

# GEOECONOMIC FRAGMENTATION AND FIRMS' FINANCIAL PERFORMANCE

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## Abstract

We introduce a novel firm-level revenue-weighted geopolitical risk index by integrating corporate revenue distribution with geopolitical risk across countries. Our findings reveal a significant real-financial feedback loop: firms with greater exposure to geopolitical risk experience increased probability of default, reduced market valuations, higher financing costs and more volatile returns. The effects of heightened geopolitical risk also extends to firms' operations as we document that firms' reduce their revenue-exposure in markets that become more risky. Finally, we highlight that data on the granular exposure of firms is key even when considering the effects of adverse aggregate shocks: a global fragmentation shock affects less severely firms whose revenues originate in safer markets.

**JEL classification:** F36, F50, F65, G30

**Keywords:** geopolitical risk, fragmentation, financial performance, revenue exposure

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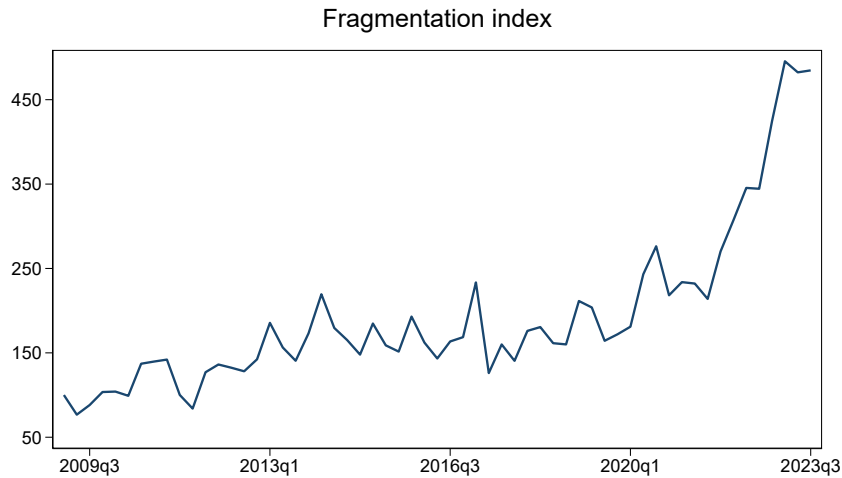
# 1 Introduction<sup>1</sup>

How do economic and financial interdependencies among countries and firms respond when seismic geopolitical shifts disrupt the rule-based international system? This question has become salient in policy discussions as the benefits accrued over decades of economic integration are threatened by escalating tensions that are leading to a reversal of international relations, a phenomenon that has been labeled as geoeconomic fragmentation (Aiyar et al., 2023a). Geopolitical fractures have been accelerating in recent years (see Figure 1) as exemplified by events such as Brexit, trade disputes between the United States and China, restrictions on trade flows associated with the Covid-19 pandemic and, more dramatically, Russia's invasion of Ukraine and the ongoing conflict in the Middle-East.

To date, empirical analyses on the impacts of geoeconomic fragmentation have primarily focused on how deteriorations in international relations can lead to increased protectionist measures, including tariffs and trade restrictions motivated by national security concerns, ultimately disrupting the smooth functioning of highly interconnected global value chains (Aiyar et al., 2023c, Attinasi et al., 2023, Campos et al., 2023, and Hakobyan et al., 2023 among many others). Since Russia's invasion of Ukraine, concerns about geoeconomic fragmentation in commodity markets have intensified and several studies examined how the war has affected global commodity flows, price differentials among blocs, and political attitudes toward the balance between energy security and the energy transition (e.g. IMF, 2023a, Ferriani and Gazzani, 2023, Emiliozzi et al., 2023, Albrizio et al., 2023, and Alvarez et al., 2023). So far, evidence on the financial implications of geopolitical

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**FIGURE 1:** *The fragmentation index (rescaled at 100 on 2009Q1) measures the frequency of earning call sentences that mention at least one of the following keywords: reshoring, onshoring, localization, nearshoring, regionalization, fragmentation, deglobalization. Data are obtained from NL analytics and are based on the methodology described in Hassan et al. (2019).*

tensions has been more limited, with most studies analyzing the impact on cross-border capital flows (especially foreign direct investments), asset prices and investors' risk aversion at the aggregate level (IMF, 2023b, Feng et al., 2023, Aiyar et al., 2023b, Salisu et al., 2022, Lee, 2023).

