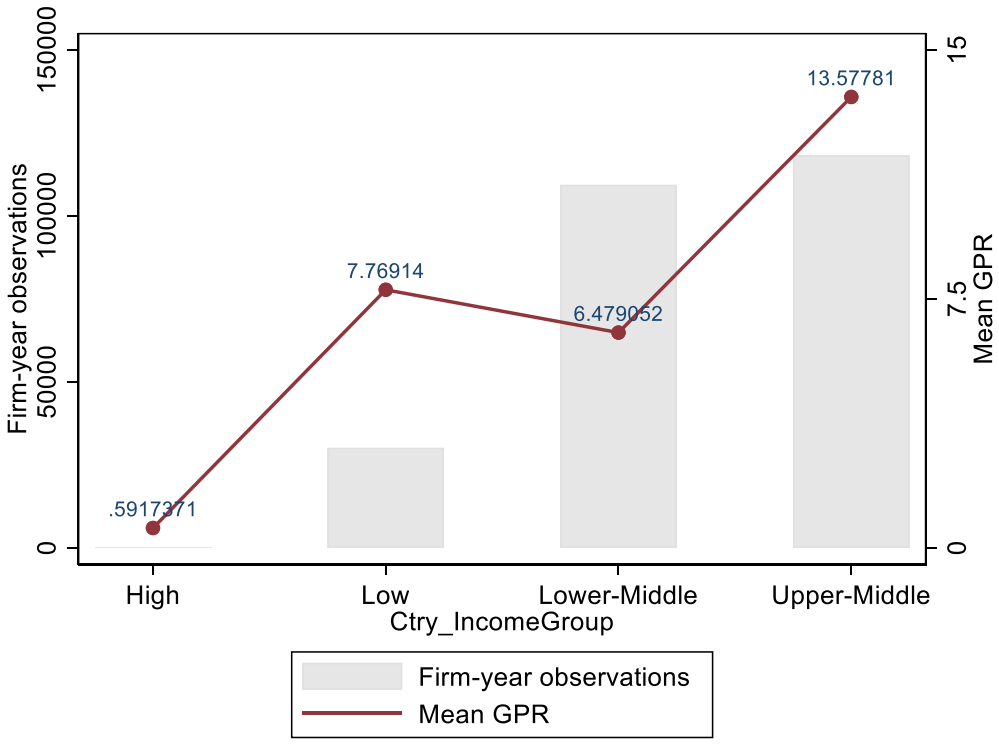


Fig. 1. GPR levels and country income levels.
Note. This figure illustrates the average geopolitical risk (GPR) across four income groups based on World Bank classification: Low, Lower-Middle, Upper-Middle, and High income. The bars represent the firm-year observations in each income category, while the line graph overlays the mean GPR values for each group.

Table 3
Subsample Analysis.

Panel A: Role of audit quality		
Variables	(1) Non-Big4 *EM*	(2) Big4
EM_{t-1}	0.834***	0.940***
	(12.33)	(22.45)
GPR	1.162***	0.550**
	(3.30)	(2.42)
Observations	118,161	23,852
Number of companies	12,076	3223
All controls	Yes	Yes
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Panel B: Role of human development index (HDI)		
Variables	(1) <= mean *EM*	(2) > mean
EM_{t-1}	0.440***	0.875***
	(5.09)	(19.65)
GPR	2.197***	0.351*
	(4.36)	(1.80)
Observations	63,043	79,529
Number of companies	6665	9014
All controls	Yes	Yes
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Panel C: Role of effective tax rate (ETR)		
Variables	(1) <= mean *EM*	(2) > mean
EM_{t-1}	0.959***	0.895***
	(8.65)	(16.26)
GPR	0.275	0.713**
	(0.57)	(2.54)
Observations	74,813	67,759
Number of companies	10,146	11,155
All controls	Yes	Yes
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes

