# Geopolitical Risk & Macroprudential Policies *

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**Abstract**

Using a rich 42-country monthly dataset covering the 2008-2021 period, we estimate the impact of geopolitical risk on macroprudential policy actions. Our findings indicate that rising geopolitical risk is associated with a tendency for countries to reduce the implementation of macroprudential tightening actions but not engage in macroprudential loosening actions. This result is of particular economic significance given the increasing volatility in the recent geopolitical landscape and its potential to disrupt financial systems globally. These findings complement previous research, suggesting that policymakers may be reluctant to implement restrictive financial measures during periods of elevated political uncertainty (Muller, 2023) and may prioritize short-term economic stability over long-term financial stability. A key factor that moderates the relationship between geopolitical risk and macroprudential policy action is the institutional framework. Our analysis highlights the crucial role of central bank leadership in shaping how countries respond to geopolitical risk through macroprudential measures. The impact of geopolitical risk on the use of tightening actions is significantly diminished when the central bank is in charge of macroprudential policy.

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# 1. Introduction

In the aftermath of the 2007–2008 Global Financial Crisis (GFC), a new policy reform agenda emerged, centered around the formalization of a macroprudential framework. This framework introduced a novel toolkit primarily aimed at regulating systemically important financial institutions.[1] Macroprudential policies (MaPs) are designed to address systemic risks to the financial system as a whole (Claessens, 2015; Freixas et al., 2015; Boissay et al., 2019), aiming to contain the spread of instability and uncertainty (Forbes, 2019, 2021).

Geopolitical risk can be a leading source of systemic financial risk. [2] Even though recent history suggests that adverse geopolitical events may not, alone, cause a systemic crisis, they may, however, act as a trigger for systemic distress when interacting with other preexisting vulnerabilities. In particular, adverse geopolitical shocks can trigger rapid shifts in market sentiment and, thus, sharp increases in uncertainty, exposing existing vulnerabilities of financial institutions. IMF (2023) argues that geopolitical tensions threaten financial stability through various financial channels. The imposition of financial restrictions, higher uncertainty levels, and cross-border credit and investment outflows triggered by escalating tensions may increase banks' debt rollover risks and raise their funding costs. Additionally, rising interest rates on government bonds may reduce the value of banks' assets, further exacerbating funding challenges.[3] Figure 1 illustrates the frequency and magnitude of events leading to geopolitical risk globally, using the Geopolitical Risk (GPR) Index from 1985 to 2023 introduced by Caldara and Iacoviello (2022). Figure 2 illustrates prevalent geopolitical risks for 2024, providing a comprehensive classification based on the likelihood of occurrence and the potential impact on economic and social activities.

[1] A great bulk of literature explores the effectiveness of macroprudential tools on dampening the credit cycle, mitigating systemic risk, strengthening the resilience of the financial system, and enhancing financial stability (see (Cerutti et al., 2017; Jiménez et al., 2017; Akinci and Olmstead-Rumsey, 2018; Cizel et al., 2019; Altavilla et al., 2020; Fabiani et al., 2022)

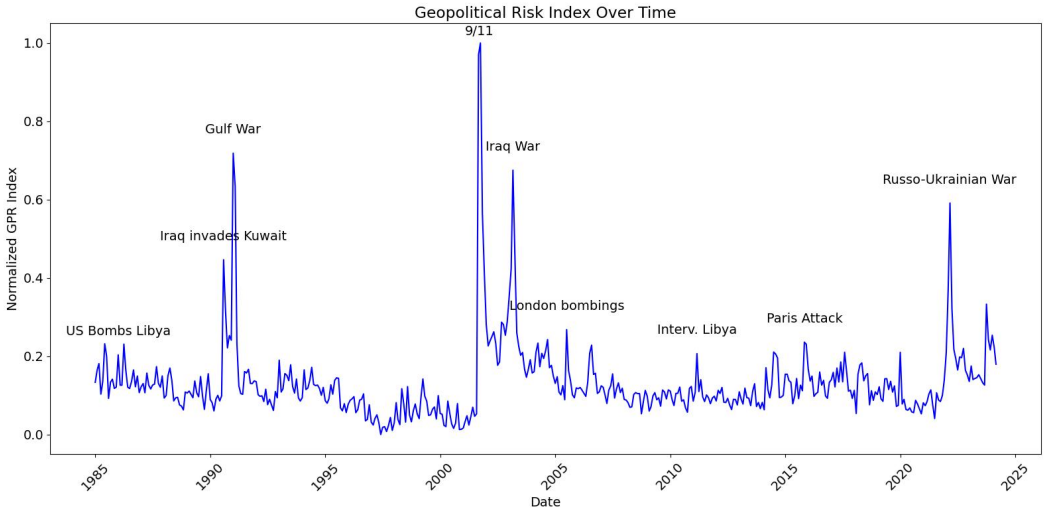
[2] Geopolitical risks can be broadly defined as potential political, economic, military and social risks arising from a country's involvement in international affairs, often stemming from a shift in power, a bilateral-multilateral conflict or a crisis.

[3] Geopolitical risk is a critical factor influencing trade and investment decisions (Wang et al., 2023), which in turn have significant implications for financial stability. The presence of high uncertainty can lead to shifts in investor confidence, alter risk perceptions (Bondarenko et al., 2024), and subsequently impact the oil price (Baskaya et al., 2013; Caldara et al., 2019), allocation of capital across borders (Akinci et al., 2022), and domestic credit activities (Ongena et al., 2015; Di Giovanni et al., 2022; Baskaya et al., 2024).

Arguably, the world is experiencing one of the most disruptive periods in several decades, and navigating this disruption poses several challenges to governments and broader policy stakeholders including macroprudential policymakers.

Indeed, anticipating systemic crises rooted in geopolitical factors is challenging, and managing them once they have occurred is even more difficult. Our goal in this paper is to formally examine the conditions under which macroprudential policy responds to geopolitical risk spikes.

Figure 1: Geopolitical Risk –GPR– Index (World Average)




**Note:** Figure 1 shows the world average Geopolitical Risk (GPR) Index from 1985 to 2024. The index is normalized to $[0,1]$. The index tracks and measures geopolitical risk in real-time, reflecting perceptions from the press, the public, global investors and policymakers.*Source: Caldara and Iacoviello (2022).*

The extent to which macroprudential authorities weigh these risks as potential sources of financial instability and whether they act decisively in response to such risks presents an acute empirical challenge. For example, macroprudential policy may respond to pre-existing macro and financial vulnerabilities concurrent with spikes in geopolitical risk. Despite the significant geopolitical volatility documented by the GPR Index over the last few decades, not all spikes in geopolitical risk are leading up to an increase in systemic financial risk. Figure 3 plots the GPR index for the United States and the CBOE VIX Index, as a representative measure of financial market volatility and a systemic risk proxy.

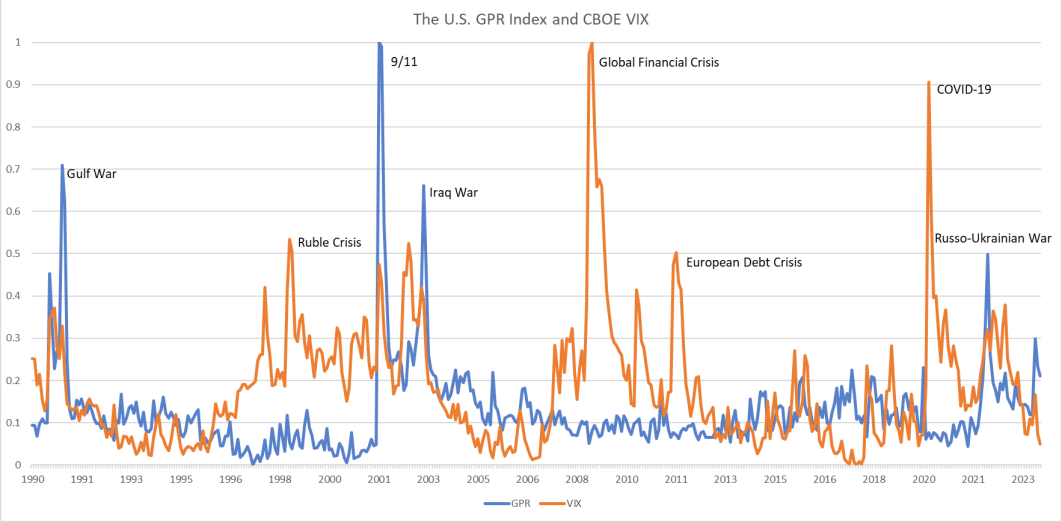
Evidently, only a few spikes in geopolitical risk are followed by increased volatility in

Figure 2: Likelihood and Impact of Top 2024 Geopolitical Risks




**Note:** Figure 2 presents the likelihood and impact of the top geopolitical risks for 2024, as assessed by the report of *Source: S&P Global*

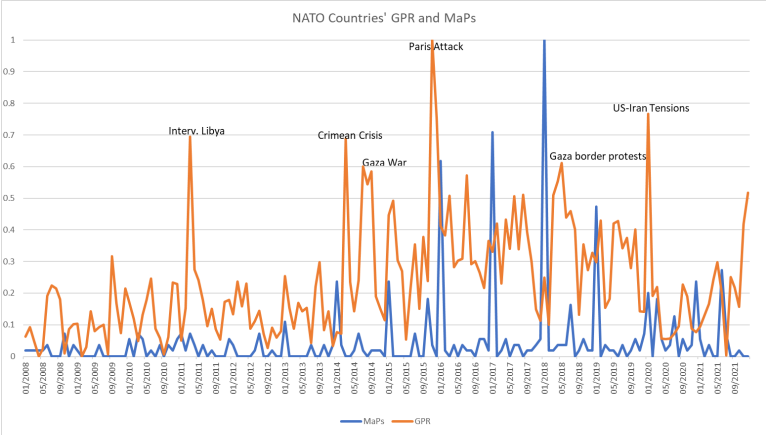
Figure 3: U.S. GPR vs. CBOE VIX Index




**Note:** Figure 3 plots the geopolitical risk and the financial market volatility index in the United States from 1990 to the end of 2023 (r=0.1083, p=0.0287). The U.S. GPR and CBOE VIX index are normalized to $[0,1]$. *Source: Caldara & Iacoviello (2022), FRED.*

financial markets which might trigger a potential systemic risk build-up. Figure 4 plots the average geopolitical risk and the MaP policy index among NATO countries for the past 15 years. Although there do exist periods (see Paris Attack or Gaza Borders Protests) where a spike in geopolitical risk is followed by strong macroprudential action several other instances (see Libya Intervention or US-Iran Tensions) do not trigger a macroprudential action. Figure 5 displays the U.S. GPR index and the systemic risk index provided by the Cleveland Fed. The two risk indicators exhibit a mild positive and statistically significant correlation suggesting a potential link between the two.

