Constrained Horizons: How Macroprudential Policy Channels Geopolitical Risk into Corporate Maturity Mismatch

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Abstract

This paper shows that macroprudential policy decides whether geopolitical risk pushes firms into maturity mismatch, the financing of long-term investment with short-term debt. In a panel of 62,152 firm-year observations for listed firms in 34 European countries, geopolitical risk has no direct effect on corporate maturity mismatch. This contrasts with recent evidence from China (Wang and Wang, 2025) and shows that the effect of geopolitical risk is not universal. Geopolitical risk reaches firms through banks, and macroprudential regulation decides whether it does. Macroprudential policy is usually measured with a net index that adds tightening and loosening actions, and such an index hides the channel. Once tightening and loosening are separated, a clear asymmetry appears: tightening does not amplify the transmission of geopolitical risk, while loosening weakens it, because released balance-sheet capacity can keep long-term credit available. This protection has a fiscal limit. It fades as public debt rises, disappears at a debt ratio of about 65 to 70 percent of GDP, and may reverse in high-debt countries, where banks put freed capacity into sovereign assets instead of corporate loans. The results survive alternative risk measures, alternative timing, and an event study around the Russian aggression against Ukraine. Whether geopolitical risk translates into corporate maturity mismatch depends on macroprudential regulation and on the fiscal position of the state.

Keywords: geopolitical risk; macroprudential policy; corporate maturity mismatch; sovereign-bank nexus

JEL Classification: G32; G18; G28; H63; F51; E44

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1. Introduction

The maturity structure of corporate debt is a first-order instrument of liquidity risk management. When firms finance long-lived assets with short-term liabilities, they expose themselves to rollover risk: the possibility that maturing obligations cannot be refinanced on acceptable terms precisely when external conditions deteriorate (Myers & Rajan, 1998; Acharya et al., 2011). The real consequences are well documented. Firms with a larger share of debt maturing during the 2007-2008 credit crisis cut investment substantially more than otherwise similar firms (Almeida et al., 2012), and the combination of debt overhang and rollover pressure depressed corporate investment across Europe during the sovereign debt crisis (Kalemli-Özcan et al., 2022). Better-positioned firms tend to lengthen maturities before credit conditions tighten (Mian & Santos, 2018). Yet many firms, especially smaller ones, fund long-term investment with short-term debt (Custódio et al., 2013; Chen et al., 2022), which raises a basic question: which external forces push firms into, or out of, fragile maturity configurations?

Geopolitical risk has recently moved toward the centre of this debate. Measured as the perceived risk of wars, sanctions, and tensions between states (Caldara & Iacoviello, 2022), geopolitical risk moves markets through expectations as much as through realised events, and firms adjust nearly every dimension of their financial policy in response. Firms respond conservatively on the financing side: they reduce debt (Khoo & Cheung, 2021; Chowdhury et al., 2025; Yaghoubi, 2024), scale back share repurchases (Adra et al., 2023), and accumulate precautionary cash (Kotcharin & Maneenop, 2020; Lee & Wang, 2021; Jahan & Ryu, 2026). The cost of capital rises (Carney et al., 2024), financial fragility and bankruptcy risk increase (Roy et al., 2024; Kaya et al., 2025), investment falls (Le & Tran, 2021; Wang et al., 2024; Jin et al., 2025), and firms cut employment excessively (Ji et al., 2026). Uncertainty also shortens corporate debt maturities, a pattern documented for policy uncertainty (Datta et al., 2019) and for geopolitical uncertainty (Khoo & Cheung, 2021). Whether shorter maturities reflect firms' own caution or lenders' reluctance to supply long-term credit typically remains open, and this distinction is central to our study. Firms that perceive greater uncertainty also display wider maturity mismatches (X. Li et al., 2024). Most directly related to our study, Wang and Wang (2025) show that geopolitical risk increases corporate maturity mismatch among Chinese listed firms: long-term investment and short-term debt rise while long-term debt falls, as creditors respond to greater information asymmetry and default risk by reducing long-term lending.

Whether this finding travels beyond a state-dominated, bank-centred financial system is an open question, and there are theoretical reasons to expect that it may not. The geopolitical

risk facing Chinese firms in recent years has largely reflected trade conflict, a direct threat to competitiveness that can rationalise investing through uncertainty, in the spirit of a strategic growth option. In Europe, by contrast, geopolitical risk has been dominated by military conflict and security tensions, and the standard real options logic predicts that firms respond to such uncertainty by postponing long-term, partially irreversible investment rather than accelerating it; recent European evidence on investment responses to the Russo-Ukrainian tensions points in this direction (Jin et al., 2025). If the investment-side and financing-side channels reinforce each other in China but pull in opposite directions in Europe, the direct effect of geopolitical risk on European firms' maturity mismatch may be weak or statistically absent, even though geopolitical risk demonstrably matters for other corporate outcomes. Institutional differences in how debt maturity is determined across financial systems make such context dependence plausible rather than surprising (Fan et al., 2012; González, 2017). We therefore ask a different question: not whether geopolitical risk affects corporate maturity mismatch, but when, and through which financial-system channel, such an effect emerges. The shift from average effects to state-contingent transmission is the paper's central conceptual contribution, and it connects three literatures that have so far evolved largely in isolation: research on geopolitical risk and corporate financial policy, work on debt maturity structure and maturity mismatch, and the literature on macroprudential regulation.

For most European firms, banks are the main providers of long-term external finance, and banks' capacity for maturity transformation is what macroprudential regulation is designed to discipline. Capital requirements, credit-growth limits, and borrower-based measures limit how much banks can lend and to whom (Claessens, 2015; Zulkhibri, 2019; Apergis et al., 2022). Liquidity and funding standards target maturity transformation itself: they limit how far banks can turn short-term funding into long-term loans (Landau, 2018; Brunnermeier & Pedersen, 2009). These rules reach firms. Macroprudential tightening changes the pricing and terms of syndicated corporate loans (Godlewski & Olszak, 2025), tighter bank rules reduce firms' access to bank credit (Liu et al., 2025), and the same tools affect banks themselves, their systemic risk, profitability, and competition (Meuleman & Vander Vennet, 2020; Davis et al., 2022; González, 2022). We argue that macroprudential policy can operate as the binding constraint in the transmission of geopolitical risk: when regulation restricts banks' long-term lending capacity, a geopolitically driven increase in firms' demand for financial flexibility runs into an inelastic supply of long-term credit, and the resulting funding gap appears as maturity mismatch. Consistent with this argument, we find no unconditional relationship between geopolitical risk

and maturity mismatch in a large panel of European non-financial listed firms. The effect appears only in interaction with the macroprudential policy stance, and it is concentrated in funding gap measures of mismatch, which capture how current long-term spending is financed, rather than in balance-sheet measures describing the inherited maturity structure.[1] Transmission runs through the bank credit supply channel rather than through firms' direct behavioural response to uncertainty; documenting this channel is the paper's second contribution.

Distinguishing the direction of regulatory change turns out to be essential. We find a clear asymmetry. Loosening changes how firms' maturity mismatch responds to geopolitical risk. Aggregate tightening does not; it appears only in the event study around the Russian aggression against Ukraine, in the region most exposed to the shock. The reason may lie in the tools themselves. Only some tightening instruments restrict long-term lending, so their effect can get lost in a broad index, while loosening frees capacity for all types of lending. Whether tightening and loosening have symmetric effects is an open question in this literature (Claessens, 2015). Our results say they do not, and a single net index hides the difference.

Nor is the strength of this regulatory channel uniform across fiscal environments. Where public debt is high, banks carry substantial sovereign exposures and government borrowing competes with corporate borrowers for long-term funding. Government debt crowds out corporate financing and widens firms' maturity gaps (Liu et al., 2023; Wen et al., 2024), the maturity structure of government debt supply shapes corporate debt maturity choices (Greenwood et al., 2010), and the sovereign-bank nexus intensifies under policy uncertainty (Bales & Burghof, 2022). We therefore examine public debt as a second-order moderator. When public debt is low, macroprudential loosening weakens the transmission of geopolitical risk into maturity mismatch. When public debt is high, the same loosening no longer helps and may even worsen the mismatch response. The likely reason is crowding out: banks with large sovereign holdings do not turn the capacity freed by looser regulation into long-term corporate loans, so whether loosening works depends on how indebted the government is. Our results also add geopolitical risk to the growing list of risks known to shape corporate debt maturity, alongside climate, carbon, and biodiversity risks (Huang et al., 2024; Duong et al., 2025; Goodell et al., 2025). The difference lies in the channel: in our evidence, geopolitical risk reaches firms' maturity structures through the financial system, not through firm-level exposure alone.

[1] Flow-based measures, widely used in the recent literature, relate short-term debt raised in a given period to contemporaneous long-term investment (e.g., Wang et al., 2021; Feng et al., 2023), whereas stock-based measures compare the maturity structures of assets and liabilities on the balance sheet (e.g., Li et al., 2024).

We measure maturity mismatch with both a funding gap measure and a balance-sheet measure (in the literature also called cash-flow based and balance-sheet based measures), capture geopolitical risk with two complementary indices, a slow-moving structural composite and the more cyclical World Uncertainty Index, and draw macroprudential policy actions from instrument-level data that separate tightening from loosening. Identification relies on interaction and triple-interaction designs with extensive fixed effects. The results survive alternative risk measures, alternative timing assumptions, and lagged macroprudential policy, and they hold in an event study around the Russian aggression against Ukraine. The evidence supports one conclusion above all: geopolitical risk does not mechanically translate into corporate maturity mismatch; it does so when, and only when, the regulatory environment constrains banks' capacity to supply long-term credit, and the fiscal position of the sovereign determines how much relief regulatory accommodation can actually deliver.

The remainder of the paper proceeds as follows. Section 2 reviews the related literature and develops the hypotheses. Section 3 describes the data, the measurement of maturity mismatch, geopolitical risk, and macroprudential policy, and the empirical design. Section 4 presents the main results: the absence of a direct effect, the macroprudential channel, the asymmetry between tightening and loosening, and the role of the sovereign-bank nexus. Section 5 reports robustness and additional analyses, and Section 6 concludes.

2. Related Literature and Hypothesis Development

2.1. Geopolitical risk and corporate maturity mismatch: the investment channel and the real options logic (H1)

Corporate maturity mismatch occurs when firms fund long-lived assets or projects that generate cash flows over a long horizon with debt that matures much sooner. The practice is widespread, and it is not irrational per se: short-term debt is typically cheaper, it disciplines management, and it can serve as bridge financing when firms expect better issuance conditions later (Kahl et al., 2015). In China, firms with fewer financial constraints mismatch more, deliberately using cheaper short-term debt (Wang et al., 2021). Yet the costs of mismatch are asymmetric: they stay small in normal times and become large in crises, exactly when refinancing is hardest. A firm that finances long-term projects with short-term debt takes on rollover risk: it must renew its funding at terms it cannot fix in advance, and in a crisis the rollover market can freeze (Acharya et al., 2011). The costs show up in the data. During the 2007-2008 credit crunch, firms with long-term debt coming due just after the crisis began cut investment far more than similar firms with later maturities (Almeida et al., 2012). After the European sovereign debt crisis,

firms with more debt invested less, and the effect was strongest where firms held short-term debt and their governments were under stress (Kalemli-Özcan et al., 2022). The evidence is not uniform, however: in the emerging market crises of the 1990s, Bleakley and Cowan (2010) find no robust link between short-term debt exposure and investment. Firms with a larger share of debt coming due tend to have worse credit quality (Gopalan et al., 2014). Maturity mismatch is also not purely a demand-side choice. How much long-term debt firms can obtain depends on the institutional environment: legal systems, corruption, and the preferences of capital suppliers all matter (Fan et al., 2012; González, 2017). In the United States, debt maturity fell most for small firms with high information asymmetry, and supply factors in public debt markets played an important part (Custódio et al., 2013). Across countries, collateral constraints help explain why firms fund long-term investment with short-term debt (Chen et al., 2022).

Geopolitical risk is a natural candidate for a shock that could push firms toward, or away from, such fragile structures. Caldara and Iacoviello (2022) define it as the risk of wars, terrorist acts, and tensions between states that disrupt the normal course of international relations, and show that threats move markets more strongly than the acts themselves. Which side dominates differs by market: threats drive the effect of geopolitical risk on stock liquidity (Fiorillo et al., 2023), while the Russia-Ukraine escalation moved cryptocurrency markets more than the threats that preceded it (Kamal & Wahlstrøm, 2023). Firms adjust multiple financial policies in response to geopolitical risk. It is associated with more conservative leverage and capital structure choices (Chowdhury et al., 2025; Yaghoubi, 2024), lower target debt ratios (Shrestha et al., 2024), reduced share repurchases (Adra et al., 2023), and larger precautionary cash holdings in settings ranging from shipping firms to Chinese and Korean listed firms (Kotcharin & Maneenop, 2020; Lee & Wang, 2021; Jahan & Ryu, 2026). It raises the cost of capital (Carney et al., 2024; Kim & Lee, 2024), depresses firm value in exposed markets (Pringpong et al., 2023), and increases financial fragility and bankruptcy risk (Roy et al., 2024; Kaya et al., 2025). On the real side, elevated geopolitical risk reduces corporate investment (Le & Tran, 2021; Wang et al., 2024), increases investment-cash flow sensitivity (Gupta, 2023), and distorts labour investment, partly through excessive workforce reductions (Ji et al., 2026). Exposure is heterogeneous and depends on the geography of a firm's operations (Hsieh et al., 2026), but the direction of the average response is consistent: heightened geopolitical risk makes firms behave more conservatively.

