Geopolitical Risk and Global Banking*

Friederike Niepmann† Leslie Sheng Shen‡

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(PRELIMINARY)

Abstract

This paper shows that internationally active banks play a significant role in propagating foreign geopolitical risk to the domestic economy. Using multiple supervisory data on U.S. bank lending over the past four decades, we document that banks tighten domestic lending standards and reduce lending to U.S. firms in response to rising geopolitical risk abroad. This effect is driven by banks with high geopolitical risk exposure through foreign operations. In particular, the mode of banks' foreign operations influences the strength of the spillover effect. While U.S. banks reduce cross-border lending to countries of increasing geopolitical risk, their lending through branches and subsidiaries in those countries continues, even though the riskiness of their loan portfolios increases. These results indicate that difficulties with divesting foreign assets exacerbate spillovers of foreign geopolitical risk to U.S. domestic credit.

Keywords: global banking, geopolitical risk, international spillovers, lending standards, credit provision

JEL-Codes: F34, F36, G21

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†Board of Governors of the Federal Reserve System; email: friederike.niepmann@frb.gov.

‡Federal Reserve Bank of Boston; email: lesliesheng.shen@bos.frb.org.

1 Introduction

The adverse implications of geopolitical risk for the macroeconomy and financial stability have become a top concern for policymakers and business executives in recent years amid escalating geopolitical tension between the United States and China and Russia's invasion of Ukraine.[1] These developments have prompted an emerging strand of literature on the role of geopolitical power and risk in shaping economic activities (see, e.g., Hassan et al., 2019, Fajgelbaum et al., 2021, Alfaro and Chor, 2023, and Clayton et al., 2023). In particular, Caldara and Iacoviello (2022) show that rising geopolitical risk—defined as the threat, realization, and escalation of adverse events associated with wars, terrorism, and any tensions among states and political actors that affect the peaceful course of international relations—predicts lower domestic investment and employment. However, the channels that link geopolitical risk to macroeconomic outcomes are less well-understood. In this paper, we study the role of banks in propagating global geopolitical risk to the domestic real economy.

Our analysis shows that global geopolitical risk adversely impacts domestic lending by U.S. banks. Using multiple confidential supervisory data on U.S. bank lending spanning over four decades and measures of bank-specific geopolitical risk exposure, we find that U.S. banks, particularly internationally active ones, significantly tighten domestic lending standards and reduce lending to domestic firms in response to increasing geopolitical risk abroad.

The mechanism is as follows. When geopolitical risk rises in foreign countries, the credit risk of banks with exposures to these countries increases. To adhere to capital requirements and mitigate risk, banks must reduce exposures at home and/or abroad. The extent of the reduction in domestic lending depends on banks' ability to quickly lower exposures in countries where geopolitical risk has risen. We show that this ability is influenced by banks' mode of foreign operations. While banks reduce cross-border lending—lending stemming directly from U.S. parent banks—to countries with increasing geopolitical risk, their lending through

[1]The topic of geopolitical risk has frequently come up in Federal Reserve's FOMC meetings since 2019, as reflected in the meeting minutes. In a speech in 2022, Jamie Dimon stated that "the most important [risk] is the geopolitics around Russia and Ukraine, America and China, relationships of the western world. That to [him] would be far more concerning than whether there is a mild or slightly severe recession." See also the speech by Christine Lagarde on "Central banks in a fragmenting world" from April 17, 2023.

local operations—that is, branches and subsidiaries—in these countries persists or even increases, despite the heightened credit risk. This finding suggests that internationally active banks face frictions impeding a prompt divestment of assets in their foreign local operations. As such, the mode of banks' foreign operations can potentially exacerbate spillover effects of geopolitical risk abroad to domestic lending.

These results are consistent with anecdotal evidence from Russia's invasion of Ukraine. More than one and a half years after the initial invasion, Citigroup is still running down its operations in Russia. Two large internationally active banks, Raiffeisen Bank International (RBI) and UniCredit, continue to operate in Russia to this day despite expressing intention to exit the market soon after the invasion. These banks cite difficulty in finding suitable buyers and costly write-off of investments as some of the reasons for the protracted exit.[2] Our results suggest that these frictions play an important role in transmitting global geopolitical risk to the real economy.

We start the analysis by constructing a bank-specific geopolitical risk (BGPR) index that combines banks' loan exposure shares to different foreign countries and the corresponding country-specific geopolitical risk (CGPR) indices from Caldara and Iacoviello (2022). As such, the index measures the extent to which each bank is exposed to global geopolitical risk based on the geographical distribution of its foreign lending activities. Using the index, we estimate how U.S. banks' exposure to global geopolitical risk affects their domestic lending behavior, as measured by lending standards and lending amounts using confidential micro data from the Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) and bank balance sheet data, respectively. Our results show that an increase in foreign geopolitical risk leads to a significant tightening of U.S. banks' lending standards for domestic commercial and industrial (C&I) loans and a significant reduction in their domestic C&I and total loan amounts. These effects are most pronounced among the internationally active banks—banks whose foreign lending activities make up a large share of their total assets.

To understand the mechanisms driving the spillover effects, we examine whether geopo-

[2]For more information about the operations of global banks, including Citigroup, RBI, and UniCredit, in Russia since its invasion of Ukraine, see articles such as "Why are Raiffeisen and Unicredit still in Russia," Oct 4, 2022, Euromoney; "Western banks struggle to exit Russia after Putin intervention," Jan 16, 2023, Financial Times; and "Citigroup expects $190 mln of costs tied to Russia wind-down," February 27, 2023, Reuters.

litical risk shocks significantly affect the riskiness of the loan portfolios in banks with foreign operations. Using the Federal Reserve's Y-14Q data (often known as the credit registry of the United States) and analysis at the bank-country-time level, we find a substantial rise in the default probability of U.S. banks' loans to countries with escalated geopolitical risks where they operate locally. We also conduct an event study to affirm this observation during specific episodes of geopolitical risk shocks, namely the Crimea conflict in 2013Q4 and the Russia-Ukraine war in 2022Q1. In line with the prior finding, we show that in response to the sharp rise in geopolitical risk in Russia and Ukraine following these events, the default probability of U.S. banks' continuing loans to these countries sharply increased.

Building upon the results on credit risk at the bank-country level, we further examine whether the overall riskiness of banks' loan portfolios increased in response to increasing geopolitical risk abroad. Using the Y-14 data and regressions at the bank-time level, our analysis shows a significant increase in the aggregate probability of default for portfolios held by internationally active banks when their exposure to foreign geopolitical risk increases. In other words, foreign geopolitical risk shocks significantly increase the overall credit risk of U.S. banks' loan portfolios.

How do banks respond to the increase in the riskiness of their loan portfolios? Do they de-risk? We investigate how these banks manage their credit allocation across countries in response to increasing geopolitical risk. We study the relationship between geopolitical risk and U.S. banks' credit allocation abroad using confidential regulatory data that contains detailed information on banks' foreign lending by country. In particular, we explore potential heterogeneity in this relationship with respect to different types of foreign lending: banks can lend to a foreign country from locations other than the destination country, such as their home country, or their branches or subsidiaries in the respective country (Cetorelli and Goldberg, 2012a, Cetorelli and Goldberg, 2012b). The former form of lending results in cross-border claims, whereas the latter results in local claims. Using regressions at the bank-country-time level, we find that while banks reduce their cross-border claims to countries experiencing increasing geopolitical risk, their lending through local operations continues in these countries, conditioning on bank-country and bank-time fixed effects. In other words, banks' credit reallocation across countries in response to increasing geopolitical risk differs

by their mode of operation, with lending by foreign affiliates exhibiting significantly more persistence.

The finding that banks with foreign local operations continue to hold existing loans despite increasing credit risk due to escalating geopolitical risk reveals the presence of frictions that limit banks' ability to quickly divest assets. To assess the role of these frictions in driving our baseline results on spillover effects, we examine whether banks' global credit allocation behavior prompts them to tighten domestic lending standards and reduce domestic lending in response to rising geopolitical risk abroad. We sort banks into high and low local-claim banks based on the size of their foreign local lending activities as a share of foreign claims or total asset size. We find that high-local-claim banks tighten lending standards and curtail domestic credit provision most significantly in response to rising global geopolitical risk. This result confirms the role of frictions from foreign local operations in transmitting foreign geopolitical risk to the domestic economy.

Our paper is related to the emerging literature on the role of geopolitical power and risk in affecting economic activities, prompted in part by recent geopolitical events including the trade war between the United States and China and Russia's invasion of Ukraine. Many of the papers in this literature focus on the impacts of these events, in particular the U.S.-China trade war, on the global supply chain (see, e.g., Amiti et al., 2020, Fajgelbaum et al., 2020, Fajgelbaum et al., 2021, and Alfaro and Chor, 2023). Clayton et al. (2023) provide a model for understanding the role of geopolitical power and economic coercion in influencing global real and financial activity. Caldara and Iacoviello (2022) show that rising geopolitical risk lowers domestic investment and employment.[3] We contribute to this literature by pointing out a new financial channel through which geopolitical risk is transmitted to the real economy. In particular, our paper delves into the global context and highlights how global geopolitical risks propagate across borders and affect the real economy through global banks, due to their operational structure. To that end, our paper also contributes to the literature on risk and capital flow (see, e.g., Rey, 2016, Kalemli-Özcan, 2019, Jiang et al., 2020, Akinci et al., 2022, and Hassan et al., 2023) and the role of financial intermediaries in international spillovers (see, e.g., Peek and Rosengren, 2000, Schnabl, 2012, Ivashina et al., 2015, Hale et al., 2020,

[3]Wang et al. (2019) show that geopolitical risk affects firm corporate investment at the micro level.

and Shen and Zhang, 2022).

2 Background, Data, and Measures

2.1 Conceptual Background

Our empirical analysis tests whether U.S. banks play an important role in propagating foreign geopolitical risk to the domestic economy. U.S. banks are exposed to geopolitical risk abroad through their foreign lending relationships. In response to increasing geopolitical risk, banks may adjust their domestic and foreign lending according to the regulatory capital constraint, or namely,

$$\frac{\text{Equity capital}}{\text{Domestic Lending} \times \text{Domestic Risk} + \text{Foreign Lending} \times \text{Foreign Risk}} > \mu + \text{buffer}. \quad (1)$$

Equation (1) shows that regulation requires banks to hold a certain amount of capital against their risk-weighted assets. As previous studies such as Adrian and Shin (2014) have shown, bank equity capital is fixed in the short run. Therefore, when risk in a part of a bank's portfolio rises, it needs to reduce lending, derisk, or both. When geopolitical risk increases in countries where a bank has lending relationships, the risk associated with the foreign lending increases for the bank, and the denominator in Equation (1) becomes higher. To continue to satisfy the constraint, the bank may derisk and reduce domestic lending in response. This "spillover effect" of foreign geopolitical risk to U.S. lending forms the basis of our baseline analysis on the impact of foreign geopolitical risk on U.S. domestic lending.