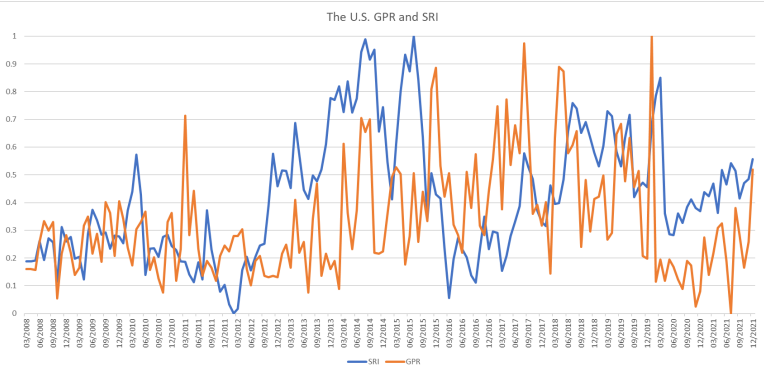
Figure 4: NATO Countries GPR vs. MaPs




**Note:** Figure 4 plots the average geopolitical risk and the macroprudential policy index in the NATO from 2008 to the end of 2021 (r=0.0855, p=0.2707). The NATO countries' average GPR and MaPs index are normalized to $[0,1]$ *Source: Caldara & Iacoviello (2022) and IMF iMaPP Database.*

The existing literature on geopolitical risks and their impact on financial stability and associated policy action is in its infancy. This paper fills this gap by formally examining the connection between geopolitical risk (GPR) and the use of macroprudential policies (MaPs). By doing so we contribute to the recent debate on whether and when financial regulators should address geopolitical risks to guard financial stability. We use a rich 42 country dataset (from 2008 to 2021) with detailed macroprudential indicators covering a broad spectrum of instruments and geopolitical risk measures to estimate the impact of the latter on macroprudential policy actions. Our findings indicate that rising geopolitical risk is associated with a tendency for countries to reduce the implementation of macroprudential tightening actions but not engage in macroprudential loosening actions. This

Figure 5: The U.S. GPR vs. SRI




**Note:** Figure 5 plots the U.S. GPR and systemic risk indicator (SRI) from 2008 to 2021 (r=0.2633, p=0.0018). The U.S. GPR and SRI are normalized to [0, 1] *Source: Caldara & Iacoviello (2022) and Federal Reserve Bank of Cleveland.*

result is of particular economic significance given the increasing volatility in the geopolitical landscape and its potential to disrupt financial systems globally. These findings align with previous research, suggesting that policymakers may be reluctant to implement restrictive financial measures during periods of elevated political uncertainty (Muller, 2023) and may prioritize short-term economic stability over long-term financial safeguards, as tightening financial regulations could further constrain credit availability, amplify economic shocks and destabilise the financial sector (Kim and Mehrotra, 2018; Richter et al., 2019).

We further propose that a key factor that moderates the relationship between geopolitical risk (GPR) and the use of macroprudential policies (MaPs) is the institutional framework governing macroprudential policymaking. Specifically, in jurisdictions where central banks hold a leading role in macroprudential decision-making — either as the sole authority or as the chair of macroprudential committees — the adverse impact of GPR on the use of tightening actions is significantly diminished. Our finding highlights the role of central banks as independent, technocratic institutions that are less vulnerable to political pressures compared to other government bodies. Their expertise in risk assessment, combined with their primary mandate to ensure financial stability, allows them to take a more proactive stance in addressing systemic risks, even amidst high geopolitical uncertainty.

In contrast, in countries where the central bank is not the primary authority responsi-

ble for macroprudential policy, the impact of geopolitical risk (GPR) on the use of macroprudential policies (MaPs) is more pronounced. We finally document heterogeneous responses among different types of macroprudential tools in the context of geopolitical risk. Specifically, in countries where the central bank does not lead macroprudential policy (non-CB countries), entity-based MaPs — those that directly target financial institutions, such as capital requirements and liquidity ratios — are more vulnerable to the effects of geopolitical risk.

The rest of this paper is organised as follows. Section 2 provides an overview of the institutional arrangement of MaPs. Section 3 describes the data employed in this paper. Section 4 explains our empirical approach and identification strategy. Section 5 presents and discusses the results. Section 6 shows the robustness checks. Section 7 concludes the paper.

## 2. Institutional Arrangement of Macroprudential Policy

According to ESRB (2014, 2015), the macroprudential policy (MaPs) strategic cycle consists of four key stages: risk identification and assessment, instrument selection and calibration, policy implementation, and policy evaluation. It is important to recognise the potential policy inertia, particularly during the instrument selection and policy implementation stages.

Some studies investigate the institutional frameworks of macroprudential policies and explore the role of central bank in shaping various outcomes, including the motivations for implementing MaPs, and their contribution to financial stability and price stability. The coordination of monetary and macroprudential policy is well-established in the literature (Paoli and Paustian, 2017; Kim and Mehrotra, 2018; Silvo, 2019; Martinez-Miera and Repullo, 2019; Rubio and Yao, 2020; Altavilla et al., 2020; Van der Ghote, 2021). Lim et al. (2013) suggest that greater involvement by the central bank can encourage more timely implementation of macroprudential regulations. Nier et al. (2011) find that central banks in advanced economies (AEs) generally have more authority over macroprudential supervision compared to those in emerging market economies (EMEs). Mishra and Reshef (2019) contend that even when financial regulation is not directly within the central bank's mandate, the central bank can still affect it through public speeches, authoritative reports, and strategic political engagements. They further provide evidence that the personal characteristics of central bank governors significantly influence financial regulation. Edge and Liang (2022) examine the use of countercyclical capital buffers (CCyB) in 58 countries and find that stronger macroprudential governance increases the use of CCyB, highlighting the critical role of robust institutional frameworks. Gabriel et al. (2023) investigate the institutional arrangements of monetary and prudential policies and find that the separation of prudential regulation from the central bank has no statistically significant effect on inflation stability, indicating no evidence that a financial stability mandate constrains central banks' monetary policy execution or introduces an inflation bias.

In this study, we examine the design of macroprudential institutional frameworks for our sample countries and follow the classification method recommended by the IMF's Macroprudential Policy Survey. We create a dummy variable to indicate whether the central bank leads the macroprudential decision-making. Table 12 outlines the institutional

arrangements for 42 sample economies. Nearly 60% of these countries have established new committees for macroprudential regulation and supervision. In some cases, such as the Philippines, Israel, Poland and the United Kingdom, the central bank governor chairs these committees. However, in countries like Canada, Chile, Colombia, and the United States, these committees are chaired by the Minister of Finance or the Head of Treasury.

We define central bank leadership in macroprudential policy based on two criteria. First, the central bank must be the sole legal authority responsible for macroprudential policy and financial stability. Second, if a new macroprudential committee is established, the central bank governor must serve as its chair. To ensure the accurate classification of central bank leadership, we reviewed several reports from the Financial Stability Board (FSB), the Bank for International Settlements (BIS), and the International Monetary Fund (IMF), including IMF staff discussion papers and BIS working papers (Nier et al., 2011; Lim et al., 2013; IMF-FSB-BIS, 2016; IMF, 2013). Taiwan is the only country not included in the IMF reports; however, the Central Bank of the Republic of China (Taiwan CBC) has been solely responsible for macroprudential measures since the GFC. In total, we identify 19 economies where central banks lead macroprudential policymaking: Argentina, United Kingdom, Hong Kong, Hungary, Indonesia, Israel, Japan, Malaysia, Philippines, Poland, Portugal, Russia, Saudi Arabia, Thailand, Tunisia, Taiwan, Ukraine, South Africa, and Vietnam.

## 3. Data

We employ the monthly Geopolitical Risk (GPR) index from Caldara and Iacoviello (2022) and data on the use of macroprudential policies (MaPs) from Alam et al. (2024) for 42 countries from 2008 to 2021. Our control variables include the Central Bank Independence (CBI) index from Romelli (2022) to account for the degree of central bank independence. To control for the impact of elections, we follow Muller (2023) and manually collect election data. We also use the World Bank's Worldwide Governance Indicators (WGI) to account for voice and accountability, rule of law, regulatory quality, and government effectiveness. Additional macroeconomic controls include unemployment rate, population growth, GDP per capita, GDP growth, inflation rate, government consumption, trade as a share of GDP, financial development index (IMF), and the Gini

index (SWIID). We also control for religious tension and bureaucracy quality (International Country Risk Guide), global connectedness (Altman and Bastian, 2024), and United Nations Security Council (UNSC) membership (Dreher et al., 2009).

## 3.1 Geopolitical Risk (GPR) data

Caldara and Iacoviello (2022) define geopolitical risk (GPR) as the risk associated with wars, terrorism, and tensions between states and organizations competing for territory or influence, which disrupts the peaceful course of international relations. They develop a proxy for geopolitical risk by counting the frequency of articles related to these risks in 11 major international newspapers. The GPR index covers 44 countries and provides data dating back to 1900.[4] The GPR index is calculated as the ratio of articles related to geopolitical risks — such as threats of war, political tensions, and terrorist activities — to the total number of articles published each month. The data is gathered using a dictionary-based method, which performs automated text searches across ten leading national and international newspapers in the United States. As shown in Figure 1, the GPR index successfully captures major global geopolitical events, including the 9/11 terrorist attacks, the 2003 invasion of Iraq, and the 2014 Russian annexation of Crimea. Notably, unlike many global uncertainty indices, the GPR index does not exhibit systematic spikes during economic recessions or the Global Financial Crisis (GFC). This unique characteristic helps to address concerns about potential simultaneity bias between geopolitical uncertainty and macroprudential policies (MaPs). The dataset used for this study, as shown in Table 2, contains 7,056 observations from 42 countries over the period 2008 to 2021.