The main mechanism is real options logic. When investment is partly irreversible, uncertainty raises the value of waiting. Firms therefore delay projects that would be costly to

reverse if geopolitical conditions worsen. Wang et al. (2024) show this pattern for U.S. firms, and Jin et al. (2025) find similar behaviour among European firms exposed to Russo-Ukrainian tensions. The same logic applies to financing. Under policy uncertainty, firms shorten debt maturity (Datta et al., 2019). Geopolitical uncertainty has a similar effect on debt maturity and debt source choices (Khoo & Cheung, 2021). In emerging markets, volatile capital flows make this problem sharper because firms often finance long-term projects with short-term debt (Converse, 2018). Capital inflow surges also shorten corporate debt maturity (Li & Su, 2022). At the firm level, higher uncertainty perception is associated with greater asset-debt maturity mismatch (X. Li et al., 2024). Maturity mismatch itself has been identified as a transmission mechanism linking policy uncertainty to weaker firm performance (Hu, 2025). The most direct evidence on geopolitical risk comes from Wang and Wang (2025), who document that geopolitical risk increases maturity mismatch among Chinese listed firms. Their evidence covers both sides of the mismatch. On the financing side, mechanism tests indicate that geopolitical risk raises information asymmetry and default risk, prompting creditors to cut the supply of long-term credit. On the investment side, long-term investment rises rather than falls, and the effect is strongest for R&D-intensive firms in competitive industries; the authors read this through strategic growth option theory, under which firms invest through uncertainty to secure market position. With long-term funding shrinking and long-term investment expanding, mismatch widens mechanically. Wang and Wang (2025) contrast this with the real options prediction that uncertainty delays long-term investment. Because a single-country geopolitical risk index varies only over time, such designs cannot absorb common time shocks with time fixed effects; the cross-country variation in our European sample allows us to include them throughout.

Whether this configuration generalises is doubtful, because the investment channel is context-dependent. In Europe, geopolitical risk is dominated by military conflict and security tensions rather than competitive trade pressure, and for this type of uncertainty the standard real options prediction applies: firms delay irreversible long-term projects, as recent European evidence on investment responses to the Russo-Ukrainian tensions suggests (Jin et al., 2025). These mechanisms do not imply that geopolitical risk must always increase maturity mismatch. The sign depends on which side of the balance sheet adjusts more. Geopolitical risk can reduce long-term investment through the real options channel (Wang et al., 2024; Jin et al., 2025), which lowers the need for long-term funding. At the same time, uncertainty can shorten debt maturity and push firms toward shorter financing (Datta et al., 2019; Khoo & Cheung, 2021).

If investment falls faster than financing maturity shortens, measured mismatch may decline. If long-term funding becomes scarce while investment needs remain, mismatch rises. This is the empirical question: whether geopolitical risk changes the balance between long-term investment and the maturity of funding.

This ambiguity leads to a clear empirical prediction. Among European listed firms, geopolitical risk should not have a mechanical effect on maturity mismatch. Investment and financing may adjust in opposite directions, and these adjustments can offset each other. A weak unconditional effect would therefore not mean that geopolitical risk is irrelevant for maturity structures. It would be consistent with a more specific channel: geopolitical risk affects mismatch when it changes the availability of long-term credit. The next section examines this financing channel, focusing on whether macroprudential regulation shapes banks' ability to provide long-term lending. Our baseline prediction is therefore stated as a null:

H1. *Geopolitical risk has no direct effect on corporate maturity mismatch in European listed firms.*

2.2. Macroprudential policy and bank lending capacity (H2)

If the direct effect of geopolitical risk on maturity mismatch is ambiguous, the next question is what makes one response dominate. Debt maturity is not chosen by the firm alone. It also depends on whether lenders are willing to provide long-term funding. This matters in Europe, especially in the euro area, where corporate finance remains heavily bank-based (De Fiore & Uhlig, 2015). During crises and recoveries, corporate debt often shifts from bank loans toward bond finance, and economies with deeper bond markets recover faster (Grjebine et al., 2018). At the firm level, access to different debt markets also matters: firms that can switch between loans and bonds are better able to adjust the maturity of new borrowing, while firms without such access face sharper constraints (Cortina Lorente et al., 2016). Banking structure further shapes this channel. González (2015) shows that the effect of the financial crisis on corporate debt maturity varied with national banking systems. The supply of long-term credit, and the constraints faced by its providers, are therefore central to how uncertainty reaches corporate balance sheets.

Macroprudential policy is the regulatory framework that most directly shapes these lender-side constraints. After the Global Financial Crisis, it became a key tool for limiting systemic risk and procyclicality. Its instruments include capital buffers, liquidity and funding requirements, credit-growth limits, exposure caps, and borrower-based measures such as loan-

to-value and debt-service-to-income limits (Claessens, 2015; Zulkhibri, 2019). These instruments are often grouped according to the agent they constrain, financial institutions or borrowers (Apergis et al., 2022). For this paper, the key question is how they affect banks' capacity to supply long-term corporate credit.

Capital-based tools make risk-weighted lending more costly and can lead banks to reduce exposures that absorb regulatory capital. Liquidity and funding tools affect maturity transformation more directly. By requiring less liquid or longer-dated assets to be backed by more stable funding, they limit the extent to which banks can finance long-term lending with short-term liabilities. Landau (2018) treats liquidity creation and maturity transformation as core elements of the financial cycle. Brunnermeier and Pedersen (2009) provide the related balance-sheet logic: when funding conditions tighten, intermediaries reduce positions that consume funding capacity. Applied to bank credit, this implies that regulation can affect not only how much banks lend, but also the maturity and collateral terms of that lending.

This mechanism is related to monetary policy, but it is not the same channel. Monetary and macroprudential policies interact through credit conditions and require coordination (Malovaná & Frait, 2017). Macroprudential policy is different because it works directly through banks' balance-sheet constraints. It is therefore a natural channel through which geopolitical risk can affect the supply and terms of long-term credit.

The link between bank constraints and corporate maturity mismatch runs through loan maturity. When banks face tighter funding or regulatory constraints, they may continue lending but reduce the maturity of new credit. This shifts rollover risk to firms. If firms still have long-term investment needs, shorter debt has to finance assets whose cash flows arrive later, and maturity mismatch widens.

The empirical evidence supports this channel. Macroprudential tightening changes the structure of bank lending: in Europe it changes the size and collateralization of syndicated corporate loans (Godlewski & Olszak, 2025), and in China tighter bank rules reduce firms' access to bank credit and shorten corporate debt maturity, because long-term bank debt falls relative to short-term debt (Liu et al., 2025). Evidence on the supply of long-term credit points in the same direction. When Chinese banks hold back liquidity, loan maturities shorten, the share of long-term loans falls, and corporate maturity mismatch increases (Ma et al., 2022); when stronger bank competition improves access to longer-maturity credit, mismatch falls, especially among SMEs and firms with severe mismatches (B. Li et al., 2024; Jv et al., 2025).

The mechanism is therefore specific: mismatch rises when long-term credit becomes harder to obtain while long-term investment needs remain.

Geopolitical risk should affect maturity mismatch mainly when banks are constrained. Higher geopolitical risk raises credit risk and is associated with less long-term debt and more short-term debt (Wang & Wang, 2025). Yet firms may also cut investment, so the direct effect on mismatch can be weak. Macroprudential policy determines when the financing channel becomes binding. If banks have regulatory room, they can keep long-term credit available for safer borrowers, and the fall in investment may offset the shortening of debt. If constraints are tight, banks have less capacity to absorb the shock. Firms that still need external finance then rely more on short-term debt, and maturity mismatch rises. The effect should appear mainly in funding gap measures of mismatch, in the literature also called cash-flow based measures, which capture how new long-term spending is financed. We therefore expect geopolitical risk to increase mismatch mainly under tight macroprudential policy, especially when liquidity and funding tools restrict maturity transformation.

This argument leads to a moderation hypothesis. Geopolitical risk should be more likely to widen maturity mismatch when macroprudential policy limits banks' capacity to supply long-term credit. Under such conditions, firms cannot easily replace long-term funding, so the financing channel becomes visible:

H2. *The effect of geopolitical risk on corporate maturity mismatch is stronger under tighter macroprudential policy.*

This hypothesis treats macroprudential policy as a single tightening-loosening scale. The next section asks whether this is too simple. Tightening and loosening may not have symmetric effects: tightening removes capacity from banks that are already cautious, while loosening may not be used if geopolitical risk keeps credit risk high.

2.3. Bridging the literatures: is regulation the binding constraint? Asymmetry of tightening and loosening (H3a, H3b)

Existing evidence leaves one question unresolved: when does geopolitical risk translate into corporate maturity mismatch through the supply of long-term credit? Studies of geopolitical risk show that firms adjust leverage, investment, cash holdings, and debt maturity when uncertainty rises. Recent work also points to credit supply as part of this response (Chowdhury et al., 2025; Wang & Wang, 2025). Yet this literature does not explain when the supply-side

effect becomes strong enough to change maturity mismatch. The macroprudential literature addresses the supply side more directly. It studies banks, credit growth, and financial stability (Claessens, 2015; Meuleman & Vander Vennet, 2020), and more recent evidence traces regulation to firms' credit access and debt maturity. Godlewski and Olszak (2025) show that macroprudential policy changes the terms of syndicated corporate loans. Liu et al. (2025) show that tighter bank rules in China reduce bank credit and shorten corporate debt maturity. What remains open is whether macroprudential regulation changes the effect of geopolitical risk on maturity mismatch.

This is the channel we test. Geopolitical risk weakens financial markets, especially where they are less liquid or less developed (Khraiche et al., 2023). It also changes firms' debt structure. Wang and Wang (2025) find that higher GPR is associated with more short-term debt, less long-term debt, and higher maturity mismatch among Chinese firms. These findings point to a financing channel, but that channel should matter most when banks have little room to keep long-term credit available. Macroprudential policy determines that room. In calm periods, banks may be able to maintain term lending, and changes in investment and debt maturity can offset each other. When geopolitical risk is high, credit risk rises and the same regulatory stance can become binding. Tighter macroprudential policy should therefore strengthen the financing channel and make the effect of geopolitical risk on maturity mismatch clearer. Whether tightening and loosening work symmetrically is the next question.

Macroprudential tightening can amplify the financing channel by making long-term lending more costly for banks to hold on their balance sheets. Capital and liquidity tools raise the cost of maturity transformation. Evidence from syndicated loans is consistent with this channel, but it is more nuanced than a simple fall in lending. Godlewski and Olszak (2025) show that tighter macroprudential policy changes loan contract terms, especially loan size and collateralization, with effects concentrated in long-maturity facilities. Under geopolitical risk, this adjustment should matter more because credit risk and information problems are already higher (Wang & Wang, 2025). Banks then have less room to keep long-term credit available on unchanged terms.

The parallel with monetary policy is the role of maturity in transmission. Jungherr et al. (2024) show that firms with more debt coming due react more strongly to monetary tightening because rollover needs expose them to the shock. The same logic applies here on the supply side. If bank credit is shortened or made harder to obtain, firms with bond-market access can partly replace it with longer-term market debt, but bank-dependent firms cannot do so easily

(Custódio et al., 2013; Cortina Lorente et al., 2016). Their remaining investment is therefore more likely to be financed at shorter maturities. Tightening matters because it leaves banks with less capacity to keep long-term credit available when geopolitical risk rises.

Loosening works through capacity, not obligation. A release of regulatory requirements does not make banks supply long-term credit; it gives them room to do so. This distinction matters when geopolitical risk is high. Banks may still have creditworthy borrowers that want to continue long-term investment, but regulatory costs can make long-maturity loans hard to keep on the balance sheet. A release lowers that constraint. It does not need to raise banks' appetite for risk; it only needs to make term lending feasible for borrowers banks are already willing to serve.

This mechanism fits a broader literature in which debt maturity responds to supply conditions. Greenwood et al. (2010) show that corporate debt maturity changes with the maturity structure of government debt, which means that maturity choice is not driven only by firm fundamentals. Bianchi et al. (2016) and Gelos et al. (2022) support the broader point that macroprudential policy is state-dependent and can shape the response to global financial shocks. Closer firm-level evidence comes from Chen et al. (2025), who show that a policy intervention reduced maturity mismatch by improving bank-firm information flows, lowering banks' moral-hazard concerns, and narrowing the term spread between short- and long-term debt. The opposite cases are also informative. Q. Feng et al. (2023) show that a tax incentive can increase mismatch when it raises fixed investment but long-term loan supply remains insufficient, and Hu and Li (2024) show that easier market access can aggravate mismatch when financing needs expand without matching long-term funding. Macroprudential loosening should therefore weaken the effect of geopolitical risk on maturity mismatch only if it restores long-term credit supply. The relevant margin is the maturity of credit, not the volume of credit alone.

The asymmetry has a clear form. Under elevated geopolitical risk, banks are already more cautious about long-term lending. Macroprudential tightening can then amplify this caution by making long-maturity credit more costly to hold on bank balance sheets. This effect should be strongest for instruments that price maturity transformation directly, especially liquidity and stable-funding requirements, because they affect the way banks fund long assets with shorter liabilities (Landau, 2018). Where these tools tighten, geopolitical risk should translate more strongly into maturity mismatch.

Loosening works differently: it removes part of the constraint that makes long-term lending costly. If banks are still willing to serve creditworthy firms, released capacity can keep term credit available when geopolitical risk would otherwise shorten lending horizons. This should reduce the need to finance long-term spending with short-term debt. The moderation effect of loosening may therefore be broader and more consistent than the effect of tightening, because loosening restores capacity while tightening adds pressure to a banking system that is already cautious. This reasoning is consistent with evidence that macroprudential instruments are state-dependent and heterogeneous across tools (Claessens, 2015; Apergis et al., 2022). We therefore test tightening and loosening separately, both at the aggregate level and by instrument.