This paper relies on a novel firm-level dataset to fill the current gap in the literature studying the financial impacts of geoeconomic fragmentation. We combine detailed information on the geographic distribution of corporate revenues with country-specific geopolitical risk assessments to create a revenue-weighted geopolitical risk index at the firm level. To the best of our knowledge, this study is the first to elaborate a micro-based measure of corporate exposure to geopolitical risk using the ultimate origin of firms' business risk, built on the specific location where the firm generates its revenues.<sup>2</sup> We employ this index to examine the impact of geopolitical risk on firms' probability of default, market-based

<sup>2</sup>In this sense, our approach complements other studies in the literature that rely on micro data to adequately address sample heterogeneity when measuring the interlink between geopolitical distress and export diversification or value added (Fisman et al., 2022, Borin et al., 2023).

proxies of their valuations, and equity return volatility for a large panel of non-financial firms in Europe and the US from 2010 to 2022. We find evidence of a real-financial feedback loop with revenue-driven exposure to geopolitical risk negatively influencing firms' default probability, depressing market valuation, and increasing return volatility. Interestingly, a parallel analysis based on simpler measures, such as the geopolitical risk of a firm's headquarters, does not exhibit statistical significance. This supports the idea that geoeconomic fragmentation matters for firms only when considering the actual exposure of their revenues to geopolitical risks. Furthermore, the effects of geopolitical risk are not confined to the financial dimension as we document that firms' reduce their exposure in markets that become more risky. Finally, we highlight that the granular exposure of firms is key even when considering the effects of adverse aggregate shocks: a global fragmentation shock affects less severely firms whose revenues originate in safer markets.

The rest of the paper is organized as follows. Section 2 describes the dataset, Section 3 presents the empirical analysis on the implications of increased geopolitical risks for firms' financial performances, while Section 4 describes the operational response of firms to these risks. Section 5 provides insights into how firms' financial performances responses to global fragmentation shocks are affected by their risk-revenue weighted exposure across different markets. Section 6 concludes.

## 2 Dataset

The construction of a unique dataset constitutes a key contribution of our work and is achieved by combining information from three main sources. Our sample spans the period between 2010 and 2022 and consists of non-financial firms included in the Eurostoxx 600 and the S&P 500, i.e. the two regional benchmarks encompassing the largest Euro-

pean and US firms. For these firms, we first rely on the *Orbis-Bureau van Dijk* database to obtain detailed information on the geographical breakdown of corporate revenues. This data, typically provided as complementary information in the explanatory notes to the official financial statements, exhibits an extremely high level of heterogeneity across firms in terms of reporting. Substantial differences may arise across firms regarding aspects such as the number of countries, the aggregation level of geographical macro-areas, and even the availability of the information itself. Figure A.1 in the Appendix presents an example of revenue breakdown retrieved from Orbis. The processing of this data requires an extensive exercise of geographical reclassification, which nevertheless proves to be quite successful in our work. Despite cases where data on revenue information is unavailable or not clearly assigned to a specific country or geographical area, we are able to map, on average, almost 83% of corporate revenues (median around 88%).<sup>3</sup> For each firm, we compute the geographical revenue exposure as the share of yearly revenues obtained in a specific market.

As a second step, we measure country geopolitical risk using the yearly assessment of political risk obtained from the *International Country Risk Guide* (ICRG). The political risk rating ranges from 0 to 100, with higher scores associated with lower risk levels, and it covers the assessment of geopolitical risk across twelve dimensions: government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality. The ICRG political risk index has already been adopted in several empirical studies (Bekaert et al., 2014, Lehkonen and Heimonen, 2015, Chen et al., 2016, King et al., 2021 among many others), and it offers two main advan-

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<sup>3</sup>The corporate revenues that are not mapped are associated to geographical aggregates in which countries are not clearly identifiable (e.g. "Asia and rest of the world", "Europe, CIS, Middle East and Africa"...). These observations are excluded from the sample as they cannot be matched with any country-specific measure of geopolitical risk.