## 3.2 Macroprudential Policies Data

[4]These are Argentina, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, Denmark, Egypt, Finland, France, Germany, Hong Kong, Hungary, India, Indonesia, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, Norway, Peru, Philippines, Poland, Portugal, Russia, Saudi Arabia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Tunisia, Turkey, Ukraine, United Kingdom, United States, Venezuela, and Vietnam. Among these 44 countries, Egypt and Venezuela have never implemented MaPs, leaving us with 42 countries in the subsequent analysis.

### 3.2.1 Overview

In the aftermath of the Global Financial Crisis (GFC), macroprudential policies (MaPs) have gained considerable attention in regulatory reform agendas. The International Monetary Fund (IMF) introduced the integrated Macroprudential Policy (iMaPP) database (Alam et al., 2024), which provides monthly indices of policy actions for 17 macroprudential tools. These actions are recorded using a dummy classification, where a value of **1** represents a tightening action, **0** indicates no change, and $-\mathbf{1}$ denotes a loosening action. The tools included in the database are countercyclical capital buffers (CCB), capital conservation buffers (Conservation), capital requirements (Capital), leverage ratios (LVR), loan loss provision requirements (LLP), limits on credit growth (LCG), loan restrictions (LoanR), limits on foreign currency lending (LFC), limits to loan-to-value ratio (LTV), limits to debt-to-income ratio (DSTI), taxes and levies (Tax), liquidity requirements (Liquidity), limits to loan-to-deposit ratio (LTD), limits on foreign exchange positions (LFX), reserve requirements (RR), surcharges for systemically important financial institutions (SIFI), and other measures. Table 10 provides detailed definitions for each of these tools.

As noted by Forbes (2021) measuring the intensity of MaPs poses challenges, particularly when comparing the same tool across different countries or different tools within the same country. Despite this difficulty, the discrete nature of the data offers insights into average effects. Both advanced and emerging economies have increasingly utilized MaPs since the GFC, with tightening actions significantly outweighing loosening actions (Akinci and Olmstead-Rumsey, 2018; Forbes, 2021). In our baseline analysis, we focus on the tightening actions of the 17 macroprudential tools, collectively denoted as MaPs, as they represent the most frequent and significant policy responses in the post-GFC period. Indeed, tightening actions are crucial in managing credit booms and containing financial vulnerabilities. For robustness checks, we also explore key individual tools, such as capital requirements and loan-to-value ratio limits, commonly used in various countries to control systemic risks in the financial system. As indicated in Table 2, the MaPs variable ranges from 0 to 7, with a sample mean of 0.17, reflecting the varying intensity and frequency of macroprudential policy actions across the 42 countries studied from 2008 to 2021.

### 3.2.2 Categories of MaPs

Table 11 classifies macroprudential policies (MaPs) using three state-of-the-art methods. The traditional approach categorizes MaPs into two broad groups: demand-based policies, which target borrowers, and supply-based policies, which focus on financial institutions. Demand-based MaPs, such as loan-to-value (LTV) ratios and debt-service-to-income (DSTI) ratios, aim to restrict the borrowing capacity of households and firms by directly limiting the amount they can borrow, thus reducing credit demand.

In contrast, Alam et al. (2024) introduce a more nuanced classification of supply-based MaPs by dividing them into three distinct subgroups based on their specific objectives: loan-targeted, capital-targeted, and general-targeted policies. Loan-targeted MaPs focus on influencing lending practices and include tools such as loan loss provisioning requirements, which require financial institutions to maintain provisions against potential loan losses, including dynamic provisioning and sectoral-specific provisions within loan contracts. These measures ensure that institutions hold adequate reserves against credit risk. Capital-targeted MaPs, on the other hand, focus on building capital buffers to protect against financial system vulnerabilities. An example is the countercyclical capital buffer, which is designed to accumulate additional capital during periods of excessive credit growth, reducing the risks associated with financial system procyclicality. General-targeted MaPs encompass broader measures aimed at strengthening the overall resilience of the financial sector. While both loan-targeted and capital-targeted MaPs place requirements on financial institutions, they operate in different dimensions — one by addressing credit risk and lending standards, and the other by enhancing capital adequacy and stability across the financial system. These classification methods, as described in detail by Alam et al. (2024), allow for a more granular understanding of macroprudential tools by distinguishing their specific objectives and the dimensions they target within the financial system.

The last classification method divides macroprudential policies (MaPs) into activity-based (quantity-based) and entity-based (price-based) categories, depending on whether the tool directly influences credit activity. This method has gained increasing attention in both academia and the financial industry. Activity-based MaPs directly restrict specific financial activities. For example, loan restrictions, loan-to-deposit ratio limits, and

debt-to-income ratio limits impose direct constraints on borrowing and lending behavior. These tools target a particular activity within the financial system, effectively controlling the quantity of credit extended. In contrast, entity-based MaPs indirectly influence credit activity by altering the conditions under which financial institutions operate. Examples include bank capital requirements, liquidity requirements, and surcharges for systemically important financial institutions (SIFIs). These tools affect the lending capacity of banks by requiring them to hold more capital or maintain higher liquidity, thereby indirectly limiting a range of financial activities. This classification approach provides a deeper understanding of how macroprudential tools operate, distinguishing between policies that directly limit credit activity and those that indirectly shape the broader financial landscape through institutional constraints.

There has been a long-standing debate over the relative merits of activity-based versus entity-based regulation, spanning from the 2010 Dodd-Frank Act to recent global regulatory efforts addressing the shadow banking system, big tech firms, and crypto-asset activities (US, 2010; FSB, 2011, 2015, 2017; Carstens, 2021). Cizel et al. (2019) empirically examine the leakage effects of macroprudential policies (MaPs) on non-bank credit activities, making the first distinction between quantity-based MaPs, which directly restrict the total volume of credit activities, and price-based MaPs, which indirectly limit bank lending capacity by imposing constraints on the liability side of the balance sheet. Their findings indicate significant substitution effects, particularly in advanced economies, where quantity-based MaPs often lead to credit shifting from regulated to non-regulated sectors. This highlights the potential for regulatory arbitrage, where market participants bypass traditional banking systems in response to more stringent quantity-based controls.

Baskaya and Shim (2024) further explore the role of financial development in the transmission of quantity-based and price-based macroprudential policies (MaPs). Their findings indicate that quantity-based MaPs are widely used and particularly effective in mitigating credit cycles in bank-based developing financial systems, while price-based MaPs demonstrate greater effectiveness in market-based developed economies. Similarly, Borio et al. (2022) emphasize the urgent need to establish a clear framework for classifying regulation as either activity-based or entity-based. They argue that the inconsistent use of these terms has led to misinterpretations of the Financial Stability Board's (FSB) principle of "same activity, same risk, same regulation", which calls for regulatory fairness. Borio

et al. (2022) propose precise definitions for activity-based and entity-based MaPs based on whether a macroprudential tool directly or indirectly enhances the resilience of a specific financial activity. Their framework also extends to the potential future application of these MaPs to non-bank financial institutions and big tech firms, recognizing the growing importance of these entities in the global financial system.

Following this framework, we classify MaPs as either activity-based or entity-based. As shown in Table 2, the activity-based MaPs measure ranges from 0 to 3, with a sample mean of 0.03, while the entity-based MaPs measure ranges from 0 to 6, with a sample mean of 0.14.

## 4. Empirical Approach and Identification Strategy

First, we estimate the following Ordinary Least Squares (OLS) model:

$$MaP_{it} = \alpha_i + \lambda_t + \beta GPR_{it-1} + \gamma Z_{it-1} + \epsilon_{it} \tag{1}$$

where $MaP_{it}$ represents the total frequency of macroprudential tool usage in country $i$ during month $t$. The terms $\alpha_i$ and $\lambda_t$ denote country-fixed effects and time-fixed effects, respectively, to account for unobserved time-invariant country-specific characteristics, as well as common time factors affecting all countries. The variable of interest, $GPR_{it-1}$, captures the geopolitical risk faced by country $i$ at time $t-1$. The term $Z_{it-1}$ refers to a set of lagged macroeconomic control variables, including unemployment rate, population growth, inflation rate, GDP growth, general government final consumption, trade as a share of GDP, financial development index, GINI index, election dummy, government effectiveness, regulatory quality, rule of law, voice and accountability, bureaucracy quality, and central bank independence. We use lagged values for both the geopolitical risk index and the macroeconomic control variables to mitigate concerns about simultaneity, ensuring that the regressors are predetermined relative to the dependent variable.

Our OLS results provide insights into the conditional correlation between geopolitical risk and the use of macroprudential policy (MaPs), but they should not be interpreted as proof of a causal relationship. Geopolitical risk could be endogenous to the model. MaPs are specifically designed to detect the build-up of financial imbalances and miti-

gate systemic risk within the banking system. If effective, these policies should reduce the likelihood of financial crises (Fernandez-Gallardo, 2023). Although Figure 3 demonstrates that financial market volatility has a weak correlation with geopolitical risk, favourable financial conditions could still mitigate the adverse effects of a country's geopolitical environment. This raises the possibility of reverse causality, where stronger financial stability due to MaPs could influence geopolitical risk, potentially leading to a downward bias in the estimated coefficient $\beta$. Moreover, the use of MaPs could increase banks' exposure to sovereign debt (Reis, 2020; D'Erasmo et al., 2024), which may, in turn, strengthen the financial system's resilience against sovereign risk and enhance the country's ability to withstand geopolitical shocks. This interplay between MaPs and geopolitical risk further complicates the interpretation of the OLS estimates.

To identify the causal effect of geopolitical risk on the use of macroprudential policy (MaPs), we require an instrumental variable that is both a strong predictor of country $i$'s geopolitical risk and uncorrelated with any country-specific unobserved factors influencing the adoption of MaPs in country $i$. First, as documented by Caldara and Iacoviello (2022), geopolitical risk tends to be correlated across countries. Second, the sensitivity of one country's geopolitical risk to another's is likely to increase with the level of economic interconnection between them. This suggests that the spillover effects of geopolitical risk are amplified in countries with higher degrees of economic integration, providing a potential pathway for constructing an appropriate instrument.