Equation (1) also demonstrates that the extent of the spillover effect depends on a bank's ability and willingness to decrease lending to foreign countries facing growing geopolitical risk. The less it reduces foreign lending, the more it must reduce domestic lending. Moreover, banks can extend credit to foreign borrowers through two modes of operation, from an office (i.e., branch or subsidiary) in the country of residence of the borrower or from an office outside of the country of the borrower. The former results in local claims, and the latter results in cross-border claims.[4] Papers such as Cetorelli and Goldberg (2012a) have pointed

[4]To be more precise, cross-border exposures are claims held by offices of a bank that are outside of the

out that the local claims could serve as an important channel of international transmission. As such, we also study how U.S. banks adjust their foreign exposures in response to increasing geopolitical risk abroad, investigating in particular the role of the mode of foreign operations.

2.2 Data Sources

Our study draws on a variety of regulatory datasets available at the Federal Reserve, the geopolitical risk index from Caldara and Iacoviello (2022) as well as other data sources for country-level macroeconomic and financial variables. The various datasets typically start in 1985 and always go through 2022, though the start dates of some datasets vary depending on when key data become available.

Bank foreign exposure. For banks' foreign exposures, we draw on data from the FFIEC 009 reports, which U.S. banks with significant foreign operations file quarterly. These reports contain detailed information on the banks' foreign assets and liabilities by country. The data are available to researchers at the Federal Reserve starting from 1977.[5] The institutions that report this form each year build the basis of our analysis. The panel consists mainly of U.S. banks, bank holding companies (BHC), and intermediate holding companies holding $30 million or more in claims on residents of foreign countries. The number of reporters declines from 1977 to 2002, after which it remains fairly stable at around 70. We focus on reporters whose ultimate parent bank is in the United States, relying on information from the National Information Center (NIC) to identify each reporter's ultimate parent bank and its location. For reporters for which we have information on the parent, we find that around 68 percent have U.S. parents.

Bank lending standards. Each quarter, the Federal Reserve asks banks about changes in their lending standards and in the demand for credit over the previous three months as part

country of residence of its counterparty. For example, U.S. Bank A generates a cross-border claim on Mexico when it extends a loan from its U.S. office to a Mexican resident. Local exposures are claims extended by a bank's local offices, whether they are subsidiary or branch, in a foreign country to residents of that country. For example, Bank A generates a local claim on Russia when it lends to a Russian resident through its Russian subsidiary.

[5]The FFIEC 009 form has existed since 1984. Before that, data was collected on form FR 2036.

of the Senior Loan Officer Opinion Survey or SLOOS. The aggregate results are published on the Federal Reserve's website while bank-level responses are available to researchers in the Federal Reserve System from 1990 onward. Banks' responses take integer values from one to five, where three indicates no change in lending standards or credit demand, one and two denote tightening, and four and five denote loosening. While the survey also collects answers from officers at U.S. branches of foreign banks, this paper uses only the responses of banks with U.S. ultimate parents, constituting around 80 banks. We focus on changes in lending standards and the demand for C&I loans. To map the SLOOS reporters to the corresponding FFIEC 009 reporters, we check whether a SLOOS reporting entity is the subsidiary of a BHC that reports the FFIEC 009. If that is the case, we average the responses of all loan officers that belong to the BHC.

Bank balance sheet information. Quarterly bank balance sheet data are derived from FR Y-9C and Call Reports. These reports provide detailed information on the income and balance sheets of all banks in the United States. We obtain information for the entities that report the foreign exposure report (FFIEC 009). For the analysis, we focus on variables that capture banks' lending quantities (e.g., total loans, C&I loans). We also construct a set of bank-level control variables to employ in the regressions.

Loan-level data. To provide further evidence on the mechanisms that drive banks' responses to geopolitical risk, we also draw on quarterly loan-level data from Y-14 reports. These reports are filed confidentially by all BHCs participating in official Federal Reserve bank stress tests. The participating institutions report detailed information about individual loans above $1 million, including the name, country, and industry of the borrower, the loan amount, the origination date, and the probability of default assigned by the bank to the borrower. The data start in 2012:Q3. We construct quarterly loan originations for each bank by aggregating all loans originated in a given quarter. In addition, we calculate the weighted average probability of default on loans of individual banks.

Geopolitical risk index. To measure geopolitical risk, we rely on the geopolitical risk indices constructed by Caldara and Iacoviello (2022) based on textual analysis of newspapers.

While the authors provide measures of global geopolitical risk (GGPR), they also construct series for 44 individual countries (CGPR). We make use of the authors' *recent* indices, which are based on ten newspapers and start in 1985, in contrast to the *historical* series, which are based on three newspapers and are available from 1900 onward.

Macro, financial and other data. In addition to bank-level information and the GPR indices, we construct country-level macro and financial variables from a variety of data sources, obtaining, for example, countries' sovereign CDS spreads and stock price indices. A list of variables used in this paper along with data sources can be found in the data appendix.

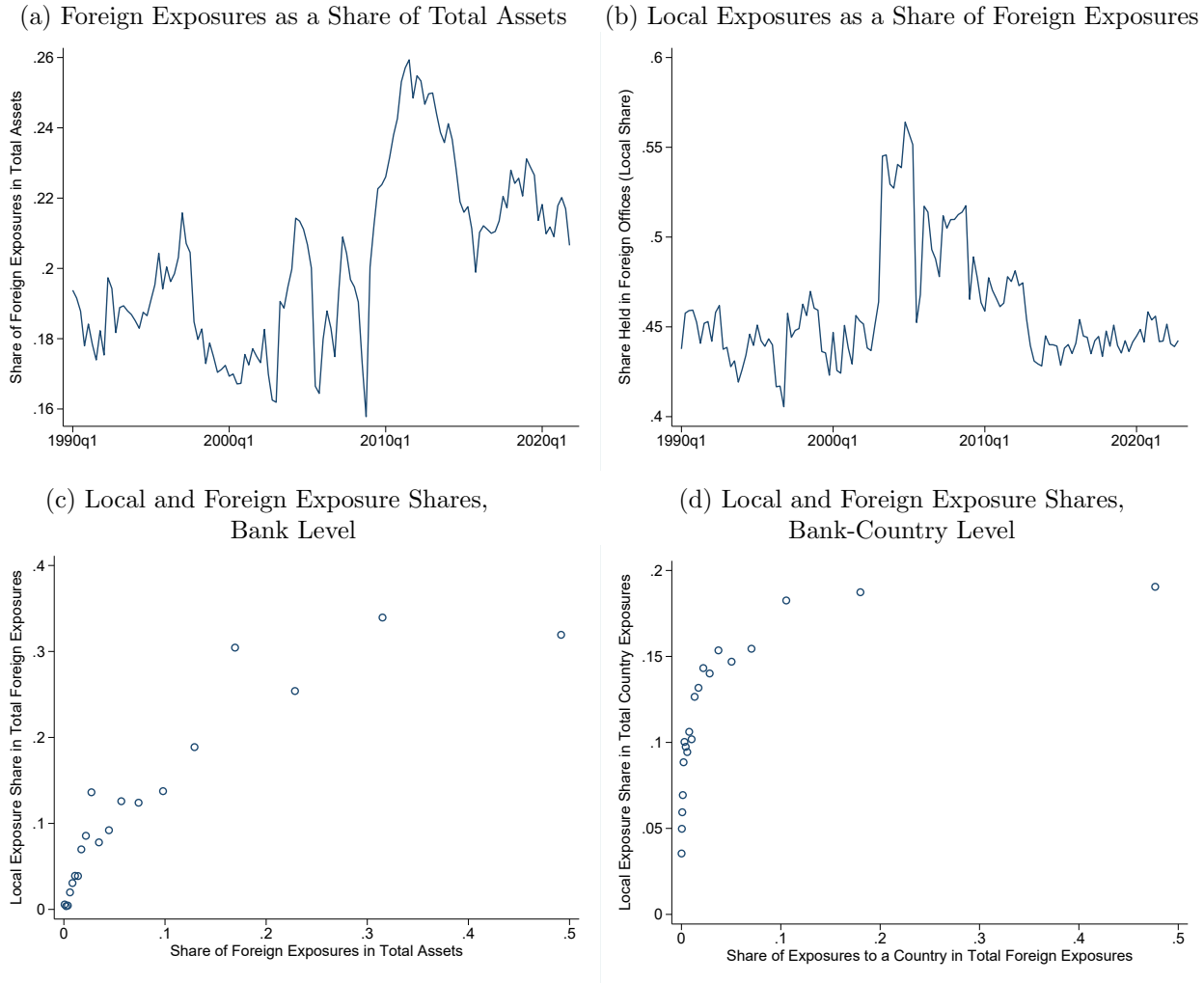
2.3 U.S. Banks' Foreign Exposures

As we discuss in Section 2.1, U.S. banks are exposed to geopolitical risk abroad through their foreign exposures. In Figure 1, we illustrate U.S. banks' foreign exposures over time and by mode of operation. Panel (a) of Figure 1 shows the share of U.S. banks' foreign assets in their total assets. This share has fluctuated over the years between 15 and 25 percent and is just above 20 percent as of 2021:Q4. The larger banks tend to be the most internationally active (Buch et al., 2011, Niepmann, 2023), contributing disproportionately to this aggregate share.

Panel (b) of Figure 1 illustrates the mode of U.S. banks' foreign operations. It displays the share of exposures held in foreign offices (either branches or subsidiaries), known as local exposures (as opposed to cross-border exposures that occur when the U.S. parent office directly lends to foreign residents). The share of foreign operations conducted through local operations increased up to the Global Financial Crisis, after which the local exposure share fell back to around 45 percent. That shows that approximately half of U.S. banks' operations are conducted through offices abroad, while the other half comprises cross-border operations.

Panels (c) and (d) of Figure 1 explores the relationship between banks' local and foreign exposures. Panel (c) displays a bin scatter plot illustrating banks' share of foreign exposures in total assets on the x-axis and the share of their foreign exposures that are local on the y-axis. The positive relationship indicates that the more internationally active U.S. banks, or those with the largest share of foreign exposures in total assets, tend to operate more

Figure 1: U.S. Banks' Foreign Operations



Note: Panel (a) of the figure shows U.S. banks' foreign exposures as a share of total assets on average from 1990:Q1 to 2021:Q4. Panel (b) shows U.S. banks' local exposures, or exposures through foreign offices, as a share of their total foreign exposures. Panel (c) illustrates U.S. banks' share of local exposures in foreign exposures as a function of their share of foreign exposures in total assets from 1986:Q1 to 2022:Q4 in a bin scatter plot. Panel (d) illustrates U.S. banks' local exposure to a country as a share of all exposures to that country as a function of the share of the country in banks' total foreign exposures from 1986:Q1 to 2022:Q4 in a bin scatter plot. Data source: FFIEC 009, FR Y9-C, and Call Reports.

through branches and subsidiaries abroad. Panel (d) explores this relationship at the bank-country level and shows a similar pattern. Here, a bank's local exposures to a country as a share of all exposures to that country are plotted against the share of the country in the bank's total foreign exposures. The plot shows that the more important a market is to a bank, the higher the local exposures from offices located there. Scale in foreign operations is mainly obtained through foreign subsidiaries, entities legally incorporated in the foreign country and supervised there, as opposed to foreign branches, which tend to be much smaller and remain under the supervision of U.S. authorities.

