

Geopolitical Risk and Global Banking

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Motivation

We are seeing a range of geopolitical risks rise to prominence, and it's appropriate for American businesses to be thinking about what those risks are.

— Janet Yellen (2022)

The most important [risk] is the geopolitics around Russia and Ukraine, America and China, relationships of the Western world. That to me would be far more concerning than whether there is a mild or slightly severe recession.

— Jamie Dimon (2022)

Geopolitical risk (GPR): the threat, realization, and escalation of adverse events associated with tensions among states and political actors that affect the peaceful course of international relations.

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- Sudden: fast development, difficult to react.
- Large: disastrous events → direct losses, rising uncertainty, and increased likelihood of expropriation.

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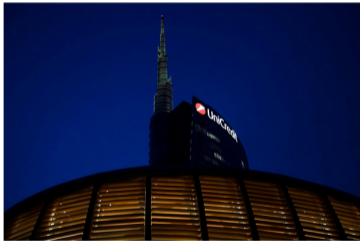
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GPR affects global banks

Banks That Stuck With Russia Face Their Biggest Test of Nerve

Italian and Austrian firms have increased Russia loans since 2015, and France has a big presence too. SocGen, UniCredit and Raiffeisen are in the spotlight.



UniCredit headquarters in Milan. Photographed: Stefan Wermuth/Bloomberg

By [Nicholas Comfort](#), [Hannah Levitt](#), and [Sonia Sirlletti](#)

February 23, 2022 at 7:00 AM EST

Updated on February 23, 2022 at 9:33 AM EST

- Geopolitical events affect banks with exposures through foreign operations.
 - ▶ Invasion of Ukraine led to uncertainty for banks operating in Russia.
 - ▶ Despite intention and pressure, banks have struggled to sell Russian subsidiaries.

This Paper

Do banks propagate GPR to countries removed from the conflict?

- How do U.S. banks adjust exposure to countries experiencing increasing geopolitical risk?
- What are the implications for domestic credit — are there spillover effects?

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- What are the implications for domestic credit — are there spillover effects?

Analyze using U.S. supervisory data:

- FFIEC 009: Bank-country-level foreign exposures of U.S. banks, by mode of operation.
- FRY-14Q: Loan-level origination and riskiness by borrower/country.
- SLOOS: Bank-level lending standards.
- Y-9C/Call Reports: Bank-level loan volumes.

Main Findings

GPR and banks' foreign operations:

- ① An increase in GPR increases credit risk of exposed banks.
 - ② U.S. banks reduce cross-border lending to high GPR countries, but their lending through local operations in those countries continues, despite rising credit risk.
 - ③ Bank do not adjust foreign exposure similarly in response to other types of risk.
- Banks appear limited in their willingness/ability to derisk in foreign operations in response to GPR.

Main Findings

GPR and banks' foreign operations:

- 1 An increase in GPR increases credit risk of exposed banks.
- 2 U.S. banks reduce cross-border lending to high GPR countries, but their lending through local operations in those countries continues, despite rising credit risk.
- 3 Bank do not adjust foreign exposure similarly in response to other types of risk.

→ Banks appear limited in their willingness/ability to derisk in foreign operations in response to GPR.

Spillover effects:

- In response to higher GPR, U.S. banks
 - ▶ reduce C&I lending to domestic firms;
 - ▶ tighten lending standards.
- Effects mostly stem from countries where banks have local operations.

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Internationally active banks play a significant role in propagating GPR to countries removed from the conflict.

Related literature

- **GPR in economics and finance:**

- ▶ Trade war and supply chain (Amiti et al., 2020; Fajgelbaum et al., 2020, 2021; Alfaro and Chor, 2023).
- ▶ Role of sanctions (Bachmann et al. 2022; Bianchi and Sosa-Padilla 2022; Lorenzoni and Werning 2022; Itskhoki and Mukhin 2023).
- ▶ Framework on the role of geopolitical power in affecting economic activities and globalization (Clayton et al. 2023, 2024; Broner et al 2023).