We follow the approach of Bonfiglioli et al. (2022) to construct our instrumental variable as follows:

$$GPR_shock_{i,t-1} = \sum_{j \in \Omega_{-i}} \frac{GPR_{j,t-1}}{N_{-i}} \times \ln\left(connect_{i,j}\right) \tag{2}$$

where $GPR_{j,t-1}$, represents the geopolitical risk index of country $j \neq i$ in year-month $t-1$. The set $\Omega_{-i}$ and $N_{-i}$ refer to the set of countries and the number of countries, respectively. The variable $connect_{i,j}$ captures the bilateral connectedness between countries $i$ and $j$, and we use the log-inverse of the bilateral geographical distance as a proxy for bilateral connectedness. The advantage of this time-invariant variable lies in its exogeneity – distance does not change in response to geopolitical tensions – making it suitable for identifying the causal effect of geopolitical risk on macroprudential policy.

In our baseline analysis, the set of countries $\Omega_{-i}$ includes the five permanent members of the United Nations Security Council (UNSC): the United States, the United Kingdom, China, France, and Russia. The UNSC is one of the most powerful organs of the United Nations, with authority to establish peacekeeping operations, impose international sanctions, and authorise military action, as outlined in the United Nations Charter. As the only UN body with the authority to issue binding resolutions, these five countries wield significant influence over global geopolitical events. For robustness checks, we modify our set of geopolitical risk source countries to include the G7 nations.

# 5. Results

In this section, we present the OLS regression results that examine the relationship between geopolitical risk (GPR) and the use of macroprudential policies (MaPs). These results provide insights into the conditional correlation between GPR and MaPs but do not necessarily demonstrate causality. Next, we investigate the temporal dynamics of this relationship, analyzing the timing of the impact of GPR on MaPs. This step is crucial for understanding whether GPR influences macroprudential actions in a lagged manner or if the relationship is more immediate. Third, we present the results of the instrumental variable (IV) analysis, which addresses potential endogeneity concerns and allows us to estimate the causal effect of GPR on MaPs. By employing an appropriate instrument, we aim to isolate the exogenous variation in geopolitical risk and its impact on macroprudential policymaking. Finally, we examine the role of central bank leadership in macroprudential decision-making and its effect on the relationship between GPR and MaPs. Specifically, we assess whether the presence of strong central bank leadership differentiates how geopolitical risk affects the implementation and intensity of macroprudential policies.

## 5.1 Baseline Results

First, we present the correlation between geopolitical risk (GPR) and macroprudential policies (MaPs). Table 3 shows the regression results for estimating Equation 1. The GPR index exhibits a negative relationship with the tightening actions of MaPs. Specifically, an increase of one standard deviation in GPR is associated with a 5.48% decrease in the use of MaPs, measured as a percentage of its standard deviation. [5] Additionally, column 4 of Table 3 also shows that geopolitical risk has no significant effect on loosening actions of MaPs.

Second, to further examine the timing of the relationship between GPR and MaPs, Figure 6 presents point estimates and 90% confidence intervals for $\beta$, obtained by separately estimating Equation 1 using different lags and leads of GPR. The results indicate that the reduction in the use of MaPs is negatively and significantly correlated with past GPR, par-

[5] The detailed calculation is as follows: The standard deviation of GPR is 0.380 (see Table 2), and the estimated coefficient of GPR in column 2 of Table 3 is $-0.078$. This implies that a one-standard-deviation increase in GPR results in a decrease in MaPs by $(0.380 \times -0.078 = -2.96\%)$. Given that the standard deviation of MaPs is 0.540; the percentage increase is $(\frac{2.96}{0.540} \times 100 = 5.48\%)$.

ticularly over a period of three months. The negative correlation is the strongest for shorter lags, peaking at the first lag of GPR. Consistent with these findings, we use the first lag of GPR as the main independent variable in our primary regressions. Furthermore, the results show no significant correlation between MaPs and future GPR, suggesting that implementing MaPs cannot influence geopolitical risk, thus eliminating the presence of reverse causality.

Third, we address the issue of identification. Table 4 presents the instrumental variable (IV) estimation of the effect of geopolitical risk (GPR) on the use of macroprudential policies (MaPs). Column 2 shows that foreign geopolitical shocks have a significant and negative impact on the use of MaPs, suggesting that external geopolitical risks contribute to a reduction in macroprudential policy tightening actions. Columns 3 and 4 present the two-stage least squares (2SLS) results, which allow us to correct for potential endogeneity in the relationship between GPR and MaPs. In the first stage, we confirm that the instrumental variable used to predict GPR is strongly correlated with the endogenous variable, with a first-stage F-statistic of 16.33. This value is well above the conventional threshold of 10, indicating that weak identification is not an issue in our model and that the instrument is valid. The 2SLS results suggest that GPR has a more pronounced effect on reducing the use of MaPs than previously indicated by the OLS estimates. Specifically, the IV estimates are approximately 2.3 times larger than the OLS estimates, indicating that the OLS results might be biased downwards due to unobserved factors that are correlated with both GPR and MaPs. This finding reinforces the importance of addressing endogeneity in such frameworks to uncover the true causal effect of GPR on macroprudential policy.

## 5.2 Mechanism: The Role of Central Banks' Leadership in Macroprudential Policy

In the previous section, we demonstrated that an increase in geopolitical risk leads to a relaxation of the tightening actions of macroprudential policies (MaPs). To gain a deeper understanding of the transmission mechanism behind this relationship, we explore two further questions. First, does the institutional framework governing macroprudential policy play a significant role in differentiating the impact of geopolitical risk? Specifically, we investigate whether central bank leadership or other institutional arrangements affect

how geopolitical risk influences MaPs. Second, we examine which types of macroprudential policies are less used in response to geopolitical risk. This analysis allows us to determine whether specific categories of MaPs, such as capital requirements, liquidity buffers, or borrower-based measures, are more sensitive to geopolitical shocks than others.

Baker (2013a,b); Johnson and Barnes (2015); Piroska et al. (2021) argue that macroprudential policies (MaPs) have become increasingly appealing to politicians due to their potential alignment with domestic political objectives and financial nationalism. By implementing MaPs, governments can enhance the influence of national institutions and assert state sovereignty in the financial sector. This can serve political goals by reinforcing state control over financial markets and promoting national interests. Kuttner and Posen. (2013) emphasize that, following the Global Financial Crisis (GFC), macroeconomic policies have become “extremely salient politically", highlighting the growing importance of these tools in political decision-making. The increased focus on macroprudential measures reflects their strategic utility for managing both domestic financial stability and political priorities. In a related context, Ehrmann and Fratzscher (2011) assess monetary policy in the Euro Area and find that politicians, on average, tend to prefer lower interest rates compared to European Central Bank (ECB) officials. This finding suggests that political motivations may influence preferences for more accommodative policies, reflecting the broader tensions between economic prudence and political objectives in the formulation of financial policies.

In such complex environments, having the central bank lead macroprudential policymaking offers key advantages. First, central banks are generally independent institutions, making them more resistant to political pressures that can influence financial policy decisions. This independence enhances their ability to implement policies aimed at safeguarding financial stability without being swayed by short-term political interests. Second, there is widespread consensus among academics and policymakers on the importance of promoting effective coordination between two closely related areas of financial regulation: microprudential and macroprudential policy (Claessens, 2015). Microprudential policy focuses on the soundness of individual financial institutions, while macroprudential policy addresses risks to the financial system as a whole. The responsibilities of central banks in this dual role include both the supervision and enforcement of microprudential measures – such as conducting operational stress tests aimed at assessing

the resilience of individual banks – and the identification of systemic risks from a macroprudential perspective. Central banks are well-positioned to integrate these roles, vetting financial regulators for their impact on systemic risk and promoting stability across the entire financial system.

Masciandaro and Volpicella (2016) find that central banks acting as microprudential supervisors are more likely to be actively involved in macroprudential policy-making, allowing them to implement macroprudential policies (MaPs) more effectively and in a timely manner. This is supported by (Lim et al., 2013), who emphasize the central bank's capacity to swiftly respond to emerging risks within the financial system.

Therefore, several regional and global financial oversight institutions, such as the International Monetary Fund (IMF), the Bank for International Settlements (BIS), and the European Systemic Risk Board (ESRB), advocate for a robust macroprudential framework. These organisations emphasize the importance of granting central banks sufficient authority over macroprudential policy (IMF-FSB-BIS, 2016; Lim et al., 2013; IMF, 2018). By doing so, central banks can effectively leverage their expertise in risk assessment and their strong incentives to mitigate systemic risks. Additionally, this framework facilitates better coordination between macroprudential policy, monetary policy, and microprudential policy, ensuring a comprehensive approach to maintaining financial stability (IMF-FSB-BIS, 2016; IMF, 2013; Nier et al., 2011; Lim et al., 2013).

In this spirit, we proceed by analyzing the sub-samples based on whether the central bank plays a leading role in the macroprudential policy framework. Table 5 demonstrates that in economies where the central bank is either the sole authority for macroprudential policies (MaPs) or the central bank governor chairs the macroprudential committee, the impact of geopolitical risk (GPR) on the use of MaPs is less pronounced.

For the analysis of macroprudential tools we classify the 17 MaP measures into two categories: entity-based and activity-based tools. According to Borio et al. (2022), entity-based MaPs, which enhance the resilience of financial market participants, are central to the regulatory framework for financial stability. Table 5 further highlights the heterogeneous effect of GPR on MaPs usage across countries with and without central bank leadership. The result suggests that in countries where central bank leads macroprudential policy (CB countries), GPR does not have a significant effect on the use of MaPs. However, in non-CB countries, GPR leads to significant reduction in the use of entity-based MaPs.

This finding can be supported by the differing roles that central banks play in the macroprudential and microprudential policy frameworks. In non-CB-countries, where central banks do not lead macroprudential policy, policymakers may rely more heavily on entity-based MaPs – such as capital requirements, liquidity buffers, and leverage ratios – which target the resilience of financial institutions. Since central banks in these countries are primarily responsible for microprudential regulation, which focuses on the financial health of individual institutions, non-CB-countries might relax entity-based MaPs in response to GPR as a way to buffer the banking sector from external shocks. In this case, policymakers may perceive that relaxing regulations on banks allows them to better absorb or respond to geopolitical risks, especially since banks are more exposed to these risks through international lending and investment channels.

