

Geopolitical Risk and Monetary Policy Transmission to Sovereign Bond Spreads

Laurent Ferrara*

Urszula Szczerbowicz[†]

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Abstract

How does geopolitical risk shape monetary policy transmission to sovereign bond spreads within a monetary union? To answer this question, we combine intraday ECB monetary policy surprises with a euro-area-specific geopolitical risk index in a high-frequency interaction model. Empirical results show that contractionary ECB shocks generate larger increases in sovereign spreads when geopolitical risk is elevated, particularly at longer maturities. However, contrary to a standard fragmentation narrative, this amplification is concentrated in core countries—Germany, the Netherlands, Finland, and Austria—and is driven by military-conflict and nuclear-threat risks. The evidence points to a fiscal-anticipation channel: fiscal capacity and defense commitments jointly determine which sovereigns are repriced, while the magnitude of repricing increases with the debt burden and defense spending. These findings suggest that geopolitical risk reshapes monetary policy transmission across sovereign bond markets, with implications for the design of fragmentation-prevention instruments.

Keywords: Geopolitical risk, ECB, monetary policy, sovereign spreads, euro area

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*SKEMA Business School – Université Côte d’Azur (email: laurent.ferrara@skema.edu).

[†]SKEMA Business School – Université Côte d’Azur (Corresponding author; email: urszula.szczerbowicz@skema.edu). We thank Elias Peschier for excellent research assistance.

1 Introduction

The global geopolitical landscape has changed markedly since Russia’s invasion of Ukraine in 2022. The war, escalating tensions in the Middle East, disruptions to global energy markets, and the broader fragmentation of the international order have led to persistently elevated geopolitical risk. For the euro area, this environment is particularly challenging because the uniform transmission of European Central Bank (ECB) monetary policy relies on the relative homogeneity of financial conditions across member states. While a growing body of literature documents how geopolitical risk shocks act as adverse supply disturbances that dampen real activity and affect inflation (see for example Caldara et al. (2024)), much less is known about how geopolitical tensions alter the transmission of monetary policy within a monetary union characterized by heterogeneous sovereign issuers and decentralized fiscal authorities.

The existing fragmentation literature also provides a natural prediction about where such amplification should be strongest. It treats sovereign stress as primarily a peripheral phenomenon: unlike fully integrated fiscal federations, euro area member states share a common monetary policy while issuing sovereign debt individually, leaving sovereign bond markets exposed to country-specific fiscal conditions, political risk, and redenomination concerns (Altavilla et al., 2019). Against this background, geopolitical stress should widen spreads primarily for fiscally fragile countries, while investors’ flight to safety compresses yields on highly rated core issuers. Episodes of fragmentation of this kind have motivated the design of unconventional ECB instruments, including the Outright Monetary Transactions (OMT) program and, more recently, the Transmission Protection Instrument (TPI). The natural expectation, therefore, is that any geopolitical amplification of monetary policy transmission should be concentrated in the periphery.

Our results challenge this prediction. We find that geopolitical risk amplifies the transmission of ECB monetary policy shocks to sovereign spreads; however, this amplification is concentrated in the *core*, not in the periphery. To establish this, we combine high-frequency ECB monetary policy surprises identified using the methodology of Jarociński and Karadi (2020)—which separates genuine policy shocks from central bank information effects—with daily sovereign bond yield data for euro area countries.¹ Geopolitical risk is measured using the euro area geopolitical risk index of Bondarenko et al. (2026), constructed from textual analysis of European newspaper sources and specifically designed to capture geopolitical developments relevant to the euro area rather than relying on global, Anglosphere-centric indices. We estimate a high-frequency interaction model in which sovereign spread responses to ECB monetary policy shocks depend on the prevailing level

¹We measure sovereign spreads relative to the euro area overnight index swap (OIS) curve rather than German Bund yields. The OIS curve serves as the common risk-free benchmark, enabling us to identify changes in sovereign risk premia for all euro area issuers, including Germany, which would otherwise be excluded as the benchmark.

of geopolitical risk. A key methodological choice is to condition on a slow-moving average of the geopolitical risk index rather than its daily value, reflecting our interpretation of geopolitical risk as a persistent background regime affecting investor risk perceptions and portfolio allocations rather than a transitory daily shock.

Our results show that geopolitical risk significantly amplifies the transmission of ECB monetary policy shocks to sovereign spreads, but the pattern of amplification departs sharply from the conventional core-periphery narrative. The strongest effects are found in fiscally strong core countries rather than in traditionally vulnerable peripheral economies. Germany, the Netherlands, Finland, and Austria exhibit significant amplification, whereas no comparable effect is found for Italy, Spain, Portugal, or Ireland. This pattern is particularly noteworthy because these sovereigns have historically benefited from flight-to-safety flows during episodes of heightened geopolitical risk. Across maturities, the amplification is concentrated at the 5- and 10-year horizons but is not visible at the 2-year maturity, indicating that geopolitical risk conditions monetary transmission through persistent, long-horizon channels rather than through short-term liquidity effects.²

We then ask which kinds of geopolitical events drive this amplification. Replacing the aggregate geopolitical risk index with the event-type sub-indices derived from the AI-based decomposition of Iacoviello and Tong (2026) reveals that the core-country effect loads almost exclusively on two categories: military conflict and nuclear threat. The remaining categories—terrorism, diplomatic tensions, civil war, coups, and sanctions—are economically small and statistically non-significant for the core. This concentration is the central piece of the mechanism evidence in the paper: core-country amplification is driven by hard security and defense-related risk, rather than a general increase in geopolitical tensions.

We interpret these findings through a defense-driven fiscal-anticipation channel. Elevated military and nuclear risks increase the expected need for persistent defense spending. For sovereigns with the fiscal capacity to undertake such spending, markets anticipate higher future debt issuance. ECB tightening then amplifies the repricing of long-term sovereign risk premia by raising the expected cost of financing this additional debt. Because the amplification is concentrated in highly rated sovereigns with low default risk, the evidence points to revisions in long-run fiscal expectations rather than concerns about imminent fiscal distress. Mechanism tests support this interpretation and reveal two distinct margins. First, when looking across countries, amplification arises from the combination of high fiscal capacity and elevated defense commitments. Second, for those impacted countries, this amplification is stronger when defense spending and debt are

²The results are robust to a wide range of specifications, including the exclusion of major crisis episodes, additional controls, alternative geopolitical risk measures, and alternative measures of ECB monetary policy shocks.

higher, and fiscal space is reduced. This pattern suggests that fiscal capacity and military commitment jointly determine which sovereigns are repriced, while the scale of those commitments and the fiscal space available to finance them determine the magnitude of this repricing.

Our paper contributes to three strands of literature. First, we contribute to the growing literature on the macroeconomic and financial consequences of geopolitical risk (Caldara and Iacoviello, 2022). Recent studies document that geopolitical shocks act as adverse supply disturbances, affecting inflation (Caldara et al., 2024) and sovereign stress (Frangiamore and Saadaoui, 2026; Angelini, 2025). More recently, this literature has emphasized the importance of decomposing aggregate geopolitical risk into granular event-type sub-indices—such as military conflict, nuclear threat, or diplomatic tensions—to better identify their heterogeneous economic effects (Iacoviello and Tong, 2026; Aizenman et al., 2026). Within the euro area, Bondarenko et al. (2026) show that a region-specific geopolitical risk measure has stronger macroeconomic effects than global indices.

Second, we contribute to the literature on the state-dependency of monetary policy transmission. A growing body of work shows that the effects of monetary policy shocks vary with prevailing financial conditions, supply-chain disruptions, or macroeconomic uncertainty (Laumer and Schaffer, 2025; Güntner and Henßler, 2021). It also shows that geopolitical risk acts as a qualifying state that amplifies the effects of monetary policy shocks on banking conditions (Fecht et al., 2026) and international capital flows (Pradhan et al., 2025). We extend this literature by showing that geopolitical risk also conditions the transmission of monetary policy to sovereign bond markets, a channel that has received little systematic empirical attention.

Third, our paper contributes to the literature on euro area sovereign fragmentation and heterogeneous monetary transmission (Garcia-de Andoain and Kremer, 2017; Lhuissier et al., 2026; Bratis et al., 2024), or (Bénassy-Quéré et al., 2026). We add a new geopolitical dimension to this literature: geopolitical tensions amplify sovereign fragmentation during episodes of monetary tightening, primarily through a defense-driven fiscal-anticipation channel concentrated in core sovereign markets, rather than through a deterioration of peripheral credit risk. This finding challenges the conventional fragmentation narrative and points to a mechanism that operates in the opposite direction from what standard models of euro area sovereign stress would predict. More broadly, our results highlight the importance of incorporating geopolitical conditions into the ECB’s assessment of monetary policy transmission and the calibration of fragmentation-prevention instruments, such as the Transmission Protection Instrument.

The remainder of the paper is organized as follows. Section 2 discusses the theoretical channels through which geopolitical risk may affect the transmission of ECB monetary

policy to sovereign spreads. Section 3 describes the data. Section 4 presents the empirical strategy. Section 5 reports and interprets the baseline results. Section 6 presents robustness checks. Section 7 investigates the transmission channels directly. Section 8 concludes.