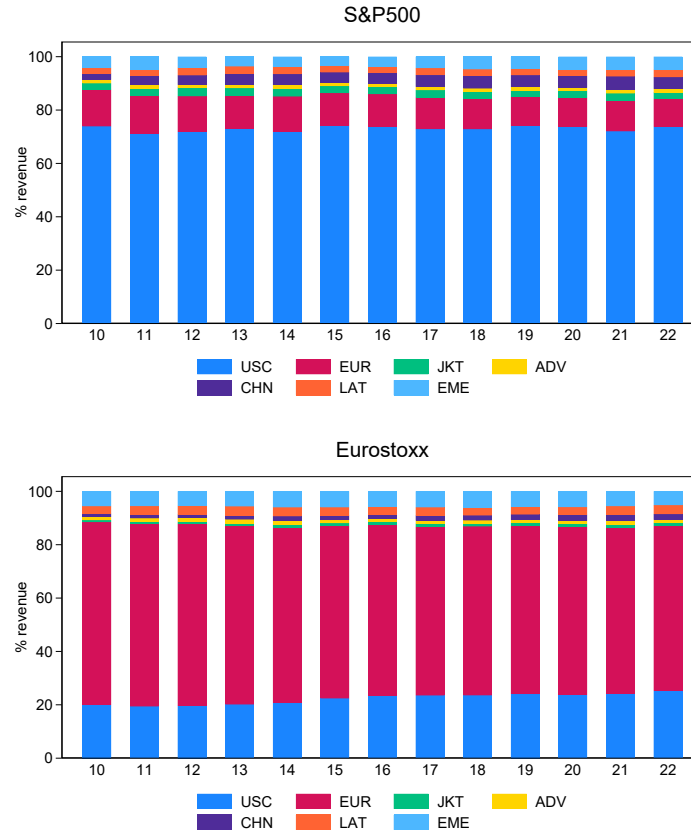
VARIABLES	Mean	St. Dev.	p25	p50	p75
ICRG	64.76	12.35	56	63.5	74
Altman z-score	4.64	5.44	1.85	3.05	5.21
IBES P/E	17.71	15.29	12.04	15.73	20.86
Tobin q	1.52	1.63	0.61	1.02	1.79
Volatility	30.36	12.51	21.72	27.39	36.67

Table 1: The table provides descriptive statistics for key empirical variables (mean, standard deviation, 25th, 50th, and 75th percentile). Values are computed on the whole sample (US and European firms) over the period 2010-2022.

tages for the purpose of this analysis compared to other popular metrics in the literature (mainly the Geopolitical Risk - GPR - index developed by [Caldara and Iacoviello, 2022](#)). First, and most importantly, the ICRG index is available for more than 140 countries compared to around 45 countries covered by the GPR index. This is crucial for our study as it enables us to accurately map firms' revenue exposure to political risk. Second, the ICRG index is based on a set of questions to ensure a certain degree of consistency, both between countries and over time, whereas the country-specific GPR indices evaluate geopolitical risk based on three US newspapers and ultimately "*capture the US perspective on risks posed by, or involving, the country in question*".

As a third step, we retrieve from *Refinitiv* four dependent variables to measure firms' financial performance. The first is the *Altman Z-score* ([Altman, 1968](#), [Altman and Hotchkiss, 2010](#)) which constitutes an inverse proxy of firms' default probability based on accounting variables, with higher values associated to stronger corporate soundness. Then we consider two dependent variables reflecting investors' assessment of firms' value and profitability, namely the IBES estimate of the 12-month-forward *price-earnings (P/E)* ratio and the *Tobin Q* ratio. Finally, we include a metric for equity return *volatility* to evaluate the effect of geopolitical tensions on fluctuations in stock prices.<sup>4</sup> We also rely on *Refinitiv*

<sup>4</sup>The volatility is measured as annualized standard deviation of equity returns computed over a 100-day interval.



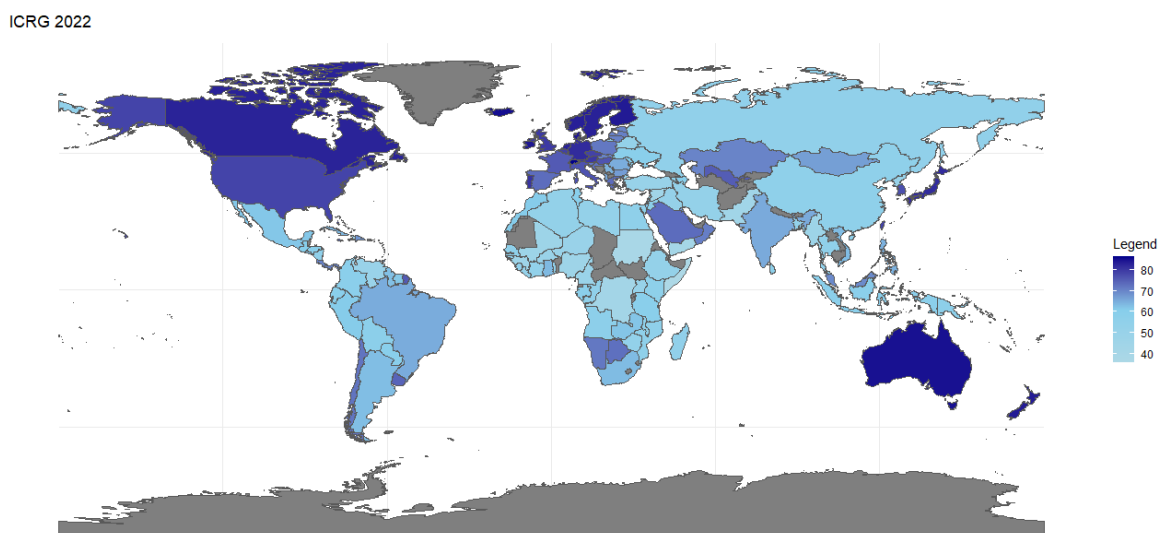
**FIGURE 2:** Geographical breakdown of corporate revenues: S&P500 (upper panel) vs Eurostoxx (lower panel). Acronyms are as follows: United States and Canada (USC), Europe (EUR), Japan, South Korea and Taiwan (JKT), other advanced economies (ADV), China (CHN), Latin America (LAT), other emerging markets (EME)