Whether released capacity actually reaches firms is the next step in the argument. Loosening can reduce mismatch only if banks use the freed balance-sheet space for corporate lending rather than for other assets. That allocation depends on competing claims on bank balance sheets, especially sovereign exposures. Section 2.4 turns to this issue. For now, we state the asymmetry hypotheses:

H3a. *The relationship between geopolitical risk and corporate maturity mismatch is stronger when macroprudential policy tightens.*

H3b. *The relationship between geopolitical risk and corporate maturity mismatch is weaker when macroprudential policy loosens.*

2.4. The sovereign-bank nexus: public debt as a second-order moderator (H4)

The argument so far assumes that released regulatory capacity can reach long-term corporate credit. This step is not automatic. When requirements are relaxed, banks gain balance-sheet space, but they still decide where to use it. Corporate loans compete with sovereign assets that receive favourable regulatory treatment. Government bonds often carry low or zero risk weights, count toward liquidity buffers, and can be pledged as collateral. They therefore offer banks a low-cost way to absorb regulatory slack. This links the macroprudential channel to the sovereign-bank nexus: banks hold sovereign claims, while sovereign risk also affects banks because the state stands behind the financial system. Bales and Burghof (2022) show that this link strengthens in periods of policy uncertainty. Baele et al. (2020) show that stress episodes are associated with flights to safety, in which safe bonds outperform riskier assets and market liquidity deteriorates. For our question, the implication is that public debt can limit the pass-through from macroprudential loosening to corporate term credit.

The credit mechanism is crowding out. Firm-level evidence from China shows that government debt reduces corporate financing and draws bank credit away from firms (Liu et al., 2023). Wen et al. (2024) show that local government debt increases corporate asset-debt maturity mismatch by reducing access to long-term credit and raising debt financing costs. The displacement is also linked to maturity. Greenwood et al. (2010) show that corporate debt maturity responds to the maturity structure of government debt: when the government issues more long-term debt, firms issue more short-term debt. This is not a bank-lending result, but it shows that sovereign debt supply can change corporate maturity choices. In bank-based systems, the same competition can operate through bank balance sheets. Sovereign bonds are liquid, pledgeable, and easier to hold than long-term corporate loans. When banks are heavily exposed to the public sector, long-term corporate credit is therefore more likely to be constrained. Evidence from the European sovereign debt crisis is consistent with this channel: Kalemli-Özcan et al. (2022) show that firms with short-term debt in sovereign-stress countries cut investment more, and that bank weakness linked to sovereign risk can reduce loan supply.

Geopolitical risk makes this allocation problem sharper. Higher geopolitical risk raises the perceived risk of corporate exposures and increases demand for safe and liquid assets. In high-debt countries, this can pull released capacity toward government bonds rather than term loans. C. Feng et al. (2023) show that geopolitical risk is associated with capital flow retrenchment and flight-home behaviour, while Beirne and Renzhi (2026) show that geopolitical risk raises capital-flow volatility and that high public debt amplifies adverse financial-market effects. Zhou et al. (2025) and Zhu et al. (2025) further show that geopolitical risk can spread through financial markets as systemic stress and connectedness. A bank in a high-debt country therefore faces geopolitical risk with a balance sheet already tied to sovereign claims and with stronger reasons to stay liquid. Formal macroprudential loosening may release capacity, but public debt can determine whether that capacity reaches firms. This is why public debt should weaken the attenuating effect of loosening on the relationship between geopolitical risk and maturity mismatch.

Public debt therefore enters our framework as a moderator of the macroprudential channel, not as a direct moderator of the baseline relationship between geopolitical risk and maturity mismatch. The relevant sovereign exposure for this mechanism sits mainly on bank balance sheets. Firms are affected indirectly, through the way banks allocate balance-sheet capacity. Since Section 2.1 argued that the direct effect of geopolitical risk on mismatch is ambiguous, there is no clear reason to expect public debt to resolve that ambiguity on its own.

What public debt should affect is the transmission channel developed in Sections 2.2 and 2.3: whether macroprudential policy changes banks' ability to supply long-term corporate credit under geopolitical risk.

The prediction is sharpest for loosening. Macroprudential accommodation can reduce mismatch only if the released capacity is used for term lending to firms. In high-debt countries, that use of capacity competes with sovereign assets, whose regulatory advantages become more valuable when geopolitical risk rises. Released capacity may therefore be absorbed by sovereign claims rather than by long-term corporate loans. In that case, loosening does not reach the corporate sector, and the weaker relationship predicted by H3b should fade. In high-debt countries, it may even reverse if geopolitical risk raises firms' need for stable funding while banks use the released space to remain liquid.

The tightening side is less clear. If banks are already heavily exposed to sovereign claims, additional restrictions may fall on a smaller corporate loan book, so their incremental effect on the geopolitical risk channel is harder to sign. The empirical implication is therefore a triple interaction. Public debt should change the strength of the interaction between geopolitical risk and macroprudential policy, with the clearest prediction for loosening. The empirical design follows this hierarchy: baseline specifications, two-way interactions between geopolitical risk and macroprudential policy, and then triple interactions with public debt. We state the final hypothesis as follows:

H4. *Public debt conditions the macroprudential channel of geopolitical risk transmission: the higher the level of public debt, the weaker the attenuating effect of macroprudential loosening on the relationship between geopolitical risk and corporate maturity mismatch. In high-debt countries, this effect may disappear or reverse.*

3. Data and Empirical Design

3.1. Empirical strategy

To test the relationships between geopolitical risk, macroprudential policy and corporate maturity mismatch, we estimate the following panel regression:

$$MM_{ict+1} = \alpha + \beta_1 \cdot GRI_{ct} + \beta_2 \cdot MaPP_{ct} + \beta_3 \cdot GRI_{ct} \cdot MaPP_{ct} + \gamma' MControls_{ct} + \delta' FirmControls_{ict} + CountryFE + IndustryFE + TimeFE + \varepsilon_{ict+1} \quad (1)$$

where *i*, *c*, and *t* denote a firm, a country, and a year. *MM* is one of our measures of corporate maturity mismatch, defined below. *GRI* is a country-level measure of geopolitical risk, and

MaPP reflects changes in macroprudential policy. The model also includes macroeconomic controls (*MControls*) and firm-level controls (*FirmControls*). Firm-level variables are measured at annual frequency. Market-based variables are measured as of the end of the corresponding calendar year. In the baseline regressions, all explanatory variables, including geopolitical risk and macroprudential policy, are measured in year *t* and explain maturity mismatch in year *t+1*. This reduces simultaneity and endogeneity concerns. It also reflects the time needed for geopolitical risk to show up in firms' investments and balance sheets. The model includes country, industry, and time fixed effects (*CountryFE*, *IndustryFE* and *TimeFE*) to control for systematic differences between countries and industries and for common shocks. Standard errors are clustered by firm and by year to account for correlation of errors within firms and within years.

3.2. Variables construction and measurement

Our key dependent variable is corporate maturity mismatch, which reflects a financial imbalance where a company funds long-term investments with short-term debt. This results in a difference between assets and liabilities term-structures, which may hinder financial stability. Maturity mismatch might be captured using both cash-flow and balance-sheet based measures. Therefore, to capture the corporate maturity mismatch in a more comprehensive manner, we apply several measures. First, we use the funding gap, which is a cash-flow based measure of maturity mismatch (Wang and Wang, 2025; Shi, 2025):

$$MMFG_{it} = \frac{CAP\quad_{it} - \Delta LTD_{it} - \Delta EQ_{it} - CFO_{it} - DIV_{it} - SPPE_{it}}{TA_{it-1}} \tag{2}$$

where *CAPEX* denotes capital expenditure, *ΔLTD* is the annual change in long-term debt, *ΔEQ* denotes the annual change in the book value of total equity, *CFO* is cash flow from operations, *DIV* are divestitures, *SPPE* denotes the proceeds from the sale of property, plant and equipment, and *TA* are total assets. To verify whether a change in a maturity mismatch results from the investments or financing, we split the measure into two components:

$$MMFG\_Exp_{it} = \frac{CAPEX_{it}}{TA_{it-1}} \tag{3}$$

and:

$$MMFG\_Fin_{it} = \frac{\Delta LTD_{it} + \Delta EQ_{it} + CFO_{it} + DIV_{it} + SPPE_{it}}{TA_{it-1}} \tag{4}$$

where *MMFG_Exp* and *MMFG_Fin* are the investment expenditure and long-term financing components, respectively. Second, we use the structural liabilities-asset mismatch, which is a balance-sheet measure (Feng et al., 2023; Hu and Li, 2024):

$$MMST_{it} = \frac{CL_{it}}{TL_{it}} - \frac{CA_{it}}{TA_{it}} \tag{5}$$

where *CL*, *CA*, *TL* and *TA* denote short-term liabilities, current assets, total liabilities and total assets, respectively. To verify whether changes in maturity mismatch are more a result of changes to maturity of liabilities or assets, we decompose *MMST* into two components:

$$MMST\_Assets_{it} = \frac{CA_{it}}{TA_{it}} \tag{6}$$

and:

$$MMST\_Liab_{it} = \frac{CL_{it}}{TL_{it}} \tag{7}$$

where *MMST_Assets* and *MMST_Liab* are the asset and liability components of *MMST*, respectively.

One of the two explanatory variables of interest is geopolitical risk, which is defined as "geopolitical tensions as perceived by the press, the public, global investors, and policymakers" (Caldara and Iacoviello, 2022). Several indices of geopolitical risk are used in the literature, including the *Geopolitical Risk Index (GPR)* (Caldara and Iacoviello, 2022), the *World Uncertainty Index (WUI)*(Ahir et al., 2022), and the *Economic Policy Uncertainty Index (EPU)*(Baker et al., 2016), as well as indices provided by various organisations. Due to their different constructions, these indices often capture different aspects of geopolitical risk. The most comprehensive measure is the *Geopolitical Risk Index (GPR)* by Caldara and Iacoviello (2022). However, country-specific indices cover only half of the countries in our sample, so using them would cut the number of observations substantially. We therefore construct a new index of geopolitical risk (*GRI*), defined as the first principal component of four distinct geopolitical risk measures:

- *WUI*, World Uncertainty Index (Ahir et al., 2022),
- *GPI*, Global Peace Index (Institute for Economics and Peace, 2025),
- *WGI*, Political Stability and Absence of Violence/Terrorism (World Bank),
- *FIW*, Freedom in the World (Freedom House, 2025).

The *WUI* measures how often the word "uncertain" (or its variants) appears in the Economist Intelligence Unit's country reports. The *GPI* is a composite index comprising 23

indicators related to a country's peacefulness. The *WGI* measures the perceived likelihood of political instability or politically motivated violence. *FIW* reflects political rights and civil liberties in a given country. Since higher *WGI* and *FIW* values indicate lower risk, to ensure consistency between the measures, their values are multiplied by -1. Therefore, for each geopolitical risk index, a higher value indicates a higher risk.

We then run a principal component analysis on the four indices. The first principal component can be interpreted as a latent measure summarising the common variation across four dimensions related to geopolitical risk: general uncertainty (*WUI*), peacefulness (*GPI*), political stability (*WGI*), and institutions (*FIW*). By extracting the common variance of these four indicators, the *GRI* captures both external uncertainty and domestic conditions that may shape a country's exposure and resilience to geopolitical risk. The first component explains approximately 65.8% of the total variability among the indices and is positively correlated (0.44) with Caldara and Iacoviello's (2022) *GPR*. To compare our results with those of Wang and Wang (2025), in one of our robustness tests we also use Caldara and Iacoviello's (2022) *GPR*, and our main conclusions remain unchanged.

The second explanatory variable of interest is the macroprudential policy index as constructed by Alam et al. (2019). The IMF iMaPP database contains monthly indicators of policy actions for 17 instruments, which are compiled from textual information. We consider several variants of the macroprudential policy index. The most general index (*MaPP*) is calculated simply as the sum of the monthly policy action indicators for a given year. Each tightening event of a particular instrument is coded as a +1, each loosening event is coded as a -1, and no or neutral action is coded as 0. We also consider *MaPP_T* (*MaPP_L*), which is the sum of the monthly policy tightening (or loosening) indicators.

Previous research shows that the effects of macroprudential policy are may generate contemporaneous effects but also delayed responses as banks progressively adjust their funding structures and lending policies. (Akinci & Olmstead-Rumsey, 2018; Cerutti et al., 2017; Gambacorta & Murcia, 2020; Olszak et al., 2025). In effect we may also expect delayed responses of liquidity levels of non-financial firms. Accordingly, we examine both contemporaneous and lagged effects of macroprudential policy by simultaneously considering policy measures implemented in year t, $t-1$, and $t-2$.