2 Geopolitical Risk, Sovereign Fragmentation and ECB Monetary Policy Transmission

The transmission of monetary policy in the euro area critically depends on the existence of relatively homogeneous financial conditions across member states. In a monetary union with a single policy rate but decentralized fiscal authorities, sovereign bond markets play a central role in the transmission mechanism: changes in sovereign yields affect bank balance sheets, corporate financing conditions, private borrowing costs, and ultimately aggregate demand (Altavilla et al., 2019; Fecht et al., 2026). When sovereign financing conditions diverge across countries, the ECB’s common monetary policy may, therefore, produce heterogeneous economic effects across the monetary union (Lhuissier et al., 2026).

This issue became particularly salient after the Global Financial Crisis and the euro area sovereign debt crisis, which revealed the structural fragility of sovereign bond markets within the monetary union (Bratis et al., 2024; Garcia-de Andoain and Kremer, 2017). Unlike fully integrated fiscal federations, euro area governments issue debt individually and remain subject to country-specific fiscal sustainability concerns, political risks, and market perceptions of redenomination risk. As a result, sovereign spreads partly reflect differences in national fiscal capacity and in the perceived ability of governments to absorb adverse shocks (Arellano, 2008; Saadaoui, 2026).

The benchmark prediction: flight-to-quality and peripheral fragmentation.

Periods of elevated geopolitical tensions increase uncertainty and induce flight-to-safety reallocations toward safer sovereign assets (Albori et al., 2024; Caldara and Iacoviello, 2022). In the euro area, this mechanism tends to compress yields on highly rated sovereign bonds while increasing risk premia on countries perceived as fiscally weaker or more vulnerable to external shocks (Frangiamore and Saadaoui, 2026; Angelini, 2025). The benchmark expectation is, therefore, that the geopolitical amplification of sovereign stress should be concentrated in the periphery, with core issuers acting as safe havens. This compression does not need to survive periods in which geopolitical stress coincides with monetary tightening, as the repricing of duration may interrupt the usual flight-to-quality dynamics.

An alternative: asymmetric fiscal pressures and core repricing. Elevated military and security risks raise the prospect of a permanent increase in defense commitments, leading in turn to higher future debt issuance, energy-transition measures, or strategic industrial policies (Franconi, 2026; Pinchetti, 2024; Anyfantaki et al., 2026). Crucially, the countries most exposed to this repricing are not necessarily those with the weakest fiscal positions: sovereigns that are central to European defense initiatives and that retain the capacity to issue additional debt may see their long-run fiscal outlook revised precisely because a defense-driven fiscal expansion is credible for them (Bondarenko et al., 2026). As a result, increases in geopolitical tensions may alter market perceptions of future public spending trajectories, debt issuance needs, and fiscal sustainability in heterogeneous ways across sovereign issuers (Anastasiou et al., 2025). Sovereign spreads may therefore react not only to general risk aversion but also to differences in expected medium-term fiscal burdens associated with defense and security commitments (Caldara et al., 2024; Franconi, 2026). Fiscal strength therefore plays two distinct roles. Markets price a defense-driven fiscal expansion only when a country has sufficient capacity to borrow; otherwise, additional issuance is unlikely to be anticipated. Yet once such an expansion is expected, the extent of repricing depends on the sovereign’s remaining fiscal space. Financing a given increase in defense spending is more costly for a country already carrying a heavy debt burden than for one with a stronger fiscal position. Fiscal strength thus operates along two margins: it makes a sovereign more likely to be repriced, but limits the magnitude of that repricing once it occurs.

These mechanisms become particularly relevant during episodes of monetary tightening (Pradhan et al., 2025; Fecht et al., 2026). Under elevated geopolitical risk, the transmission of policy shocks may become state-dependent, as various investor classes—such as domestic banks versus non-domestic investment funds—respond to geopolitical stress through opposing portfolio reallocations (Bouabdallah et al., 2026). Whether the resulting amplification of sovereign spreads falls on peripheral or core issuers is ultimately an empirical question: if the operative channel is the anticipation of defense-driven debt issuance rather than a deterioration of near-term credit risk, amplification may be concentrated in core sovereigns whose long-run fiscal outlook is most sensitive to permanent security commitments (Güntner and Henßler, 2021).

This framework also motivates the choice of the overnight index swap (OIS) rate as the risk-free benchmark in our analysis. Unlike German Bund yields, which may embody a time-varying safe-haven premium during periods of financial or geopolitical stress, the OIS rate provides a cleaner measure of the common euro area risk-free interest rate. Measuring sovereign spreads relative to the OIS rate allows us to isolate changes in sovereign risk premia from fluctuations in the benchmark itself, facilitating the interpretation of spread movements as indicators of monetary policy transmission and sovereign market fragmentation.

Our empirical approach interprets sovereign spread responses as indicators of the degree to which geopolitical tensions alter the uniform transmission of ECB monetary policy across euro area sovereign markets. Against this background, sovereign fragmentation is not merely a by-product of geopolitical shocks but rather a central channel through which geopolitical risk may weaken the effectiveness of a common monetary policy within a heterogeneous monetary union.

3 Data

Our sample covers ECB Governing Council monetary policy announcements from 2000 onward. The baseline analysis uses the full sample (2000–2025); the post-Global Financial Crisis subsample (2009–2025) is used as a robustness check in Section 6.

3.1 Monetary policy shocks

Monetary policy shocks are identified using the high-frequency approach of Jarociński and Karadi (2020), who decompose monetary policy shocks from central bank information shocks, an essential distinction for our analysis. The shocks are identified from intraday changes in financial market prices around European Central Bank Governing Council announcements within the Monetary Event window defined by Altavilla et al. (2019). The monetary event window spans from the pre-press release interval (13:25–13:35 CET) to the post-press conference interval (15:40–15:50 CET). This window therefore covers both the European Central Bank policy decision released at 13:45 CET and the subsequent press conference beginning at 14:30 CET. Monetary policy surprises are extracted from changes in OIS rates within this narrow event window, thereby isolating unexpected monetary policy news from other macroeconomic and financial developments. More specifically, they are constructed as the first principal component of changes in OIS rates with maturities of 1 month, 3 months, 6 months, and 1 year within this event window. Throughout, the surprise is expressed in basis points as the median surprise scaled by 100.

3.2 Sovereign spreads

Sovereign spreads are constructed as the difference between national sovereign bond yields and the euro area OIS rate at corresponding maturities. Using the OIS rate as the benchmark allows us to isolate sovereign-specific risk premia from movements in the common euro area risk-free rate. The baseline analysis focuses on 10-year sovereign bond spreads; the 5- and 2-year maturities are examined in Section 5.3. Daily sovereign yield and OIS

rate data are obtained from Bloomberg.³ The sample includes Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal, and Spain.⁴ The analysis focuses on changes in sovereign spreads measured on ECB monetary policy announcement days.

3.3 Geopolitical risk

Geopolitical risk is measured using the euro area geopolitical risk index (EAGPR) developed by Bondarenko et al. (2026). The index is constructed from textual analysis of European newspaper articles covering geopolitical tensions, wars, terrorist threats, military conflicts, and international political crises. Compared with global geopolitical risk indicators, this measure is specifically designed to capture geopolitical developments relevant to the euro area and European financial markets.

We interpret geopolitical risk as a persistent background regime affecting investors' risk perceptions and sovereign risk pricing, rather than a purely transitory shock. Accordingly, the baseline conditioning variable is a 30-day rolling average of the EAGPR over the window $[J - 37, J - 7]$ preceding each meeting date J , normalized to mean zero and unit standard deviation over the estimation sample. This slow-moving construction reduces the influence of transitory fluctuations and measurement noise inherent in newspaper-based indicators.

4 Empirical strategy

We examine whether geopolitical risk amplifies the transmission of European Central Bank monetary policy shocks to euro area sovereign spreads using a high-frequency interaction model.⁵ We estimate the following equation:

$$\Delta Spread_{i,t} = \alpha + \beta MP_t + \psi EAGPR_{t-1} + \delta (MP_t \times EAGPR_{t-1}) + \varepsilon_{i,t} \quad (1)$$

where $\Delta Spread_{i,t}$ denotes the daily change in the sovereign spread of country i relative to the OIS rate measured around European Central Bank meeting dates. MP_t denotes the high-frequency monetary policy shock identified around ECB announcements, while

³Euro area OIS rates are unavailable at the 10-year maturity before January 2007. Following Renne (2017), we therefore extend the series backward using the corresponding EURIBOR interest rate swap. To ensure continuity at the splice date, we estimate the average pre-crisis EURIBOR–OIS spread over the period in which both series overlap and subtract this constant from the swap series prior to 2007.

⁴We exclude Greece because its sovereign bond market was highly illiquid over extended periods, particularly around the sovereign debt crisis and the subsequent debt restructuring.

⁵Our specification is related to the interaction framework of Laumer and Schaffer (2025), but differs in several important respects. We study sovereign spreads rather than the excess bond premium, interact ECB monetary policy shocks with geopolitical risk rather than supply-chain stress, and use a slow-moving average of geopolitical risk to capture persistent geopolitical regimes rather than a lagged daily measure of supply-chain stress.

$EAGPR_{t-1}$ corresponds to the lagged (predetermined) geopolitical risk index described above.

The coefficient of interest is δ , which captures whether the transmission of monetary policy shocks to sovereign spreads depends on the prevailing geopolitical risk. A positive estimate of δ implies that contractionary monetary policy shocks generate larger increases in sovereign spreads when geopolitical risk is elevated, consistent with amplified sovereign fragmentation under geopolitical stress.