Note. This table reports subsample analysis for the relationship between geopolitical risk (GPR) and earnings management (EM). Panel A presents the role of audit quality, Panel B reports the role of human development index provided by the United Nations Development Program, and Panel C reports the role of effective tax rates in the GPR-EM relationship. The results are consistent for the alternative measure GPRH, not reported for brevity. Asterisk ***, **, and * denote statistical significance at 1 %, 5 %, and 10 % respectively.

the risks. The positive GPR-EM link is more pronounced in countries below the mean HDI ($\beta = 2.197$), reflecting weaker legal, educational, and institutional systems. This supports institutional voids theory (Enomoto et al., 2018), which emphasizes that fragile governance and limited enforcement exacerbate agency problems.

Panel C highlights that firms in high-ETR countries face stronger incentives to manipulate earnings under GPR, whereas the relationship becomes insignificant in low-ETR countries. This echoes Ramesh and Athira (2024) and Northcut and Vines (1998), who argue that higher tax burdens can create incentives for earnings manipulation, either to reduce liabilities and taxable income or to meet performance benchmarks under political scrutiny.

Table 4 evaluates performance implications. Both baseline GPR and the interaction term (EM × GPR) are significant positive for ROA suggesting that EM partially shields firms from adverse geopolitical shocks. This supports signaling theory, whereby managers use EM to project resilience and maintain valuation under macro-stress (Flores et al., 2016). However, we caution that while EM may serve as a short-term buffer, it risks undermining long-term transparency, credibility, and investor trust.

4. Discussion and conclusions

This study shows that geopolitical risk significantly drives earnings management in LMICs, with stronger effects in weaker institutional settings (low audit quality, low HDI, high taxation). For regulators and stakeholders, this underscores the importance of

Table 4
Impact on firm performance.

Variables	(1) *ROA*	(2)
ROA_{t-1}	−0.001*** (−313.72)	−0.001*** (−308.67)
EM	−0.001*** (−36.56)	−0.001*** (−41.64)
GPR	0.001*** (3.70)	
EM × *GPR*	0.0001*** (17.56)	
GPRH		0.001** (2.10)
EM × *GPRH*		0.0001*** (22.99)
Observations	163,443	163,443
Number of companies	14,086	14,086
All controls	Yes	Yes
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes

Note. This table reports System-GMM estimation examining the moderating effect of geopolitical risk (GPR) and earnings management (EM), on firm performance (ROA). Column (1) presents the results for GPR whereas column (2) presents the results for the alternative measure GPRH. Asterisk ***, and **, denote statistical significance at 1 %, and 5 % respectively.

strengthening audit quality, improving institutional development, and calibrating tax enforcement to reduce incentives for opportunism under geopolitical shocks. These results extend prior research linking political uncertainty to EM (Jain et al., 2021; Gupta et al., 2025) by showing that GPR is a distinct and powerful driver of EM, particularly in LMICs where institutional safeguards are weaker. This study also complements recent evidence that GPR affects financing policies (Chowdhury et al., 2025), confirming that corporate responses to geopolitical risk extend beyond capital structure into reporting practices.

While EM may buffer short-term performance shocks, it undermines long-term transparency. Policy relevance is clear: strengthening audit quality, institutional capacity, and tax governance can reduce opportunism under geopolitical stress. Limitations include the focus on listed firms, discretionary accruals and potential endogeneity of institutional variables in LMICs. Future research could explore country-specific dynamics, alternative market structures, political connections, sectoral vulnerabilities, and real earnings management. Overall, our findings extend agency and institutional voids theory, positioning GPR as a critical determinant of corporate reporting behavior.

CRediT authorship contribution statement

Alina Taran-Bozbay: Writing – review & editing, Methodology, Data curation, Conceptualization. **R.M.Ammar Zahid:** Writing – original draft, Validation, Methodology, Conceptualization. **Irfan Haider Shakri:** Writing – review & editing, Software, Methodology, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.frl.2025.108762.

Data availability

The authors do not have permission to share data. All data is secondary data obtained from the indicated sources.

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