We also include both macroeconomic and firm-specific control variables. We first selected a broad set of potential drivers of maturity mismatch. Then, based on the correlation

matrix between all the variables, we selected the subgroup of these variables. In particular, we aimed to select variables that are highly correlated with *MMFG* and *MMST*, and exhibit a weak to moderate correlation with one another, to avoid collinearity issues. The macroeconomic variables considered are: annual growth of the real Gross Domestic Product (*rGDPgrowth*), inflation as measured by the Consumer Price Index (*CPI*), trade openness (*TradeOpen*), exchange rate against the US dollar (*ExchRate*) and public debt (*PubDebt*). Following recent research in this field (Wang et al., 2021; Huang et al., 2024; Ma et al., 2025; Wang and Wang, 2025; Ge et al., 2026), we use the following firm-specific control variables: firm size (*lnMV*), measured as the logarithm of the market value of equity (in EUR millions); age (*Agefound*) as measured as the logarithm of the number of years since foundation; company indebtedness (*Lev*), computed as the ratio of total debt to total assets; debt maturity structure (*LTLev*) as measured by the ratio of long-term to total debt; asset tangibility (*Tang*), computed as net property, plant and equipment, scaled by total assets; R&D intensity (*R&DIntensity*), defined as R&D expenses scaled by total assets; depreciation and amortisation intensity (*Amort*), which is depreciation and amortisation scaled by total assets; profitability (*ROE*), measured with the return on equity; risk (*ROAstd*), calculated as the ROA standard deviation in the most recent three fiscal years; and the growth opportunities reflected by the price-to-book ratio (*P-B*). We also control for state ownership by including a dummy variable (*SOE*) that equals 1 if the state treasury is one of the ultimate owners, and 0 otherwise. To account for outliers, all continuous firm-specific control variables are winsorised cross-sectionally (year-by-year) at the 2.5th and 97.5th percentiles.

The definitions of all the variables used in the empirical study are presented in Table A1 in the Appendix.

3.3. Sample construction

We compile data from several sources in order to calculate the variables of interest. We gather companies' financial data from S&P Capital IQ and geopolitical risk indices directly from the authors' websites: the *WUI* comes from Ahir et al. (2022)[2], the *GPI* comes from the Institute for Economics and Peace[3], the *WGI* comes from the World Bank[4], and the *FIW* comes from the Freedom House[5]. The macroprudential policy index (*MaPP*) is obtained from the IMF's

[2] worlduncertaintyindex.com/data
[3] visionofhumanity.org
[4] data.worldbank.org/indicator/PV.ES, accessed December 20, 2025; the data is no longer available from the World Bank database
[5] freedomhouse.org/report/freedom-world

integrated Macroprudential Policy (iMaPP) Database, which was originally constructed by Alam et al. (2019). Macroeconomic data for the macro-level control variables are obtained from the Global Macro Database[6].

Our study covers the period from 2008 to 2023, given the availability of the data[7]. However, in robustness tests involving different combinations of geopolitical risk indicators, we also consider longer periods. The research sample comprises all companies listed on European stock exchanges. To avoid bias, we only consider companies with a primary listing on one of these exchanges. The initial sample consists of 12,695 companies and 136,092 firm-year observations. However, we excluded 1,580 companies (17,447 observations) operating in the broadly defined financial industry. After exclusion of firm-year observations with missing data and taking that maturity mismatch variables lead the explanatory variables, the final sample comprises 62,152 annual observations of 7,594 companies listed on exchanges in 34 countries. Due to occasional gaps in the data required to calculate individual variables, the number of observations slightly differs across the estimated models. Table A2 in the Appendix presents the structure of the research sample by country (Panel A) and by industry and year (Panel B).

Table 1 presents the descriptive statistics for all variables used in the study, while Table 2 reports the correlation matrix. Most firm-specific controls show moderate skewness and kurtosis after winsorisation. The exceptions are *R&DIntensity*, *ROAstd*, and *P-B*, which remain strongly right-skewed. Among the remaining variables, the funding gap measures, *GRI*, *MaPP_L*, *CPI*, and *ExchRate* show elevated kurtosis, indicating a substantial share of extreme observations. These values reflect the nature of the data rather than measurement problems. *MaPP_L* counts policy actions and is zero in most observations, *ExchRate* takes large values in countries with weak currencies, and *CPI* spikes in high-inflation years, while *GRI* spikes in country-years with acute geopolitical tensions. The funding gap measures are built from firm-level investment and financing flows, in which extreme values are common.

The two maturity mismatch measures are only weakly correlated with each other ($\rho = 0.10$). This confirms that the cash-flow and balance-sheet measures capture different aspects of maturity mismatch and supports using both in the empirical analysis. The high correlation between *MMFG* and its financing component is mechanical and reflects the construction of the measure, not a separate collinearity problem. *GRI* is close to uncorrelated with all maturity

[6] https://www.globalmacrodata.com
[7] In particular, *GPI* is available only since 2008, and *WGI* ends in 2023.

mismatch measures ($|\rho| \leq 0.05$), which is consistent with H1. The macroprudential policy indices are also close to uncorrelated with maturity mismatch ($|\rho| \leq 0.03$). This is not informative about H2, H3a and H3b, which concern the joint effect of geopolitical risk and macroprudential policy and which we test in the regression setting. The remaining correlations are in line with economic intuition: geopolitical risk is higher in countries with higher inflation and lower trade openness ($\rho = 0.37$ and $\rho = -0.39$, respectively), macroprudential policy tightens more often when GDP growth is high ($\rho = 0.42$), firms with a longer debt maturity structure have a lower share of current liabilities ($\rho = -0.69$), and asset tangibility is negatively correlated with the share of current assets ($\rho = -0.55$). Firm-level control variables do not present substantial correlations. Apart from correlations that result from variable construction, Table 2 does not suggest a serious collinearity problem.

Table 1. Descriptive statistics

	Mean	Std.Dev.	Skewness	Kurtosis	5th percentile	Median	95th percentile
MMFG	-0.055	0.359	-0.966	8.709	-0.640	-0.049	0.566
MMFG_Exp	0.041	0.056	2.414	9.453	0.000	0.020	0.166
MMFG_Fin	0.102	0.377	1.152	9.124	-0.529	0.088	0.725
MMST	0.166	0.255	0.437	3.307	-0.243	0.137	0.671
MMST_Assets	0.470	0.261	0.175	2.102	0.060	0.458	0.935
MMST_Liab	0.634	0.272	-0.311	1.971	0.147	0.658	1.000
GRI	-0.000	1.623	2.781	12.228	-1.616	-0.078	1.766
MaPP	3.013	5.059	-0.149	4.782	-5.000	3.000	11.000
MaPP_T	4.450	4.254	0.915	3.979	0.000	4.000	12.000
MaPP_L	1.437	3.490	3.248	13.692	0.000	0.000	11.000
lnMV	4.051	2.641	0.081	3.124	-0.108	3.917	8.581
Agefound	3.352	1.067	-0.202	2.885	1.609	3.296	5.011
Lev	0.233	0.218	0.968	3.406	0.000	0.191	0.670
LTLev	0.503	0.363	-0.177	1.539	0.000	0.565	1.000
Tang	0.264	0.269	0.986	2.871	0.000	0.170	0.850
R&DIntensity	0.007	0.029	4.291	20.892	0.000	0.000	0.058
Amort	0.024	0.034	1.718	5.704	0.000	0.004	0.100
ROE	-0.032	0.538	-1.551	9.124	-1.067	0.050	0.618
ROAstd	0.093	0.155	3.367	15.732	0.004	0.037	0.407
P-B	2.290	3.119	2.920	14.003	0.000	1.296	8.701
SOE	0.137	0.343	2.116	5.476	0.000	0.000	1.000
rGDPgrowth	0.014	0.034	-0.990	6.373	-0.053	0.017	0.062
CPI	2.809	3.137	2.747	21.872	-0.256	2.159	8.736
TradeOpen	82.007	29.667	2.153	11.577	52.231	75.939	146.472
ExchRate	6.827	23.374	8.376	93.436	0.631	0.893	30.387
PubDebt	69.652	33.974	0.840	4.066	19.487	65.159	133.897

Notes: Variable names are presented in Table A1 in the Appendix.

Table 2. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
MMFG	1.00																									
MMFG_Exp	-0.08	1.00																								
MMFG_Fin	-0.97	0.26	1.00																							
MMST	0.10	0.02	-0.09	1.00																						
MMST_Assets	0.02	-0.14	-0.04	-0.47	1.00																					
MMST_Liab	0.11	-0.11	-0.12	0.54	0.48	1.00																				
GRI	0.01	0.05	-0.01	0.04	0.00	0.04	1.00																			
MaPP	0.01	0.03	-0.01	-0.01	0.01	0.00	0.15	1.00																		
MaPP_T	-0.01	-0.00	0.01	-0.03	0.01	-0.02	0.29	0.73	1.00																	
MaPP_L	-0.03	-0.03	0.03	-0.02	-0.01	-0.03	0.14	-0.56	0.16	1.00																
lnMV	-0.22	0.10	0.21	-0.18	-0.17	-0.33	0.00	0.04	0.08	0.03	1.00															
Agefound	-0.02	-0.06	0.00	-0.09	-0.06	-0.14	0.05	-0.01	0.01	0.03	0.33	1.00														
Lev	0.11	0.03	-0.10	-0.22	-0.26	-0.46	0.04	0.00	0.01	0.02	0.07	0.07	1.00													
LTLev	-0.12	0.08	0.13	-0.44	-0.28	-0.69	-0.06	0.04	0.01	-0.04	0.28	0.06	0.24	1.00												
Tang	-0.03	0.30	0.03	0.13	-0.55	-0.39	0.12	-0.01	0.02	0.03	0.10	0.14	0.26	0.16	1.00											
R&DIntensity	0.02	-0.05	-0.05	-0.08	0.15	0.07	-0.07	-0.01	-0.01	0.00	0.09	-0.06	-0.08	-0.02	-0.16	1.00										
Amort	0.04	0.20	0.09	0.04	-0.09	-0.04	-0.14	0.03	0.04	0.01	-0.07	-0.07	0.05	0.02	0.07	-0.16	1.00									
ROE	-0.05	0.05	0.27	-0.06	-0.02	-0.08	0.06	0.01	0.00	-0.01	0.24	0.18	-0.02	0.04	0.07	-0.09	-0.09	1.00								
ROAstd	-0.29	-0.01	-0.08	0.02	0.15	0.16	-0.05	0.01	0.02	0.01	-0.26	-0.31	-0.04	-0.10	-0.19	0.13	0.03	-0.25	1.00							
P-B	0.10	0.03	0.05	-0.07	0.18	0.10	-0.09	0.01	0.06	0.07	0.16	-0.12	-0.11	-0.02	-0.19	0.14	0.07	-0.06	0.14	1.00						
SOE	-0.04	0.06	0.04	0.01	-0.16	-0.14	0.11	-0.02	0.00	0.02	0.32	0.16	0.02	0.12	0.16	-0.02	-0.03	0.07	-0.10	-0.02	1.00					
rGDPgrowth	0.24	0.04	0.05	0.02	0.01	0.03	-0.07	0.42	0.14	-0.44	-0.01	-0.03	-0.06	-0.02	0.00	-0.01	0.01	0.03	0.03	0.04	-0.01	1.00				
CPI	-0.04	0.04	-0.04	0.05	-0.01	0.04	0.37	0.17	0.18	-0.03	-0.03	0.01	-0.03	-0.09	0.07	-0.05	-0.03	0.02	0.04	-0.03	0.06	0.10	1.00			
TradeOpen	-0.05	-0.03	0.00	0.01	-0.05	-0.04	-0.39	0.04	0.03	-0.03	-0.02	0.06	-0.01	0.00	0.09	0.02	0.05	0.01	-0.01	0.02	-0.08	0.21	0.04	1.00		
ExchRate	0.05	0.04	0.02	0.03	-0.02	0.01	0.33	0.07	0.17	0.10	-0.03	0.02	0.00	-0.01	0.09	-0.04	0.01	0.03	-0.01	0.00	0.04	0.03	0.21	0.10	1.00	
PubDebt	-0.00	-0.06	-0.01	-0.10	0.03	-0.07	-0.02	-0.14	-0.14	0.04	0.09	0.09	0.13	0.02	-0.08	0.01	-0.08	0.01	-0.07	-0.05	-0.02	-0.16	-0.22	-0.25	-0.20	1.00

Notes: Variable numbering: (1) MMFG; (2) MMFG_Exp; (3) MMFG_Fin; (4) MMST; (5) MMST_Assets; (6) MMST_Liab; (7) GRI; (8) MaPP; (9) MaPP_T; (10) MaPP_L; (11) lnMV; (12) Agefound; (13) Lev; (14) LTLev; (15) Tang; (16) R&DIntensity; (17) Amort; (18) ROE; (19) ROAstd; (20) P-B; (21) SOE; (22) rGDPgrowth; (23) CPI; (24) TradeOpen; (25) ExchRate; (26) PubDebt.

4. Results

4.1. The absence of a direct effect (baseline, H1)

Table 3 reports the baseline regressions. The dependent variable changes across columns: columns (1) to (3) use the funding gap and its expenditure and financing components, *MMFG*, *MMFG_Exp*, and *MMFG_Fin*. Columns (4) to (6) use the balance-sheet measure and its asset and liability components, *MMST*, *MMST_Assets*, and *MMST_Liab*. The table tests H1: whether geopolitical risk has an unconditional link to next-year maturity mismatch, before the macroprudential interaction terms are introduced.

The results support H1. *GRI* is not statistically significant in any of the six specifications. The coefficient is positive for *MMFG*, *MMST*, *MMST_Assets*, and *MMST_Liab*, negative for *MMFG_Exp* and *MMFG_Fin*, and in each case small relative to its standard error; none of the t statistics exceeds 1.21. Geopolitical risk shows no direct effect on maturity mismatch in this European sample, whether mismatch is measured through financing flows or through the balance-sheet maturity structure.