In contrast in CB countries, central banks often have a deeper understanding of the financial health of individual banks due to their dual roles in macroprudential and microprudential supervision. This familiarity with the banking sectors' capacity to withstand shocks may reduce the need to adjust entity-based MaPs in response to GPR. Central banks in these countries may be more confident in their ability to manage financial stability risks through microprudential oversight and therefore less inclined to adjust macroprudential tools, even in the face of rising geopolitical risks. Thus, in CB countries, the more robust integration of microprudential and macroprudential oversight may explain the lack of a significant response to GPR in the form of reducing entity-based MaPs. Meanwhile, in non CB-countries, the separation of these functions could result in a more pronounced relaxation of entity-based MaPs, as policymakers are less equipped to manage systemic risks at the individual institution level.

# 6. Robustness Checks

In this section, we conduct robustness checks to ensure the reliability and validity of our results. We employ three strategies to test the robustness of our findings: (1) Alternative Outcome Variables: First, we use representative macroprudential tools as alternative outcome variables. Rather than relying solely on the aggregated use of macroprudential policies (MaPs), we examine the impact of geopolitical risk (GPR) on individual tools, such as capital requirements and loan-to-value (LTV) ratios. This allows us to assess whether the results hold across different types of MaPs, particularly those that are commonly used in both advanced and emerging economies; (2) Alternative Geopolitical Risk Instrument: Second, we modify the construction of our instrumental variable by using G7 countries as the source of geopolitical risk. Given the significant global influence of G7 nations, this approach ensures that the instrument captures geopolitical shocks emanating from economically and politically dominant countries. By using this alternative geopolitical risk source, we aim to test the robustness of our results to different definitions of external geopolitical shocks; (3) Dynamic Fixed-Effects Model: Third, we estimate a dynamic fixed-effects model to account for potential persistence in the use of MaPs over time. This model includes lagged dependent variables to control for the autoregressive nature of macroprudential policy actions. By using this approach, we can better understand how past use of MaPs influences current decisions, and whether geopolitical risk still plays a significant role once these dynamics are considered.

## 6.1 Alternative outcome variables

Our baseline results demonstrate the effect of geopolitical risk (GPR) on the overall use of macroprudential policies (MaPs). However, it is important to assess whether these findings hold for specific, widely-used policy tools. In particular, we examine key instruments such as bank-focused capital requirements (Capital) and borrower-focused measures like loan-to-value (LTV) and debt-service-to-income (DSTI) ratios. These tools are critical components of macroprudential regulation, targeting both the resilience of financial institutions and the borrowing capacity of households and firms. Analyzing these individual tools allows us to determine whether the observed effects of GPR extend to these crucial areas of financial stability policy.

Table 6 and 7 present the instrumental variable (IV) estimation results for loan-to-value (LTV) ratios, debt-service-to-income (DSTI) ratios, and various targeted capital requirement measures, including general-targeted, household-targeted, and corporate-targeted capital requirements. The results indicate that DSTI, as well as general-targeted and household-targeted capital requirements, are significantly impacted by geopolitical risk (GPR). These findings suggest that geopolitical risk influences both borrower-focused policies and certain categories of capital requirements aimed at enhancing financial system resilience.

## 6.2 Alternative instruments

In this section, we use the G7 countries as the source of geopolitical risk, rather than the five permanent members of the United Nations Security Council (UNSC). The G7 nations are highly influential in shaping global economic and political dynamics, making them a relevant alternative source for geopolitical shocks. Table 8 presents the results using this new instrument. The findings remain consistent with our baseline results, suggesting that the choice of geopolitical risk source — whether from the G7 or UNSC members — does not significantly change the observed effects on macroprudential policies. This robustness check reinforces the reliability of our initial conclusions.

## 6.3 Analysis with the dynamic fixed effect model

Finally, we estimate the effect of geopolitical risk (GPR) on macroprudential policies (MaPs), using a dynamic fixed-effects model to account for the potential persistence of MaP usage over time. The model specifications is as follows:

$$MaP_{it} = \alpha_i + \lambda_t + \gamma MaP_{it-1} + \beta GPR_{it-1} + Z_{it-1} + \epsilon_{ict} \tag{3}$$

where $MaP_{it}$ represents the total frequency of macroprudential policy actions in country $i$ during month $t$. The term $\alpha_i$ captures country-fixed effects to control for time-invariant characteristics specific to each country, while $\lambda_t$ represents time-fixed effects, accounting for global time trends that could affect all counties simultaneously. The inclusion of $MaP_{it-1}$, the one-period lagged value of macroprudential policies, controls for

persistence in the use of MaPs, recognising that past policy actions may influence current decisions while also capturing the autoregressive nature of macroprudential policy implementation. The variable $GPR_{it-1}$ is the key independent variable of interest, measuring the geopolitical risk in country $i$ at time $t-1$. By using the lagged value of GPR and other control variables, we aim to mitigate concerns about simultaneity and ensure that the effects of geopolitical risk on MaPs are properly identified. The control variables, devoted by $Z_{it-1}$ include various macroeconomic factors, such as unemployment rate, inflation, GDP growth, and other indicators that may also influence the use of macroprudential policies. The error term $\epsilon_{ict}$ captures the remaining unobserved factors that might affect MaP decisions. Overall this specification offers a better understanding on how GPR affects the use of MaPs over time, accounting for both immediate and persistent effects in the policy response.

Table 9 presents the estimation results for the dynamic fixed-effects model. The coefficient estimates for $\gamma$, representing the lagged effect of macroprudential policy actions ($MaP_{it-1}$) on current policy usage, are found to be statistically insignificant across all specifications. This suggests that the persistence of past macroprudential policy actions does not significantly influence the current frequency of MaP implementation. Furthermore, the estimated effect of geopolitical risk (GPR) on MaPs remains consistent with our baseline results. The negative relationship between GPR and the use of tightening macroprudential policies persists, indicating that an increase in geopolitical risk continues to relax the implementation of MaPs, even when accounting for potential dynamics in policy behaviour. Overall, these findings reinforce the robustness of our baseline results and suggest that the effect of geopolitical risk on macroprudential policies is not driven by the lagged effects of past policy actions.

# 7. Discussion and Conclusion

Examining the relationship between geopolitical risk (GPR) and the use of macroprudential policies (MaPs) carries important implications for global financial stability. Our findings indicate that rising geopolitical risk is associated with a tendency for countries to reduce the implementation of macroprudential tightening actions. This result is of particular economic significance given the increasing volatility in the geopolitical landscape and its potential to disrupt financial systems globally.

This finding aligns with previous research, which suggests that policymakers may be reluctant to implement restrictive financial measures during periods of elevated political uncertainty (Muller, 2023). The reasoning behind this hesitation is that imposing tighter macroprudential regulations during geopolitical stress could exacerbate economic strains, potentially leading to adverse spillover effects on financial institutions and the broader economy. In such circumstances, policymakers may prioritize short-term economic stability over long-term financial safeguards, as tightening financial regulations could further constrain credit availability, amplify economic shocks and destabilise the financial sector.

A key factor that moderates the relationship between geopolitical risk (GPR) and the use of macroprudential policies (MaPs) is the institutional framework governing macroprudential policymaking. Our analysis highlights the crucial role of central bank leadership in shaping how countries respond to geopolitical risk through macroprudential measures. Specifically, in jurisdictions where central banks hold a leading role in macroprudential decision-making — either as the sole authority or as the chair of macroprudential committees — the adverse impact of GPR on the use of tightening actions is significantly diminished. This suggests that central banks, given their independence and expertise in financial risk management, are better equipped to maintain macroprudential discipline during periods of heightened geopolitical risk, thereby reducing the likelihood of loosening financial regulations in response to external shocks.

This finding underscores the role of central banks as independent, technocratic institutions that are less vulnerable to political pressures compared to other government bodies. Their specialized expertise in risk assessment, combined with their primary mandate to ensure financial stability, allows central banks to take a more proactive stance in ad-

dressing systemic risks, even amidst heightened geopolitical uncertainty. Besides, Central banks' capacity to effectively coordinate with other financial regulators, such as micro-prudential supervisors, enhances the overall resilience of the financial system. This coordination helps mitigate the impact of external shocks, ensuring a more comprehensive and integrated approach to risk management across both individual institutions and the broader financial system.

In contrast, in countries where the central bank is not the primary authority responsible for macroprudential policy, the impact of geopolitical risk (GPR) on the use of macroprudential policies (MaPs) is more pronounced. In these cases, the fragmented institutional framework, combined with potential political interference, can result in delays or inaction when it comes to implementing necessary tightening measures. This institutional fragmentation weakens the ability to respond swiftly and effectively to emerging risks, as decision-making may be influenced by short-term political considerations rather than long-term financial stability objectives. These findings suggest that the institutional structure governing macroprudential policymaking is a critical factor in determining the effectiveness of policy responses to geopolitical risks. Therefore, a cohesive and independent macroprudential framework led by central banks is better potitioned to maintain financial stability in the face of unanticipated external shocks. Our further analysis reveals heterogeneous responses among different types of macroprudential tools in the context of geopolitical risk. Specifically, in countries where the central bank does not lead macroprudential policy (non-CB countries), entity-based MaPs — those that directly target financial institutions, such as capital requirements and liquidity ratios — are more vulnerable to the effects of geopolitical risk. This result further supports the importance of central bank leadership in macroprudential policymaking.

Our findings provide compelling evidence that geopolitical risk significantly influences the implementation of macroprudential policies, particularly with respect to tightening actions. Geopolitical tensions generate an environment of uncertainty, leading policymakers to adopt a more cautious approach to enforcing restrictive financial regulations. However, central banks play a critical role in mitigating the negative impact of geopolitical risk on financial stability. Their independence and expertise in risk management enable central banks to navigate the complexities associated with geopolitical uncertainties more effectively, ensuring that the financial system remains resilient in the face of unanticipated

external shocks.

As geopolitical risks continue to rise, particularly in the context of ongoing global conflicts and increasing economic fragmentation, policymakers should strengthen their macroprudential frameworks. Central banks are expected to play a leading role in this process, and the careful selection of appropriate macroprudential tools will be critical for maintaining financial stability in an increasingly uncertain global environment. Future research should focus on examining the long-term effects of geopolitical risks on financial markets and evaluating the effectiveness of different macroprudential instruments in mitigating these risks across varying institutional contexts.