The identification strategy relies on high-frequency monetary policy surprises measured within narrow intraday windows around European Central Bank announcements. Because these shocks are extracted from asset price movements occurring within a short event window, they are plausibly exogenous to contemporaneous macroeconomic and financial developments outside the announcement itself. The decomposition proposed by Jarociński and Karadi (2020) further isolates pure monetary policy shocks from central bank information shocks, ensuring that the estimated responses primarily capture unexpected policy tightening or easing rather than revisions in the economic outlook communicated by the central bank. The monetary surprise enters contemporaneously, while the geopolitical risk index is predetermined relative to the announcement; this timing both reflects the economics of a slow-moving background regime and limits simultaneity concerns. Standard errors are Newey–West HAC with three lags throughout.

5 Results

5.1 Heterogeneity beyond the core-periphery divide

Table 1 reports OLS estimates of the baseline interaction model, as given by equation (1), for 10-year sovereign spreads over the full sample (2000–2025). A central finding of this paper is that geopolitical amplification is concentrated not in fiscally fragile peripheral economies, but in core countries with the strongest fiscal positions. At the 10-year maturity, the interaction coefficient is positive and significant for Germany ($\hat{\delta} = 0.136^{***}$), the Netherlands (0.161^{**}), Finland (0.157^{***}), and Austria (0.113^{**}). For these sovereigns, contractionary ECB shocks generate significantly larger spread increases relative to the OIS rate when geopolitical risk is high. By contrast, the interaction is statistically insignificant for every peripheral issuer - Italy, Spain, Portugal, and Ireland. We note that France, although a core issuer, does not display a significant interaction at the 10-year maturity. We return to France when examining the yield curve, where it enters significantly at the 5-year horizon.

This pattern is economically striking precisely because these are the sovereigns whose spreads typically *compress* during geopolitical stress episodes as investors seek safety. The

positive and significant $\hat{\delta}$ for these countries, therefore, does not reflect a conventional fragmentation dynamic driven by deteriorating peripheral credit risk. Instead, it is consistent with a defense-driven fiscal-anticipation channel: countries such as Germany, the Netherlands, Finland, and Austria face credible political pressure to expand defense budgets during geopolitical crises, and market participants anticipating higher future debt issuance reprice term premia upward precisely when monetary tightening raises the cost of financing that expansion. In this interpretation, the amplification reflects a revision of the long-run fiscal outlook of core sovereigns rather than any near-term repricing of default risk—an interpretation we examine directly in Section 7.

Table 1: 10-year Sovereign Spread Response

	β (MP)	ψ (EAGPR)	δ (MP $\times$ EAGPR)	N
<i>Core</i>				
Germany	0.058 (0.062)	0.036 (0.125)	0.136*** (0.046)	289
France	0.228** (0.106)	−0.006 (0.136)	0.131 (0.082)	289
Netherlands	0.104* (0.062)	−0.022 (0.165)	0.181*** (0.056)	288
Belgium	0.235** (0.095)	0.173 (0.214)	0.078 (0.064)	289
Finland	0.084 (0.056)	−0.026 (0.152)	0.157*** (0.050)	289
Austria	0.156** (0.061)	0.021 (0.162)	0.113** (0.055)	286
<i>Periphery</i>				
Italy	0.824*** (0.310)	−0.027 (0.436)	−0.046 (0.199)	289
Spain	0.545** (0.225)	−0.035 (0.306)	−0.012 (0.180)	289
Portugal	0.369** (0.185)	0.488 (0.417)	−0.027 (0.131)	280
Ireland	0.238** (0.107)	0.049 (0.226)	0.088 (0.079)	265

Notes: $\Delta Spread_{i,t} = \alpha + \beta MP_t + \psi EAGPR_{t-1} + \delta (MP_t \times EAGPR_{t-1}) + \varepsilon_{i,t}$. Newey–West HAC standard errors (maxlags = 3) in parentheses. MP = MP median $\times 100$ (basis points). EAGPR: 30-day rolling average $[J - 37, J - 7]$, normalised to mean zero and unit standard deviation over the full (2000–2025) sample. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

5.2 Mechanism: Which geopolitical events matter?

To identify the source of the amplification, we replace our baseline euro area geopolitical risk index with the event-type sub-indices of the global AI-based geopolitical risk index

of Iacoviello and Tong (2026), entering one category at a time.⁶ Table 2 reports the resulting interaction coefficients for the full sample.

The decomposition delivers a sharp result. For the core countries, the interaction loads almost exclusively on two categories: *military conflict* and *nuclear threat*. The amplification in both categories is positive and statistically significant for Germany, the Netherlands, Finland, and Austria, with Finland also displaying a marginal diplomatic-tensions effect. The remaining categories - terrorism, civil war, coups, and (for the core) sanctions - are economically small and statistically insignificant. This concentration is the central piece of evidence in the mechanism discussed in the paper: core-country amplification is driven by hard security and defense-related risks, not by generic geopolitical uncertainty or undifferentiated risk-off sentiment. For peripheral issuers, the event-type results are noisier and are driven primarily by sanctions and residual categories rather than by military or nuclear risk. The fact that the effect loads on precisely the categories of risk that plausibly raise expected defense commitments, rather than on geopolitical risk in general, motivates the fiscal-anticipation mechanism that we test directly in Section 7.

⁶An event-type decomposition is not available for the euro area geopolitical risk index of Bondarenko et al. (2026).

Table 2: Event-Type Geopolitical Risk and Monetary Policy Transmission

	Mil.	Confl.	Dipl.	Tens.	Terrorism	Civil War	Nucl.	Threat	Coup	Sanctions	Other	<i>N</i>
<i>Core</i>												
Germany	0.158** (0.066)	0.091 (0.068)	0.018 (0.029)	0.018 (0.037)	0.183*** (0.043)	0.019 (0.068)	0.032 (0.052)	0.021 (0.054)	289			
France	0.115 (0.075)	0.117 (0.123)	-0.020 (0.042)	0.015 (0.062)	0.097 (0.081)	-0.002 (0.113)	0.167 (0.102)	0.150** (0.060)	289			
Netherlands	0.183*** (0.066)	0.112 (0.089)	0.031 (0.029)	0.017 (0.040)	0.202*** (0.044)	0.052 (0.078)	0.075 (0.063)	0.055 (0.048)	288			
Belgium	0.120 (0.076)	0.026 (0.091)	-0.029 (0.044)	-0.071 (0.060)	0.069 (0.078)	-0.032 (0.103)	0.148* (0.085)	0.130** (0.059)	289			
Finland	0.165*** (0.063)	0.115* (0.068)	0.002 (0.024)	0.023 (0.034)	0.144*** (0.047)	0.034 (0.065)	0.080 (0.059)	0.044 (0.046)	289			
Austria	0.128** (0.062)	0.073 (0.076)	0.010 (0.026)	0.034 (0.044)	0.138*** (0.044)	0.003 (0.074)	0.116* (0.062)	0.076* (0.039)	286			
<i>Periphery</i>												
Italy	0.016 (0.203)	-0.199 (0.272)	-0.137 (0.134)	-0.050 (0.261)	0.095 (0.227)	0.048 (0.248)	0.496* (0.265)	0.409** (0.171)	289			
Spain	0.023 (0.144)	-0.195 (0.223)	-0.029 (0.062)	0.090 (0.282)	0.203 (0.133)	0.098 (0.194)	0.286 (0.177)	0.152** (0.069)	289			
Portugal	0.054 (0.111)	-0.185 (0.179)	-0.134 (0.082)	-0.225 (0.172)	0.164 (0.135)	0.104 (0.212)	0.200* (0.121)	0.150 (0.107)	280			
Ireland	0.122 (0.080)	0.024 (0.096)	-0.033 (0.041)	-0.207** (0.089)	0.134* (0.073)	0.010 (0.142)	0.155* (0.093)	0.132** (0.054)	265			

Notes: Each column reports δ from $\Delta \text{Spread}_{i,t} = \alpha + \beta \cdot \text{MP}_t + \psi \cdot \text{EVGPR}_{t-1} + \delta \cdot (\text{MP}_t \times \text{EVGPR}_{t-1}) + \varepsilon_{i,t}$, where the global EV-GPR is replaced, one category at a time, by the corresponding event-type sub-index (Iacoviello & Tong, 2026). EVGPR_{t-1} : value of the sub-index over the calendar month preceding the meeting, standardised (mean zero, unit standard deviation) separately for each category over the 2000–2025. Newey–West HAC standard errors (maxlags = 3) in parentheses. $\text{MP} = \text{MP_median} \times 100$ (basis points). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

5.3 Amplification across the yield curve

The amplification effect is a medium-to long-term phenomenon. The core-country pattern documented at the 10-year maturity is fully replicated at the 5-year horizon (Table 3), where the interaction coefficient remains positive and statistically significant for Germany, the Netherlands, Austria, and France. Finland’s 5-year interaction is estimated on a shorter series and is not individually significant, but its sign is consistent with those of the other core countries.

At the 2-year maturity (Table 4), by contrast, no interaction coefficient is statistically significant for any country, even though the geopolitical risk level (ψ) remains significant for several core sovereigns, including Germany, France and Belgium. Geopolitical risk thus moves short-maturity spreads directly, but its *interaction* with monetary policy operates only at longer horizons. This pattern is consistent with geopolitical risk operating through persistent channels - fiscal expectations, risk appetite, and structural portfolio reallocation - rather than through the transitory liquidity repricing that dominates the short end of the yield curve.