2.4 Constructing BGPR Index

To measure the extent of U.S. banks' exposure to geopolitical risk through their foreign operations, we construct bank-specific geopolitical risk (BGPR) indices that capture the geopolitical risk each bank is exposed to based on the geography of its foreign lending activities. For each bank b and quarter t, we calculate the index by weighting a country c's GPR index from Caldara and Iacoviello (2022) by the exposure that the bank has in that country as a share of the bank's exposure to all 43 foreign countries for which the CGPR index is available using data from FFIEC 009 and then summing the weighted CGPR over all countries. Specifically, we compute:

$$BGPR_{bt} = \sum_{c} \omega_{bct} CGPR_{ct}, \tag{2}$$

where

$$\omega_{bct} = \frac{1}{4} \left(\sum_{i=1}^{4} \frac{exp_{bct-i}}{\sum_{c} exp_{bct-i}} \right).$$

The BGPR index, as defined in Equation (2), is more sensitive to changes in geopolitical risk in country c when bank b has a larger operation in that country. In the empirical analysis, we use different variants of this index by altering the way of computing the weights (ω_{bct}) to assess the robustness of our results. For our baseline index, ω_{bct} is computed by averaging bank exposure shares over the previous four quarters. Alternatively, we use the one-quarter lagged exposure shares as weights. It is also possible to vary the type of exposures that

enter ω_{bct}. By default, we use banks' total claims, which encompass all exposures that the bank has toward residents of a foreign country. However, we can also distinguish between cross-border exposures and local exposures.

As mentioned in Section 2.2, the *recent* CGPR indices from Caldara and Iacoviello (2022) are available starting from 1985. Therefore, our BGPR index is available quarterly from 1985 through 2022, with banks entering and exiting the sample.

Figure 2 shows the average BGPR index over time (blue solid line, right y-axis) as well as the index at the 10th and 90th percentile (blue dotted lines, right y-axis). For comparison, we also plot the global geopolitical risk index (GGPR) from Caldara and Iacoviello (2022) (red solid line, left y-axis) in the figure. The correlation between the GGPR index and the average BGPR index is high, at 82 percent. The indices spike at significant adverse geopolitical events, including the Gulf War in 1990, the 9/11 terrorist attack in 2001, the Iraq war in 2003, and the Russia-Ukraine War in 2022. At the same time, the difference between the 10th and 90th percentile of the BGPR index reveals that there is significant cross-sectional variation in the level of the index. Because of heterogeneity in the geography of banks' foreign operations, the index varies substantially across banks, not only in the level but also in their evolution over time. A regression of BGPR on quarter fixed effects reveals that approximately 34 percent of the variation in the BGPR index can be attributed to common time factors. Another 30 percent of the variation is explained by bank fixed effects.

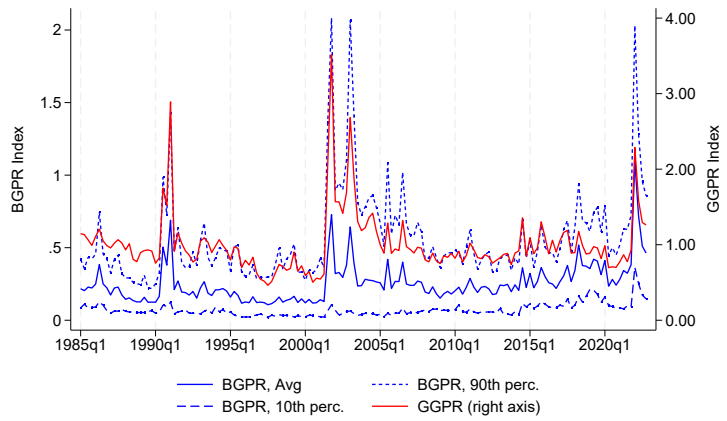
3 Global Geopolitical Risk and U.S. Domestic Credit

This section presents the baseline analysis of the paper. We start by studying the effects of U.S. banks' exposure to foreign geopolitical risk, as measured by the BGPR index, on their lending standards. We then turn to an analysis of domestic lending amounts.

3.1 Bank Lending Standards

We first relate U.S. banks' lending standards to their exposure to geopolitical risk abroad, using the BGPR index and survey data from the SLOOS. To measure lending standards, we focus on each bank's responses to the survey question about whether it tightened or

Figure 2: Bank-Specific Geopolitical Risk (BGPR) Index



Note: The figure shows the time series of the average bank-specific geopolitical risk index (BGPR) index (blue solid line, left y-axis) constructed based on equation 2, the index at the 10th and 90th percentile (blue dotted lines, left y-axis), and the global geopolitical index (GGPR) from Caldara and Iacoviello (2022) (red solid line, right y-axis). BGPR is constructed based on Equation (2). Data source: FFIEC 009, Caldara and Iacoviello (2022), and authors' calculation.

loosened credit standards on C&I loans to large and medium enterprises, with higher values denoting greater loosening of standards. We regress this variable on the contemporaneous value and first lag of the BGRP index, bank fixed effects as well as a set of macroeconomic and bank-level controls. Following the literature (Bassett et al., 2014), we also include the first lag of the dependent variable as a regressor, as SLOOS responses exhibit significant persistence. The baseline regression equation is as follow:

$$\begin{aligned} LS_{bt} &= \beta_0 LS_{bt-1} + \beta_1 \Delta \log(BGPR_{bt}) + \beta_2 \Delta \log(BGPR_{bt-1}) + \gamma_1 \Delta X_t + \gamma_2 \Delta X_{t-1} \quad (3) \\ &\quad + \delta_1 Z_{bt} + \delta_2 Z_{bt-1} + \alpha_b + \epsilon_{bt}, \end{aligned}$$

where LS_{bt} denotes the response of bank b to the SLOOS covering quarter t, $BGPR_{bt}$ denotes the bank-specific GPR index, and X_t represents a set of macroeconomic controls. Specifically, we include the 2-year Treasury yield, the slope of the yield curve (10y-2y), the CBOE Volatility Index (VIX), the S&P 500 index, and U.S. industrial production as macro controls. The BGPR index, VIX, S&P 500 index, and industrial production are included in the regression as quarterly log changes, while other variables, with the exception of the lagged dependent variable, enter the regression as simple changes. We also control for bank

fixed effects (α_b) and banks' responses to the question about whether demand for loans changed, denoted by Z_{bt}. In additional specifications, we augment the regression with other bank-level variables including Tier 1 capital ratio and liquid asset ratio. Standard errors are clustered by bank and time.

Table 1 shows the baseline results based on a sample that runs from 1990:Q3 to 2022:Q2. The regression in column (1) includes the BGPR index and its lag as well as the lagged dependent variable and fixed effects as independent variables. Column (2) adds the set of macro controls. In these two columns, the coefficients associated with the BGPR index indicate that an increase in geopolitical risk abroad leads banks exposed through their foreign operations to tighten their credit standards for C&I loans in the United States. The results are significant at the 1 percent level. Column (3) additionally controls for credit demand by including banks' responses to the question of whether credit demand increased or decreased in the regression. The coefficient on the contemporaneous loan demand variable is negative and statistically significant, suggesting that banks that see an increase in loan demand tend to tighten lending standards.[6] The coefficients associated with the BGPR index continue to be statistically significant. Column (4) includes banks' lagged Tier 1 capital ratio and lagged liquid asset ratio as additional bank-level controls, which leads to an increase in the magnitude and statistical significance of the BGPR coefficients.[7] Macro and financial variables have the expected effects. An increase in the VIX leads to banks tightening lending standards, while higher stock prices and an expanding economy, signaled by higher industrial production, lead to looser lending standards.

The BGPR index varies by bank depending on the geography of banks' foreign operations, but it does not take into account the size of banks' total foreign exposures relative to their total operations. In other words, for two banks with the same geography of foreign operations but differing scales of foreign operations, the BGPR index is the same. However, a bank for which foreign exposures make up 20 percent of total exposures is expected to respond more strongly to geopolitical risk abroad than a bank for which foreign operations account for

[6]The first few quarters of the sample get dropped once loan demand is included in the regressions because information on loan demand is only available in the SLOOS starting from 1991.

[7]The liquid asset ratio is computed as the share of the sum of interest bearing and non-interest bearing balances, available-for-sale securities and held-to-maturity securities in total assets.

Table 1: Geopolitical Risk and Lending Standards

	(1) Baseline	(2) Macro controls	(3) Demand control	(4) Bank-level controls	(5) More intern.	(6) Less intern.	(7) Interact.
L.LS	0.413***	0.323***	0.326***	0.325***	0.310***	0.323***	0.323***
	(0.024)	(0.025)	(0.026)	(0.029)	(0.039)	(0.037)	(0.027)
D Log BGPR	-0.073***	-0.061***	-0.045**	-0.086***	-0.113***	-0.004	-0.017
	(0.020)	(0.019)	(0.021)	(0.029)	(0.040)	(0.025)	(0.024)
L.D Log BGPR	-0.066***	-0.047**	-0.058**	-0.104***	-0.081*	-0.043	-0.042
	(0.022)	(0.021)	(0.026)	(0.035)	(0.046)	(0.032)	(0.030)
D 2y yield		0.038*	0.036	0.055*	0.052	0.024	0.038*
		(0.022)	(0.022)	(0.032)	(0.036)	(0.028)	(0.023)
L.D 2y yield		0.023	0.022	0.056*	0.021	0.030	0.020
		(0.023)	(0.024)	(0.033)	(0.039)	(0.029)	(0.024)
D Slope		-0.092**	-0.056	-0.044	-0.059	-0.041	-0.050
		(0.042)	(0.043)	(0.048)	(0.069)	(0.055)	(0.043)
L.D Slope		-0.019	-0.021	0.027	-0.055	0.014	-0.019
		(0.039)	(0.041)	(0.045)	(0.066)	(0.052)	(0.041)
D Log VIX		-0.076	-0.102**	-0.114*	-0.087	-0.123**	-0.116**
		(0.048)	(0.050)	(0.063)	(0.083)	(0.061)	(0.051)
L.D Log VIX		-0.093**	-0.115***	-0.094*	-0.108	-0.126**	-0.126***
		(0.043)	(0.043)	(0.053)	(0.071)	(0.054)	(0.044)
D Log S&P 500		0.812***	0.666***	0.656***	1.056***	0.360	0.631***
		(0.169)	(0.175)	(0.213)	(0.273)	(0.226)	(0.178)
L.D Log S&P 500		0.233	0.197	0.132	0.379	0.040	0.190
		(0.185)	(0.193)	(0.245)	(0.321)	(0.238)	(0.195)
D Log Ind. Prod.		2.843***	2.771***	3.147***	2.475**	3.134***	2.821***
		(0.830)	(0.871)	(0.921)	(1.197)	(1.141)	(0.874)
L.D Log Ind. Prod.		2.558***	2.494***	2.603***	1.781*	3.029***	2.692***
		(0.620)	(0.653)	(0.675)	(0.913)	(0.870)	(0.656)
Loan demand			-0.041***	-0.051***	-0.056**	-0.031	-0.041***
			(0.015)	(0.018)	(0.022)	(0.019)	(0.015)
L.Loan demand			-0.018	-0.016	-0.016	-0.021	-0.023*
			(0.013)	(0.016)	(0.019)	(0.018)	(0.013)
L.T1 Cap. Ratio				-0.008			
				(0.005)			
L.Liquid Ass. Ratio				0.355**			
				(0.142)			
Avg. FC Share							0.393
							(0.303)
D Log BGPR x Avg. FC Share							-0.390**
							(0.196)
L.D Log BGPR x Avg. FC Share							-0.328
							(0.215)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3047	3047	2788	2092	1258	1528	2712
R^2	0.233	0.299	0.297	0.332	0.314	0.297	0.302
Adjusted R^2	0.210	0.275	0.272	0.303	0.273	0.266	0.276