to obtain other firm-specific control variables. Descriptive statistics for the main variables of interest are reported in Table 1.

### 3 The impact of geopolitical risk on firms' financial performances

As preliminary evidence, we present in Figure 2 the geographical breakdown of corporate revenues. Not surprisingly, the largest share of revenues originates from the geographical

area where firms are listed: approximately 72% of revenues are generated in the United States and Canada for S&P500 firms, compared to an average of 64% of revenues generated in Europe for Eurostoxx companies. For US firms, the residual source of revenues is almost evenly divided between Europe and the rest of the world, while for European firms, the second most significant market is the US, whose share gradually increases to around one-quarter of total foreign revenues toward the end of the sample period. In both regions, revenue generated in China hovers around 3%.



**FIGURE 3:** The plot displays countries' geopolitical risk in 2022. Data are from ICRG, higher values correspond to lower risk levels; gray countries have no available score.

Figure 3 presents evidence on the quantitative importance of geopolitical risk. The map illustrates risk rankings based on the ICRG 2022 assessment: lower geopolitical scores are typically associated with advanced economies (Western countries, Japan, Australia, South Korea), while most emerging economies exhibit higher geopolitical risk. Country-specific risk modestly fluctuates over time whereas at the aggregate level we observe a moderate decline in the average risk score from around 65 in 2010 to about 62 in 2022. Conversely, there is a considerable variability across countries, with the political risk score ranging



between approximately 30 and 90 points out of 100.

To assess analytically how the exposure to geopolitical instability may affect firms from a financial perspective, we employ the following regression model:

$$y_{i,t} = \alpha_s + \alpha_t + \alpha_c + \beta gprisk_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t} \quad (1)$$

where  $y_{i,t}$  represents either the Altman z-score, the P/E ratio, the Tobin Q ratio or the equity volatility (all expressed in log-terms),  $\alpha_s$  are economic sector fixed-effects,  $\alpha_t$  are yearly time fixed-effects,  $\alpha_c$  are geographical fixed-effects based on firms' country of headquarters,  $gprisk_{i,t}$  is the time-varying and firm specific measure of geopolitical risk,  $X_{i,t}$  is a set of firm specific controls including return on assets (ROA), leverage, firm size (proxied by revenues), cash to total assets, working capital, share of fixed assets to total assets, the investment ratio (capital expenditure to total assets), and a dummy for firms paying dividends; finally,  $\varepsilon_{i,t}$  is a standard error term.

We consider two alternative measures of firm-specific geopolitical exposure. The first measure is constructed as the sum of the shares of firm revenues originating in each national market, multiplied by the corresponding value of the country-specific ICRG index. This variable incorporates detailed information on the final location of corporate business revenues and provides a revenue-weighted measure of firms' exposure to geopolitical risk. Alternatively, we consider a less refined measure that only reflects the geopolitical risk of corporate headquarters.<sup>5</sup> The two  $gprisk_{i,t}$  variables can imply distinct assessments of corporate exposure to geopolitical risk. For instance, consider two firms headquartered in the US – one generating all revenues from the local market and another with half rev-

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<sup>5</sup>When firms' revenues are linked to broader geographical areas with precisely identifiable member countries (e.g. NAFTA/USMCA, Eurozone...), the ICRG index associated to the area is the simple mean of the ICRG index of the countries included in the corresponding aggregate. The list of geographical aggregates with mapped ICRG values is available from the authors upon request.