Table 3: 5-year Sovereign Spread Response

	β (MP)	ψ (EAGPR)	δ (MP×EAGPR)	N
<i>Core</i>				
Germany	0.076 (0.056)	0.135 (0.142)	0.139*** (0.043)	289
France	0.186*** (0.069)	0.106 (0.153)	0.086* (0.050)	289
Netherlands	0.090 (0.059)	0.147 (0.164)	0.162*** (0.053)	289
Belgium	0.119 (0.080)	0.282 (0.250)	0.060 (0.058)	289
Finland	0.109 (0.086)	0.398 (0.265)	0.156 (0.104)	170
Austria	0.112* (0.060)	0.164 (0.162)	0.114** (0.055)	289
<i>Periphery</i>				
Italy	0.685** (0.319)	0.200 (0.355)	−0.065 (0.169)	289
Spain	0.254* (0.154)	0.357 (0.337)	−0.041 (0.112)	289
Portugal	0.340* (0.187)	1.229* (0.686)	−0.251 (0.178)	282
Ireland	0.189 (0.123)	0.528 (0.392)	0.030 (0.119)	251

Notes: $\Delta Spread_{i,t} = \alpha + \beta MP_t + \psi EAGPR_{t-1} + \delta (MP_t \times EAGPR_{t-1}) + \varepsilon_{i,t}$. Newey–West HAC standard errors (maxlags = 3) in parentheses. MP = MP median $\times 100$ (basis points). EAGPR: 30-day rolling average $[J - 37, J - 7]$, normalised over the full (2000–2025) sample. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 4: 2-year Sovereign Spread Response

	β (MP)	ψ (EAGPR)	δ (MP $\times$ EAGPR)	N
Core				
Germany	0.056 (0.060)	0.262** (0.118)	0.072 (0.045)	289
France	0.051 (0.048)	0.516** (0.209)	−0.019 (0.063)	289
Netherlands	0.051 (0.063)	0.292** (0.127)	0.071 (0.053)	286
Belgium	−0.001 (0.062)	0.686*** (0.239)	−0.008 (0.045)	289
Finland	0.012 (0.069)	0.286** (0.120)	0.064 (0.049)	256
Austria	0.037 (0.058)	0.348*** (0.126)	0.065 (0.048)	287
Periphery				
Italy	0.371 (0.292)	0.415 (0.350)	−0.044 (0.160)	289
Spain	−0.043 (0.141)	0.512 (0.406)	0.017 (0.133)	289
Portugal	−0.078 (0.218)	1.164 (0.767)	−0.108 (0.219)	289
Ireland	0.019 (0.142)	0.194 (0.605)	−0.052 (0.092)	223

Notes: $\Delta Spread_{i,t} = \alpha + \beta MP_t + \psi EAGPR_{t-1} + \delta (MP_t \times EAGPR_{t-1}) + \varepsilon_{i,t}$. Newey–West HAC standard errors (maxlags = 3) in parentheses. MP = MP median $\times$ 100 (basis points). EAGPR: 30-day rolling average $[J - 37, J - 7]$, normalised over the full (2000–2025) sample. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

6 Robustness checks

We assess the robustness of the core-country amplification result along several dimensions. All corresponding tables are collected in the Appendix (Section A).

Systemic financial stress and market controls. A natural concern is that the EAGPR interaction proxies general financial stress rather than geopolitical risk *per se*. We address this by adding the ECB’s Composite Indicator of Systemic Stress (CISS) and its interaction with the monetary surprise, and separately by adding a full set of market controls (CISS, VIX, ln Brent, EUR/USD), each fully interacted with the surprise. The core-country interaction is robust (Table 10): at the 10-year maturity, it remains positive and statistically significant for Germany, the Netherlands, and Finland under both specifications. Austria remains significant under the CISS specification but is no longer significant once the full set of controls is included. The geopolitical interaction is

therefore not subsumed by systemic stress or by standard global risk factors.

Alternative monetary surprise We replace the principal-component surprise with the conventional target-rate factor of Altavilla et al. (2019), extracted from the change in 1-month OIS rates within the press-release window around the policy decision and rotated to capture the surprise to the current policy rate. Table 11 shows that the core-country amplification is confirmed: the target-factor interaction δ_{tgt} is positive and statistically significant for Germany, the Netherlands, Finland and Austria, while it remains insignificant for all peripheral issuers. These results show that the core-country amplification is robust to an alternative measure of monetary policy surprises.

Alternative geopolitical risk indices. We re-estimate the baseline specification using two alternative *global* geopolitical risk indices: the geopolitical risk index of Caldara and Iacoviello (2022) and the AI-based geopolitical risk index of Iacoviello and Tong (2026). Both reproduce the core pattern at the 10-year maturity (Tables 12 and 13). Under the Caldara–Iacoviello index, the interaction is positive and statistically significant for Germany, the Netherlands, Finland, Austria, and France, while under the AI-based index, it remains positive and statistically significant for Germany, the Netherlands, Finland, and Austria. The core-country amplification, therefore, does not depend on using a euro area-specific measure of geopolitical risk.

National geopolitical risk. To check whether the amplification reflects each country’s *own* geopolitical exposure rather than a common euro area regime, we replace the EAGPR with country-specific geopolitical risk indices for Germany, France, Italy and Spain (Table 14). Germany remains the only country for which the interaction is positive and statistically significant when conditioned on its own national geopolitical risk index, whereas France, Italy and Spain show no significant interaction with their national measures. The core amplification is thus associated with the common euro area geopolitical regime rather than purely home-grown national risk.

Excluding major crisis episodes. Because geopolitical events are clustered over time, we verify that the results are not driven by any particular historical episode. We re-estimate the baseline after successively excluding the Global Financial Crisis, the euro area sovereign debt crisis, the 2014 Crimea episode, and the 2022 Russian invasion of Ukraine, as well as all the four episodes simultaneously. The core-country amplification remains broadly unchanged (Table 15), indicating that the results reflect a structural feature of monetary transmission rather than a single extraordinary event.

Alternative geopolitical-risk windows. The baseline interprets geopolitical risk as a persistent background state using a 30-day moving average. We evaluate this interpretation by replacing the conditioning variable with 15-, 45-, and 60-day windows. The interaction coefficient evolves gradually across these windows (Table 16), reinforcing the interpretation of geopolitical risk as a slow-moving state variable rather than a transitory shock.

Asymmetric monetary policy shocks. We allow the transmission mechanism to differ between contractionary and expansionary monetary policy surprises by splitting the surprise into its positive and negative components, $MP_t^+ = \max(MP_t, 0)$ and $MP_t^- = \min(MP_t, 0)$, each interacted with geopolitical risk. Table 17 reports the two interaction coefficients side by side for each country and maturity. The core-country amplification is present on *both* sides of the policy stance: at the 10-year maturity, the tightening interaction (γ_{MP+}) is positive and significant for Germany, the Netherlands, and Finland, while the easing interaction (γ_{MP-}) is positive and significant—and often larger—for France, the Netherlands, Belgium, Finland, and Austria. Geopolitical risk thus conditions the transmission of easing surprises as well as tightening surprises in core sovereigns, consistent with a state-dependent repricing of the long-run fiscal outlook rather than an effect confined to tightening episodes.

Post-GFC subsample. Finally, we re-estimate the baseline on the post-Global Financial Crisis subsample (2009–2025). The core result is qualitatively robust (Table 18): at the 10-year maturity, the interaction remains positive and statistically significant for Germany, the Netherlands, and Finland, and it becomes even stronger once the full set of controls is included. Statistical significance attenuates relative to the full sample, as expected given the reduced number of policy meetings ($N = 159$ versus 289), but the sign, magnitude, and cross-country pattern of the core amplification are preserved.

7 Investigating the transmission channels

The event-type decomposition showed that the core-country amplification loads specifically on military-conflict and nuclear-threat risks. This points to a natural interpretation. Hard security shocks raise the prospect of a permanent increase in defense commitments; if markets expect these commitments to be financed through higher future debt issuance, they revise the long-run fiscal outlook of the concerned sovereigns and incorporate it into long-term risk premia. Monetary tightening then transmits more strongly to spreads under geopolitical stress because it raises the cost of financing this anticipated expansion. Two features of the baseline are already suggestive of such a channel: the amplification appears at the 5- and 10-year horizons but not at the 2-year horizon, as a long-run fi-

nancing story would predict, and it is concentrated in highly rated sovereigns with low default risk, for which imminent fiscal distress is an unlikely driver.

This section takes that interpretation to the data. The channel operates along two margins, which we examine in turn. On the *extensive* margin, a revision in a sovereign's long-run fiscal path requires a defense-driven expansion to be credible, combining the capacity to issue with an elevated security commitment. This determines *which* sovereigns are subject to repricing and is assessed through cross-country variation. On the *intensive* margin, conditional on such a revision, the scale of the defense commitment, the existing debt burden, and remaining fiscal space determine *how much* the sovereign is repriced, which we assess through within-country variation over time. The distinction is important because fiscal strength can, in principle, operate differently across the two margins: borrowing capacity may make a defense-driven expansion more credible, while the fiscal position may also shape its financing cost. Section 7.1 defines the moderators, Section 7.2 examines the extensive margin, and Section 7.3 the intensive margin.