- **GPR in banking:**

- ▶ Alsagr and Alamzor (2020): GPR hurts bank profitability less in oil-dependent emerging markets.
- ▶ Pham et al. (2021): Ukrainian banks reduced lending after 2014 Crimea conflict.
- ▶ Demir and Danisman (2021): GPR lowers consumer loans; banks with foreign subsidiaries respond less.
- ▶ Phan et al. (2022): GPR hurting bank stability measured by z-score.

- **Uncertainty and rare disaster risk:** Bloom (2009), Jurado et al. (2015), Baker et al. (2016), Barro (2006, 2009, 2011).

- **Risks and capital flows:** Rey (2016), Kalemli-Ozcan (2019), Jiang et al. (2020), Akinci et al. (2022), and Hassan et al. (2023).

- **Financial intermediaries and international spillovers:** Peek and Rosengren (2000), Schnabl (2012), Cetorelli and Goldberg (2012), Kalemli-Ozcan et al. (2013), Ivashina et al. (2015), Hale et al. (2020), Morais et al. (2019), Correa et al. (2023), Federico et al. (2023), Temesvary and Wei (2024)

Outline

1 Measuring Bank-specific GPR Exposure

2 GPR and Global Banking

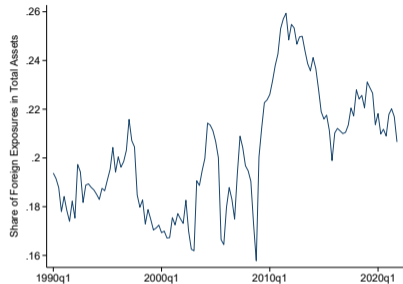
- How does GPR affect U.S. banks' riskiness?
- How do banks adjust foreign exposure in response to increased GPR?
- Is GPR special?

3 Spillover Effects: GPR and U.S. Banks' Domestic Operations

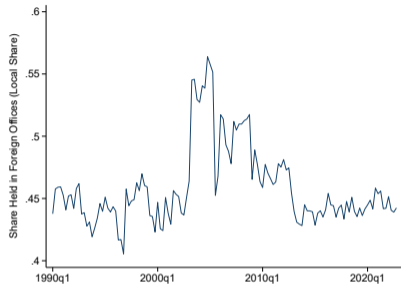
- Conceptual Background
- Loan Origination
- Lending Standards

U.S. Banks' Foreign Operations

(a) Foreign Exposures as a Share of Total Assets



(b) Local Exposures as a Share of Foreign Exposures



- Around 20 percent of U.S. banks' assets are foreign assets (foreign claims).
- The most internationally active banks are the largest banks.
- Around half of banks' foreign exposures stem from assets in foreign branches and subsidiaries (local claims).

Constructing Bank-specific GPR Index (BGPR)

$$BGPR_{bt} = \sum_c \omega_{bct} CGPR_{ct},$$

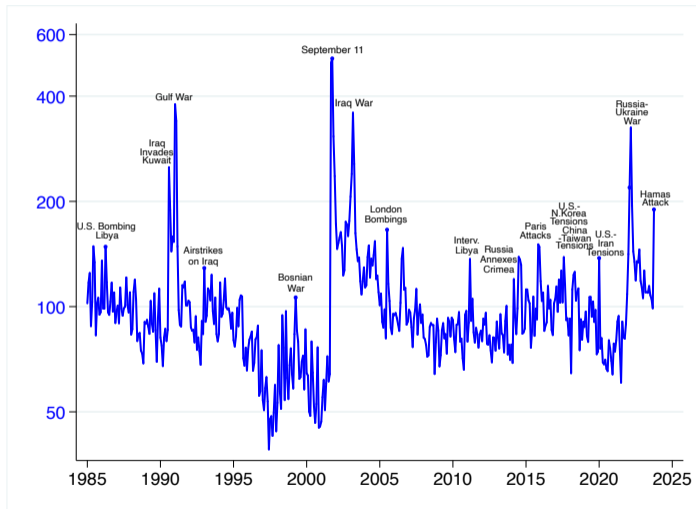
where

$$\omega_{bct} = \frac{1}{4} \left(\sum_{i=1}^4 \frac{exp_{bct-i}}{asset_{bt-i}} \right) \text{ or } \omega_{bct} = \frac{1}{4} \left(\frac{\sum_{i=1}^4 exp_{bct-i}}{\sum_c \sum_{i=1}^4 exp_{bct-i}} \right)$$