Note: This table reports results from regressions at the bank-time level based on Equation (3). The dependent variable (LS) indicates whether a bank reported tightening of, unchanged, or loosening of credit standards on C&I loans to large and medium-sized firms for quarter t. $BGPR$ denotes bank-specific geopolitical risk index, constructed based on Equation (2). Column (2) includes the log changes in 2-year Treasury yield, the slope of the yield curve (10y-2y), the CBOE Volatility Index (VIX), the S&P 500 index, and U.S. industrial production as macroeconomic controls. Column (3) additionally controls for loan demand. Column (4) additionally includes lagged Tier 1 capital ratio and lagged liquid asset ratio as bank-level controls. Columns (5) and (6) include the subset of banks that are more or less internationally active, respectively, defined as those with an eight-quarter lagged foreign claims to asset ratio above or below the sample median. Column (7) includes an interaction term between the average share of foreign asset in banks' total assets and the BGPR index. All regressions include a lagged dependent variable and bank fixed effects. Standard errors, shown in parentheses, are clustered at the bank-time level. *$p < .1$; **$p < .05$; ***$p < .01$.

only 2 percent of its total exposures. The greater the proportion of a U.S. bank's exposures at risk given the scale of its foreign operation, the more likely its domestic lending behavior is adversely affected. Columns (5) and (6) show that this is indeed the case. Here, we split the sample of banks into those with foreign asset shares above or below 4.5 percent, the median foreign asset share in our sample.[8] Column (5), which includes the subset of more internationally active banks, or banks with foreign exposures above 4.5 percent of total assets, shows that the effect of an increase in foreign geopolitical risk on banks' domestic lending standards is highly significant, with a magnitude of -0.11 and -0.08 for the contemporaneous and lagged BGPR indices, respectively. In contrast, foreign geopolitical risk has no significant effect on banks with small foreign operations, as shown in column (6). The coefficients on BGPR are much smaller and not statistically significant at standard levels. Instead of splitting the sample, the regression shown in column (7) includes an interaction term between the average share of foreign assets in banks' total assets and the BGPR index. The negative and statistically significant coefficient on the interaction term between the contemporaneous BGPR index and the foreign asset share indicates that banks with a larger share of foreign assets in total assets tend to tighten C&I lending standards more in response to an increase in BGPR.

To gauge the magnitude of the effect of the BGPR index on lending standards, we compare the coefficients on BGPR with those on VIX. The sum of the beta coefficients of the contemporaneous and lagged BGPR indices in column (2) is 0.09, corresponding to around 90 percent of the sum of the beta coefficients associated with the contemporaneous and lagged VIX index.

In Appendix A, we assess the robustness of the baseline results. We show that our results are robust to the inclusion of the GGPR index from Caldara and Iacoviello (2022), the inclusion of year fixed effects, alternative constructs of the BGPR index, and alternative units for clustering standard errors.

[8]To split the sample, we compute each bank's eight-quarter lagged foreign exposure shares to smooth the series and maintain the stability of bank allocation in the two categories over time.

3.2 Bank Lending

Building on the results on lending standards, we next turn to studying the effect of geopolitical risk on U.S. banks' domestic lending amounts. Using data from FR Y9-C and Call Reports, we examine the effect on both C&I lending and total lending. Specifically, the regression equation is as follows:

$$\ln(Y_{bt}) \quad = \beta_1 BGPR_{bt} + \beta_2 BGPR_{bt-1} + \theta X_{bt-1} + \alpha_b + \gamma_t + \epsilon_{bt}, \tag{4}$$

where Y_{bt} is C&I or total loan amount of bank b at time t; $BGPR_{bt}$ denotes the bank-specific GPR index; X_{bt-1} denotes a set of bank controls including lagged Tier 1 capital ratio and liquid asset ratio, and α_b and γ_t are bank and time fixed effects, respectively.

Panel (a) of Table 2 reports the results on C&I lending. Columns (1) and (2) include the full sample of banks, without and with bank controls, respectively. The negative coefficients on BGPR in column (1) suggest that U.S. banks reduce their C&I lending to domestic borrowers in response to an increase in geopolitical risk abroad. However, the results are not statistically significant once bank controls are included. We dissect the full-sample results and investigate whether the effect differs by the scale of banks' foreign operation. Similar to the lending standards analysis, we divide the sample of banks based on whether their share of foreign assets is above or below the median in our sample. Columns (3) and (4) display the results for the more internationally active banks. They show that these banks significantly reduce domestic C&I lending in response to increasing geopolitical risk abroad. The coefficients on the contemporaneous and lagged BGPR indices are large and statistically significant. They remain significant conditional on bank controls. In contrast, foreign geopolitical risk has no significant effect on banks with small foreign operations, as shown in column (5). Interestingly, the coefficients on BGPR turn positive conditional on bank controls for the less internationally active banks, which may reflect increased credit provision towards firms that have lost access to credit from the more internationally active banks.

Panel (b) of Table 2 reports the results on total lending. They are similar to those on C&I lending. Banks with larger scales of foreign operations significantly reduce total domestic

Table 2: Geopolitical Risk and Lending Amount

(a) C&I Lending

	(1) All	(2) All	(3) More intl.	(4) More intl.	(5) Less intl.	(6) Less intl.
BGPR	-0.220**	0.133	-0.744***	-0.395**	0.197	0.319**
	(0.108)	(0.119)	(0.156)	(0.188)	(0.148)	(0.147)
L.BGPR	-0.097	0.212**	-0.495***	-0.233*	0.273*	0.397***
	(0.097)	(0.095)	(0.126)	(0.132)	(0.143)	(0.140)
Bank Controls	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
N	12420	6704	6405	3336	5993	3357
R^2	0.870	0.913	0.919	0.934	0.870	0.922
adj. R^2	0.865	0.909	0.914	0.929	0.861	0.916

(b) Total Lending

	(1) All	(2) All	(3) More intl.	(4) More intl.	(5) Less intl.	(6) Less intl.
BGPR	-0.073**	0.056	-0.284***	-0.192***	0.033	0.162***
	(0.034)	(0.039)	(0.063)	(0.062)	(0.035)	(0.048)
L.BGPR	-0.050	0.078**	-0.158**	-0.036	-0.012	0.144***
	(0.035)	(0.039)	(0.061)	(0.059)	(0.036)	(0.046)
Bank Controls	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
N	14349	7496	6888	3599	7435	3884
R^2	0.949	0.974	0.962	0.981	0.952	0.973
adj. R^2	0.947	0.973	0.959	0.979	0.949	0.971

Note: This table reports results from regressions at the bank-time level based on Equation (4), with log C&I loan amount as the dependent variable in Panel (a) and log total loan amount as the dependent variable in Panel (b). *BGPR* denotes bank-specific geopolitical risk index, constructed based on Equation (2). Columns (1) and (2) include the full sample of banks. Columns (3) and (4) include the subset of banks that are more internationally active, defined as those with an eight-quarter lagged foreign claims to asset ratio above the sample median. Columns (5) and (6) include the subset of banks that are less internationally active. Bank controls include lagged Tier 1 capital ratio and liquid asset ratio. Standard errors are clustered at the bank-time level. *$p < .1$; **$p < .05$; ***$p < .01$.

lending in response to increasing geopolitical risk abroad. The coefficients on BGPR are smaller in magnitude compared to those from the C&I lending results, which is expected given C&I lending constitutes one component of total lending.

Overall, our baseline results show that an increase in foreign geopolitical risk leads to a significant tightening of U.S. banks' lending standards for domestic C&I loans and a significant reduction in their domestic C&I and total loan amounts. These spillover effects are most pronounced among the internationally active banks whose foreign operations constitute a large share of their overall assets.

4 Mechanism

This section delves into the mechanisms that lead the internationally active U.S. banks to tighten credit standards and reduce lending to domestic firms in response to increasing geopolitical risk. We first examine the role of credit risk in driving the effect. Then, we explore how U.S. banks adjust their foreign exposures in response to rising geopolitical risks abroad, with a particular focus on the mode of foreign operation.

4.1 Credit Risk

We first investigate the implications of geopolitical risk abroad on banks' credit risk. We conduct this analysis at the bank-country level, for specific geopolitical events, and at the bank level, using confidential data from the FR Y-14 reports. These data provide detailed loan-level information on each bank's C&I loan portfolio, including the location of the borrower, the loan amount, and the probability of default the bank assigns to the borrower.[9]

Cross-country evidence. When geopolitical risk in a country rises, the riskiness of banks' claims on that country is likely to increase. In response, banks are expected to assign a higher probability of default to their exposures to borrowers from that country. To test this conjecture, we construct the average probability of default of loans to country c on the

[9]Of note, this data includes loans extended through banks' foreign offices, including foreign subsidiaries. Unfortunately, we cannot distinguish which loans are held by the parent bank and which loans are held by the foreign subsidiaries. As a result, we cannot split loan exposures into cross-border and local exposures.

balance sheet of bank b in time t using the FR Y-14 data. We weigh the probabilities of default (PD) by the size of the loans using the committed loan amounts. We exclude loans that were originated in quarter t in order to focus on changes in the probability of default for existing loans, rather than changes that might result from banks shifting towards originating safer loans. We also focus on term loans for the loan sample, as banks have more flexibility to adjust credit lines in response to shocks. Equipped with the weighed probabilities of default variable, we study the relationship between country-specific geopolitical risk index (CGPR) and credit risk at the bank-country-time level using the specification:

$$PD^{W}_{bct} = \beta CGPR_{ct} + \alpha_{bt} + \alpha_{bc} + \epsilon_{bct}, \tag{5}$$

where PD^{W}_{bct} denotes the log average weighted probability of default assigned by bank b on loans to country c at time t, and α_{bt} and α_{bc} stand for bank-time and bank-country fixed effects.

Panel (a) of Table 3 presents the results. Column (1) includes the full sample of banks, while columns (2) and (3) include the subset of banks that are more and less internationally active, respectively, defined as those with an eight-quarter lagged foreign claims to asset ratio above or below the sample median. The results show that the average probability of default of the outstanding loans to the borrowers of a country increases when geopolitical risk of that country rises. This result is driven by banks with larger-scale foreign operations, as shown in column (2), while we observe a smaller and less significant effect for the less internationally active banks. In terms of economic magnitude, a one-standard-deviation increase in CGPR increases the average weighted probability of default by 15%. These findings support our conjecture that banks assign a higher credit risk to their exposures to borrowers from countries experiencing increasing geopolitical risk.