7.1 Fiscal and defense moderators

We use four country-level moderators, each capturing a fiscal quantity implicated by the mechanism. Defense expenditures as a share of GDP measure the size of the security commitment and are taken from the SIPRI Military Expenditure Database. The debt-to-GDP ratio measures the stock of debt against which additional issuance is priced and is obtained from the ECB Data Portal. We add two measures of fiscal space from Kose et al. (2022): general government gross debt relative to average tax revenues, a stock measure of the debt burden (FS-stock), and the cyclically-adjusted primary balance, a flow measure of discretionary policy (FS-flux). The two fiscal-space measures are inversely signed by construction, so a heavier debt burden and a weaker primary balance both indicate a weaker fiscal position.

All moderators are annual, with the exception of debt, which is available quarterly. Throughout, defense spending and the two fiscal-space measures are lagged to the last complete calendar year preceding the meeting, and debt is measured at the last available quarter before the meeting, ensuring that no moderator incorporates information released after the announcement.

7.2 Which sovereigns are repriced? The extensive margin

We first ask which sovereign markets are selected into the fiscal-anticipation channel. This is a cross-country question, and we address it in a pooled panel in which each moderator is measured relative to the contemporaneous euro area distribution rather than relative to the country's own history.

For each moderator $X_{i,t-1}$, a country is coded $D_{i,t-1} = 1$ when its position lies on the favorable side of the contemporaneous cross-country mean across the ten sample countries: above the mean for defense spending and for the cyclically-adjusted primary balance, below the mean for debt and for the debt-to-tax-revenue ratio.⁷ We use the contemporaneous cross-country mean rather than a fixed quartile or tercile cutoff because it anchors the classification to an economically interpretable benchmark – whether a country’s fiscal or defense position is stronger or weaker than the euro area average at that date – and because the composition of the euro area distribution shifts substantially over a sample spanning 2000–2025.

We estimate a pooled panel model with country fixed effects and a triple interaction involving the monetary policy surprise and geopolitical risk, as given by:

$$\begin{aligned} \Delta \text{Spread}_{i,t} = & \alpha_i + \beta \text{MP}_t + \psi \text{EAGPR}_{t-1} + \delta (\text{MP}_t \times \text{EAGPR}_{t-1}) \\ & + \phi (D_{i,t-1} \times \text{MP}_t \times \text{EAGPR}_{t-1}) + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

where δ retains the interpretation it has in equation (1) – the common geopolitical amplification – and ϕ , as in equation (4), denotes the additional amplification specific to the group selected by $D_{i,t-1}$. Standard errors are clustered by meeting date. Because the fiscal-anticipation hypothesis is directional, we report a one-sided test of $H_0 : \phi = 0$ against $H_1 : \phi > 0$ alongside conventional two-sided significance. Table 19 estimates each moderator individually. No single dimension generates a robust amplification signal. In light of the economic mechanism, this result means that neither fiscal capacity nor a security commitment is, by itself, sufficient to generate amplification.

We therefore combine the three dimensions implicated by the extensive margin – a low debt burden, a healthy fiscal position, and above-average defense spending – into a single indicator of capacity and commitment, defined by:

$$D_{i,t-1} = \mathbf{1}[z(\text{Debt})_{i,t-1} < 0 \wedge z(\text{FS-flux})_{i,t-1} > 0 \wedge z(\text{Defense})_{i,t-1} > 0]. \quad (3)$$

This identifies the sovereign markets that are expected to lead a defense-driven fiscal expansion rather than testing each dimension in isolation.

Table 5 reports the results. The group-specific interaction is positive and significant at the 10-year and 5-year maturities, but it is non-significant at the 2-year horizon. Two features stand out. First, the maturity profile – amplification at the medium term (5- and 10-year horizons), but no effect at the short end – reproduces the pattern documented for core countries in the baseline, consistent with a persistent repricing of fiscal expectations rather than a transitory liquidity effect. Second, the common amplification $\hat{\delta}$ is close

⁷Formally we express each moderator as a cross-country z -score, $z(X)_{i,t-1} = (X_{i,t-1} - \bar{X}_{t-1})/\sigma_{X,t-1}$, and threshold at zero. Because the threshold is the mean itself, this is equivalent to a simple above/below comparison. Observations are dropped when any component is missing.

to zero at both maturities where $\hat{\phi}$ is significant: outside the capacity-and-commitment group, there is essentially no geopolitical amplification. The effect is not an increment on a common baseline but is concentrated almost entirely in the sovereigns satisfying the conjunction.

The contrast between the two tables is revealing. The channel does not emerge for either component in isolation, but only when fiscal capacity and defense commitments are combined. Fiscal strength alone is therefore not sufficient; it matters when accompanied by a strong defense commitment. Because countries can move in and out of this group over time, the panel also exploits within-country variation in group membership. We nevertheless interpret the exercise as capturing the extensive margin because the indicator identifies which sovereigns satisfy the capacity-and-commitment conditions at each point in time.

Table 5: Composite indicator of capacity and commitment

Maturity	δ	ϕ	(se_{ϕ})	p_{1s}	N
10Y	0.050	0.168*	(0.093)	0.04	2811
5Y	0.004	0.167**	(0.075)	0.01	2692
2Y	0.002	0.053	(0.059)	0.18	2744

Notes: Estimates of equation (2), $\Delta\text{Spread}_{i,t} = \alpha + \beta \text{MP}_t + \psi \text{EAGPR}_{t-1} + \delta(\text{MP}_t \times \text{EAGPR}_{t-1}) + \phi(D_{i,t-1} \times \text{MP}_t \times \text{EAGPR}_{t-1}) + \varepsilon_{i,t}$. δ is the geopolitical amplification common to all issuers; ϕ is the additional amplification for countries with $D_{i,t-1} = 1$. The composite indicator, defined in equation (3), equals one when a country simultaneously displays a debt ratio below the contemporaneous cross-country mean, a cyclically-adjusted primary balance above it, and defense spending above it. Observations with a missing component are dropped. p_{1s} is the p -value of the one-sided test $H_0 : \phi = 0$ against $H_1 : \phi > 0$; asterisks denote two-sided significance. Standard errors are clustered by meeting date. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

7.3 How much are sovereigns repriced? The intensive margin

Having examined which sovereigns satisfy the conditions for repricing, we now inquire about the factors that govern the magnitude of that repricing for a given sovereign. In this respect, we augment the baseline model with a country-level fiscal moderator $Z_{i,t-1}$ and a triple interaction, estimated on a country by country basis by the following equation:

$$\Delta\text{Spread}_{i,t} = \alpha + \beta \text{MP}_t + \psi \text{EAGPR}_{t-1} + \gamma Z_{i,t-1} + \phi (\text{MP}_t \times \text{EAGPR}_{t-1} \times Z_{i,t-1}) + \varepsilon_{i,t}. \quad (4)$$

Here, the coefficient of interest is ϕ : a positive estimate indicates that the geopolitical amplification of monetary transmission is stronger when the sovereign is more exposed along the dimension captured by the variable Z_t . Because ϕ is estimated separately for each country, it is identified from within-country variation in the moderator variable over time and does not compare fiscal positions across sovereigns; therefore, it is the natural counterpart to the pooled estimates of Section 7.2.

Debt and defense. We first let $Z_{i,t-1}$ represent defense expenditures as a share of GDP and alternatively the debt-to-GDP ratio. Both proxies directly represent the fiscal quantities implicated by the mechanism: the size of the security commitment and the stock of debt against which additional issuance is priced. Results are reported in Tables 6 and 7. For both moderators, the triple interaction is positive and statistically significant at the 10- and 5-year maturities for Germany, the Netherlands, and Austria. Finland displays the same pattern at 10 years, while its 5-year estimates are positive but less precisely estimated. There is little evidence of comparable amplification at the 2-year horizon. France and Belgium, the two core issuers that were already weak in the baseline, remain non-significant, and each peripheral estimate is small and indistinguishable from zero. The amplification thus specifically loads on defense spending and the debt burden, and only at the maturities where a long-run financing channel should operate.