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# A. Variable Definition & Descriptive Statistics

Table 1: Description of variables

| Variable | Definition | Sources |
|---|---|---|
| GPR | Geopolitical risk | Caldara and Iacoviello (2022) |
| MaPs | Macroprudential index | IMF iMaPP |
| Capital | Bank capital requirement | IMF iMaPP |
| $\text{Capital}_{Gen}$ | General bank capital requirement | IMF iMaPP |
| $\text{Capital}_{HH}$ | Household sector targeted bank capital requirement | IMF iMaPP |
| $\text{Capital}_{Corp}$ | Corporate sector targeted bank capital requirement | IMF iMaPP |
| LTV | Limits to loan-to-value ratios | IMF iMaPP |
| DSTI | Limits to debt-service-to-income ratios | IMF iMaPP |
| $\text{MaPs}_{entity}$ | Index of entity (price) -based MaPs | IMF iMaPP |
| $\text{MaPs}_{activity}$ | Index of activity (quantity) -based MaPs | IMF iMaPP |
| Unemployment | Unemployment rate | World Bank |
| Population | Population growth rate | World Bank |
| GDP | Natural logarithm of GDP | World Bank |
| GDP Growth | GDP growth rate | World Bank |
| CPI | Index of consumer prices | World Bank |
| Consumption | General government final consumption | World Bank |
| Trade | Sum of exports and imports of goods and services as a share of GDP | World Bank |
| Government | Government effectiveness | World Bank WGI |
| Regulation | Regulatory quality | World Bank WGI |
| Rule | Rule of law | World Bank WGI |
| Voice | Voice and accountability | World Bank WGI |
| FD | Financial development index | IMF |
| Bureaucracy | Bureaucracy quality | ICRG |
| Religious | Religious Tension | ICRG |
| GINI | GINI index | Office for National Statistics |
| CBIE | Central Bank Independence | Romelli (2022) |
| $\text{CBIE}_{Board}$ | Central Bank Independence in deciding board | Romelli (2022) |
| $\text{CBIE}_{Policy}$ | Central Bank Independence in deciding policy | Romelli (2022) |
| $\text{CBIE}_{Obj}$ | Central Bank Independence in objective | Romelli (2022) |
| Connect | Global connectedness index | Altman and Bastian (2024) |
| Breadth | Global connectedness breadth index | Altman and Bastian (2024) |
| Depth | Global connectedness depth index | Altman and Bastian (2024) |

Table 2: Descriptive statistics

| Variable | N | Mean | SD | Min | p50 | Max |
|---|---|---|---|---|---|---|
| MaPs | 7056 | 0.170 | 0.540 | 0 | 0 | 7 |
| GPR | 7056 | 0.200 | 0.380 | 0 | 0.060 | 3.620 |
| $\text{MaPs}_{activity}$ | 7056 | 0.030 | 0.200 | 0 | 0 | 3 |
| $\text{MaPs}_{entity}$ | 7056 | 0.140 | 0.470 | 0 | 0 | 6 |
| Capital | 7056 | 0.020 | 0.120 | 0 | 0 | 1 |
| $\text{Capital}_{Gen}$ | 7056 | 0.010 | 0.070 | 0 | 0 | 1 |
| $\text{Capital}_{HH}$ | 7056 | 0.010 | 0.100 | 0 | 0 | 1 |
| $\text{Capital}_{Corp}$ | 7056 | 0 | 0.050 | 0 | 0 | 1 |
| LTV | 7056 | 0.010 | 0.110 | 0 | 0 | 1 |
| DSTI | 7056 | 0.010 | 0.080 | 0 | 0 | 1 |
| Unemployment | 7056 | 7.390 | 4.710 | 0.700 | 6.550 | 34.30 |
| Population | 7056 | 0.750 | 0.670 | -1.850 | 0.750 | 3.850 |
| GDP | 7056 | 9.700 | 1.070 | 6.990 | 9.860 | 11.38 |
| GDP Growth | 7056 | 2.220 | 3.720 | -15.14 | 2.370 | 13.35 |
| CPI | 7056 | 3.770 | 6.520 | -2.090 | 2.450 | 94.80 |
| Consumption | 7056 | 17.72 | 4.770 | 5.630 | 18.35 | 30 |
| Trade | 7056 | 0.840 | 0.600 | 0.220 | 0.670 | 4.430 |
| FD | 6564 | 0.610 | 0.210 | 0.190 | 0.640 | 0.990 |
| GINI | 6732 | 35.86 | 7.920 | 24.50 | 33.50 | 63.40 |
| Regulation | 7056 | 0.779 | 0.810 | -1.066 | 0.911 | 2.225 |
| Voice | 7056 | 0.538 | 0.910 | -1.907 | 0.724 | 1.752 |
| Election | 7056 | 0.0200 | 0.150 | 0 | 0 | 1 |
| Rule | 7056 | 0.684 | 0.933 | -1.011 | 0.839 | 2.124 |
| CBIE | 7056 | 0.640 | 0.220 | 0 | 0.670 | 0.930 |
| $\text{CBIE}_{Board}$ | 7056 | 0.550 | 0.260 | 0 | 0.560 | 0.940 |
| $\text{CBIE}_{Policy}$ | 6888 | 0.580 | 0.200 | 0.0700 | 0.600 | 0.800 |
| $\text{CBIE}_{Obj}$ | 6888 | 0.670 | 0.320 | 0 | 0.750 | 1 |
| Bureaucracy | 7056 | 2.974 | 0.876 | 1 | 3 | 4 |
| Religious tension | 7056 | 0.770 | 0.220 | 0.240 | 0.850 | 1 |
| Connect | 7056 | 60.87 | 13.18 | 11.82 | 64.43 | 89.35 |
| Breadth | 7056 | 35.08 | 6.910 | 17.22 | 35.82 | 47.89 |
| Depth | 7056 | 26.69 | 7.790 | 11.26 | 27.27 | 43.88 |
| UNSC | 7056 | 0.224 | 0.417 | 0 | 0 | 1 |

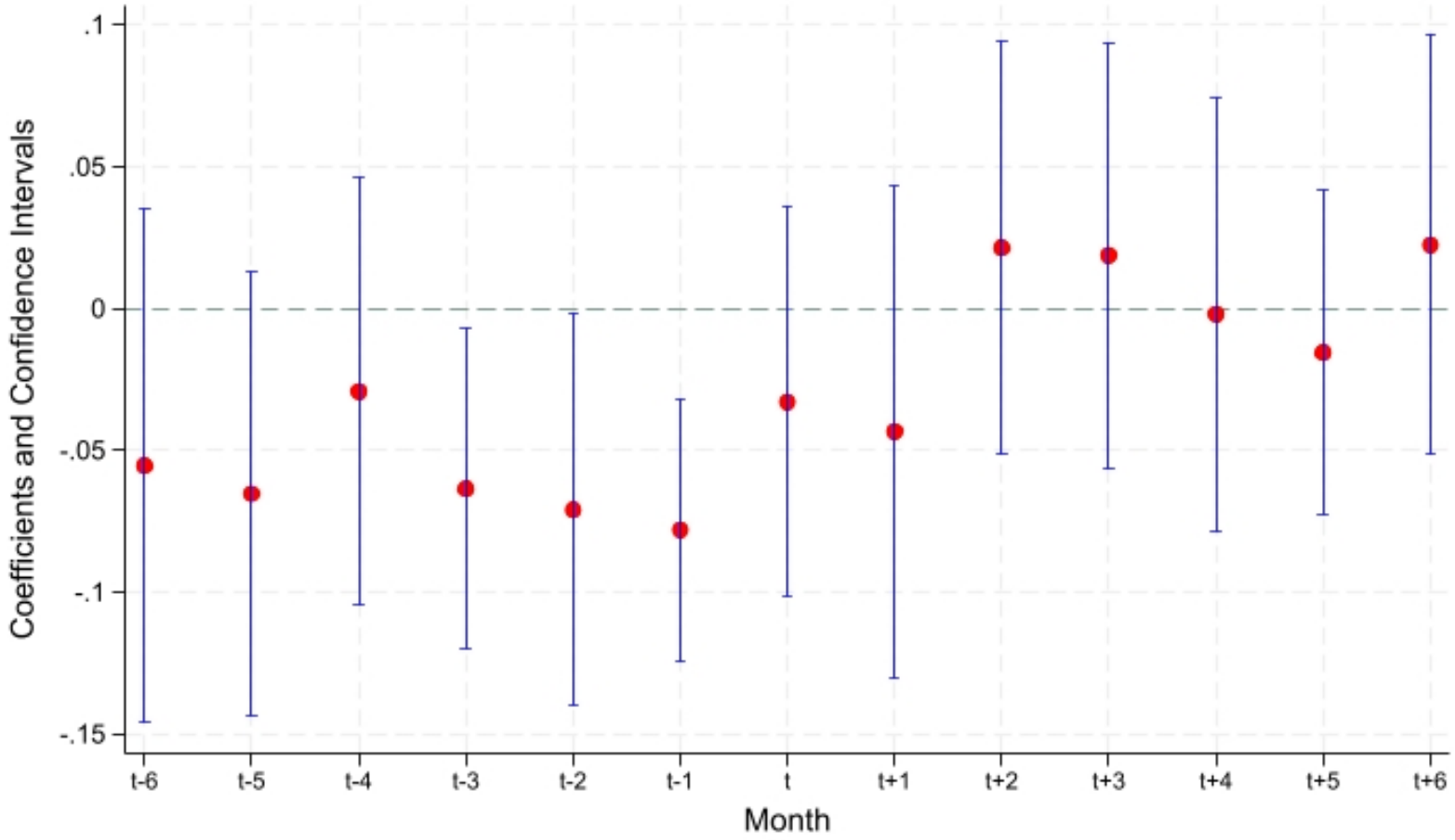
## B. Baseline Results & Mechanism

Table 3: OLS estimates of the effect of GPR

| | $\text{MaPs}_{tightening}$ | | $\text{MaPs}_{loosening}$ | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| GPR | -0.0581* | -0.0779*** | -0.0053 | -0.0005 |
| | (0.0320) | (0.0274) | (0.0190) | (0.0175) |
| Country FE | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes |
| Macro controls | No | Yes | No | Yes |
| Observation | 7014 | 6199 | 7014 | 6199 |

**Note:** Table 3 presents OLS estimates of the effects of GPR. Our dependent variable is the use of MaPs, including tightening actions of macroprudential policy, denoted by $\text{MaPs}_{tightening}$, and loosening actions of macroprudential policy, denoted by $\text{MaPs}_{loosening}$. We show OLS results without and with observable macroeconomic variables (not reported), including unemployment rate, population growth, inflation rate, GDP growth, natural logarithm of GDP, general government final consumption, trade of GDP, financial development index, GINI index, government effectiveness, regulatory quality, rule of law, voice and accountability, bureaucracy quality, regional tension, global connectedness, UNSC membership, and central bank independence. The standard errors clustered at country level are reported in the parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Figure 6: Timing of the relationship between geopolitical risk and tightening actions of macroprudential policy




**Note:** Figure 6 presents the relationship between lags and leads of geopolitical risk and macroprudential policy. Each coefficient is obtained by separately estimating the specification in column (2) of Table 3 using a different lag or lead of geopolitical risk index, as indicated on the horizontal axis. Our dependent variable is the use of tightening actions of macroprudential policy. All regressions are estimated using OLS. The confidence intervals are based on standard errors corrected for clustering at the country level and refer to the 90 per cent significance level.