Event study. To further investigate how banks change assigned probabilities of default in response to increasing geopolitical risk, we conduct an event study, focusing on Russia's annexation of Crimea in 2013:Q4 and its invasion of Ukraine in 2022:Q1. We study how these adverse geopolitical risk shocks affected the credit risk of U.S. banks' outstanding exposures

Table 3: Geopolitical Risk and Credit Risk

(a) Bank-Country Level

	(1) All	(2) More Intl.	(3) Less Intl.
CGPR	0.402***	0.426***	0.206*
	(0.121)	(0.125)	(0.120)
Bank-Country FE	Yes	Yes	Yes
Bank-Time FE	Yes	Yes	Yes
N	5806	4702	1099
R^2	0.756	0.725	0.832

(b) Bank Level

	(1) All	(2) More Intl.	(3) Less Intl.
BGPR	0.378	0.779***	-0.221
	(0.239)	(0.197)	(0.461)
Bank Controls	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes
N	382	241	136
R^2	0.865	0.913	0.827

Note: Panel (a) reports results from regressions at the bank-country-time level with log average weighted probability of default as the dependent variable. *CGPR* denotes the *recent* country-specific geopolitical risk index from Caldara and Iacoviello (2022). Standard errors are clustered at the country-time level. Panel (b) reports results from regressions at the bank-time level with log average weighted probability of default as dependent variable. *BGPR* denotes bank-specific geopolitical risk index. Bank controls include lagged Tier 1 capital ratio and liquid asset ratio. For both panels, column (1) include the full sample of banks, and columns (2) and (3) include the subset of banks that are more and less internationally active, respectively, defined as those with an eight-quarter lagged foreign claims to asset ratio above or below the sample median. Standard errors are clustered at the bank-time level. *$p < .1$; **$p < .05$; ***$p < .01$.

to Russia and Ukraine relative to other countries.

Specifically, we ran the regression:

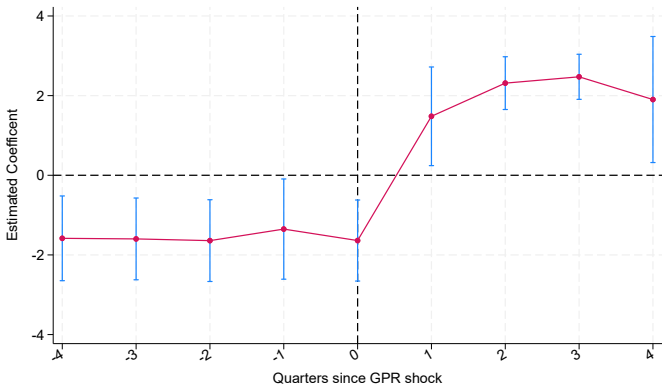
$$PD_{bct} = \sum_{k \geq -m} \delta_{0k} D^k_{bct} + \sum_{k \geq -m} \delta_{1k} D^k_{bct} \times RU_{bc} + \theta_{bc} + \gamma_{ct} + \epsilon_{bct}, \tag{6}$$

where PD_{bct} denotes the log average probability of default of loans in country c in time t, D^k_{bct} denotes dummy variables that take the value 1 if the geopolitical risk shock occurred k quarters following the event and 0 otherwise, RU_{bc} denotes dummy variables that take the value 1 if the borrower country is Russia or Ukraine and 0 otherwise, θ_{bc} denotes bank-country dummies, and γ_t denotes country-time dummies. The coefficients δ_{1k} capture the differential effect of the Russia- and Ukraine-related geopolitical risk shocks on the average probability of default of loans to these countries compared to loans to other countries, in the k quarters following the shocks. For this analysis, we restrict the loan sample to all ongoing loans by U.S. banks that have foreign claims on Russia and Ukraine.

Figure 3 plots the coefficients δ_{1k} from Equation 6. It shows that the average credit risk of the loans to borrowers from the directly impacted countries increased significantly more than that to borrowers from all other countries in response to the adverse geopolitical risk shock. Whereas credit risk did not significantly change across countries on average in the post-shock period, we observe a sharp increase in the average probability of default of outstanding loans to Russian and Ukrainian borrowers in the quarter immediately after the shock, and the effect persists for several additional quarters. The magnitude of the increase in the first quarter after the shock is about one standard deviation of the average probability of default measure. This result further confirms that banks attribute greater credit risk to their exposures to borrowers from countries facing escalating geopolitical risk.

Aggregate bank-level evidence. A key question following the previous findings that adverse geopolitical risk shocks in a country lead to higher probabilities of default of loans to that country is whether these increases in credit risk are large enough to be material for banks' aggregate loan portfolios. To address this question, we assess whether an increase in the BGPR index predicts a rise in the probability of default of a bank's aggregate loan

Figure 3: Geopolitical Risk Shocks and Loan Credit Risk: Russia-Ukraine Conflicts



Note: The figure illustrates the effect of geopolitical risk shocks from the Crimea conflict and the Russia-Ukraine war in Russia and Ukraine in 2013Q4 and 2022Q1, respectively, on the average probability of default of loans to these countries relative to loans to other countries. It plots the coefficients δ_{1k} from the regression $PD_{bct} = \sum_{k\geq -m} \delta_{0k} D^k_{bct} + \sum_{k\geq -m} \delta_{1k} D^k_{bct} \times RU_{bc} + \theta_{bc} + \gamma_{ct} + \epsilon_{bct}$, where PD_{bct} denotes the log average probability of default of loans in country c in time t, D^k_{bct} denotes dummy variables that take the value 1 if the geopolitical risk shock occurred k quarters following the event and 0 otherwise, RU_{bc} denotes dummy variables that take the value 1 if the borrower country is Russia or Ukraine and 0 otherwise, θ_{bc} denotes bank-country dummies, and γ_t denotes country-time dummies.

portfolio. To this end, we compute the aggregate probabilities of default (PD) at the bank level, that is, we obtain the weighted average probability of default for bank b's entire C&I loan portfolio in quarter t. We then regress the measure (in log) on the BGPR index, conditioning on bank controls, bank fixed effects, and time fixed effects, or specifically,

$$PD^W_{bt} = \beta BGPR_{bt} + \gamma X_{bt} + \alpha_b + \alpha_t + \epsilon_{bt}, \tag{7}$$

where X_{bt} denotes bank-level control variables including lagged Tier 1 capital ratio and liquid asset ratio.

Panel (b) of Table 3 reports the results. As in Panel (a), column (1) includes the full sample of banks, and columns (2) and (3) include the subset of banks that are more and less internationally active, respectively. The results show that an increase in BGPR positively affects banks' aggregate probabilities of default. While the relationship is not statistically significant for the full sample, the coefficient on BGPR is large and statistically significant at the 1 percent level for the more internationally active banks (column 2). A one-standard-deviation increase in BGPR increases the average weighted probability of default by 12%. At the same time, we do not observe a significant effect for the less internationally active

banks (column 3).

These findings provide an explanation for our baseline results, that is, internationally active banks tighten lending standards and reduce lending volumes in response to increases in BGPR. The results show that a rise in BGPR elevates the risk in a bank's loan portfolio, which implies that the bank must hold more capital against these loans because of higher risk-weighted assets. As a result, the bank needs to tighten lending standards and reduce lending.

4.2 Bank Credit Reallocation Across Countries

How do banks respond to the increase in the riskiness of their loan portfolios as a result of rising geopolitical risk? Do they de-risk? We proceed to investigate how banks adjust their foreign operations in the face of increasing geopolitical risk in countries where they operate. To this end, we run the following regression:

$$\ln(EX_{bct}) = \beta_1 CGPR_{ct} + \beta_2 CGPR_{ct-1} + \beta_2 X_{ct} + \alpha_{bt} + \alpha_{bc} + \epsilon_{bct}. \tag{8}$$

where EX_{bct} represents a measure of bank b's exposure on country c in quarter t and $CGPR_{ct}$ stands for the country-level *recent* GPR index from Caldara and Iacoviello (2022). X_{ct} captures country-level control variables, including the log of the exchange rate of country c's currency vis-a-vis the U.S. dollar, the log of country c's main stock price index, and the log sovereign CDS spread of country c. We also control for bank-time fixed effects (α_{bt}) to account for changes in banks' foreign exposures common to all foreign countries, and bank-country fixed effects (α_{bc}) to account for level differences in exposures of banks across countries. Standard errors are clustered by country and time.

Table 4 reports the results. Columns (1)–(3) are based on regressions of banks' total foreign exposures on the CGPR index. Columns (4)–(6) and (7)–(9) analyze the effect of geopolitical risk on banks' cross-border and local exposures separately. The regression results indicate that in response to increasing geopolitical risk in a country, only cross-border exposures to that country noticeably fall. While the coefficients associated with CGRP are negative and highly statistically significant for cross-border claims (columns (4) and (5)),

the corresponding coefficients for local claims are small and not statistically significant from zero (columns (7) and (8)). In other words, while banks reduce cross-border exposures to countries of escalating geopolitical risk, their operations through local offices in the country remain essentially unchanged.[10]

In addition to the mode of foreign operation, we explore the potential role of exposure size in influencing how banks adjust exposures in response to geopolitical risk. In columns (3), (6) and (9) of Table 4, we add interaction terms of the contemporaneous and lagged CGPR indices and dummies indicating whether a country is a core market for a bank in the regression specifications. The dummy takes the value of 1 if for a given bank, the share of its total exposures, cross-border exposures or local exposures to a country in total foreign exposures is above the 75th percentile. The positive and significant coefficients on interaction terms indicate that banks do not lower exposures to their core markets in response to higher CGPR in these markets. In fact, banks seem to increase local exposures to core markets facing increasing geopolitical risk.

Combined with the previous result on credit risk, the finding on persistent local claims shows that banks continue to hold existing loans in local operations despite increasing credit risk in response to escalating geopolitical risk. This behavior suggests the presence of frictions that limit banks' ability to quickly divest assets.

Case study: Russia. We provide more context for these frictions by exploring how geopolitical conflicts involving Russia affected foreign claims on Russia and potential challenges banks face in reducing their local operations there.

First, in light of the preceding cross-country evidence related to banks' mode of foreign operations, we examine the evolution of cross-border and local claims on Russia in the aftermath of its conflict with Georgia in 2008:Q3, its annexation of Crimea in 2013:Q4, and its invasion of Ukraine in 2022:Q1. Panel (a) of Figure 4 illustrates the claims by all BIS-reporting banking sectors on Russia, and Panel (b) illustrates those by the U.S. banking sector. Evidently, while both local and cross-border claims on Russia fell after the

[10]Results become even stronger when earlier years are dropped from the sample. The negative effect of geopolitical risk on cross-border claims is greater in magnitude and more statistically significant after 1999, driven by stronger effects on claims on emerging markets.