- Country-level GPR (CGPR) index is weighted by exposure of each bank to that country.
 - ▶ $asset_{bt}$: total assets of bank b in quarter t .
 - ▶ exp_{bct} : foreign claims of bank b to country c in quarter t .
- 34 percent of the variation in BGPR explained by common time factors.
- Alternative weights: different lags or weighted by local claims.

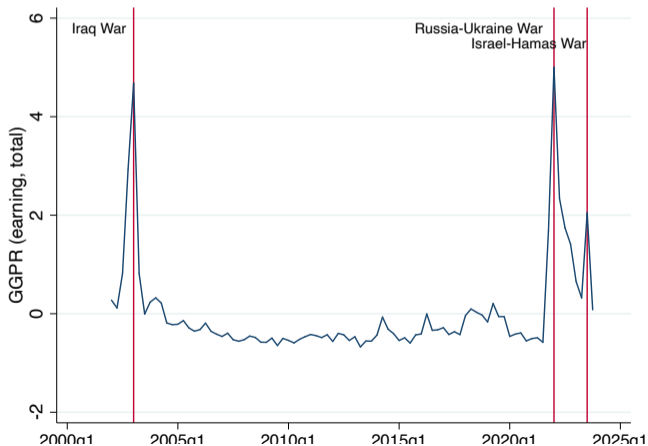
Geopolitical Risk Index by Caldara and Iacoviello (CI)

- Caldara and Iacoviello (2022) introduced a GPR index using a newspaper text-based method.



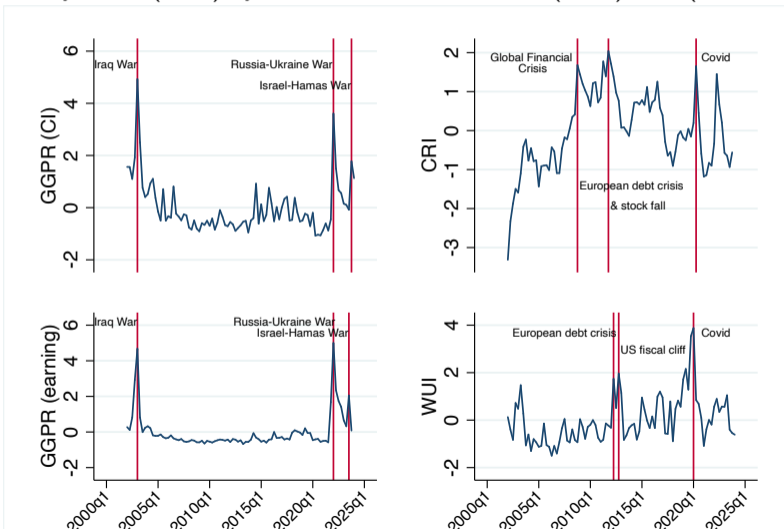
Geopolitical Risk Index based on Earnings Call Transcripts

- We constructed country-level GPR index using firms' earnings call transcripts from Hassan et al. (2023) — **CGPR (earning)**.
 - ▶ Captures perceptions of geopolitical risk by all firms or financial firms.
 - ▶ Can be decomposed into act vs. threat.



GPR and Other Types of Risks

- Country Risk Index (CRI) by Hassan et al. (2023): $\text{corr}(\text{CGPR}, \text{CRI}) = -0.43$
- World Uncertainty Index (WUI) by Ahir, Bloom, and Furceri (2022): $\text{corr}(\text{CGPR}, \text{WUI}) = 0.03$



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Fact 1: Credit risk increases with rising GPR

Credit risk: Weighted probability of default from FR Y-14.