Table 6: Defense Spending Channel

	ϕ_{10Y}	ϕ_{5Y}	ϕ_{2Y}	N
<i>Core</i>				
Germany	0.117*** (0.035)	0.120*** (0.032)	0.064* (0.035)	289/289/289
France	0.062 (0.039)	0.039* (0.023)	-0.011 (0.032)	289/289/289
Netherlands	0.142*** (0.038)	0.130*** (0.034)	0.060 (0.040)	288/289/286
Belgium	0.064 (0.052)	0.046 (0.049)	-0.013 (0.043)	289/289/289
Finland	0.120*** (0.041)	0.109 (0.071)	0.057 (0.039)	289/170/256
Austria	0.131** (0.064)	0.132** (0.060)	0.078 (0.054)	286/289/287
<i>Periphery</i>				
Italy	-0.026 (0.121)	-0.035 (0.100)	-0.016 (0.094)	289/289/289
Spain	-0.017 (0.118)	-0.043 (0.078)	0.001 (0.094)	289/289/289
Portugal	-0.021 (0.093)	-0.176 (0.123)	-0.057 (0.157)	280/282/289
Ireland	0.122 (0.146)	0.023 (0.236)	-0.156 (0.212)	265/251/223

Notes: $\Delta\text{Spread} = \alpha + \beta \text{MP} + \psi \text{EAGPR} + \gamma \text{Defense} + \phi (\text{MP} \times \text{EAGPR} \times \text{Defense}) + \varepsilon$ for 10Y, 5Y and 2Y. Only ϕ is reported. Newey-West HAC (maxlags=3). MP = MP_{median} $\times$ 100 (bps). EAGPR: 30-day rolling average $[J-37, J-7]$, standardised on the full sample. Defense: % of GDP, last calendar year before the meeting. N listed as 10Y/5Y/2Y where it differs by maturity. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 7: Debt Channel

	ϕ_{10Y}	ϕ_{5Y}	ϕ_{2Y}	N
<i>Core</i>				
Germany	0.197*** (0.071)	0.205*** (0.069)	0.106 (0.068)	282/282/282
France	0.133 (0.101)	0.099 (0.069)	-0.028 (0.066)	289/289/289
Netherlands	0.307*** (0.101)	0.265** (0.103)	0.112 (0.096)	281/282/279
Belgium	0.068 (0.058)	0.049 (0.056)	-0.008 (0.042)	289/289/289
Finland	0.273*** (0.101)	0.245 (0.164)	0.108 (0.100)	282/170/249
Austria	0.128* (0.073)	0.132* (0.075)	0.074 (0.063)	279/282/280
<i>Periphery</i>				
Italy	-0.057 (0.170)	-0.075 (0.147)	-0.057 (0.139)	289/289/289
Spain	-0.103 (0.247)	-0.113 (0.150)	-0.026 (0.175)	289/289/289
Portugal	-0.028 (0.142)	-0.270 (0.167)	-0.057 (0.251)	273/276/282
Ireland	0.056 (0.142)	-0.039 (0.215)	-0.077 (0.103)	258/244/216

Notes: $\Delta\text{Spread} = \alpha + \beta \text{MP} + \psi \text{EAGPR} + \gamma \text{Debt} + \phi (\text{MP} \times \text{EAGPR} \times \text{Debt}) + \varepsilon$ for 10Y, 5Y and 2Y. Only ϕ is reported. Newey–West HAC (maxlags = 3). MP = MP_{median} $\times$ 100 (bps). EAGPR: 30-day rolling average [$J-37, J-7$], standardised on the full sample. Debt: fraction of GDP. N listed as 10Y/5Y/2Y where it differs by maturity. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Fiscal space. We next replace $Z_{i,t-1}$ with the two measures of fiscal space from Kose et al. (2022) described in Section 7.1. Since the two are inversely signed by construction, a positive ϕ on the debt burden and a negative ϕ on the primary balance carry the same interpretation: a weaker fiscal position amplifies the transmission of monetary policy under geopolitical risk. Results are reported in Tables 8 and 9.

The two measures deliver a consistent message. For Germany, the Netherlands, and Austria, the debt-burden interaction is positive, while the balance interaction is negative, both of which are significant at the 10- and 5-year maturities. There is little evidence of a comparable pattern in the periphery. Two qualifications are worth noting. Finland is significant on the debt-burden measure but not on the balance, so its fiscal-space evidence rests on the stock rather than the flow dimension. For Germany and the Netherlands, the balance interaction remains significant at the 2-year maturity, indicating that fiscal space conditions the response somewhat more broadly across the curve than the defense and debt-level channels.

The sign of the fiscal-space effect may appear to contrast with the finding in Section 7.2, where fiscal *strength* is associated with greater amplification. The two results, however, capture different margins of the same channel. Whether a sovereign’s long-run fiscal path is revised depends on its capacity and commitment relative to its peers, which is why the pooled indicator selects countries with low debt and a healthy fiscal balance. Conditional on such a revision, its cost depends on the fiscal space the sovereign has left, which is why the within-country estimates point to stronger repricing when the fiscal position is weaker. The opposite signs are therefore consistent with the two-margin interpretation.

Taken together, the results support a two-margin fiscal-anticipation channel. Fiscal capacity and defense commitments determine which sovereigns are subject to repricing, while, conditional on such repricing, defense spending, the debt burden, and remaining fiscal space shape its magnitude.

Table 8: Fiscal Space: gross debt relative to average tax revenues

	10Y	5Y	2Y	<i>N</i>
<i>Core</i>				
Germany	0.044*** (0.016)	0.046*** (0.015)	0.023 (0.015)	289
France	0.036 (0.028)	0.027 (0.019)	−0.008 (0.018)	289
Netherlands	0.070*** (0.023)	0.061** (0.024)	0.024 (0.022)	288/289/286
Belgium	0.020 (0.017)	0.015 (0.016)	−0.003 (0.013)	289
Finland	0.088*** (0.033)	0.078 (0.052)	0.036 (0.032)	289/170/256
Austria	0.037* (0.021)	0.038* (0.021)	0.022 (0.018)	286/289/287
<i>Periphery</i>				
Italy	−0.015 (0.048)	−0.020 (0.042)	−0.016 (0.040)	289
Spain	−0.019 (0.050)	−0.023 (0.031)	−0.007 (0.037)	289
Portugal	−0.007 (0.033)	−0.060 (0.038)	−0.014 (0.058)	280/282/289
Ireland	0.010 (0.029)	−0.010 (0.043)	−0.015 (0.023)	265/251/223

Notes: $\Delta\text{Spread}_{i,t} = \alpha + \beta \text{MP}_t + \psi \text{EAGPR}_{t-1} + \gamma \text{FS}_{i,t-1} + \phi(\text{MP}_t \times \text{EAGPR}_{t-1} \times \text{FS}_{i,t-1}) + \varepsilon_{i,t}$ for 10Y, 5Y and 2Y, where FS = general government gross debt as % of average tax revenues (Kose et al., 2022), divided by 100 so that ϕ is interpretable as the effect of a one-year increase in tax-years-to-repay-debt; annual series, lagged to year $t - 1$ relative to the ECB meeting date. EAGPR is $[J-37, J-7]$ window, standardised on the full sample. Only ϕ is reported. *N* shown as 10Y/5Y/2Y when it differs by maturity (bond-yield data availability). Newey–West HAC (maxlags = 3). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 9: Fiscal Space: cyclically-adjusted primary balance

	10Y	5Y	2Y	<i>N</i>
<i>Core</i>				
Germany	−0.037*** (0.010)	−0.041*** (0.009)	−0.033*** (0.011)	289
France	−0.028 (0.020)	−0.022* (0.012)	0.003 (0.013)	289
Netherlands	−0.074*** (0.019)	−0.068*** (0.016)	−0.047*** (0.017)	288/289/286
Belgium	−0.026 (0.028)	−0.033 (0.030)	−0.014 (0.022)	289
Finland	0.002 (0.019)	−0.017 (0.042)	0.014 (0.019)	289/170/256
Austria	−0.044* (0.024)	−0.053** (0.022)	−0.027 (0.018)	286/289/287
<i>Periphery</i>				
Italy	−0.008 (0.053)	−0.015 (0.043)	−0.021 (0.037)	289
Spain	0.083 (0.080)	0.049 (0.048)	−0.014 (0.052)	289
Portugal	0.008 (0.032)	0.087* (0.052)	0.058 (0.049)	280/282/289
Ireland	−0.010 (0.022)	0.023 (0.053)	−0.019 (0.016)	265/251/223

Notes: $\Delta\text{Spread}_{i,t} = \alpha + \beta \text{MP}_t + \psi \text{EAGPR}_{t-1} + \gamma \text{FS}_{i,t-1} + \phi(\text{MP}_t \times \text{EAGPR}_{t-1} \times \text{FS}_{i,t-1}) + \varepsilon_{i,t}$ for 10Y, 5Y and 2Y, where FS = cyclically-adjusted balance as % of potential GDP (Kose et al., 2022); annual series, lagged to year $t - 1$ relative to the ECB meeting date. EAGPR is $[J-37, J-7]$ window, standardised on the full sample. Only ϕ is reported. *N* shown as 10Y/5Y/2Y when it differs by maturity. Newey–West HAC (maxlags = 3). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

8 Conclusion

This paper studies whether geopolitical risk alters the transmission of ECB monetary policy to the euro area sovereign bond markets. Combining high-frequency monetary policy surprises with a euro area-specific geopolitical risk index, we show that contractionary ECB shocks generate larger increases in sovereign spreads when geopolitical risk is elevated. This amplification is concentrated at medium- and long-term maturities and, contrary to the conventional fragmentation narrative, is strongest in core euro area countries rather than in the periphery.

The evidence points to a defense-driven fiscal-anticipation channel. The amplification is concentrated in periods of elevated military-conflict and nuclear-threat risk and is

strongest for sovereigns that markets expect to undertake persistent increases in defense spending. Neither fiscal capacity nor an elevated defense commitment generates this amplification on its own; only their conjunction does. Within the selected sovereigns, the repricing is larger during periods when their defense spending is higher, their debt burden is heavier, and their fiscal space is more limited. Rather than reflecting a deterioration in near-term credit risk, our results suggest that markets revise expectations about the long-run fiscal implications of heightened geopolitical tensions, with monetary tightening amplifying the repricing of future sovereign financing needs.

More broadly, our findings highlight that geopolitical conditions can alter the transmission of a common monetary policy within a heterogeneous monetary union. Episodes of heightened geopolitical risk may therefore generate forms of sovereign fragmentation that do not originate from concerns about immediate fiscal distress but rather from differing expectations regarding future fiscal commitments. For the euro area, this implies that geopolitical risk may constitute an additional source of fragmentation in sovereign bond markets and therefore deserves greater attention in the ECB's assessment of monetary policy transmission and in the design of instruments aimed at preserving the smooth transmission of monetary policy across the euro area.