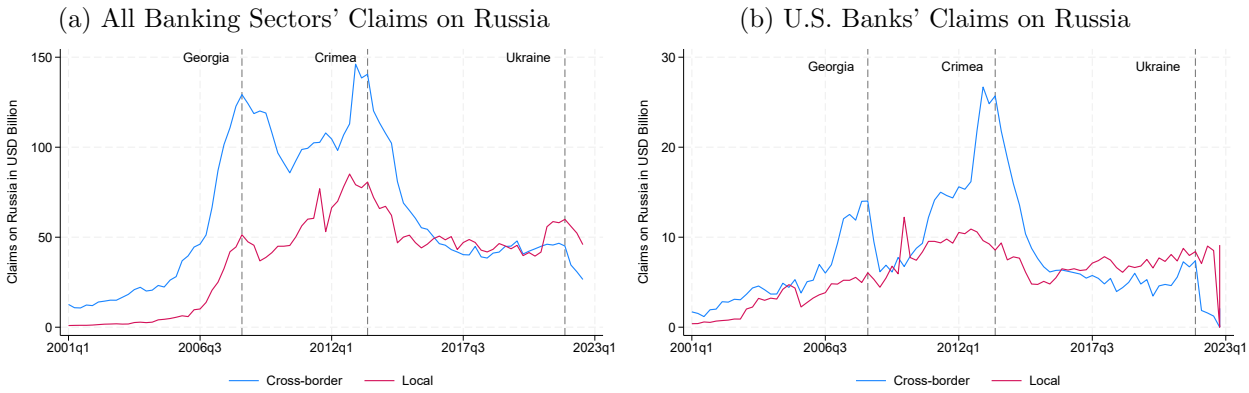
Table 4: Geopolitical Risk and Foreign Exposure Reallocation

	Total Exp.			Cross-border			Local		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Basel.	Controls	Interact.	Basel.	Controls	Interact.	Basel.	Controls	Interact.
CGPR	-0.067**	-0.101***	-0.141***	-0.099***	-0.140***	-0.134***	0.042	-0.051	-0.065
	(0.028)	(0.035)	(0.029)	(0.030)	(0.037)	(0.031)	(0.056)	(0.056)	(0.052)
L.CGPR	-0.036	-0.047	-0.099***	-0.053	-0.082*	-0.114***	0.046	0.009	0.016
	(0.029)	(0.039)	(0.029)	(0.032)	(0.043)	(0.029)	(0.052)	(0.059)	(0.055)
ln(Exch. Rate)		-0.189***			-0.176***			0.029	
		(0.043)			(0.045)			(0.053)	
ln(Stock Index)		0.120***			0.188***			-0.094*	
		(0.027)			(0.027)			(0.051)	
ln(CDS)		-0.003			0.008			-0.116***	
		(0.016)			(0.018)			(0.029)	
core TE			1.625***						
			(0.010)						
CGPR X core TE			0.209***						
			(0.038)						
L.CGPR X core TE			0.161***						
			(0.038)						
core XB						1.591***			
						(0.009)			
CGPR X core XB						0.171***			
						(0.037)			
L.CGPR X core XB						0.168***			
						(0.036)			
core LC									1.593***
									(0.025)
CGPR X core LC									0.161**
									(0.063)
L.CGPR X core LC									0.011
									(0.064)
Bank-country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	137312	40958	137312	135803	40091	135803	34801	13970	34801
R^2	0.894	0.944	0.926	0.875	0.931	0.915	0.878	0.927	0.902
Adjusted R^2	0.883	0.938	0.918	0.862	0.924	0.905	0.863	0.917	0.890

Note: This table reports results from regressions at the bank-country-time level based on Equation (8), with the log exposure of bank b to country c in quarter t as the dependent variable. $CGPR_t$ denotes the *recent* country-specific geopolitical risk index from Caldara and Iacoviello (2022). For dependent variable, Columns (1)–(3) use banks' log total foreign claims; columns (4)–(6) use banks' cross-border claims; and columns (7)–(9) use banks' local claims. Columns (1), (4), and (7) show the baseline results for each dependent variable. Columns (2), (5), and (8) add country-level macro controls, including country c's log exchange rate vis-a-vis the U.S. dollar, log domestic stock price index, and log sovereign CDS spread. Columns (3), (6), and (9) include interaction terms between the contemporaneous and lagged $BGPR$ and a dummy variable that indicates whether a country is a core market for a bank based on its exposures to the country in total, cross-border, or local foreign exposures. All regressions include bank-country and country-time fixed effects. Standard errors are clustered at the country-time level. *$p < .1$; **$p < .05$; ***$p < .01$.

adverse geopolitical shocks, local exposures fell significantly less in percentage terms than cross-border exposures.

Figure 4: Banks' Cross-border and Local Exposures to Russia



Note: The figure illustrates cross-border claims (blue) and local claims (red) on Russia by all BIS-reporting banking sectors in Panel (a) and by the U.S. banking sector in Panel (b). The vertical lines denote three geopolitical events: Russia's conflict with Georgia in 2008:Q3, Russia's annexation of Crimea in 2013:Q4, and Russia's invasion of Ukraine in 2022:Q1. Data source: BIS Consolidated Banking Statistics and FFIEC 009.

Next, we examine anecdotal evidence that potentially explains the differences in the response of local and cross-border claims to geopolitical shocks. At the time of Russia's invasion of Ukraine in February 2022, several large global banks were running significant operations in Russia, including operations through their Russian subsidiaries. UniCredit, Societe Generale, Citigroup, and RBI were among the banks with the largest exposures. The extent to which they have divested from Russia to this day varies significantly. Societe Generale, who earned about 3 percent of net income in Russia prior to the war, was the first bank that successfully sold its Russian subsidiary. In April 2022, it sold Rosbank to a business group linked to a Russian Oligarch, booking a $3.3 billion dollar loss from the sale. As the bank moved quickly, the oligarch in question had not been sanctioned yet by the EU, allowing for the sale.

In contrast, the other global banks have divested much more slowly. UniCredit, Citigroup, and RBI still own their Russian subsidiaries although they have reduced their cross-border operations. Citigroup is winding down its subsidiary by letting business run off and selling portfolios. In contrast, UniCredit and RBI continue to operate their Russian subsidiaries more or less as usual. Reportedly, the banks are looking for opportunities to sell their

Russian subsidiaries, but any sale needs to be approved by the Russian President at this point and could come at a hefty cost. RBI, which runs the 10th largest bank in Russia, would be particularly hit hard by an unfavorable sale. It earns around 40 percent of its group revenue in Russia and estimates that walking away from its subsidiary would result in a 2.5 percentage point hit to its CET1 capital, which is substantial.[11]

These developments reflect the significant frictions and difficult trade-offs banks face for divestiture of local claims, especially those in subsidiaries. By comparison, it is significantly easier for banks to reduce cross-border exposures in response to escalating geopolitical risk. This evidence is consistent with the empirical evidence presented earlier. Arguably, the frictions that Western banks currently face to sell Russian subsidiaries are extreme, with sanctions imposed on many potential buyers and a requirement of presidential approval. However, finding a buyer and selling at a reasonable price is more difficult when geopolitical risk rises, even absent these more extreme frictions. Moreover, developments in Russia suggest that in addition to the mode of foreign operation, the size of operations could also matter for the ease of divestiture. The larger a foreign subsidiary is in relation to a bank's other operations and the more important its revenues are for the bank, the more challenging it is for the bank to absorb losses from a sale, as these losses will be significant compared to the bank's other revenue streams.

4.3 Transmission of Geopolitical Risk through Foreign Operations

The results from the preceding subsections show that U.S. banks maintain persistent local exposures to foreign countries despite a significant increase in the riskiness of these exposures in the face of rising geopolitical risk. This behavior is likely because of frictions involved with promptly divesting from local operations. Based on Equation (1), if a bank is unable to sufficiently reduce the risk and volume of its adversely impacted foreign assets in response to rising geopolitical risk, it must reduce its domestic assets in order to satisfy the capital

[11] For a summary article on global banks' operations in Russia since the Russia-Ukraine War, see "European banks still in Russia: should they stay or should they go?" March 17, 2023, The Banker. Related information can be found in media reports such as the ones listed in Footnote 2, in a JP Morgan report titled "Global Banks, Russian Risk Assessment" from January 22, 2022, and in banks' quarterly earnings presentations and annual filings, see, e.g., Citigroup's 10-K filing with the U.S. Securities and Exchange Commission from 2022.

constraint. As such, the spillover effects of foreign geopolitical risk on their domestic lending are likely greater for banks with larger proportions of local exposure within their total exposures. We test this conjecture in this section.

Specifically, we study whether banks' mode of operation influences the strength of the impact of geopolitical risk on domestic lending standards and lending amounts, building on the baseline analysis. Given that banks reach scale in their operations through local operations (Panel (c) of Figure 1), we note that it is difficult to empirically disentangle effects driven by a bank's mode of operation from the size of its operation. Nevertheless, we provide some suggestive evidence that mode of operation matters for the international transmission of geopolitical risk. To this end, we focus on banks that are more internationally active and distinguish them by their mode of operation.

Table 5 expands upon the regressions presented in Table 1, which examine the effects of BGPR on U.S. banks' domestic lending standards based on Equation (3). In columns (1) and (2) of Table 5, the estimation is based on the subset of banks with a high and low share of local claims in foreign exposures, respectively. Banks are defined as high or low local-claims banks if they are above or below the 70th percentile of the local claims share distribution across banks.[12] The results show that the effect of geopolitical risk on bank lending standards is significant only for banks with a high share of local claims in foreign claims.

In columns (3) through (7), we focus on banks with a high share of foreign claims, defined as those with foreign exposures in total assets exceeding 4.5 percent. In columns (3) and (4), we further categorize this set of banks into those with high and low local claims share, respectively. Among this set of more internationally active banks, the impact of BGPR on domestic lending standards is only pronounced in banks with a high proportion of local claims in their foreign claims. Column (5) includes interaction terms between the contemporaneous and lagged BGPR and a dummy that takes the value of 1 if banks have a high share of local claims in foreign claims and is zero otherwise, to formally test whether the BGPR coefficients are significantly different for the two groups of banks. The coefficient on the interaction term that includes the contemporaneous BGPR index is negative and significant

[12]To compute a bank's share of local claims in foreign claims, we compute the eight-quarter lagged average.

at the 10 percent significance level, confirming that BGPR has a stronger effect on the domestic lending standards of banks with high local claims shares. In columns (6) and (7), we further split the set of internationally active banks into two categories: those with a very high foreign claims share and those with a moderately high foreign claims share, respectively. Between these two groups, the coefficients on BGPR appear more similar compared to those between columns (3) and (4), which suggests that differences in local exposure play a larger role in determining the strength of the spillover effects of foreign geopolitical risk on domestic lending standards. Taking the results together, we conclude that the effect of geopolitical risk on banks' domestic lending standards is particularly strong when banks operate in foreign markets through local offices, which is in line with the discussed results on mechanism and the anecdotal evidence.

Next, we study how banks' mode of operation influences the strength of the impact of geopolitical risk on domestic lending amounts, building on the results from Table 2. Given the evidence that banks may face frictions that prevent prompt divestiture of local claims from foreign countries, we examine whether U.S. banks with a high share of local claims reduce domestic lending more in response to rising geopolitical risk, based on Equation 4. To this end, we sort banks into high and low local-claim banks based on the size of their foreign local lending activities as a share of total asset size.

Table 6 present the results. Columns (1) and (2) include all banks, and Columns (3) and (4) include the subset of banks that have a high share of foreign claims in total assets. We find that banks with a high share of local claims curtail domestic credit provision most significantly in response to rising global geopolitical risk, while the effect for banks with a low share of local claims is smaller and less significant. This result further supports the role of the mode of foreign operation in influencing the spillover effects of foreign geopolitical risk on domestic credit provision.