VARIABLES	Revenue - Weighted				HQ - estimates			
	(1) Altman	(2) IBES P/E	(3) Tobin Q	(4) Volatility	(5) Altman	(6) IBES P/E	(7) Tobin Q	(8) Volatility
Gprisk - rev. weight.	0.877*** (0.000)	0.634*** (0.007)	0.601*** (0.006)	-0.441*** (0.000)	0.059 (0.863)	-0.140 (0.390)	-0.741* (0.088)	-0.477 (0.153)
Gprisk - HQ								
Observations	11,112	11,151	10,861	11,555	11,112	11,151	10,861	11,555
R-squared	0.56	0.21	0.42	0.49	0.56	0.20	0.42	0.49
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Geo FE	YES	YES	YES	YES	YES	YES	YES	YES

Table 2: **Fragmentation and firms' financial performance.** The table presents estimates of Equation 1, differentiating between alternative measures of geopolitical risk (revenue-weighted versus HQ-specific, both in log-terms). Controls include return on assets (ROA), leverage, firm size (proxied by revenues), cash to total assets, working capital, share of fixed assets to total assets, investment ratio (capital expenditure to total assets), and a dummy for firms paying dividends. Dependent variables (all expressed in log-terms): Altman z-score, IBES P/E, Tobin Q ratio and equity return volatility. Models also include a constant and time, industry and geographical fixed effects. P-values based on standard errors clustered at the country level in parentheses. \*, \*\*, and \*\*\* denote significance at, respectively, the 10%, 5% and 1% level.

enues from the US and half from China. The geopolitical risk based on headquarters exposure is identical for both firms, amounting to 79 based on ICRG scores in 2022. In contrast, the assessment based on revenue exposure is 79 for the former firm with no foreign revenues but only 68 for the latter firm with more diversified revenue exposure. Our baseline results are reported in Table 2 where, to facilitate the interpretation as elasticities we also consider the  $gprisk_{i,t}$  measures in log-terms.

Our estimates show that firms' revenue exposure to markets characterized by high geopolitical risk impacts corporate soundness and it is also reflected in lower investor valuations and higher return volatility. In contrast, this relationship is muted when examining geopolitical risk based on firms' headquarters. This finding aligns with the graphical evidence reported in Figure 3: as S&P 500 and Eurostoxx firms are headquartered in countries with generally lower geopolitical risk. However, it is noteworthy that even relatively modest shares of revenue exposure to markets with higher geopolitical risks (roughly 12-15% on average across times and sectors) have substantial financial effects. This impact is not only statistically significant but also economically meaningful. A one percent increase in our revenue-weighted geopolitical risk measure, i.e. an improvement in terms of risk exposure, results in a roughly 0.9% increase in corporate soundness (Z-score), about a 0.6% increase for both the IBES P/E estimate and the Tobin Q ratio, and a decrease in equity volatility by more than 0.4%. This evidence suggests that investors assessment of equity growth and profitability risks takes also into account exposure to geopolitical tensions. Two key findings emerge from our analysis. First, and especially in the case of large multinational firms, the availability of firm-level granular data is essential to capture the actual exposure of firms to risk factors, as opposed to relying on naive proxies based on the risk associated with firms' headquarters. Second, our results should be interpreted as conservative estimates of the actual effect, as our geographical breakdown of revenues pertains to revenues originating from the sale of final goods and services and does not ac-

VARIABLES	(1) Altman	(2) IBES P/E	(3) Tobin Q	(4) Volatility	(5) Zmijewski
Gprisk - rev. weight. - strict	0.794*** (0.001)	0.612** (0.014)	0.585*** (0.005)	-0.427*** (0.000)	
Gprisk - rev. weight.					-0.523** (0.038)
Observations	11,112	11,151	10,861	11,555	11,886
R-squared	0.56	0.21	0.42	0.49	0.68
Controls	YES	YES	YES	YES	YES
Time, indus. and geo FE	YES	YES	YES	YES	YES

Table 3: **Financial performance and geopolitical exposure - robustness exercises.** See Table 2 for the list of controls. The strict definition of the revenue-weighted geopolitical risk excludes countries' socioeconomic conditions and investment profile from the ICRG political score. See Table 2 for the list of controls. Dependent variables (all expressed in log-terms) in column 1-4: Altman z-score, IBES P/E, Tobin Q ratio and equity return volatility. Dependent variable is the Zmijewski (1984) score (not in log-term) in column 5. Models include a constant and time, industry and geographical fixed effects. P-values based on standard errors clustered at the country level in parentheses. \*, \*\*, and \*\*\* denote significance at, respectively, the 10%, 5% and 1% level.

count for other forms of cross-country linkages (e.g. intermediate output trades) arising from firms' exposure to sourcing from different countries.