Table 4: OLS and IV estimates of the effect of GPR

| | OLS | Reduced Form | 1st Stage | 2SLS |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| GPR | -0.0779*** | | | -0.1755** |
| | (0.0274) | | | (0.0894) |
| Foreign GPR shocks | | -0.0160* | 0.0914*** | |
| | | (0.0088) | (0.0226) | |
| F stat. | | | 16.33*** | |
| Country FE | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes |
| Macro controls | Yes | Yes | Yes | Yes |
| Observation | 6199 | 6199 | 6199 | 6199 |

**Note:** Table 4 presents OLS, Reduced Form (we regress the outcome variable on the instrument), First Stage, and 2nd Stage estimates of the effects of GPR. Our dependent variable is the use of tightening actions of macroprudential policy. The standard errors clustered at country level are reported in the parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 5: Mechanism: the role of central banks

| | Dependent variable: Different categories of Macroprudential policies | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | CB | | | | Non-CB | | | |
| | 1st Stage | MaPs | $MaP_{en}$ | $MaP_{act}$ | 1st Stage | MaPs | $MaP_{en}$ | $MaP_{act}$ |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| GPR | | -0.0056 | 0.3215 | -0.3272 | | -0.1723*** | -0.1807*** | 0.0084 |
| | | (0.5331) | (0.1992) | (0.3757) | | (0.0655) | (0.0498) | (0.0261) |
| Foreign GPR shocks | 0.0639*** | | | | 0.1019*** | | | |
| | (0.0117) | | | | (0.0202) | | | |
| First-stage F stat. | 29.96*** | | | | 25.39*** | | | |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Macro controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation | 2789 | 2789 | 2789 | 2789 | 3410 | 3410 | 3410 | 3410 |

**Note:** Table 5 presents IV estimates of the effects of GPR for CB and Non-CB countries. In CB countries, central banks are the leaders of the macroprudential committee while in non-CB countries, central banks are not. Column 1 and 4 shows the first stage results for CBs and Non-CBs. Our dependent variables are the use of different categories of MaPs (The total use of MaPs is denoted by MaPs. The use of entity-based MaPs is denoted by $MaP_{en}$. The use of activity-based MaPs is denoted by $MaP_{act}$). Column 2 and 6 present 2SLS results for total use of MaPs in response to GPR in countries where central banks are and are not the leader of the macroprudential committee, respectively. Column 3 and 7 present 2SLS results for entity-based MaPs in response to GPR in countries where central banks are and are not the leader of the macroprudential committee, respectively. Column 4 and 8 present 2SLS results for activity-based MaPs in response to GPR in countries where central banks are and are not the leader of the macroprudential committee, respectively. The standard errors clustered at country level are reported in the parentheses. *** indicates significance at the 1% level, ** at the 5% level, and at the 10% level.

# C. Robustness Check

Table 6: IV estimates of the effect of GPR on the use of representative MaPs

| | Dependent variable: Two demand side Macroprudential tools | | | | | |
|---|---|---|---|---|---|---|
| | LTV | | | DSTI | | |
| | Total | CB | Non-CB | Total | CB | Non-CB |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| GPR | -0.0196 | -0.0087 | -0.0110 | -0.0412** | -0.0307 | -0.0356** |
| | (0.0231) | (0.0447) | (0.0233) | (0.0171) | (0.0356) | (0.0164) |
| First-stage F stat. | 16.33*** | 29.96*** | 25.39*** | 16.33*** | 29.96*** | 25.39*** |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Macro controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation | 6199 | 3410 | 2789 | 6199 | 3410 | 2789 |

**Note:** Table 6 presents IV estimates of the effects of GPR for CB and Non-CB countries. Our dependent variables are the use of two representative borrower-based MaPs: limits on loan-to-value ratio (LTV) and debt-service-to-income ratio (DSTI). The standard errors clustered at country level are reported in the parentheses. *** indicates significance at the 1% level, ** at the 5% level, and at the 10% level.

Table 7: IV estimates of the effect of GPR on different targeted bank capital requirement

| | Dependent variable: Bank capital requirement | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capital | | | $\text{Capital}_{Gen}$ | | | $\text{Capital}_{HH}$ | | | $\text{Capital}_{Corp}$ | | |
| | Total | CB | Non-CB | Total | CB | Non-CB | Total | CB | Non-CB | Total | CB | Non-CB |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| GPR | -0.0448* | -0.1560 | -0.0468*** | -0.0312*** | -0.0360 | -0.0352*** | -0.0376 | -0.1165 | -0.0369** | -0.0026 | -0.0459 | 0.0038 |
| | (0.0253) | (0.1690) | (0.0181) | (0.0099) | (0.0562) | (0.0070) | (0.0234) | (0.1821) | (0.0173) | (0.0070) | (0.0490) | (0.0043) |
| First-stage F stat. | 16.33*** | 29.96*** | 25.39*** | 16.33*** | 29.96*** | 25.39*** | 16.33*** | 29.96*** | 25.39*** | 16.33*** | 29.96*** | 25.39*** |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Macro controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation | 6199 | 3410 | 2789 | 6199 | 3410 | 2789 | 6199 | 3410 | 2789 | 6199 | 3410 | 2789 |

**Note:** Table 7 presents IV estimates of the effects of GPR for CB and Non-CB countries. Our dependent variables are the use of one of the most popular supply-based MaPs: Capital requirement (Capital), general targeted capital requirement ($\text{Capital}_{Gen}$), household-targeted capital requirement ($\text{Capital}_{HH}$), and corporate-based capital requirement ($\text{Capital}_{Corp}$). The standard errors clustered at country level are reported in the parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 8: Results of an alternative IV

| | OLS | Reduced Form | 1st Stage | 2SLS |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| GPR | -0.0779*** | | | -0.1689* |
| | (0.0274) | | | (0.0958) |
| Foreign GPR shocks | | -0.0139* | 0.0825*** | |
| | | (0.0083) | (0.0235) | |
| F stat. | | | 12.36*** | |
| Country FE | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes |
| Macro controls | Yes | Yes | Yes | Yes |
| Observation | 6199 | 6199 | 6199 | 6199 |

**Note:** Table 8 presents OLS and IV estimates of the effects of GPR. In this table, our new instrument variable is defined as the weighted geopolitical spillover from G7 countries. This table presents OLS, Reduced Form (we regress the outcome variable on the instrument), First Stage, and 2nd Stage estimates of the effects of GPR. Our dependent variable is the use of tightening actions of macroprudential policy. The standard errors clustered at country level are reported in the parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 9: Dynamic fixed effect model: OLS and IV estimates of the effect of GPR on MaPs

| | OLS | Reduced Form | 1st Stage | 2SLS |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| GPR | -0.0779*** | | | -0.1757** |
| | (0.0273) | | | (0.0889) |
| $MaPs_{t-1}$ | -0.0008 | -0.0008 | -0.0022 | -0.0012 |
| | (0.0179) | (0.0178) | (0.0039) | (0.0179) |
| Foreign GPR shocks | | -0.0161* | 0.0914*** | |
| | | (0.0088) | (0.0226) | |
| F stat. | | | 16.33*** | |
| Country FE | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes |
| Macro controls | Yes | Yes | Yes | Yes |
| Observation | 6199 | 6199 | 6199 | 6199 |

**Note:** Table 9 presents OLS and IV estimates of the effects of GPR. This table presents OLS, Reduced Form (we regress the outcome variable on the instrument), First Stage, and 2nd Stage estimates of the effects of GPR. Our dependent variable is the use of tightening actions of macroprudential policy. The standard errors clustered at country level are reported in the parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

# D. Definition and Classification of MaPs

Table 10: 17 Macroprudential tools (Excerpt from IMF iMaPP database)

| Instrument | Description |
|---|---|
| CCB | A requirement for banks to maintain a countercyclical capital buffer. Implementations at 0% are not considered as a tightening in dummy-type indicators. |
| Conservation | Requirements for banks to maintain a capital conservation buffer, including the one established under Basel III. |
| Capital | Capital requirements for banks, which include risk weights, systemic risk buffers, and minimum capital requirements. |
| LVR | A limit on leverage of banks, calculated by dividing a measure of capital by the bank's non-risk-weighted exposures. |
| LLP | Loan loss provision requirements for macroprudential purposes, which include dynamic provisioning and sectoral provisions (e.g. housing loans). |
| LCG | Limits on growth or the volume of aggregate credit, the household-sector credit, or the corporate-sector credit, and penalties for high credit growth. |
| LoanR | Loan restrictions, which may be conditioned on loan characteristics (e.g., the maturity, the size, the LTV ratio and the type of interest rate of loans), lender characteristics, and other factors. |
| LFC | Limits on foreign currency (FC) lending, and rules or recommendations on FC loans. |
| LTV | Limits to the loan-to-value ratios, applied to residential and commercial mortgages but also applicable to other secured loans, such as for automobiles. |
| DSTI | Limits to the debt-service-to-income ratio and the loan-to-income ratio, which restrict the size of debt service payments or the size of a loan relative to income. |
| Tax | Taxes and levies applied to specified transactions, assets, or liabilities, which include stamp duties, and capital gain taxes. |
| Liquidity | Measures taken to mitigate systemic liquidity and funding risks, including minimum requirements for liquidity coverage ratios, liquid asset ratios, net stable funding ratios, core funding ratios and external debt restrictions that do not distinguish currencies. |
| LTD | Limits to the loan-to-deposit (LTD) ratio and penalties for high LTD ratios. |
| LFX | Limits on net or gross open foreign exchange (FX) positions, limits on FX exposures and FX funding, and currency mismatch regulations. |
| RR | Reserve requirements for macroprudential purposes. |
| SIFI | Measures taken to mitigate risks from global and domestic systemically important financial institutions (SIFIs), which includes capital and liquidity surcharges. |
| Other | Macroprudential measures not captured in the above categories—e.g., stress testing, restrictions on profit distribution, and structural measures. |

Table 11: Classification of MaPs.