A Appendix: Robustness Tables

Table 10: Robustness to Systemic Stress and Market Controls

	Baseline	CISS	Full Controls	
	δ	δ	δ	
	MP×EAGPR	MP×EAGPR	MP×EAGPR	N
<i>Core</i>				
Germany	0.136*** (0.046)	0.114** (0.047)	0.120** (0.054)	289
France	0.131 (0.082)	0.061 (0.058)	0.034 (0.052)	289
Netherlands	0.181*** (0.056)	0.130*** (0.046)	0.125** (0.050)	288
Belgium	0.078 (0.064)	0.031 (0.059)	−0.003 (0.047)	289
Finland	0.157*** (0.050)	0.122*** (0.044)	0.127*** (0.045)	289
Austria	0.113** (0.055)	0.073* (0.041)	0.056 (0.045)	286
<i>Periphery</i>				
Italy	−0.046 (0.199)	−0.162 (0.212)	−0.237 (0.194)	289
Spain	−0.012 (0.180)	−0.105 (0.156)	−0.139 (0.175)	289
Portugal	−0.027 (0.131)	−0.157 (0.142)	−0.220* (0.129)	280
Ireland	0.088 (0.079)	0.017 (0.070)	0.012 (0.054)	265

Notes: Interaction coefficient δ on $MP_t \times EAGPR_{t-1}$. CISS adds the Composite Indicator of Systemic Stress and $MP \times$ CISS. Full Controls adds CISS, VIX, ln Brent, and EUR/USD, each fully interacted with MP . Newey–West HAC standard errors in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 11: Alternative monetary surprise: Altavilla et al. (2019) *target* factor.

	β_{tgt}	ψ	δ_{tgt}	N
<i>Core</i>				
Germany	0.202 (0.136)	0.220* (0.130)	0.167** (0.077)	242
France	0.358*** (0.133)	0.129 (0.164)	0.052 (0.076)	242
Netherlands	0.253** (0.108)	0.259** (0.124)	0.167*** (0.063)	241
Belgium	0.331** (0.162)	0.401* (0.219)	0.050 (0.100)	242
Finland	0.199* (0.112)	0.218 (0.139)	0.154** (0.071)	242
Austria	0.226** (0.104)	0.267** (0.135)	0.118* (0.067)	240
<i>Periphery</i>				
Italy	0.286 (0.473)	0.142 (0.600)	0.102 (0.278)	242
Spain	-0.120 (0.384)	-0.067 (0.505)	0.423 (0.313)	242
Portugal	-0.014 (0.289)	0.652* (0.372)	0.271 (0.204)	233
Ireland	0.247 (0.198)	0.273 (0.257)	0.110 (0.125)	218

Notes: $\Delta Spread_{i,t} = \alpha + \beta_{\text{tgt}} \cdot \text{target}_t + \psi \cdot EAGPR_{t-1} + \delta_{\text{tgt}} \cdot (\text{target}_t \times EAGPR_{t-1}) + \varepsilon_{i,t}$. Newey–West HAC standard errors (maxlags = 3) in parentheses. *target*: conventional rate surprise factor from Altavilla et al. (2019). EAGPR: 30-day rolling average $[J - 37, J - 7]$, standardised over the estimation sample. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 12: Alternative Global Geopolitical Risk Index: Caldara and Iacoviello (2022)

	$\beta(MP)$	$\psi(GPR)$	δ	N
<i>Core</i>				
Germany	0.089 (0.064)	-0.167 (0.132)	0.158** (0.063)	289
France	0.257*** (0.098)	-0.137 (0.153)	0.157* (0.083)	289
Netherlands	0.148** (0.065)	-0.293* (0.171)	0.221*** (0.071)	288
Belgium	0.259*** (0.089)	-0.067 (0.229)	0.104 (0.071)	289
Finland	0.120** (0.059)	-0.250 (0.154)	0.183*** (0.062)	289
Austria	0.184*** (0.060)	-0.178 (0.170)	0.136** (0.060)	286
<i>Periphery</i>				
Italy	0.831*** (0.282)	-0.217 (0.489)	0.025 (0.229)	289
Spain	0.560*** (0.199)	-0.235 (0.302)	0.081 (0.152)	289
Portugal	0.382** (0.171)	0.078 (0.381)	0.016 (0.134)	280
Ireland	0.271*** (0.103)	-0.263 (0.174)	0.137* (0.077)	265

Notes: GPR is the Caldara and Iacoviello (2022) global index, 30-day rolling average $[J-37, J-7]$, standardised over the full sample. Standard errors in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 13: Alternative Global Geopolitical Risk Index: AI-GPR (Iacoviello and Tong, 2026)

	$\beta(MP)$	$\psi(GPR)$	δ	N
<i>Core</i>				
Germany	0.066 (0.059)	0.067 (0.120)	0.141** (0.059)	289
France	0.236** (0.104)	−0.006 (0.135)	0.130 (0.087)	289
Netherlands	0.114* (0.060)	0.047 (0.162)	0.176*** (0.067)	288
Belgium	0.244*** (0.094)	0.061 (0.177)	0.081 (0.069)	289
Finland	0.093* (0.055)	−0.007 (0.139)	0.155*** (0.059)	289
Austria	0.164*** (0.057)	−0.042 (0.148)	0.133** (0.061)	286
<i>Periphery</i>				
Italy	0.825*** (0.303)	−0.191 (0.380)	−0.012 (0.196)	289
Spain	0.545** (0.216)	−0.092 (0.218)	0.025 (0.126)	289
Portugal	0.381** (0.181)	0.122 (0.274)	−0.052 (0.112)	280
Ireland	0.248** (0.106)	0.045 (0.188)	0.062 (0.082)	265

Notes: AIGPR is the AI-based geopolitical risk index of Iacoviello and Tong (2026), 30-day rolling average $[J - 37, J - 7]$, standardised over the full sample. Standard errors in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 14: Alternative Geopolitical Risk Measure: National GPR Indices

	β MP	ψ GPR _{<i>i</i>}	δ MP $\times$ GPR _{<i>i</i>}	<i>N</i>
<i>Full Sample (2000–2025)</i>				
Germany	0.063 (0.057)	0.202* (0.112)	0.170*** (0.053)	289
France	0.224** (0.112)	−0.157 (0.135)	0.059 (0.048)	289
Italy	0.809*** (0.303)	0.538 (0.437)	−0.283 (0.263)	289
Spain	0.529*** (0.202)	0.130 (0.380)	−0.132 (0.194)	289
<i>Post-GFC (2009–2025)</i>				
Germany	0.064 (0.076)	0.270* (0.164)	0.215** (0.088)	159
France	0.420*** (0.108)	−0.227 (0.208)	−0.029 (0.031)	159
Italy	1.418*** (0.488)	0.566 (0.668)	−0.229 (0.308)	159
Spain	0.929** (0.344)	−0.183 (0.492)	−0.172 (0.170)	159

Notes: EAGPR replaced by the country-specific national GPR index (Bondarenko et al. (2026)), 30-day rolling average [$J - 37, J - 7$], standardised over the estimation sample. Baseline specification. Standard errors in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 15: Robustness to Major Crisis Episodes

	Baseline	excl. GFC	excl. Sov. Debt	excl. Crimea	excl. Ukraine	excl. ALL	N
<i>Core</i>							
Germany	0.136*** (0.046)	0.127*** (0.048)	0.130*** (0.050)	0.137*** (0.046)	0.137*** (0.050)	0.116* (0.060)	289
France	0.131 (0.082)	0.041 (0.057)	0.155* (0.092)	0.131 (0.082)	0.134 (0.089)	0.042 (0.073)	289
Netherlands	0.181*** (0.056)	0.137*** (0.047)	0.188*** (0.062)	0.182*** (0.056)	0.189*** (0.061)	0.141** (0.058)	288
Belgium	0.078 (0.064)	0.027 (0.065)	0.101 (0.067)	0.078 (0.064)	0.084 (0.069)	0.044 (0.073)	289
Finland	0.157*** (0.050)	0.131*** (0.045)	0.158*** (0.054)	0.158*** (0.050)	0.173*** (0.053)	0.144*** (0.051)	289
Austria	0.113** (0.055)	0.060 (0.045)	0.139** (0.056)	0.113** (0.055)	0.119** (0.060)	0.089* (0.047)	286
<i>Periphery</i>							
Italy	-0.046 (0.199)	-0.224 (0.221)	0.029 (0.182)	-0.048 (0.200)	-0.010 (0.212)	-0.141 (0.222)	289
Spain	-0.012 (0.180)	-0.149 (0.209)	0.106 (0.110)	-0.015 (0.182)	-0.006 (0.194)	-0.017 (0.121)	289
Portugal	-0.027 (0.131)	-0.109 (0.152)	-0.018 (0.126)	-0.033 (0.132)	-0.049 (0.147)	-0.186 (0.160)	280
Ireland	0.088 (0.079)	0.010 (0.075)	0.113 (0.077)	0.087 (0.079)	0.078 (0.088)	0.015 (0.078)	265