Table 3 shows some robustness exercises. First, in columns 1-4 we replicate the baseline estimates, but we consider a more stringent version of the ICRG political score which excludes economically-tilted sub-dimensions, specifically the country's socioeconomic conditions and its investment profile.<sup>6</sup> Second, in column 4 we propose an alternative balance-sheet measure of corporate default risk, namely the Zmijewski (1984) score. In contrast to the Altman z-score, higher values of this variable are positively related to default risk.<sup>7</sup> Estimates in Table 3 align with our previous findings and confirm that

<sup>6</sup>These two sub-dimensions accounts for a substantial portion of the total ICRG political score, amounting to up to 24 points out of 100.

<sup>7</sup>The Zmijewski (1984) score is defines as  $ZM = -4.336 - 4.513 * ROA + 5.679 * Total\ liabilities / Total\ assets - 0.004 * Current\ assets / Current\ liabilities$ , see Acharya et al. (2013) for a valuable application of the Zmijevski score.

corporate exposure to geoeconomic fragmentation is reflected in firms' financial performance. Results (available upon request) are also qualitatively similar when i) geopolitical risk is measured with respect to the location of the ultimate parent country rather than firms' headquarters; ii) we substitute the IBES P/E estimate with yearly averages of the P/E ratio obtained from the market or use volatility measures based on different time-intervals; iii) we employ alternative standard errors inference; iv) definitions of the Altman z-score differentiating between manufacturing and non-manufacturing firms; v) the use of *weighted average cost of capital* (WACC) as a dependent variable, which serves as a synthetic proxy for corporate cost of financing.<sup>8</sup>

## 4 Firms' operational response to geoeconomic risk

As firms' financial conditions react to heightened geopolitical risk, the next step is to investigate whether fluctuations in geopolitical risk are also linked to operational adjustments by firms with revenue exposure in the affected market, particularly concerning their adjustment of the share of revenues generated in that market.

To estimate the response of firms, we fully exploit the information in our panel dataset by transforming it from a firm and year dataset to a firm, market (source of revenues) and year dataset. We estimate how firms' revenues share from a specific market  $m$ , in year  $t$ , depends on the geopolitical risk of that market in the previous year  $t - 1$  using the

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<sup>8</sup>The WACC is excluded from the baseline estimates, because of data availability issues, being this variable only available from the fiscal year 2015

following specification:

$$y_{i,m,t} = \theta ICRG_{i,m,t-1} + \beta y_{i,m,t-1} + \gamma X_{i,t-1} + \alpha_i + \alpha_t + \alpha_m + \delta_{im} + \mu_{it} + \sigma_{mt} + u_{i,m,t} \quad (2)$$

where  $y_{i,m,t}$  are firm-year-market revenue shares,  $ICRG$  is the geopolitical risk of market  $m$ , and  $X$  are firm controls as previously defined. Then, we include two types of fixed-effects: the “basic” fixed-effects include firm, time and market of revenues fixed-effects, namely  $\alpha_i$ ,  $\alpha_t$ , and  $\alpha_m$ . Next, the “advanced” fixed-effects ( $\delta_{im}$ ,  $\mu_{it}$ ,  $\sigma_{mt}$ ) include all the double interactions of fixed-effects, across time, year and market; finally,  $u_{i,m,t}$  is a standard error term. Employing a regression saturated with all possible combinations of fixed-effects is essential to shield the estimate of the impact of geopolitical risk from the influence of changes in macroeconomic conditions in the revenue market. This approach ensures effective control for variation at the year, firm, market of revenues, firm-market, firm-year, and market-year levels.

Table 4 presents the estimates of the model outlined in Equation 2. Considering the most comprehensive specification displayed in column 3, we find that firms’ exposure to the market whose geopolitical risk increases by 1% results in a decrease of their revenue exposure to that country by more than 0.2 percentage points, all else equal. These results indicate that the consequences of geopolitical risk are not confined to the financial dimension but also extends to firms’ presence in the final revenue markets.<sup>9</sup>

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<sup>9</sup>The number of observations changes across columns as singleton observations are excluded from the estimate to ensure proper statistical inference, see [Correia \(2015\)](#).