This finding differs from the evidence for single-country settings. Wang and Wang (2025) find that geopolitical risk raises maturity mismatch among Chinese listed firms and link this to more short-term debt and less long-term debt. China is a setting where long-term credit is scarce and firms routinely fund long-term investment with short-term debt (Wang et al., 2021), so a shock to the supply of long-term credit maps directly into mismatch. Datta et al. (2019) show that US firms shorten debt maturity when policy uncertainty rises, and Khoo and Cheung (2021) report the same for geopolitical uncertainty, together with lower debt and a shift toward bank debt among weaker borrowers. In all three studies the uncertainty index varies only over time, so the estimates compare calm and turbulent periods within one country and cannot absorb common macroeconomic shocks. Our design is different. The sample covers listed firms in 34 European countries with different exposures to geopolitical risk, which allows us to include year fixed effects and to identify the effect from cross-country differences. Under this design the average relation is absent. The heterogeneity reported in this literature makes the null plausible: Datta et al. (2019) find that high-growth firms lengthen debt maturity when uncertainty rises while financially constrained firms shorten it, so opposite adjustments can cancel out on average. This is the pattern predicted in Section 2.

The macroprudential policy index is also insignificant in all six columns. This does not test H2, H3a, or H3b, which concern whether macroprudential policy changes the effect of

geopolitical risk. The baseline estimates show only that *MaPP* has no separate average link with maturity mismatch when it enters the model without interaction terms.

Table 3. Baseline regression results

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	*MMFG*	*MMFG_Exp*	*MMFG_Fin*	*MMST*	*MMST_Assets*	*MMST_Liab*
GRI	0.0104	-0.000717	-0.0109	0.00203	0.0000606	0.00148
	(1.21)	(-0.46)	(-1.10)	(0.37)	(0.01)	(0.34)
MaPP	-0.000513	0.00000362	0.000492	0.0000400	0.0000360	0.0000484
	(-0.69)	(0.03)	(0.58)	(0.13)	(0.28)	(0.18)
lnMV	-0.0156***	0.00178***	0.0167***	-0.00309**	-0.0157***	-0.0184***
	(-10.03)	(9.00)	(10.17)	(-2.62)	(-13.92)	(-19.74)
Agefound	-0.00234	-0.00299***	-0.00217	-0.0106***	0.0138***	0.00288
	(-1.20)	(-6.84)	(-1.12)	(-4.19)	(5.97)	(1.25)
Lev	-0.0117	-0.0179***	-0.00397	-0.157***	-0.0797***	-0.252***
	(-0.99)	(-8.67)	(-0.36)	(-13.30)	(-7.17)	(-21.40)
LTLev	0.0809***	0.00731***	-0.0728***	-0.166***	-0.0853***	-0.259***
	(13.09)	(6.35)	(-11.99)	(-19.38)	(-14.34)	(-42.19)
Tang	0.00124	0.0544***	0.0574***	0.151***	-0.403***	-0.236***
	(0.13)	(24.34)	(5.54)	(15.04)	(-35.30)	(-27.30)
R&DIntensity	0.610***	0.0204	-0.586***	-0.535***	0.571***	0.00346
	(5.76)	(1.51)	(-5.30)	(-6.89)	(6.69)	(0.06)
Amort	-0.0549	0.240***	0.306***	0.158**	-0.347***	-0.181***
	(-0.99)	(10.76)	(5.40)	(2.26)	(-4.87)	(-3.83)
ROE	-0.0935***	0.00602***	0.0997***	-0.0170***	0.0140***	-0.00410
	(-10.21)	(8.04)	(10.30)	(-5.15)	(3.92)	(-1.54)
ROAstd	0.252***	0.0121***	-0.223***	-0.0117	0.0352*	0.00911
	(6.39)	(3.55)	(-5.42)	(-0.81)	(2.00)	(0.75)
P-B	-0.0101***	0.00116***	0.0120***	-0.00364***	0.00736***	0.00373***
	(-7.83)	(7.09)	(8.19)	(-5.12)	(7.83)	(7.10)
SOE	0.00349	-0.00154	-0.00504	0.00621	-0.0115*	-0.00526
	(0.82)	(-1.35)	(-1.09)	(1.02)	(-1.84)	(-0.98)
rGDPgrowth	-0.122	0.0592**	0.184	-0.0868	0.122***	0.0276
	(-1.14)	(2.59)	(1.56)	(-0.94)	(4.07)	(0.43)
CPI	-0.00457**	0.000318*	0.00486**	-0.000841	0.00114*	0.000299
	(-2.46)	(2.05)	(2.45)	(-0.94)	(2.13)	(0.53)
TradeOpen	-0.00217***	0.000175***	0.00236***	-0.0000872	-0.000185	-0.000212
	(-5.34)	(3.15)	(5.44)	(-0.36)	(-0.83)	(-0.87)
ExchRate	-0.00180**	0.0000515	0.00187**	-0.000105	-0.0000545	-0.000168
	(-2.35)	(0.49)	(2.20)	(-0.41)	(-0.30)	(-0.64)
PubDebt	-0.00058**	0.0000741*	0.000650**	-0.000256	0.000231	-0.0000141
	(-2.71)	(1.81)	(2.77)	(-1.13)	(1.49)	(-0.11)
Constant	0.237***	-0.00468	-0.237***	0.321***	0.631***	0.949***
	(4.95)	(-0.78)	(-4.70)	(12.50)	(28.34)	(43.76)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61320	61332	61320	62150	62150	62152
Adj. R^2	0.119	0.204	0.118	0.195	0.387	0.482
Adj. Within-R^2	0.096	0.126	0.096	0.119	0.284	0.385

*Note: The table presents the baseline regression results. Definitions of all variables are presented in Table A1 in the Appendix. t statistics with standard errors clustered by the firm and by year are presented in parentheses. *, ** and *** denote statistical significance at 0.1, 0.05 and 0.01 levels, respectively.*

The control variables show that maturity mismatch is related to firm balance sheets and investment characteristics. In the funding gap regressions, larger firms spend more on long-

term investment but raise even more long-term financing, so their funding gap is smaller. Profitability, trade openness, and public debt show the same configuration: a lower funding gap with a higher financing component. R&D intensity works in the opposite direction, with a positive coefficient for *MMFG* and a negative one for *MMFG_Fin*, while the expenditure component does not respond. The gap of R&D-intensive firms therefore widens on the financing side, in line with evidence that firms with high information asymmetry borrow at shorter maturities (Custódio et al., 2013). These coefficients are not causal effects, but they show that the funding gap measure moves with firm-level investment and financing conditions.

The balance-sheet regressions show a different pattern. The long-term debt share is negative and highly significant for *MMST*, *MMST_Assets*, and *MMST_Liab*, with the strongest link in the liability component, as expected for a measure that depends directly on the maturity composition of assets and liabilities. Asset tangibility (*Tang*) is positively linked to *MMST* but negatively to both components, while R&D intensity is negative for *MMST* and positive for *MMST_Assets*. These differences confirm that the asset and liability components capture separate margins of mismatch and justify reporting the component-level results rather than relying only on the aggregate measure.

Table 3 establishes the baseline for the rest of the empirical analysis: neither *GRI* nor *MaPP* has a direct average effect, and the controls behave in line with the construction of the mismatch measures and with standard determinants of financing structure. The next step is to test the channel proposed in the theory: whether geopolitical risk becomes visible in maturity mismatch when macroprudential policy changes the supply conditions for long-term credit.

4.2. The macroprudential channel (H2)

Table 4 adds the interaction between geopolitical risk and the general macroprudential policy index. H2 predicts a positive interaction: geopolitical risk should widen maturity mismatch more when macroprudential policy is tighter, because constrained banks have less room to keep supplying long-term credit. The table therefore moves beyond the unconditional baseline in Table 3 and asks whether geopolitical risk becomes visible once the regulatory stance of the banking system is taken into account.

The results do not provide uniform support for H2 in its aggregate form. The interaction term *GRI* × *MaPP* is not significant for the aggregate funding gap, *MMFG*. The only significant result on this side appears in *MMFG_Exp*, where the interaction is negative: under tighter

macroprudential policy, geopolitical risk is linked to lower investment expenditure relative to assets. The financing component, *MMFG_Fin*, does not respond, so the table does not show a financing-side amplification of maturity mismatch through the general macroprudential index.

The negative interaction for *MMFG_Exp* fits the investment evidence. Geopolitical risk reduces corporate investment or makes it more dependent on internal funds (Le & Tran, 2021; Gupta, 2023; Wang et al., 2024), and European firms cut capital expenditure after the Russo-Ukrainian tensions (Jin et al., 2025). Under tight macroprudential policy this response is stronger: firms cut long-term spending rather than stretch their funding. This is the opposite of the investment-side channel in Wang and Wang (2025), who find that geopolitical risk increases long-term investment among Chinese firms.

The results for the balance-sheet measure point to a more complex pattern. The interaction is negative and significant for *MMST*, positive and significant for *MMST_Assets*, and insignificant for *MMST_Liab*. Because *MMST* rises with the liability component and falls with the current-asset component, the positive coefficient for *MMST_Assets* is consistent with the negative coefficient for the aggregate measure. The liability channel, however, is not significant. This is important for the interpretation of H2. If tighter macroprudential policy amplifies the effect of geopolitical risk mainly by shortening the liability side of corporate financing, the interaction should appear most clearly in *MMST_Liab*. Table 4 does not show that. The estimated magnitudes are also small: moving *GRI* and *MaPP* by one standard deviation each changes *MMST* by about 0.001, against a sample standard deviation of 0.26.

The comparison with earlier literature is informative. Wang and Wang (2025) find that geopolitical risk widens maturity mismatch among Chinese firms through both sides of the gap: firms increase long-term investment while relying more on short-term debt. Studies of uncertainty and debt maturity, such as Datta et al. (2019) and Khoo and Cheung (2021), also point to shorter maturity under uncertainty. Table 4 does not reproduce this liability-side pattern in the European sample. Instead, the general macroprudential index produces mixed component-level effects and no positive significant effect on either aggregate mismatch measure. The supply-side evidence reviewed in Section 2 links tighter bank constraints to shorter loan maturities and wider mismatch (Ma et al., 2022; Ge et al., 2026), and Table 4 does not contradict it. The result is closer to the macroprudential literature showing that policy tools affect credit conditions in heterogeneous ways. Godlewski and Olszak (2025) show that macroprudential policy changes the terms of syndicated loans, while Liu et al. (2025) show that

macroprudential assessment can reduce bank credit and shorten debt maturity. Our results suggest that these effects cannot be captured well by a single net policy index.

Table 4. Baseline regression with interactions results

variable	*(1) MMFG*	*(2) MMFG_Exp*	*(3) MMFG_Fin*	*(4) MMST*	*(5) MMST_Assets*	*(6) MMST_Liab*
GRI	0.00998	-0.000625	-0.0104	0.00229	-0.000103	0.00157
	(1.15)	(-0.40)	(-1.04)	(0.41)	(-0.02)	(0.35)
MaPP	-0.000787	0.0000670	0.000818	0.000217	-0.0000761	0.000107
	(-1.21)	(0.64)	(1.12)	(0.73)	(-0.49)	(0.45)
*GRI * MaPP*	0.000209	-0.0000484**	-0.000248	-0.000137***	0.0000865**	-0.0000449
	(0.99)	(-2.31)	(-1.11)	(-3.83)	(2.33)	(-1.23)
lnMV	-0.0156***	0.00178***	0.0167***	-0.00309**	-0.0157***	-0.0184***
	(-9.99)	(8.99)	(10.13)	(-2.63)	(-13.93)	(-19.74)
Agefound	-0.00235	-0.00298***	-0.00216	-0.0106***	0.0138***	0.00288
	(-1.21)	(-6.85)	(-1.11)	(-4.19)	(5.97)	(1.25)
Lev	-0.0118	-0.0178***	-0.00383	-0.157***	-0.0798***	-0.252***
	(-1.00)	(-8.66)	(-0.35)	(-13.30)	(-7.17)	(-21.42)
LTLev	0.0809***	0.00730***	-0.0729***	-0.166***	-0.0853***	-0.259***
	(13.09)	(6.36)	(-11.99)	(-19.40)	(-14.33)	(-42.23)
Tang	0.00130	0.0544***	0.0574***	0.151***	-0.403***	-0.236***
	(0.14)	(24.34)	(5.53)	(15.04)	(-35.31)	(-27.31)
R&DIntensity	0.610***	0.0206	-0.585***	-0.534***	0.570***	0.00359
	(5.75)	(1.52)	(-5.29)	(-6.89)	(6.69)	(0.06)
Amort	-0.0554	0.240***	0.307***	0.158**	-0.347***	-0.181***
	(-1.00)	(10.78)	(5.42)	(2.27)	(-4.87)	(-3.83)
ROE	-0.0934***	0.00601***	0.0997***	-0.0170***	0.0140***	-0.00410
	(-10.21)	(8.03)	(10.30)	(-5.15)	(3.92)	(-1.54)
ROAstd	0.252***	0.0121***	-0.223***	-0.0118	0.0352*	0.00909
	(6.40)	(3.55)	(-5.43)	(-0.82)	(2.00)	(0.74)
P-B	-0.0101***	0.00116***	0.0120***	-0.00364***	0.00736***	0.00373***
	(-7.83)	(7.10)	(8.19)	(-5.12)	(7.83)	(7.10)
SOE	0.00350	-0.00154	-0.00504	0.00620	-0.0115*	-0.00527
	(0.82)	(-1.35)	(-1.09)	(1.02)	(-1.83)	(-0.98)
rGDPgrowth	-0.113	0.0572**	0.174	-0.0924	0.125***	0.0258
	(-1.07)	(2.51)	(1.49)	(-1.00)	(4.08)	(0.40)
CPI	-0.00483**	0.000378**	0.00517**	-0.000673	0.00104*	0.000354
	(-2.45)	(2.57)	(2.47)	(-0.75)	(1.94)	(0.64)
TradeOpen	-0.00218***	0.000178***	0.00238***	-0.0000771	-0.000191	-0.000208
	(-5.50)	(3.41)	(5.63)	(-0.32)	(-0.85)	(-0.86)
ExchRate	-0.00179**	0.0000495	0.00186**	-0.000110	-0.0000513	-0.000170
	(-2.40)	(0.49)	(2.25)	(-0.43)	(-0.28)	(-0.64)
PubDebt	-0.000597**	0.0000790*	0.000675**	-0.000242	0.000222	-0.00000958
	(-2.71)	(1.96)	(2.80)	(-1.06)	(1.43)	(-0.08)
Constant	0.241***	-0.00560	-0.241***	0.318***	0.633***	0.948***
	(5.03)	(-0.98)	(-4.83)	(12.05)	(27.82)	(43.68)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61320	61332	61320	62150	62150	62152
Adj. R^2	0.119	0.204	0.118	0.195	0.387	0.482
Adj. Within-R^2	0.096	0.126	0.096	0.119	0.284	0.385

*Note: The table presents the baseline regression results with interaction between macroprudential policy and geopolitical risk. Definitions of all variables are presented in Table A1 in the Appendix. t statistics with standard errors clustered by the firm and by year are presented in parentheses. *, ** and *** denote statistical significance at 0.1, 0.05 and 0.01 levels, respectively.*

Table 4 gives only partial support for H2. The interaction between geopolitical risk and the general macroprudential index is visible in selected components, but it does not raise the aggregate funding gap. Instead, under a tighter stance firms cut investment and hold a more liquid asset side, which lowers the aggregate balance-sheet measure. This matters for the contribution of the paper. The absence of a clean aggregate effect suggests that macroprudential policy should not be treated as a single homogeneous constraint. *MaPP* nets tightening and loosening actions within a year, so it treats a year with one tightening like a year that combines several tightenings with several loosenings. Section 2 already questioned this symmetric scale: tightening removes lending capacity from banks that are already cautious, while loosening may go unused when geopolitical risk keeps credit risk high. If the two directions work differently, a net index averages their effects toward zero. The next step is therefore to separate tightening from loosening and to examine the instruments through which the policy stance is built.