Bank-country Level			
	(1)	(2)	(3)
PD_{bct}	All	More Intl.	Less Intl.
$CGPR_{ct}$	0.100** (0.040)	0.132*** (0.043)	-0.040 (0.030)
Bank-Country FE	Yes	Yes	Yes
Bank-Time FE	Yes	Yes	Yes
N	9627	6527	3089
R^2	0.679	0.653	0.729

- PD of loans increases when GPR of country of borrower increases.
- A 1 std. increase in CGPR increases the average weighted PD of loans by 11%.
- Effect concentrated among the more internationally active banks.

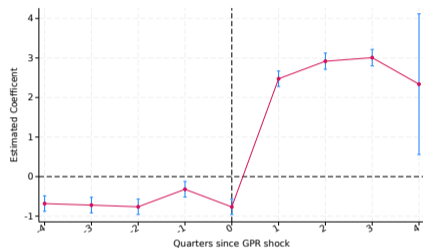
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Change in PDs from Russia-Ukraine Conflicts



- PD of outstanding loans to Russian borrowers increases after Crimea (2013Q4) and Russia-Ukraine war (2022Q1) relative to all other borrowers.
- Magnitude of increase in the first quarter is about 1.5 std of average PD.

Aggregate credit risk in banks' loan portfolio increases

	Bank Level					
	BGPR (CI)			BGPR (Earnings call)		
	(1)	(2)	(3)	(4)	(5)	(6)
PD_{bt}	All	More Intl.	Less Intl.	All	More Intl.	Less Intl.
BGPR _{bt}	0.177*** (0.036)	0.192*** (0.033)	0.095 (0.421)	0.114*** (0.024)	0.097*** (0.022)	-0.091 (0.090)
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	404	232	168	404	232	168
<i>R</i> ²	0.865	0.905	0.877	0.862	0.901	0.879

- A 1 std increase in BGPR increases average weighted PD by 12-19%.
- Effect concentrated among the more internationally active banks.

Fact 2: Foreign Operation Reallocation

How do banks adjust foreign exposures in response to increase in riskiness of loan portfolios?

	Total		Cross-border		Local	
	(1)	(2)	(3)	(4)	(5)	(6)
Exp_{bct}	Baseline	Controls	Baseline	Controls	Baseline	Controls
$CGPR_{ct}$	-0.018** (0.007)	-0.026*** (0.009)				
$CGPR_{ct-1}$	-0.010 (0.008)	-0.013 (0.010)				
Bank-country	Yes	Yes				
Bank-time FE	Yes	Yes				
Observations	137312	40958				
R^2	0.894	0.944				

- Controls: Log stock price index, log sovereign CDS spread, log exchange rate, sanction indicator
- A 1 std. increase in CGPR reduces total foreign exposure by 4% (column 2).

Fact 2: Foreign Operation Reallocation: Cross-border vs. Local Claims

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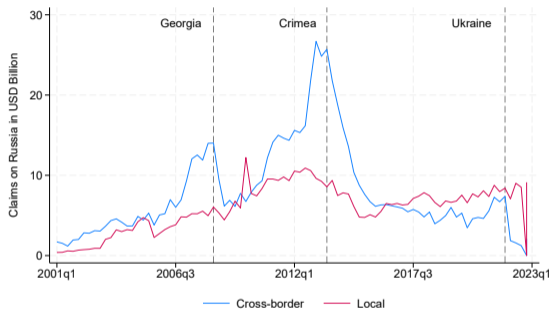
- Cross-border claims: credit extended to foreign borrowers from an office outside of the country of the borrower.
- Local claims: foreign credit extended from branch or subsidiary in the country of residence of the borrower.