Notes: $\Delta\text{Spread}_{i,t} = \alpha + \beta \cdot \text{MP}_t + \psi \cdot \text{EAGPR}_{t-1} + \delta \cdot (\text{MP}_t \times \text{EAGPR}_{t-1}) + \varepsilon_{i,t}$, estimated after excluding the indicated episode (**Baseline** = no exclusion; **excl. ALL** = all four episodes removed simultaneously in a single regression). Only δ is reported. Newey–West HAC standard errors (maxlags=3) in parentheses. EAGPR: $[J-37, J-7]$ window, standardised with the *fixed* baseline z-score of this sample (mean/std computed once before any exclusion, unchanged across all columns). Exclusion windows: GFC 2007-08-01 to 2009-06-30; Sovereign Debt Crisis 2010-01-01 to 2012-12-31; Crimea 2014-02-20 to 2014-06-30; Ukraine 2022-02-24 to 2022-06-30. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 16: Robustness to Alternative EAGPR Windows

	Baseline (30d)	15d	45d	60d	<i>N</i>
<i>Core</i>					
Germany	0.136*** (0.046)	0.091* (0.053)	0.143*** (0.045)	0.118*** (0.043)	289
France	0.131 (0.082)	0.078 (0.079)	0.105 (0.079)	0.130* (0.078)	289
Netherlands	0.181*** (0.056)	0.117* (0.067)	0.174*** (0.052)	0.164*** (0.053)	288
Belgium	0.078 (0.064)	0.039 (0.061)	0.051 (0.066)	0.084 (0.060)	289
Finland	0.157*** (0.050)	0.099* (0.058)	0.151*** (0.049)	0.135*** (0.049)	289
Austria	0.113** (0.055)	0.076 (0.056)	0.103* (0.054)	0.100* (0.056)	286
<i>Periphery</i>					
Italy	-0.046 (0.199)	-0.058 (0.157)	-0.151 (0.206)	-0.024 (0.192)	289
Spain	-0.012 (0.180)	0.008 (0.129)	-0.101 (0.186)	-0.075 (0.196)	289
Portugal	-0.027 (0.131)	-0.054 (0.103)	-0.149 (0.159)	-0.161 (0.167)	280
Ireland	0.088 (0.079)	0.037 (0.067)	0.024 (0.098)	0.026 (0.101)	265

Notes: $\Delta \text{Spread}_{i,t} = \alpha + \beta \cdot \text{MP}_t + \psi \cdot \text{EAGPR}_{t-1} + \delta \cdot (\text{MP}_t \times \text{EAGPR}_{t-1}) + \varepsilon_{i,t}$. Only δ is reported. Newey–West HAC standard errors (maxlags=3) in parentheses. EAGPR windows are defined as $[J - (7 + w), J - 7]$, where w is the window length in calendar days; **Baseline** uses $w = 30$ (i.e. $[J - 37, J - 7]$). Each window is standardized independently, with its own fixed mean/std computed once on the full sample: $w=15$ (mean=1.214, std=0.506), $w=30$ (mean=1.199, std=0.447), $w=45$ (mean=1.192, std=0.433), $w=60$ (mean=1.191, std=0.398). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 17: Asymmetric Monetary Policy Shocks

	10Y		5Y		2Y		<i>N</i>
	γ_{MP+}	γ_{MP-}	γ_{MP+}	γ_{MP-}	γ_{MP+}	γ_{MP-}	
<i>Core</i>							
Germany	0.153** (0.070)	0.101 (0.064)	0.152** (0.072)	0.103 (0.081)	0.126* (0.075)	−0.058 (0.102)	289
France	0.084 (0.146)	0.232** (0.116)	0.063 (0.087)	0.131 (0.099)	0.088 (0.080)	−0.280 (0.220)	289
Netherlands	0.196** (0.088)	0.149* (0.086)	0.171** (0.087)	0.140* (0.085)	0.147* (0.086)	−0.104 (0.089)	288/289/286
Belgium	−0.016 (0.104)	0.288* (0.158)	0.022 (0.092)	0.140 (0.189)	0.019 (0.087)	−0.074 (0.157)	289
Finland	0.128* (0.072)	0.230*** (0.079)	0.137 (0.140)	0.192* (0.099)	0.173** (0.079)	−0.183** (0.080)	289/170/256
Austria	0.073 (0.087)	0.206** (0.084)	0.086 (0.086)	0.176** (0.082)	0.124* (0.071)	−0.068 (0.101)	286/289/287
<i>Periphery</i>							
Italy	−0.311 (0.325)	0.530 (0.332)	−0.193 (0.285)	0.194 (0.305)	−0.085 (0.271)	0.028 (0.287)	289
Spain	−0.165 (0.268)	0.332 (0.284)	−0.016 (0.139)	−0.111 (0.219)	0.158 (0.188)	−0.310 (0.321)	289
Portugal	−0.084 (0.153)	0.098 (0.404)	−0.025 (0.177)	−0.767 (0.604)	−0.251 (0.203)	0.214 (0.728)	280/282/289
Ireland	0.086 (0.143)	0.081 (0.272)	0.177 (0.113)	−0.305 (0.413)	0.210 (0.251)	−0.531 (0.325)	265/251/223

Notes: MP is split into mutually exclusive positive and negative components, $MP_t^+ = \max(MP_t, 0)$ and $MP_t^- = \min(MP_t, 0)$, with $MP_t^+ + MP_t^- = MP_t$ for every meeting. $\Delta Spread_{i,t} = \alpha + \beta_1 MP_t^+ + \beta_2 MP_t^- + \psi EAGPR_{t-1} + \gamma_{MP+}(MP_t^+ \times EAGPR_{t-1}) + \gamma_{MP-}(MP_t^- \times EAGPR_{t-1}) + \varepsilon_{i,t}$ EAGPR is the standard $[J-37, J-7]$ window, standardised on the full sample. γ_{MP+} = amplification of restrictive (tightening) shocks by geopolitical risk; γ_{MP-} = amplification of accommodative (easing) shocks. Newey–West HAC (maxlags=3). *N* listed as 10Y/5Y/2Y where it differs by maturity. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 18: Post-Global Financial Crisis Subsample

	Baseline	CISS	Full Controls	
	δ	δ	δ	
	MP×EAGPR	MP×EAGPR	MP×EAGPR	N
<i>Core</i>				
Germany	0.121* (0.062)	0.124** (0.062)	0.143** (0.065)	159
France	0.000 (0.074)	−0.003 (0.075)	−0.015 (0.069)	159
Netherlands	0.122* (0.064)	0.117* (0.064)	0.140*** (0.046)	159
Belgium	0.041 (0.101)	0.032 (0.099)	0.031 (0.104)	159
Finland	0.131* (0.067)	0.128* (0.065)	0.176*** (0.049)	159
Austria	0.055 (0.062)	0.057 (0.058)	0.042 (0.060)	159
<i>Periphery</i>				
Italy	−0.280 (0.289)	−0.301 (0.281)	−0.573 (0.389)	159
Spain	−0.241 (0.288)	−0.250 (0.260)	−0.498 (0.377)	159
Portugal	−0.049 (0.196)	−0.105 (0.184)	−0.172 (0.219)	159
Ireland	−0.007 (0.102)	−0.013 (0.099)	0.030 (0.114)	142

Notes: Post-GFC sample (2009–2025). Interaction coefficient δ on $MP_t \times EAGPR_{t-1}$. CISS and Full Controls as in Table 10. Newey–West HAC standard errors in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 19: Single-moderator panel estimates: relative fiscal and defense position

Moderator	Maturity	δ	ϕ	(se_ϕ)	p_{1s}	N
Defense spending	10Y	0.086	-0.011	(0.061)	0.57	2853
	5Y	0.062	-0.049	(0.043)	0.88	2726
	2Y	0.012	-0.003	(0.044)	0.52	2786
Debt	10Y	0.082	-0.010	(0.066)	0.56	2811
	5Y	-0.011	0.079	(0.060)	0.10	2692
	2Y	-0.018	0.053	(0.056)	0.17	2744
Fiscal space (stock)	10Y	0.079	0.002	(0.063)	0.49	2853
	5Y	-0.008	0.078	(0.060)	0.10	2726
	2Y	-0.016	0.050	(0.051)	0.16	2786
Fiscal space (flow)	10Y	0.067	0.026	(0.051)	0.30	2853
	5Y	0.010	0.050	(0.060)	0.20	2726
	2Y	0.005	0.010	(0.045)	0.41	2786

Notes: Estimates of equation (2), $\Delta \text{Spread}_{i,t} = \alpha_i + \beta \text{MP}_t + \psi \text{EAGPR}_{t-1} + \delta(\text{MP}_t \times \text{EAGPR}_{t-1}) + \phi(D_{i,t-1} \times \text{MP}_t \times \text{EAGPR}_{t-1}) + \varepsilon_{i,t}$, with each moderator entering separately. δ is the geopolitical amplification common to all issuers; ϕ is the additional amplification for countries with $D_{i,t-1} = 1$. The indicator equals one when a country's position is more favorable than the contemporaneous cross-country mean: above the mean for defense spending and for fiscal space measured by the cyclically-adjusted primary balance (flow), below the mean for debt and for fiscal space measured by the debt-to-tax-revenue ratio (stock). Observations with a missing moderator are dropped. p_{1s} is the p -value of the one-sided test $H_0 : \phi = 0$ against $H_1 : \phi > 0$; asterisks denote two-sided significance. Standard errors are clustered by meeting date. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

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