4.3. The asymmetry of tightening and loosening (H3a, H3b)

Table 5 separates macroprudential tightening from macroprudential loosening. This is the test of H3a and H3b. H3a predicts a stronger positive link between geopolitical risk and maturity mismatch when macroprudential policy tightens. H3b predicts the opposite for loosening: released regulatory capacity should weaken the link between geopolitical risk and mismatch.

The results do not support H3a. The interaction *GRI* × *MaPP_T* is insignificant for the funding gap and both of its components, and also for the liability component of the balance-sheet measure. It is significant only for *MMST* and *MMST_Assets*: negative for the aggregate measure and positive for the asset component. Under tightening, geopolitical risk is therefore linked to a higher share of current assets, not to wider mismatch. The amplification predicted by H3a should operate through shorter liabilities, the mechanism documented for uncertainty by Datta et al. (2019) and Khoo and Cheung (2021). That mechanism is absent here.

The evidence on how tightening works in Europe helps to read this result. In China, tighter rules clearly cut long-term credit. When regulators tightened bank rules in 2015, firms lost part of their access to bank credit, and long-term loans fell more than short-term ones (Liu et al., 2025). When banks held back liquidity, loan maturities shortened and firms' mismatch grew (Ma et al., 2022). In Europe the picture is different. After macroprudential tightening, banks give larger loans and ask for collateral more often, but loan maturity does not change (Godlewski & Olszak, 2025). If tightening does not take long-term credit away from European

firms, geopolitical risk has no supply-side reason to widen mismatch more under a tighter stance, and this is what the funding gap columns show. The balance-sheet response points to the firms themselves: under tightening, firms facing geopolitical risk hold more current assets.

The results give H3b only partial support at this stage. For the funding gap the interaction *GRI* × *MaPP_L* is negative but not significant. The components are more informative. The interaction is positive and significant for *MMFG_Exp*: under loosening, firms keep investing when geopolitical risk rises. The financing component moves in the same direction but falls short of significance, so Table 5 alone does not show that loosening restores long-term funding; that evidence appears once public debt enters the model in the next subsection. For the balance-sheet measure the aggregate interaction is insignificant, but both components rise. The liability component is positive at the 10% level: under loosening, geopolitical risk is linked to a slightly higher share of current liabilities, a small step in the direction documented for US firms by Khoo and Cheung (2021). Because the asset component rises as well, the two moves cancel in the aggregate measure.

The direct term of *MaPP_L* is positive for the funding gap and negative for its financing component: loosening years are years of wider funding gaps and weaker long-term financing. This is not a causal effect of loosening; regulators loosen the rules when credit conditions are already strained (Bianchi et al., 2016; Gelos et al., 2022).

Table 5. Baseline regression with interactions results - tightenings vs loosenings

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
variable	*MMFG*	*MMFG_Exp*	*MMFG_Fin*	*MMST*	*MMST_Assets*	*MMST_Liab*
GRI	0.00781	-0.000757	-0.00842	0.00211	-0.000653	0.000886
	(0.95)	(-0.45)	(-0.88)	(0.38)	(-0.15)	(0.21)
MaPP_T	0.0000592	0.0000633	-0.0000420	0.000308	-0.0000519	0.000208
	(0.07)	(0.53)	(-0.04)	(0.92)	(-0.27)	(0.82)
*GRI * MaPP_T*	-0.00000912	-0.0000114	0.0000219	-0.000174**	0.000204***	0.0000378
	(-0.03)	(-0.27)	(0.06)	(-2.34)	(5.46)	(0.59)
MaPP_L	0.00498***	-0.000132	-0.00514***	0.000243	0.0000389	0.000251
	(5.22)	(-0.54)	(-4.12)	(0.37)	(0.17)	(0.31)
*GRI * MaPP_L*	-0.000647	0.000106**	0.000769	0.0000693	0.0000922**	0.000161*
	(-1.63)	(2.67)	(1.70)	(0.60)	(2.15)	(1.77)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61320	61332	61320	62150	62150	62152
Adj. R^2	0.119	0.205	0.119	0.195	0.387	0.483
Adj. Within-R^2	0.097	0.126	0.097	0.119	0.284	0.385

*Note: The table presents the regression results with interactions between macroprudential policy tightenings / loosenings and geopolitical risk. Definitions of all variables are presented in Table A1 in the Appendix. The control variables are included in all specifications but not reported; t statistics with standard errors clustered by the firm and by year are presented in parentheses. *, ** and *** denote statistical significance at 0.1, 0.05 and 0.01 levels, respectively.*

4.4. The sovereign-bank nexus (H4)

Table 6 adds public debt to the model from Table 5. Each specification now contains the direct terms, the interactions of *GRI* with *MaPP_T* and *MaPP_L*, and triple interactions with *PubDebt*. This is the test of H4. H4 does not say that public debt itself changes mismatch or the direct link between geopolitical risk and mismatch. It says that public debt changes what macroprudential policy does to that link. The prediction is clearest for loosening: released capacity competes with sovereign assets, so the loosening effect found in Table 5 should weaken as public debt rises and may reverse in high-debt countries. The key coefficient is therefore *GRI* × *MaPP_L* × *PubDebt*; the table also reports the corresponding term for tightening.

The first result confirms this distinction. The interaction *GRI* × *PubDebt* is insignificant for five of the six measures, with one marginal coefficient for *MMFG_Exp*, and the level term of *PubDebt* shows no simple crowding out: it is negative for the funding gap and positive for its financing component. Neither term tests H4. Public debt matters, as we show next, through the policy channel.

For the funding gap the results support H4. At low levels of public debt the loosening effect is stronger than in Table 5: *GRI* × *MaPP_L* is negative and significant for *MMFG* and positive and significant for the financing component *MMFG_Fin*. The triple interactions run the other way and are significant at the 1% level: positive for *MMFG* and negative for *MMFG_Fin*. As public debt rises, the loosening effect shrinks. The estimates imply that it disappears at a debt ratio of about 65 to 70% of GDP, close to the sample mean, with a sign change above that level, which is what H4 predicts.

The result for the financing component matters most. Table 5 showed that loosening weakens the link between geopolitical risk and the funding gap, but without a visible financing response. Table 6 explains why. Where public debt is low, geopolitical risk under loosening is linked to more long-term financing. Where public debt is high, this response disappears. This is the sovereign-bank nexus at work. Bales and Burghof (2022) show that this nexus tightens in periods of policy uncertainty. Government bonds carry regulatory advantages that become more attractive when geopolitical risk is high, so in high-debt countries banks can fill the released capacity with government claims instead of term loans. The pattern fits the crowding-out evidence: government debt draws bank credit away from firms and raises their financing costs (Liu et al., 2023), raises corporate maturity mismatch by cutting access to long-term credit (Wen et al., 2024), and shifts corporate maturity choices through the supply of government debt

(Greenwood et al., 2010). It also fits the European crisis evidence that bank weakness tied to sovereign risk reduces loan supply (Kalemli-Özcan et al., 2022).

Public debt matters for the balance-sheet measure as well, but the starting point differs. At low debt, *GRI* × *MaPP_L* is positive and significant for *MMST* and for its liability component: under loosening, geopolitical risk is linked to a higher share of current liabilities. The triple interactions are negative and significant, so this pattern fades as debt rises. The debt-dependence of the loosening channel is visible in both measures, but it fits H4 less directly here, because there was no loosening effect to weaken in Table 5. The two measures again pick up different margins of adjustment.

The tightening side is weak, as expected. Section 2 made no prediction about its direction, and the triple interactions with *MaPP_T* are small: positive for *MMFG_Exp* and *MMST_Assets*, negative for *MMST*, insignificant elsewhere. Public debt changes little in a channel that was already flat.

Table 6. The role of public debt

variable	*(1)* *MMFG*	*(2)* *MMFG_Exp*	*(3)* *MMFG_Fin*	*(4)* *MMST*	*(5)* *MMST_Assets*	*(6)* *MMST_Liab*
PubDebt	-0.000674***	0.0000563	0.000729***	-0.000118	0.000120	0.0000237
	(-3.34)	(1.53)	(3.25)	(-0.57)	(0.72)	(0.21)
GRI	-0.00387	0.00190	0.00665	-0.00147	-0.00356	-0.00419
	(-0.28)	(0.82)	(0.45)	(-0.17)	(-0.47)	(-0.55)
*GRI * PubDebt*	0.000144	-0.0000428*	-0.000197	0.0000783	0.0000192	0.0000816
	(1.17)	(-1.93)	(-1.46)	(0.85)	(0.30)	(1.09)
MaPP_T	-0.0000402	0.0000907	0.0000896	0.000268	-0.0000284	0.000188
	(-0.05)	(0.81)	(0.09)	(0.79)	(-0.14)	(0.74)
*GRI * MaPP_T*	-0.0000142	-0.000103	-0.0000723	0.000138	0.0000438	0.000206*
	(-0.03)	(-1.62)	(-0.14)	(1.28)	(0.96)	(1.78)
*GRI * MaPP_T * PubDebt*	-0.00000068	0.0000041**	0.00000514	-0.0000135*	0.00000728*	-0.00000705
	(-0.08)	(2.59)	(0.56)	(-2.11)	(2.07)	(-1.52)
MaPP_L	0.00502***	-0.000164	-0.00522***	0.000330	-0.0000360	0.000278
	(5.26)	(-0.63)	(-4.12)	(0.50)	(-0.14)	(0.35)
*GRI * MaPP_L*	-0.00121**	0.0000968*	0.00133**	0.000386**	0.00000314	0.000385***
	(-2.75)	(2.06)	(2.70)	(2.48)	(0.07)	(3.06)
*GRI * MaPP_L * PubDebt*	0.000019***	-4.60e-08	-0.0000190***	-0.0000094***	0.00000157	-0.0000074***
	(3.64)	(-0.08)	(-3.51)	(-3.76)	(0.98)	(-3.37)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61320	61332	61320	62150	62150	62152
Adj. R^2	0.119	0.205	0.119	0.195	0.387	0.483
Adj. Within-R^2	0.097	0.127	0.097	0.120	0.284	0.385

*Note: The table presents the baseline regression results with interactions between macroprudential policy, geopolitical risk, and public debt. Definitions of all variables are presented in Table A1 in the Appendix. The control variables are included but not reported. t statistics with standard errors clustered by the firm and by year are presented in parentheses. *, ** and *** denote statistical significance at 0.1, 0.05 and 0.01 levels, respectively.*

5. Robustness and additional analyses

The main findings so far are that tightening does not amplify the transmission of geopolitical risk, while loosening weakens its link with the funding gap. These findings are based on three choices: the *GRI* index as the measure of geopolitical risk, the one-year lead of mismatch over the explanatory variables, and macroprudential policy measured in the current year. This section checks whether the conclusions depend on these choices and adds two analyses that sharpen the mechanism. Table 7 replaces *GRI* with alternative measures of uncertainty and adds an event-based test around the Russian aggression against Ukraine. Table 8 asks whether timing matters: whether geopolitical risk needs time to reach firms, and whether macroprudential policy works immediately or with a lag.

Panel A of Table 7 replaces *GRI* with the World Uncertainty Index. *WUI* itself is insignificant for all six measures, with one marginal negative coefficient for *MMST_Assets*. The interactions with tightening are insignificant in every column. The interactions with loosening are stronger than in the main tables: *WUI* × *MaPP_L* is negative and significant for *MMFG*, positive and significant at the 1% level for *MMFG_Exp* and *MMFG_Fin*, insignificant for *MMST* and *MMST_Liab*, and marginally positive for *MMST_Assets*. With *WUI* both margins respond: under loosening, higher uncertainty is linked to continued investment and to more long-term financing, and the funding gap narrows. The loosening effect on the funding gap is therefore not an artefact of our index.