5 Conclusion

This paper studies the role of banks in propagating foreign geopolitical risk to the domestic real economy. Using multiple supervisory data covering U.S. bank lending activities spanning

Table 5: Geopolitical Risk and Lending Standard, by Local and Foreign Claims Share Size

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	High LC	Low LC	High LC and FC	Low LC High FC	Interact.	V. High FC	High FC
L.LS	0.292***	0.325***	0.310***	0.223***	0.309***	0.308***	0.281***
	(0.041)	(0.035)	(0.049)	(0.068)	(0.039)	(0.047)	(0.071)
Loan demand	-0.070***	-0.017	-0.045	-0.064*	-0.055**	-0.025	-0.107***
	(0.023)	(0.019)	(0.028)	(0.036)	(0.023)	(0.028)	(0.038)
L.Loan demand	-0.016	-0.027*	-0.034	0.001	-0.026	-0.039*	0.001
	(0.020)	(0.016)	(0.025)	(0.031)	(0.019)	(0.023)	(0.035)
D Log BGPR	-0.120***	-0.020	-0.150***	-0.058	-0.091*	-0.131**	-0.108*
	(0.044)	(0.023)	(0.057)	(0.055)	(0.053)	(0.058)	(0.061)
L.D Log BGPR	-0.137***	-0.037	-0.192***	0.013	-0.003	-0.141**	-0.072
	(0.052)	(0.030)	(0.063)	(0.062)	(0.059)	(0.060)	(0.069)
D 2y yield	0.040	0.045	0.051	0.078	0.053	0.071	0.015
	(0.040)	(0.029)	(0.050)	(0.061)	(0.037)	(0.049)	(0.059)
L.D 2y yield	0.027	0.002	0.045	-0.068	0.009	0.026	-0.041
	(0.045)	(0.029)	(0.057)	(0.057)	(0.040)	(0.053)	(0.067)
D Slope	-0.042	-0.040	-0.007	-0.194	-0.045	-0.014	-0.122
	(0.063)	(0.060)	(0.086)	(0.120)	(0.070)	(0.086)	(0.116)
L.D Slope	0.079	-0.111*	0.052	-0.325***	-0.064	-0.005	-0.189
	(0.058)	(0.059)	(0.082)	(0.124)	(0.067)	(0.082)	(0.120)
D Log VIX	-0.142	-0.109*	-0.171	0.050	-0.115	-0.028	-0.191
	(0.087)	(0.059)	(0.115)	(0.113)	(0.086)	(0.111)	(0.117)
L.D Log VIX	-0.091	-0.147***	-0.132	-0.093	-0.128*	-0.159*	-0.063
	(0.071)	(0.056)	(0.093)	(0.114)	(0.073)	(0.093)	(0.114)
D Log S&P 500	0.568**	0.579**	0.861**	1.150**	0.961***	1.424***	0.386
	(0.287)	(0.227)	(0.373)	(0.451)	(0.282)	(0.362)	(0.457)
L.D Log S&P 500	0.160	0.183	0.333	0.293	0.350	0.026	0.789
	(0.324)	(0.242)	(0.423)	(0.467)	(0.325)	(0.432)	(0.490)
D Log Ind. Prod.	3.638***	2.169*	2.470*	2.498	2.480**	1.804	4.003
	(1.200)	(1.253)	(1.377)	(2.589)	(1.211)	(1.376)	(2.894)
L.D Log Ind. Prod.	2.507***	3.554***	2.644**	0.552	2.183**	2.147**	1.764
	(0.854)	(0.964)	(1.058)	(1.749)	(0.917)	(1.024)	(1.981)
High FC x L.D Log BGPR					-0.054		
					(0.076)		
High FC x D Log BGPR					-0.168*		
					(0.086)		
High FC					0.001		
					(0.064)		
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1131	1579	737	445	1183	730	451
R^2	0.312	0.310	0.348	0.324	0.319	0.286	0.369
Adjusted R^2	0.280	0.276	0.306	0.262	0.285	0.249	0.311

Note: This table reports results from regressions at the bank-time level based on Equation (3). The dependent variable (LS) indicates whether a bank reported tightening of, unchanged, or loosening of credit standards on C&I loans to large and medium-sized firms for quarter t. $BGPR$ denotes bank-specific geopolitical risk index, constructed based on Equation (2). Columns (1) and (2) split the sample based on banks' share of local exposures in foreign exposures. A bank is classified as a high-local-claims-share bank if it ranks above the 70th percentile in the distribution of local claims share in foreign claims. Columns (3)–(7) are limited to banks with a high share of foreign claims, defined as those having foreign exposures in total assets exceeding 4.5 percent. Columns (3) and (4) divide the sample into high-local-claims-share banks and low-local-claims-share banks, respectively. Column (5) adds interaction terms between contemporaneous and lagged $BGPR$ and a dummy that takes the value of 1 if banks have a high local claims share and is zero otherwise. Columns (6) and (7) further split the set of high-foreign-claims-share banks into those with a very high foreign claims share and those with a moderately high foreign claims share, respectively. All regressions include bank fixed effects. Standard errors are clustered at the bank-time level. *$p < .1$; **$p < .05$; ***$p < .01$.

Table 6: Geopolitical Risk and Lending Amount, by Local Claims Share Size

(a) C&I Lending

	All		More Intl.	
	(1)	(2)	(3)	(4)
	High LC	Low LC	High LC	Low LC
BGPR	-1.372**	0.155	-1.375**	-0.120
	(0.583)	(0.099)	(0.586)	(0.119)
L.BGPR	-0.689**	0.253***	-0.699**	-0.308**
	(0.301)	(0.098)	(0.303)	(0.129)
Bank Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
N	615	5229	611	2297
R^2	0.916	0.918	0.916	0.948
adj. R^2	0.893	0.914	0.892	0.943

(b) Total Lending

	All		More Intl.	
	(1)	(2)	(3)	(4)
	High LC	Low LC	High LC	Low LC
BGPR	-0.336***	0.081*	-0.342***	-0.158*
	(0.107)	(0.042)	(0.110)	(0.081)
L.BGPR	-0.272***	0.063	-0.277***	-0.054
	(0.101)	(0.041)	(0.104)	(0.082)
Bank Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
N	668	5786	659	2472
R^2	0.982	0.978	0.981	0.977
adj. R^2	0.978	0.977	0.977	0.974

Note: This table reports results from regressions at the bank-time level based on equation 4, with log C&I loan amount as dependent variable in Panel (a) and log total loan amount as dependent variable in Panel (b). *BGPR* denotes bank-specific geopolitical risk index, as constructed based on equation (2). Columns (1) and (2) include all banks, and Columns (3) and (4) include the subset of banks that have a high share of foreign claims in total assets. Columns (1) and (3) include the subset of banks that have a high share of local claims in foreign claims, and columns (2) and (4) include the subset of banks that have a low share of local claims. Bank controls include lagged Tier 1 capital ratio and liquid asset ratio. Standard errors are clustered at the bank-time level. *, **, *** denote $p < .1, p < 0.05,$ and $p < 0.01$, respectively.

the last four decades, we show that in response to an increase in geopolitical risk abroad, U.S. banks tighten domestic lending standards and decrease lending to domestic firms. We find that this spillover effect is most pronounced among the more internationally active banks—banks that have large-scale foreign operations relative to their total operation. Notably, the mode of foreign operations influences the strength of the spillover effect. While U.S. banks reduce cross-border lending to countries facing heightened geopolitical risk, their lending through branches and subsidiaries in those countries persists, even though the riskiness of both their loans to borrowers in these countries and overall loan portfolios is adversely impacted. These findings suggest that difficulties associated with prompt divestiture of foreign assets exacerbate the transmission of foreign geopolitical risk to the U.S. domestic credit market.

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Appendix

A Robustness of Baseline Results

We present a series of empirical results that supplement the baseline analysis in Section 3.

Appendix Table A.1 re-estimates the regression model of Equation 3 using alternative constructs of BGPR. We obtain similar results when the BGPR index is constructed using one-quarter lagged foreign exposure shares as weights (columns 1–3) or four-quarter lagged local claims exposure shares as weights (column 5).

Appendix Table A.2 reports regression results from Equation 3 using alternative units for clustering standard errors and incorporating additional fixed effects. Columns (1) and (2) show that our results are robust to clustering by bank or date, respectively. Column (3) shows that our results are robust to the inclusion of year fixed effects. Column (4) shows that time fixed effects render the coefficients on the BGPR index insignificant. This suggests that variation in geopolitical risk over time is key to identifying our effects, while variation across banks in exposure to foreign geopolitical risk is not sufficient.

Building on the results from Table 1, Appendix Table A.3 runs a horse race between the GGPR index from Caldara and Iacoviello (2022) and our BGRP index. Overall the two indices have similar predictive power for lending standards. For banks with larger foreign operations, the BGPR index explains a slightly higher share of the variation in lending standards than the global GPR index, as shown in column (1) of Appendix Table A.3 compared to column (4) of Table 1.

Appendix Table A.4 explores the relationship between GGPR and lending standards using the aggregate SLOOS data. Interestingly, the effect of geopolitical risk on aggregate bank lending standards is not apparent. The disaggregated data are needed to uncover the relationship. This lack of apparent impact may be attributed to the fact that the publicly available aggregate net share of banks reporting tightened credit standards encompasses both domestically focused and internationally active banks. Given that the impact of geopolitical risk is primarily observed among internationally active banks, the effects of such risk may not be evident in this aggregate data.

Table A.1: Geopolitical Risk and Lending Standards: Alternative BGPR specifications

	1q lagged exp. share			local claims share	
	(1)	(2)	(3)	(4)	(5)
	All	More intern.	Less intern.	All	All
L.LS	0.324***	0.298***	0.323***	0.299***	0.299***
	(0.026)	(0.037)	(0.037)	(0.034)	(0.034)
Loan demand	-0.046***	-0.064***	-0.031	-0.056***	-0.056***
	(0.014)	(0.022)	(0.019)	(0.020)	(0.020)
L.Loan demand	-0.016	-0.012	-0.022	-0.020	-0.019
	(0.013)	(0.018)	(0.017)	(0.018)	(0.018)
D Log BGPR (1ql)	-0.036*	-0.098***	0.001		
	(0.020)	(0.037)	(0.023)		
L.D Log BGPR (1ql)	-0.046**	-0.076*	-0.024		
	(0.021)	(0.041)	(0.024)		
D 2y yield	0.037*	0.051	0.022	0.032	0.032
	(0.022)	(0.034)	(0.028)	(0.034)	(0.034)
L.D 2y yield	0.028	0.029	0.029	0.033	0.032
	(0.024)	(0.038)	(0.029)	(0.036)	(0.036)
D Slope	-0.064	-0.073	-0.044	-0.065	-0.066
	(0.042)	(0.067)	(0.055)	(0.057)	(0.057)
L.D Slope	-0.018	-0.055	0.017	0.033	0.034
	(0.040)	(0.063)	(0.052)	(0.055)	(0.055)
D Log VIX	-0.119**	-0.111	-0.125**	-0.067	-0.059
	(0.048)	(0.079)	(0.061)	(0.074)	(0.073)
L.D Log VIX	-0.117***	-0.108	-0.129**	-0.077	-0.072
	(0.043)	(0.069)	(0.054)	(0.063)	(0.063)
D Log S&P 500	0.615***	0.966***	0.342	0.904***	0.915***
	(0.169)	(0.257)	(0.224)	(0.247)	(0.246)
L.D Log S&P 500	0.255	0.471	0.040	0.352	0.364
	(0.189)	(0.308)	(0.233)	(0.281)	(0.281)
D Log Ind. Prod.	2.645***	2.309**	3.174***	3.270***	3.343***
	(0.865)	(1.175)	(1.135)	(1.102)	(1.101)
L.D Log Ind. Prod.	2.397***	1.675*	3.010***	2.359***	2.331***
	(0.644)	(0.876)	(0.866)	(0.791)	(0.790)
D Log BGPR				-0.092***	
				(0.035)	
L.D Log BGPR				-0.095**	
				(0.040)	
D Log BGPR (LC)					-0.095***
					(0.032)
L.D Log BGPR (LC)					-0.080**
					(0.037)
Bank FE	Yes	Yes	Yes	Yes	Yes
Observations	2899	1362	1535	1555	1555
R^2	0.295	0.313	0.297	0.312	0.312
Adjusted R^2	0.270	0.273	0.267	0.285	0.285