VARIABLES	(1) Rev. share	(2) Rev. share	(3) Rev. share
ICRG (t-1)	0.370*** (0.000)	0.484*** (0.001)	0.217** (0.032)
Rev. share (t-1)	0.945*** (0.000)	0.891*** (0.000)	0.557*** (0.000)
Observations	36,742	36,721	33,711
R-squared	0.93	0.94	0.97
Controls	YES	YES	Absorbed
Basic FE	NO	YES	YES
Advanced FE	NO	NO	YES

Table 4: **Firms operational response to geoeconomic risks.** Dependent variable is the firm-year share of revenue generated in a specific market  $m$ . Basic FE include year, firm, and market of revenues fixed-effects; Advanced FE include all the double interactions of Basic FE. See Table 2 for the list of controls. P-values based on standard errors clustered at the country level in parentheses. \*, \*\*, and \*\*\* denote significance at, respectively, the 10%, 5% and 1% level.

## 5 Aggregate fragmentation shocks and firms' exposure

The evidence provided until now suggests that geopolitical risk affects firms' financial performances and triggers operational consequences affecting the share of revenues in a market hit by higher political risk. In this Section, we investigate whether aggregate geoeconomic shocks such as increasing fragmentation affect heterogeneously firms' financial performances depending on the level of revenue-weighted geopolitical risk exposure.

We identify aggregate *global* fragmentation shocks at the monthly frequency by exploiting the positive comovement in the GPR index (Caldara and Iacoviello, 2022) and the trade uncertainty index (Caldara et al., 2020) within a bivariate VAR model.<sup>10</sup> The variables we employ are the most volatile indicators among those used in Fernandez-Villaverde et al. (2024) to construct a fragmentation index and thus more appropriate in a VAR exercise.

<sup>10</sup>From the GPR index, we extract exclusively those components related with international tensions while disregarding domestic terrorist events.

We employ a structural VAR that is identified by means of sign restrictions to disentangle a fragmentation shock as the fluctuation that moves the two variables in the same direction, as opposed to other fluctuations that may shift them in opposite directions.<sup>11</sup>

Next, we include the median fragmentation shocks ( $\varepsilon_t^F$ ) from the structural VAR in a set of panel local projection exercises performed at the monthly frequency (eq. 3). The firm-level dependent variable of interest available at higher frequency are *i*) IBES P/E forecast; *ii*) the market capitalization; and *iii*) the volatility of equity returns. We include  $\varepsilon_t^F$  by itself but also interacted with our predetermined (values from the previous year) geopolitical risk index *gprisk*.<sup>12</sup> The regressions include as controls  $X$  past values of the dependent variable and the whole set of controls employed in our previous regression exercises, lags of  $\varepsilon_t^F$ , a linear trend plus firm and sectoral fixed effects.

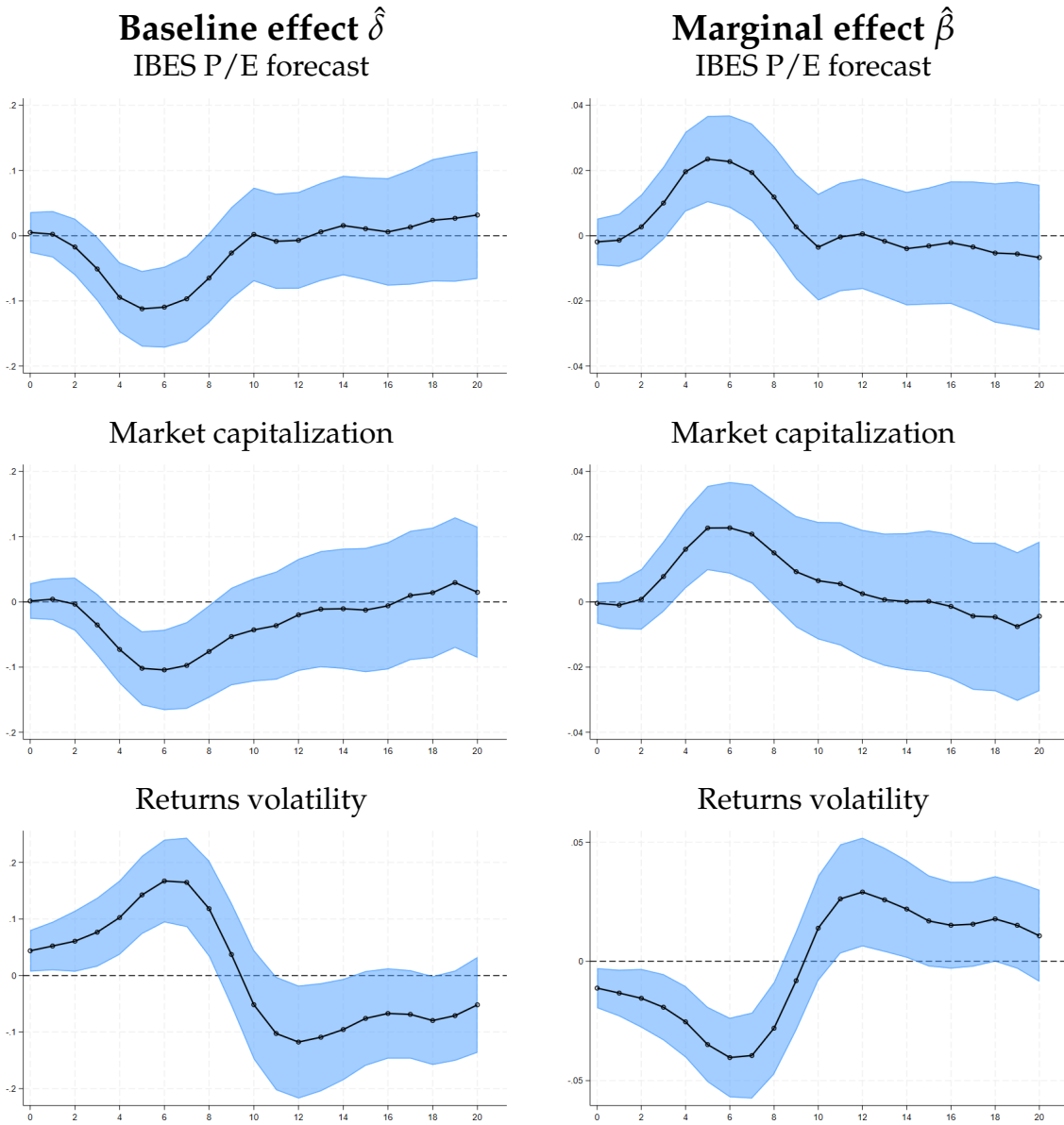
$$y_{i,t+h} - y_{i,t-1} = \alpha_i + \alpha_s + \tau_t + \delta\varepsilon_t^F + \beta\varepsilon_t^F gprisk_{i,t-12} + \gamma X_{i,t} + u_{i,t} \quad (3)$$