	Total		Cross-border		Local	
	(1)	(2)	(3)	(4)	(5)	(6)
Exp_{bct}	Baseline	Controls	Baseline	Controls	Baseline	Controls
$CGPR_{ct}$	-0.018** (0.007)	-0.026*** (0.009)	-0.026*** (0.008)	-0.036*** (0.010)	0.011 (0.015)	-0.016 (0.015)
$CGPR_{ct-1}$	-0.010 (0.008)	-0.013 (0.010)	-0.014* (0.009)	-0.023** (0.011)	0.012 (0.014)	0.003 (0.015)
Bank-country	Yes	Yes	Yes	Yes	Yes	Yes
Bank-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	137312	40295	135803	39449	34801	13691
R^2	0.894	0.944	0.875	0.932	0.878	0.929

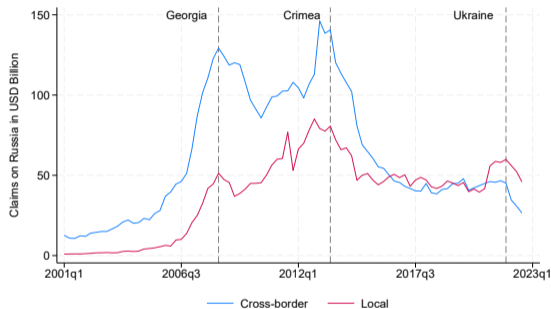
- While cross-border claims decrease, local claims remain stable in response to increasing GPR.
- Russian war-induced increase in CGPR (7 std) reduces cross-border claims by 40 percent (column 4).

Evidence from Russia-Ukraine Conflicts

U.S. banks' exposures to Russia



All banks' exposures to Russia



- Cross-border exposures tend to be volatile and reduced significantly after shocks.
- Local exposures are stickier and fell significantly less in percentage terms.

Fact 3: GPR is a distinct source of risk

Foreign Operation Reallocation and Other Risks

	(1) Cross-border	(2) Local	(3) Cross-border	(4) Local	(5) Cross-border	(6) Local
CRI	-0.004 (0.017)	0.021 (0.017)				
L.CRI	0.008 (0.016)	0.036** (0.018)				
WUI			0.004 (0.005)	0.003 (0.007)		
L.WUI			-0.007 (0.005)	0.004 (0.007)		
CDS					-0.013 (0.009)	-0.028* (0.016)
L.CDS					-0.004 (0.012)	-0.022 (0.014)
Bank-country	Yes	Yes	Yes	Yes	Yes	Yes
Bank-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	53655	18940	127821	33810	60464	19961
R^2	0.917	0.904	0.876	0.877	0.914	0.902

- No reaction of cross-border and local claims to other risk measures.

Anecdotal Evidence from Global Banks in Russia

Country	Exp., 2021:Q4 in \$bn	Exp., 2023:Q2 in \$bn	Bank	Status of Sub. operations
U.S.	16	11	Citigroup	Running off business at Russian sub
Austria	18	15	RBI	Business as usual
France	27	7	SocGen	Sold sub at \$3.3 bn loss
Italy	25	18*	UniCredit	Business as usual

*Data for Italy from 2022:Q3

- Banks face difficult tradeoffs and frictions for divesting:
 - ▶ Hefty loss that is hard to absorb, especially when operations are large relative to overall revenue.
 - ▶ Potential buyers sanctioned.
 - ▶ Approval by Russian president required.

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Conceptual Background

$$\frac{\text{Equity capital}}{\underbrace{\text{Dom. lending} \times \text{Dom. Risk} + \text{Foreign Lending} \times \text{Foreign Risk}}_{\text{Risk-weighted Assets}}} > \mu + \text{buffer}$$

- Regulation requires banks to hold a certain amount of capital against their risk-weighted assets.
- Increase in foreign risk demands reduction of foreign and/or domestic assets.
- Effect on domestic lending is stronger when
 - ▶ foreign risk increases by more,
 - ▶ foreign assets are larger,
 - ▶ foreign assets are stickier (are harder to divest from).