Note: This table reports results from regressions at the bank-time level based on Equation (3) with lending standards (LS) as the dependent variable. $BGPR$ denotes bank-specific geopolitical risk index constructed based on Equation (2) using four-quarter lagged foreign exposure shares as weights. $BGPR(1ql)$ denotes bank-specific geopolitical risk index constructed using one-quarter lagged foreign exposure shares as weights. $BGPR(LC)$ denotes bank-specific geopolitical risk index constructed using four-quarter lagged local claims exposure shares as weights. All specifications control for lagged lending standards and loan demand, and include the log changes in 2-year Treasury yield, the slope of the yield curve (10y-2y), the CBOE Volatility Index (VIX), the S&P 500 index, and U.S. industrial production as macroeconomic controls as well as bank fixed effects. Columns (1), (4), and (5) include all banks in the sample. Columns (2) and (3) include the subset of banks that are more or less internationally active, respectively, defined as those with an eight-quarter lagged foreign claims to asset ratio above or below the sample median. Standard errors, shown in parentheses, are clustered at the bank-time level. *$p < .1$; **$p < .05$; ***$p < .01$.

Table A.2: Geopolitical Risk and Lending Standards: Alternative clustering and fixed effects

	(1) Cluster bank	(2) Cluster time	(3) Y FE	(4) Time FE
L.LS	0.310***	0.310***	0.161***	0.186***
	(0.024)	(0.038)	(0.039)	(0.037)
L.Loan demand	-0.016	-0.016	-0.029	-0.019
	(0.019)	(0.018)	(0.019)	(0.018)
Loan demand	-0.056***	-0.056**	-0.046**	-0.052***
	(0.021)	(0.025)	(0.020)	(0.019)
L.D Log BGPR	-0.081**	-0.081	-0.134***	0.076
	(0.037)	(0.059)	(0.052)	(0.108)
D Log BGPR	-0.113***	-0.113**	-0.144***	-0.090
	(0.038)	(0.051)	(0.048)	(0.120)
L.D 2y yield	0.021	0.021	-0.044	
	(0.041)	(0.049)	(0.041)	
D 2y yield	0.052	0.052	-0.034	
	(0.033)	(0.043)	(0.049)	
L.D Slope	-0.055	-0.055	0.104	
	(0.084)	(0.086)	(0.083)	
D Slope	-0.059	-0.059	0.119	
	(0.085)	(0.092)	(0.076)	
L.D Log VIX	-0.108	-0.108	-0.095	
	(0.080)	(0.099)	(0.075)	
D Log VIX	-0.087	-0.087	-0.127	
	(0.090)	(0.121)	(0.088)	
L.D Log S&P 500	0.379	0.379	0.074	
	(0.261)	(0.482)	(0.317)	
D Log S&P 500	1.056***	1.056***	0.393	
	(0.252)	(0.322)	(0.366)	
L.D Log Ind. Prod.	1.781***	1.781*	2.592**	
	(0.604)	(0.986)	(1.008)	
D Log Ind. Prod.	2.475*	2.475	3.022**	
	(1.266)	(1.649)	(1.280)	
Bank FE	Yes	Yes	Yes	Yes
Time FE	No	No	No	Yes
Year FE	No	No	Yes	No
Observations	1258	1258	1258	1258
R^2	0.314	0.314	0.415	0.474
Adjusted R^2	0.273	0.273	0.364	0.385

Note: This table reports results from regressions at the bank-time level based on Equation (3) with lending standards (LS) as the dependent variable. $BGPR$ denotes bank-specific geopolitical risk index constructed based on Equation (2). Standard errors, shown in parentheses, are clustered at the bank level in column (1) and at the time level in column (2). Column (3) includes year fixed effects, and column (4) includes time fixed effects. All specifications control for lagged lending standards and loan demand, and include bank fixed effects. Columns (1)–(3) include the log changes in 2-year Treasury yield, the slope of the yield curve (10y-2y), the CBOE Volatility Index (VIX), the S&P 500 index, and U.S. industrial production as macroeconomic controls. *$p < .1$; **$p < .05$; ***$p < .01$.

Table A.3: Geopolitical Risk and Lending Standards: BGPR versus GGPR

	More intern.		Less intern.		All	
	(1) GGPR	(2) GGPR & BGRP	(3) GGPR	(4) GGPR & BGRP	(5) GGPR	(6) GGPR & BGRP
L.LS	0.313***	0.312***	0.324***	0.324***	0.327***	0.327***
	(0.039)	(0.039)	(0.037)	(0.037)	(0.026)	(0.026)
D Log Global GPR	-0.149***	-0.095	-0.021	-0.025	-0.088**	-0.077*
	(0.050)	(0.100)	(0.055)	(0.061)	(0.037)	(0.044)
L.D Log Global GPR	-0.060	0.082	-0.052	-0.011	-0.056	0.005
	(0.061)	(0.113)	(0.054)	(0.067)	(0.041)	(0.055)
Loan demand	-0.055**	-0.055**	-0.031	-0.031	-0.041***	-0.041***
	(0.022)	(0.022)	(0.019)	(0.019)	(0.015)	(0.015)
L.Loan demand	-0.017	-0.017	-0.022	-0.021	-0.020	-0.019
	(0.019)	(0.019)	(0.018)	(0.018)	(0.013)	(0.013)
D 2y yield	0.049	0.054	0.022	0.024	0.033	0.036
	(0.036)	(0.036)	(0.028)	(0.029)	(0.022)	(0.022)
L.D 2y yield	0.020	0.017	0.032	0.031	0.023	0.022
	(0.039)	(0.040)	(0.029)	(0.029)	(0.024)	(0.024)
D Slope	-0.064	-0.065	-0.040	-0.040	-0.055	-0.056
	(0.069)	(0.069)	(0.055)	(0.055)	(0.043)	(0.043)
L.D Slope	-0.053	-0.050	0.017	0.016	-0.016	-0.017
	(0.066)	(0.067)	(0.052)	(0.052)	(0.041)	(0.041)
D Log VIX	-0.076	-0.078	-0.125**	-0.126**	-0.104**	-0.104**
	(0.083)	(0.084)	(0.061)	(0.061)	(0.050)	(0.050)
L.D Log VIX	-0.103	-0.111	-0.132**	-0.128**	-0.119***	-0.118***
	(0.071)	(0.072)	(0.054)	(0.054)	(0.043)	(0.043)
D Log S&P 500	1.065***	1.080***	0.348	0.352	0.648***	0.658***
	(0.270)	(0.277)	(0.226)	(0.225)	(0.175)	(0.175)
L.D Log S&P 500	0.391	0.357	0.032	0.037	0.193	0.191
	(0.319)	(0.322)	(0.237)	(0.238)	(0.193)	(0.193)
D Log Ind. Prod.	2.384**	2.413**	3.151***	3.118***	2.760***	2.738***
	(1.204)	(1.213)	(1.146)	(1.147)	(0.876)	(0.875)
L.D Log Ind. Prod.	1.637*	1.854**	2.988***	3.038***	2.433***	2.512***
	(0.898)	(0.928)	(0.872)	(0.870)	(0.653)	(0.654)
D Log BGPR		-0.048		0.005		-0.009
		(0.081)		(0.025)		(0.024)
L.D Log BGPR		-0.128		-0.039		-0.057
		(0.085)		(0.040)		(0.035)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1258	1258	1528	1528	2788	2788
R^2	0.313	0.314	0.296	0.297	0.297	0.298
Adjusted R^2	0.272	0.272	0.265	0.265	0.272	0.272

Note: This table reports results from regressions at the bank-time level based on Equation (3) with lending standards (LS) as the dependent variable. $BGPR$ denotes bank-specific geopolitical risk index constructed based on Equation (2). *Global GPR* denotes global geopolitical risk index from Caldara and Iacoviello (2022). All specifications control for lagged lending standards and loan demand, and include the log changes in 2-year Treasury yield, the slope of the yield curve (10y-2y), the CBOE Volatility Index (VIX), the S&P 500 index, and U.S. industrial production as macroeconomic controls as well as bank fixed effects. Columns (1) and (2) the subset of banks that are more internationally active, defined as those with an eight-quarter lagged foreign claims to asset ratio above the sample median. Columns (3) and (4) the subset of banks that are less internationally active. Columns (5) and (6) include all banks in the sample. Standard errors, shown in parentheses, are clustered at the bank-time level. *$p < .1$; **$p < .05$; ***$p < .01$.

Table A.4: Aggregate Geopolitical Risk and Lending Standards

	(1) LS	(2) LS	(3) LS
L.LS	0.730***	0.733***	0.733***
	(0.074)	(0.072)	(0.073)
D Log Global GPR	1.130		0.898
	(2.936)		(2.778)
Loan demand	-0.053	-0.057	-0.058
	(0.064)	(0.063)	(0.063)
D Log VIX	11.586***	11.223***	11.207***
	(3.874)	(3.876)	(3.887)
D 2y yield	9.043***	9.122***	9.099***
	(3.014)	(2.961)	(2.947)
D Slope	-3.475	-3.225	-3.296
	(4.305)	(4.300)	(4.315)
D Log S&P 500	30.157	29.080	29.270
	(18.574)	(17.919)	(18.019)
L.D Log Ind. Prod.	234.713***	236.715***	236.627***
	(52.852)	(53.806)	(53.879)
L.D Log Global GPR		-2.343	-2.247
		(3.816)	(3.848)
Observations	123	123	123
R^2	0.824	0.825	0.825
Adjusted R^2	0.812	0.812	0.811

Note: This table reports results from regressions at the aggregate level with lending standards (LS) as the dependent variable. *Global GPR* denotes global geopolitical risk index from Caldara and Iacoviello (2022). All specifications control for lagged lending standards and loan demand, and include the log changes in 2-year Treasury yield, the slope of the yield curve (10y-2y), the CBOE Volatility Index (VIX), the S&P 500 index, and U.S. industrial production as macroeconomic controls. Standard errors, shown in parentheses, are clustered at the time level. *$p < .1$; **$p < .05$; ***$p < .01$.