Our results (Figure 4) suggest that global shocks to geoeconomic integration are detrimental for firms in terms of expected earning, market capitalization and volatility of returns. Crucially, firms' with safer revenue-weighted risk exposure are less affected by fragmentation shocks, as the marginal response to the interaction terms mitigates the baseline effect. These results indicate how the ultimate source of revenue risk may act as either a shock absorber or an amplifier and highlight the importance of considering the granular exposure of firms' when assessing the implications of macroeconomic shocks.

<sup>11</sup>The other difference is that we extract the conditional comovement within a VAR while [Fernandez-Villaverde et al. \(2024\)](#) extract the unconditional common component from a factor model.

<sup>12</sup>In this way we do not mix the potential effect of the aggregate-global shock on the country-specific geopolitical risk index.





**FIGURE 4:** Local projection estimates: impact of fragmentation shocks on firms' financial performances. Point estimate and 90% confidence bands.

## 6 Conclusions

This study sheds light on the financial impacts of geoeconomic fragmentation from a micro-level perspective. We introduce a novel revenue-weighted geopolitical risk index at the firm level and observe that geopolitical risk significantly affects firms' default probability, market valuations, and return volatility. The effects of geopolitical risk are not confined to the financial dimension as we document that firms' reduce their revenues-exposure in markets that become more risky. Finally, we highlight that the granular exposure of firms is key even when considering the effects of adverse aggregate geopolitical shocks: a global fragmentation shock affects less severely firms whose revenues originate in safer markets. The absence of statistical significance regarding geopolitical risks associated with firms' headquarters emphasizes the importance to access accurate microdata to precisely measure the real-financial interdependencies of geoeconomic fragmentation. As global tensions continue unabated, the financial consequences of fragmentation at the firm level may intensify, leading to more widespread macro-financial turbulence. This could manifest in cross-border effects, including capital shifts away from exposed firms, reduced asset valuations, and heightened market volatility.

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## Online Appendix

	Sales
31/12/2022 (in th EUR)	
Austria	291,037
Germany	300,345
France	247,482
United States (Country)	864,903
Finland (Country)	103,134
Sweden (Country)	132,374
Norway (Country)	166,570
United Kingdom (Country)	600,194
Netherlands (Country)	397,970
Belgium (Country)	406,885
Russia (Country)	121,485
Poland (Country)	273,923
Czech Republic (Country)	230,043
Hungary	161,757

**FIGURE A.1: Revenues geographical breakdown.** The figure displays an example of revenues geographical breakdown for Wienerberger AG in 2022; data are obtained from Orbis-Bureau van Dijk.