Panel B uses the country-level *GPR* of Caldara and Iacoviello (2022), which is available for only about half of the countries in our sample. The index also differs from *GRI* in construction. *GPR* counts the share of newspaper articles about geopolitical tensions, so it reacts quickly to events and threats, while *GRI* is a slow-moving composite of annual country conditions. The two indices capture different layers of geopolitical risk, and identical estimates should not be expected. This is also the specification closest to Wang and Wang (2025), and the contrast with their results is clear. They find that *GPR* raises maturity mismatch among Chinese firms. In our European sample the same index shows no positive link with either aggregate mismatch measure: it is insignificant for the funding gap and its components, and for the balance-sheet measure it is negative and significant, with a positive coefficient for *MMST_Assets*. Their results do not carry over to Europe. As argued in Section 4.1, the Chinese finding reflects a market where long-term credit is scarce and firms routinely fund long-term investment with short-term debt; where that structural dependence is absent, geopolitical risk alone does not widen mismatch. *GPR* × *MaPP_T* is marginally positive for *MMST* and

MMST_Liab and insignificant elsewhere. *GPR* × *MaPP_L* is negative for *MMFG* but short of significance, negative at the 5% level for *MMST_Liab*, and insignificant in the remaining columns. With *GPR* the loosening effect keeps its sign but loses precision, in line with the narrower country coverage and the different construction of the index.

Table 7. Alternative measures of geopolitical risk and the Russian aggression against Ukraine

Panel A: WUI						
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
variable	*MMFG*	*MMFG_Exp*	*MMFG_Fin*	*MMST*	*MMST_Assets*	*MMST_Liab*
WUI	0.150	0.00309	-0.154	0.0405	-0.0328*	0.00456
	(1.33)	(0.28)	(-1.28)	(0.67)	(-1.88)	(0.08)
MaPP_T	0.00110	0.000373	-0.000720	-0.000470	0.000540	-0.000125
	(0.68)	(1.65)	(-0.39)	(-0.58)	(1.13)	(-0.17)
*WUI * MaPP_T*	-0.0108	-0.00320	0.00766	0.00385	-0.00188	0.00355
	(-0.77)	(-1.65)	(0.48)	(0.54)	(-0.56)	(0.54)
MaPP_L	0.00715***	-0.0000278	-0.00734***	0.000338	0.000309	0.000550
	(5.23)	(-0.10)	(-4.77)	(0.47)	(0.61)	(0.69)
*WUI * MaPP_L*	-0.0224**	0.00142***	0.0254***	-0.00159	0.00151*	0.0000484
	(-2.81)	(3.44)	(3.09)	(-0.50)	(1.96)	(0.02)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	76214	76226	76214	77353	77353	77355
Adj. R^2	0.114	0.207	0.118	0.193	0.403	0.485
Adj. Within-R^2	0.087	0.120	0.089	0.120	0.298	0.390
Panel B: GPR						
	(1)	(2)	(3)	(4)	(5)	(6)
variable	*MMFG*	*MMFG_Exp*	*MMFG_Fin*	*MMST*	*MMST_Assets*	*MMST_Liab*
GPR	0.00104	0.000217	-0.000832	-0.00212**	0.00218***	-0.0000442
	(0.97)	(1.09)	(-0.73)	(-2.78)	(3.88)	(-0.06)
MaPP_T	0.000555	0.0000876	-0.000481	-0.000579	0.000238	-0.000396
	(0.54)	(0.53)	(-0.42)	(-1.13)	(0.68)	(-0.92)
*GPR * MaPP_T*	-0.0000522	-0.0000165	0.0000369	0.0000945*	-0.0000193	0.0000745*
	(-0.46)	(-1.20)	(0.30)	(2.07)	(-0.45)	(1.81)
MaPP_L	0.00764***	0.000261	-0.00747***	0.000888	0.0000174	0.000838
	(7.12)	(1.08)	(-6.15)	(1.22)	(0.04)	(0.94)
*GPR * MaPP_L*	-0.000233	0.00000913	0.000257	-0.0000433	-0.0000287	-0.0000714**
	(-1.60)	(0.60)	(1.70)	(-1.21)	(-0.70)	(-2.48)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	68264	68276	68264	69204	69204	69206
Adj. R^2	0.117	0.214	0.119	0.183	0.396	0.494
Adj. Within-R^2	0.089	0.126	0.090	0.114	0.291	0.398
Panel C: DiD around Russian aggression against Ukraine						
	(1)	(2)	(3)	(4)	(5)	(6)
variable	*MMFG*	*MMFG_Exp*	*MMFG_Fin*	*MMST*	*MMST_Assets*	*MMST_Liab*
*CEE * post*	-0.0134	0.00226	0.0175	-0.0301***	0.0141*	-0.0167***
	(-0.34)	(0.95)	(0.43)	(-3.36)	(1.93)	(-3.25)
MaPP_T	-0.000845	0.000249*	0.00101	0.000336	-0.000101	0.000223
	(-0.79)	(1.75)	(0.86)	(0.66)	(-0.32)	(0.65)
*CEE * MaPP_T*	0.00236*	-0.000520**	-0.00280**	-0.00103	0.00118***	0.000179
	(1.97)	(-2.57)	(-2.21)	(-1.63)	(3.37)	(0.31)
*post * MaPP_T*	0.00175	0.0000695	-0.00140	-0.000554	0.000750	0.0000125
	(0.90)	(0.38)	(-0.68)	(-0.70)	(0.97)	(0.03)

*CEE * post * MaPP_T*	-0.00521	0.00142***	0.00665	0.00373***	-0.00178***	0.00240***
	(-0.95)	(4.64)	(1.19)	(4.28)	(-4.17)	(3.59)
MaPP_L	0.00511***	0.000127	-0.00500***	0.000367	0.000232	0.000592
	(3.98)	(0.50)	(-3.19)	(0.73)	(0.41)	(1.02)
*CEE * MaPP_L*	-0.000511	-0.0000855	0.000376	0.000414	0.0000629	0.000567*
	(-0.47)	(-0.67)	(0.35)	(1.30)	(0.36)	(2.07)
*post * MaPP_L*	0.00903**	-0.00288***	-0.0119***	-0.00492**	0.000782	-0.00479**
	(2.52)	(-3.87)	(-2.93)	(-2.63)	(0.63)	(-2.61)
*CEE * post * MaPP_L*	-0.00702	0.00118*	0.00840	0.00153	0.000219	0.00176
	(-1.49)	(1.72)	(1.61)	(0.67)	(0.19)	(0.83)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	77959	77971	77959	79114	79115	79118
Adj. R^2	0.114	0.208	0.118	0.195	0.408	0.489
Adj. Within-R^2	0.087	0.119	0.088	0.121	0.301	0.392

*Note: The table presents the regression results with alternative measures of geopolitical risk. Definitions of all variables are presented in Table A1 in the Appendix. t statistics with standard errors clustered by the firm and by year are presented in parentheses. *, ** and *** denote statistical significance at 0.1, 0.05 and 0.01 levels, respectively.*

Panel C is not an alternative measure of geopolitical risk. It is a difference-in-differences analysis around the Russian aggression against Ukraine, which asks whether firms in the CEE region, more exposed to the shock, changed differently from other European firms. The term *CEE* × *post* is insignificant for the funding gap and its components, negative and significant at the 1% level for *MMST* and *MMST_Liab*, and marginally positive for *MMST_Assets*. After the aggression, exposed firms moved toward more matched balance sheets: a higher share of current assets and a lower share of current liabilities. The triple interaction with tightening changes this picture. *CEE* × *post* × *MaPP_T* is positive and significant at the 1% level for *MMFG_Exp*, *MMST* and *MMST_Liab*, negative for *MMST_Assets*, with the remaining columns insignificant. Where macroprudential policy was tight, exposed firms show a rise in balance-sheet mismatch after the shock, driven by the liability side. This is the only place in the paper where the tightening channel appears, and it appears exactly where the theory expects it: under an acute shock, in the region most exposed to it. The triple interaction with loosening is insignificant apart from a marginal coefficient for *MMFG_Exp*. One further term deserves a note: *post* × *MaPP_L* is positive and significant for *MMFG* and negative for *MMFG_Exp*, *MMFG_Fin* and *MMST*, so after the aggression loosening years are again years of wider funding gaps, in line with the state-dependence of policy discussed in Section 4.

Table 8. Alternative timing: simultaneous geopolitical risk and lagged macroprudential policy

Panel A: Simultaneous effect (GRI from the same year as mismatch)

	(1)	(2)	(3)	(4)	(5)	(6)
variable	*MMFG*	*MMFG_Exp*	*MMFG_Fin*	*MMST*	*MMST_Assets*	*MMST_Liab*
GRI	0.0179**	-0.000622	-0.0170*	0.00270	0.00371	0.00626
	(2.14)	(-0.37)	(-1.77)	(0.54)	(0.90)	(1.50)
MaPP_T	-0.00113	0.0000108	0.000100	0.000251	0.00000050	0.000222
	(-1.33)	(0.09)	(0.10)	(0.70)	(0.00)	(0.77)
*GRI * MaPP_T*	-0.000192	-0.0000255	-0.000201	-0.000225*	0.000266***	0.0000469
	(-0.54)	(-0.53)	(-0.43)	(-2.04)	(5.20)	(0.55)
MaPP_L	0.00131	-0.0000560	-0.00578***	0.000472	0.000105	0.000573
	(0.58)	(-0.21)	(-4.05)	(0.74)	(0.34)	(0.82)
*GRI * MaPP_L*	0.000324	0.000084**	0.000648	0.0000158	0.000143***	0.000159
	(0.75)	(2.27)	(1.39)	(0.13)	(3.39)	(1.49)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	60441	60442	60441	61227	61227	61229
Adj. R^2	0.114	0.206	0.115	0.197	0.391	0.487
Adj. Within-R^2	0.092	0.127	0.094	0.122	0.288	0.390

Panel B: Lagged MaPP

	(1)	(2)	(3)	(4)	(5)	(6)
variable	*MMFG*	*MMFG_Exp*	*MMFG_Fin*	*MMST*	*MMST_Assets*	*MMST_Liab*
GRI	0.00836	-0.000795	-0.00896	0.00342	-0.00122	0.00173
	(1.00)	(-0.45)	(-0.91)	(0.66)	(-0.31)	(0.40)
MaPP_T$_{t-1}$	-0.0000228	0.0000744	0.0000693	0.000208	-0.0000225	0.000136
	(-0.03)	(0.64)	(0.07)	(0.72)	(-0.11)	(0.57)
MaPP_T$_{t-2}$	0.0000487	-0.0000546	-0.000216	-0.0000500	0.000175	0.000151
	(0.06)	(-0.58)	(-0.26)	(-0.20)	(0.77)	(0.61)
.MaPP_T$_{t-3}$	0.000909	-0.00000022	-0.000923	0.000233	-0.000196	0.0000531
	(1.34)	(-0.00)	(-1.18)	(0.40)	(-0.50)	(0.12)
*GRI * MaPP_T$_{t-1}$*	0.000246	-0.0000424	-0.000281	-0.000178*	0.000158**	0.00000069
	(0.85)	(-0.92)	(-0.88)	(-2.08)	(2.32)	(0.01)
*GRI * MaPP_T$_{t-2}$*	-0.000109	0.0000210	0.000152	-0.000386***	0.000166*	-0.000246**
	(-0.20)	(0.26)	(0.24)	(-3.39)	(1.95)	(-2.21)
*GRI * MaPP_T$_{t-3}$*	-0.000644*	0.0000505	0.000695*	-0.0000397	0.000207**	0.000140*
	(-1.87)	(1.23)	(1.89)	(-0.40)	(2.80)	(1.76)
MaPP_L$_{t-1}$	0.00542***	-0.000186	-0.00568***	0.000313	0.00000561	0.000298
	(5.70)	(-0.72)	(-4.51)	(0.50)	(0.02)	(0.38)
MaPP_L$_{t-2}$	0.000709	-0.000228	-0.00112	-0.000461	0.0000556	-0.000526
	(0.61)	(-1.33)	(-0.91)	(-0.50)	(0.08)	(-0.76)
MaPP_L$_{t-3}$	0.00119	-0.000223	-0.00152	0.000556	-0.000732	-0.000197
	(0.88)	(-0.94)	(-0.99)	(0.92)	(-1.15)	(-0.29)
*GRI * MaPP_L$_{t-1}$*	-0.000246	0.0000682	0.000322	-0.00000853	0.0000535	0.0000520
	(-0.67)	(1.45)	(0.78)	(-0.06)	(0.63)	(0.45)
*GRI * MaPP_L$_{t-2}$*	-0.00130***	0.000112**	0.00141***	-0.0000545	0.000226**	0.000174*
	(-4.71)	(2.82)	(4.60)	(-0.49)	(2.64)	(1.83)
*GRI * MaPP_L$_{t-3}$*	-0.00096**	0.000116	0.00114**	-0.000132	0.000168**	0.00000022
	(-2.33)	(1.70)	(2.42)	(-1.53)	(2.18)	(0.00)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61291	61303	61291	62120	62120	62122
Adj. R^2	0.120	0.205	0.120	0.195	0.387	0.483
Adj. Within-R^2	0.098	0.127	0.098	0.120	0.284	0.385

*Note: The table presents the regression results with alternative timings of the effects. Definitions of all variables are presented in Table A1 in the Appendix. t statistics with standard errors clustered by the firm and by year are presented in parentheses. *, ** and *** denote statistical significance at 0.1, 0.05 and 0.01 levels, respectively.*

Table 8 turns to timing. Panel A measures *GRI* in the same year as mismatch instead of the year before. The direct term changes: measured in the same year, *GRI* is positively and significantly linked to the funding gap, with a marginal negative coefficient for *MMFG_Fin*. Same-year estimates cannot separate the effect of risk on firms from conditions that move both risk and mismatch within the year, and this is one reason the main design leads the dependent variable. The tightening interactions repeat the balance-sheet pattern from Table 5: negative for *MMST* at the 10% level and positive for *MMST_Assets* at the 1% level, with the other columns insignificant. The loosening interaction is insignificant for *MMFG* and positive and significant for *MMFG_Exp* and *MMST_Assets*. Timing therefore matters, and the results support the one-year lead used in the main tables.