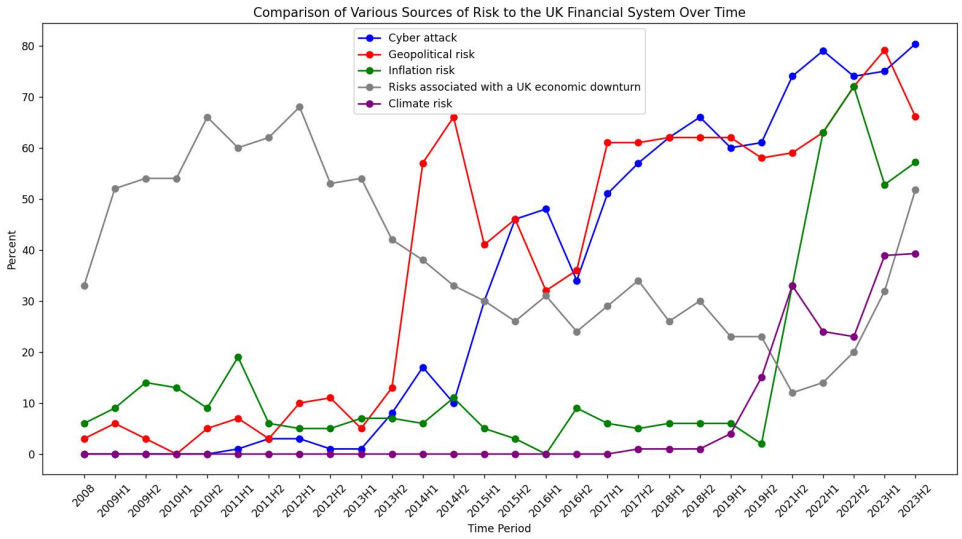
| Abbreviation | Name | Price/quantity | Demand/supply | Target |
|---|---|---|---|---|
| CCB | Countercyclical capital buffer | Price | Supply | Capital |
| Conservation | Capital conservation buffer | Price | Supply | Capital |
| Capital | Capital requirements | Price | Supply | Capital |
| LVR | Leverage ratio | Price | Supply | General |
| LLP | Loan loss provision requirements | Price | Supply | Loan |
| LCG | Limits on credit growth | Quantity | Supply | Loan |
| LoanR | Loan restrictions | Quantity | Supply | Loan |
| LFC | Limits on foreign currency lending | Quantity | Supply | General |
| LTV | Limits to the loan-to-value ratios | Quantity | Demand | Loan |
| DSTI | Limits to debt-to-income ratio | Quantity | Demand | Loan |
| Tax | Taxes and levies | Price | Supply | General |
| Liquidity | Liquidity ratio | Price | Supply | General |
| LTD | Limits to the loan-to-deposit ratio | Quantity | Supply | Loan |
| LFX | Limits on foreign exchange positions | Quantity | Supply | General |
| RR | Reserve requirements | Price | Supply | General |
| SIFI | Surcharges for systemically -important-financial-institutions | Price | Supply | Capital |

Table 12: Institutional arrangement for the sample jurisdictions

| | |
|---|---|
| Argentina | The only legal mandates authority: The Central Bank of Argentina |
| Australia | Australian Prudential Regulation Authority (APRA) |
| Belgium | National Bank of Belgium, the Government, and Financial Services and Market Authority |
| Brazil | No explicit authority. National Monetary Council and the Central Bank of Brazil |
| Canada | No clear mandates. The Senior Advisory Committee chaired by MOF |
| Chile | The Superintendency of Banks and Financial Institutions (SBIF) chaired by MOF |
| China | The PBC and three regulatory agencies |
| Colombia | No agency. Central bank, Financial Supervisory, and MOF |
| Denmark | The Systemic Risk Council |
| Finland | The Board of the Finnish Financial Supervisory Authority |
| France | The High Council for Financial Stability (HCSF) |
| Germany | The Financial Stability Committee (FSC) |
| Hong Kong | The Hong Kong Monetary Authority (HKMA) |
| Hungary | Magyar Nemzeti Bank |
| India | The Financial Stability and Development Council (FSDC) |
| Indonesia | Bank Indonesia (BI) |
| Israel | Before 2018,the Bank of Israel (BOI) Monetary Policy Committee (MPC).<br>After 2018, Financial Stability Committee chaired by governor of BOI. |
| Italy | Bank of Italy, IVASS, Consob, and Covip |
| Japan | Bank of Japan (BOJ) |
| Malaysia | Bank Negara Malaysia |
| Mexico | The Financial System Stability Council (FSSC) |
| Netherlands | Twin peaks model: Netherlands Bank (DNB) and MOF |
| Norway | MOF |
| Peru | No clear agency |
| Philippines | The Financial Stability Coordination Council (FSCC) chaired by the governor of the Central Bank of Philippines |
| Poland | The Financial Stability Committee (FSC) chaired by the governor of the Central Bank of Poland (NBP) |
| Portugal | Banco de Portugal |
| Russia | Bank of Russia (CBR) |
| Saudi Arabia | The Financial Stability Committee (FSC) committee within the central bank chaired by the Governor of SAMA. |
| South Africa | Financial Stability Committee (FSC) chaired by the governor of South Africa Reserve Bank (SARB) |
| South Korea | The Financial Services Commission (FSC) headed by the government |
| Spain | A national macroprudential authority outside the Central Bank chaired by the Minister of Economics and Business |
| Sweden | The Swedish Financial Supervisory Authority (Finansinspektionen, FI) |
| Switzerland | Twin Peaks model: Swiss National Bank (SNB) and the Swiss Financial Market Supervisory Authority (FINMA) |
| Taiwan | Central Bank of Republic of China Taiwan |
| Thailand | Financial Stability Subcommittee and Financial Stability Working Group chaired by the Governor of Central Bank of Thailand |
| Tunisia | The Central Bank of Tunisia |
| Turkey | No clear agency. Banking Regulation and Supervision Agency (BRSA) and CBRT |
| Ukraine | National Bank of Ukraine (NBU) |
| United Kingdom | Financial Policy Committee (FPC) chaired by the Governor of Bank of England |
| United States | Financial Stability Oversight Council (FSOC) chaired by United States Treasury |
| Vietnam | State Bank of VietnamSBV |

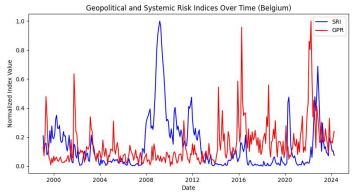
# E. Additional Figures

Figure 7: Key Sources of Risk to the UK Financial System from 2008 to 2023

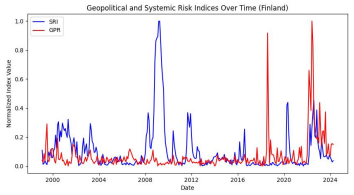



**Note:** Figure 7 shows the top 5 sources of risk to the UK financial system from 2008 to 2023. Respondents are asked to list the five perceived risk sources for systemic risk in the UK financial system. *Source: Bank of England Systemic Risk Surveys and Bank calculations.*

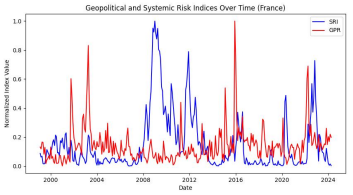
Figure 8: Geopolitical and Systemic Risk over time for 11 countries



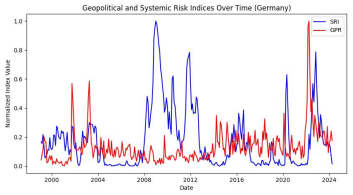

(a) Belgium



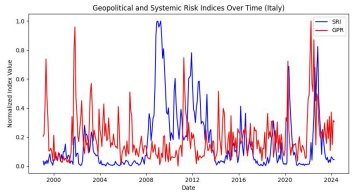

(b) Finland



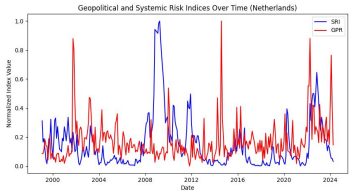

(c) France



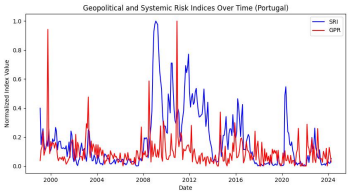

(d) Germany



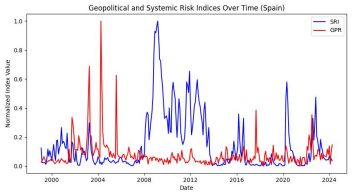

(e) Italy



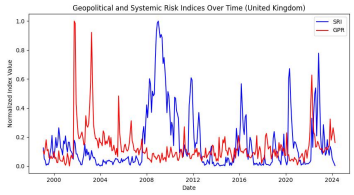

(f) Netherlands



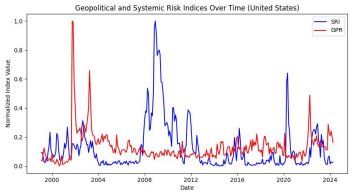

(g) Portugal



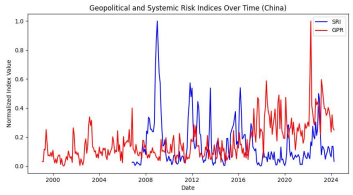

(h) Spain




(i) United Kingdom




(j) United States




(k) China

**Note:** Figure 8 plots Geopolitical (GPR) and Systemic Risk (SRI) Index for 11 countries from 1999 to 2024. The indices are normalized to $[0,1]$. *Source: European Central Bank's Composite Indicator of Systemic Stress (CISS) and Caldara and Iacoviello (2022).*