Panel B lags macroprudential policy by one to three years. The tightening results stay scattered and marginal, mostly on the asset side of the balance-sheet measure. The loosening results are the informative ones. *GRI* × *MaPP_L* is insignificant at the first lag, and then negative and significant for *MMFG* at the second and third lag, with positive and significant coefficients for *MMFG_Fin* at both lags and positive coefficients for *MMST_Assets*. The financing response that is missing with current-year policy appears when policy is lagged: released capacity reaches long-term financing with a delay of two to three years. This fills a gap in the main results and fits the way macroprudential measures work, through bank balance-sheet adjustments that take time.

Two conclusions follow. First, the loosening effect on the funding gap is robust where it should be: it holds with *WUI* and with lagged policy, and it keeps its sign with *GPR*. Second, the absence of a broad tightening effect is confirmed in every variant, with one sharp exception: after the Russian aggression, in the exposed CEE region, tightening is linked to wider balance-sheet mismatch. The additional analyses therefore do not weaken the main argument. They locate it in time and space: loosening protects with a delay, and tightening hurts where the shock is closest.

6. Conclusions

This paper asks when geopolitical risk translates into corporate maturity mismatch, and through which channel. The starting point is a simple observation: geopolitical risk affects investment

and financing at the same time, and the two responses can offset each other. Whether mismatch widens depends not on firms alone, but on the banks that supply long-term credit and on the macroprudential regulation that governs their capacity. We test this idea on 62,152 firm-year observations for 7,594 listed firms in 34 European countries, with two measures of mismatch, a composite index of geopolitical risk, and direction-specific measures of macroprudential policy.

The results follow the logic of the hypotheses: geopolitical risk has no unconditional link to maturity mismatch in Europe (H1). The net macroprudential index adds little: its interaction with geopolitical risk is significant in some columns, but the pattern does not match a simple amplification story (H2). The picture becomes clear only when tightening and loosening are separated. Tightening does not amplify the transmission of geopolitical risk; the expected liability-side mechanism is absent (H3a). Loosening changes the relationship: under released regulatory capacity firms keep investing when geopolitical risk rises, and with a delay of two to three years the funding gap narrows through more long-term financing (H3b). Public debt conditions this channel (H4). The protective effect of loosening weakens as public debt rises, disappears around the sample mean of the debt ratio, and may reverse in high-debt countries. The financing response appears only where public debt leaves banks room to use released capacity for term lending. These findings survive alternative risk measures and alternative timing, and the event study around the Russian aggression against Ukraine adds one sharp exception: where the shock was closest, tightening was linked to wider balance-sheet mismatch.

The mechanism behind these results is a supply-side one: geopolitical risk does not push European firms into mismatch by itself; it matters when regulation changes what banks can do with their balance sheets. Loosening works through capacity, not obligation: it can keep term credit available, but only when banks choose corporate loans over the sovereign assets that regulation makes cheap to hold. This is why the fiscal environment enters the mechanism. In high-debt countries, released capacity is absorbed by government claims, and the crowding out that the literature documents for credit volumes returns here as a limit on what regulation can do. The two mismatch measures also carry different information: the funding gap responds to the policy environment, because it captures how current long-term spending is financed, while the balance-sheet measure moves mainly through the asset side and reflects how much of their assets firms keep liquid.

A comparison with China shows why our results differ from Wang and Wang (2025), who find that geopolitical risk raises maturity mismatch through both sides of the gap: long-term investment and short-term debt rise while long-term debt falls. None of this appears in Europe, and the specification closest to theirs confirms it. The difference has several sources. The risk itself differs: Chinese geopolitical risk has reflected trade conflict, which can justify investing through uncertainty, while European risk is dominated by military conflict and security tensions, for which firms delay irreversible investment. The financial systems differ: Chinese firms depend on short-term debt because long-term credit is structurally scarce, so any supply shock maps into mismatch, while European firms borrow from regulated banks whose capacity is the object of macroprudential policy. And identification differs: a single-country index varies only over time, while our cross-country panel absorbs common shocks with country, industry, and time fixed effects. The Chinese findings do not carry over to developed market economies.

Research on geopolitical risk and corporate policy has looked for average effects; we show that in Europe the effect on maturity mismatch is conditional and runs through the supply of bank credit. Research on maturity mismatch has focused on firm-level drivers, mostly in China; we add European evidence and show that regulation belongs on the list of drivers. The macroprudential literature usually works with net policy indices; we show that tightening and loosening are not two ends of one scale, that a net index hides the difference, and that regulation reaches not only banks and loan contracts but also the maturity structure of corporate balance sheets. The literature on the sovereign-bank nexus has studied banks and governments; we show that the nexus also decides whether macroprudential loosening reaches firms.

The policy implications, though based on estimated relationships rather than causal experiments, point one way. First, geopolitical risk is a shock to the supply of long-term credit, not only to firms. Supervisors should watch bank lending capacity when tensions rise. Second, tightening and loosening need separate analysis. A net policy stance can be uninformative exactly when direction matters most. Third, loosening helps only if banks use the released capacity for corporate term lending. Announcing a release is not the same as restoring long-term credit. Fourth, and most important today, in high-debt countries the same release is less effective, because sovereign assets compete for the freed capacity. In our sample the average debt ratio is close to the level at which the effect of loosening disappears, so this is not a corner case: for a large part of Europe, macroprudential loosening may no longer protect firms from geopolitical risk. The policy mix should treat macroprudential regulation, bank balance sheets,

and fiscal conditions as parts of one system. Finally, instrument design matters. Tools that price maturity transformation directly, above all liquidity and funding requirements, are the ones most likely to shape the transmission of geopolitical risk.

The study has limits: policy and risk are measured at the country level, so we do not observe which banks hold sovereign assets or which firms borrow from constrained banks. The interaction design supports conditional relationships, not causal effects of individual policy actions. The sample covers listed firms, which have better access to market finance than the average European firm.

Future research can address these limits: instrument-level macroprudential data can test whether liquidity and funding tools drive the asymmetry. Bank-level sovereign exposures can trace the crowding-out mechanism directly. Loan-level data can separate credit supply from credit demand. Firm-level measures of geopolitical exposure, and the distinction between geopolitical threats and acts, can sharpen the risk side of the relationship. The broader message is simple: whether geopolitical risk turns into corporate financial fragility is not decided by the shock alone. It is decided by regulation and by the fiscal position of the country in which banks allocate their balance sheets.

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APPENDIX

Table A1. Definitions of the variables

Symbol	Variable name	Definition	Source
		Maturity mismatch measures	
MMFG	Maturity mismatch: financing gap	$MMFG_{i,t} = \frac{CAPEX_{i,t} - \Delta LTD_{i,t} - \Delta EQ_{i,t} - CFO_{i,t} - DIV_{i,t} - SPPE}{TA_{i,t-1}}$ where CAPEX denotes capital expenditure, ΔLTD the annual change in long-term debt, ΔEQ the annual change in the book value of total equity, CFO cash flow from operations, DIV divestitures, SPPE the proceeds from the sale of property, plant and equipment, and TA total assets.	S&P Capital IQ
MMFG_Exp	Financing gap: expenditure component	The ratio of capital expenditure to total assets at the beginning of the fiscal year; the investment expenditure component of MMFG.	S&P Capital IQ
MMFG_Fin	Financing gap: financing component	The sum of the annual change in long-term debt, the annual change in the book value of total equity, cash flow from operations, divestitures and the proceeds from the sale of property, plant and equipment, scaled by total assets at the beginning of the fiscal year; the long-term financing component of MMFG.	S&P Capital IQ
MMST	Maturity mismatch: short-term structure	$MMST_{i,t} = \frac{CL_{i,t}}{TL_{i,t}} - \frac{CA_{i,t}}{TA_{i,t}}$ where CL denotes total current liabilities, TL total liabilities, CA total current assets, and TA total assets.	S&P Capital IQ
MMST_Assets	Current assets share	The ratio of total current assets to total assets; the asset component of MMST.	S&P Capital IQ
MMST_Liab	Current liabilities share	The ratio of total current liabilities to total liabilities; the liability component of MMST.	S&P Capital IQ
		Geopolitical risk and uncertainty measures	
GRI	Geopolitical Risk Index	First principal component of WUI, GPI, WGI and FIW.	Own calculations.
WUI	World Uncertainty Index	The WUI is computed by counting the percentage of the word "uncertain" (or its variant) in the Economist Intelligence Unit country reports. The WUI is then rescaled by multiplying by 1,000,000. A higher number means higher uncertainty and vice versa.	(Ahir et al., 2022); worlduncertaintyindex.com
GPI	Global Peace Index	A composite index measuring the peacefulness of countries made up of 23 quantitative and qualitative indicators, each weighted on a scale of 1-5. The lower the score, the more peaceful the country.	Institute for Economics & Peace; visionofhumanity.org
WGI	Political Stability and Absence of Violence/Terrorism	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. The score is multiplied by -1 so that the higher value denotes higher risk.	World Bank; data.worldbank.org/indicator/PV.ES
FIW	Freedom in the World	Freedom in the World is an annual global report on political rights and civil liberties, composed of numerical	Freedom House; freedomhouse.org/r

Symbol	Variable name	Definition	Source
		ratings and descriptive texts for each country and a select group of territories. The score is multiplied by -1 so that the higher value denotes higher risk. The variable enters the analysis only as a component of GRI.	eport/freedom-world
GPR	GPR index	The GPR index is computed by counting the monthly share of newspaper articles that mention adverse geopolitical events and associated risks, including threats, military buildups, wars, terrorism, and tensions between states or political actors. The benchmark index is based on automated searches of ten major English-language newspapers and is normalized to have an average value of 100 over the 1985–2019 period. A higher value indicates greater geopolitical risk and vice versa.	https://www.matteoiacoviello.com/gpr.htm
		Macroprudential policy measures	
MaPP	Macroprudential policy index	The sum of macroprudential policy action indicators of all 17 instruments. Each tightening event of a particular instrument is coded as a +1, each loosening event is coded as a -1, and no or neutral action is coded as a zero. Monthly indicators are summed within a country-year to obtain the annual measure.	The IMF's integrated Macroprudential Policy (iMaPP) Database, originally constructed by Alam et al. (2019)
MaPP_T	Macroprudential policy tightening index	The sum of macroprudential policy tightening indicators of all 17 instruments. The indicator takes the value of 1 if the instrument is tightened and 0 otherwise. Monthly indicators are summed within a country-year to obtain the annual measure.	The IMF's integrated Macroprudential Policy (iMaPP) Database, originally constructed by Alam et al. (2019)
MaPP_L	Macroprudential policy loosening index	The sum of macroprudential policy loosening indicators of all 17 instruments. The indicator takes the value of 1 if the instrument is loosened and 0 otherwise. Monthly indicators are summed within a country-year to obtain the annual measure.	The IMF's integrated Macroprudential Policy (iMaPP) Database, originally constructed by Alam et al. (2019)
		Control variables: company level	
lnMV	Firm size	The logarithm of market capitalisation as of the end of the year.	S&P Capital IQ
Agefound	Firm age	The logarithm of one plus the number of years elapsed since the year in which the firm was founded.	S&P Capital IQ
Lev	Firm indebtedness	The ratio of total debt to total assets.	S&P Capital IQ
LTLev	Long-term debt share	The ratio of long-term debt to total debt.	S&P Capital IQ
Tang	Asset tangibility	Net property, plant and equipment scaled by total assets.	S&P Capital IQ
R&DIntensity	R&D intensity	Research and development expenses scaled by total assets at the beginning of the fiscal year.	S&P Capital IQ

Symbol	Variable name	Definition	Source
Amort	Depreciation and amortisation intensity	Depreciation and amortisation scaled by total assets at the beginning of the fiscal year.	S&P Capital IQ
ROE	Return on equity	Net income scaled by the book value of total equity at the beginning of the fiscal year.	S&P Capital IQ
ROAstd	Earnings volatility	The standard deviation of the return on assets (net income scaled by total assets at the beginning of the fiscal year) over a rolling three-year window; a minimum of three observations is required.	S&P Capital IQ
P-B	Price-to-book ratio	The ratio of the closing share price as of the end of the year to the book value of equity per share (the book value of total equity divided by the number of shares outstanding).	S&P Capital IQ
SOE	SOE	A binary variable that equals 1 if State Treasury is one of the ultimate owner of the company's shares and 0 otherwise.	S&P Capital IQ
		Control variables: country level	
rGDPgrowth	Real GDP growth	The annual growth rate of real Gross Domestic Product.	https://www.globalmacrodata.com
CPI	Inflation	The annual inflation rate.	https://www.globalmacrodata.com
TradeOpen	Trade openness	The sum of exports and imports, both expressed as a percentage of GDP.	https://www.globalmacrodata.com
ExchRate	Exchange rate	Exchange Rate against USD	https://www.globalmacrodata.com
PubDebt	Public debt	General government debt expressed as a percentage of GDP.	https://www.globalmacrodata.com/