Spillover Effects 1: BGPR and Domestic Loan Origination

Data: FRY-14Q, loan level.

$$\ln(\text{Origination}_{bit}) = \beta \text{BGPR}_{bt} + \delta Z_{bt} + \delta X_{bit} + \gamma_{it} + \alpha_b + \epsilon_{bit}$$

- Origination_{bit} : Amount of loan origination by bank b to firm i at time t .
- Z_{bt} : Bank controls include liquid asset ratio and tier 1 capital ratio.
- X_{bit} : Loan controls include maturity and interest rate.
- γ_{it} : Firm-time fixed effects.
- α_b : Bank fixed effects.
- Sample restricted to lending by U.S. banks to U.S. firms.
- Sample period: 2014Q1 to 2022Q4.
- Aggregated bank-level results are shown subsequently.

Banks reduce domestic loan origination when BGPR rises

	(1)	(2)	(3)	(4)	(5)
Origination _{bit}	All	All	All	More Intl.	Less Intl.
BGPR _{bt}	-0.064** (0.027)	-0.066** (0.027)	-0.095*** (0.029)	-0.131*** (0.041)	-1.068* (0.597)
Bank Controls	No	Yes	Yes	Yes	Yes
Loan Controls	No	No	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Firm-time FE	Yes	Yes	Yes	Yes	Yes
<i>N</i>	205642	199753	171380	125733	38518
<i>R</i> ²	0.594	0.592	0.615	0.591	0.701

- A 1 std. increase in BGPR reduces loan origination by 9 percent (column 3).
- Effect driven by more internationally active banks (foreign asset/total asset > 4.5 percent) (column 4).
- Effects stronger for banks with lower regulatory capital ratios (not shown).

Results similar using earnings call-based BGPR measure

- BGPR_All: GPR perception from all firms based on earnings call transcript.
- BGPR_Fin: GPR perception from financial firms
- Each index further dissected to capture GPR from act vs. threat.

	(1)	(2)	(3)	(4)	(5)	(6)
Origination _{bit}	All firms	All/Act	All/Threat	Fin	Fin/Act	Fin/Threat
BGPR_All _{bt}	-0.079*** (0.021)					
BGPR_All_act _{bt}		-0.048* (0.025)				
BGPR_All_threat _{bt}			-0.075*** (0.021)			
BGPR_Fin _{bt}				-0.062*** (0.021)		
BGPR_Fin_act _{bt}					-0.026 (0.019)	
BGPR_Fin_threat _{bt}						-0.061*** (0.021)
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes
Loan Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-time FE	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	171380	171380	171380	171380	171380	171380
<i>R</i> ²	0.615	0.615	0.615	0.615	0.615	0.615

- Threat of geopolitical risk plays a stronger role.

Loan Origination, Cross-border vs. Local Exposure

Does the mode of operation matter for the spillover of GPR?

	Loan Level					
	(1)	(2)	(3)	(4)	(5)	(6)
Origination _{bit}	Local	Local	Cross-border Only	Cross-border Only	Both	Both
BGPR _{bt} (1(Local))	-0.064** (0.028)	-0.066** (0.027)			-0.063** (0.028)	-0.064** (0.028)
BGPR _{bt} (1(Cross-border))			-0.009 (0.018)	-0.015 (0.019)	-0.004 (0.018)	-0.009 (0.019)
Bank Controls	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-time FE	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	205642	199753	205642	199753	205642	199753
<i>R</i> ²	0.594	0.592	0.594	0.592	0.594	0.592

- Effect of BGPR on loan origination is more significant when stemming from countries where banks have affiliates.
- Same result holds for earnings-based BGPR.
- All loan originations results also hold when run at bank level.

Spillover Effects 2: BGPR and Domestic Lending Standards

Data: SLOOS at bank level.

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

- LS_{bt} : Banks' response to question about whether lending standards have tightened (values 1-5).
- X_t : Macro controls including 2y yield, term spread, VIX, S&P500, Industrial production.
- Z_{bt} : Banks' responses to question about whether demand for loans changed, other bank-level controls.
- Bank fixed effects included (time fixed effects too restrictive).
- Standard errors clustered by bank and time.
- Sample period: 1990:Q3 (because of lag) to 2022:Q2.

Banks tighten domestic lending standards when BGPR rises

	(1)	(2)	(3)	(4)	(5)
	Baseline	Macro controls	Demand control	More intern.	Less intern.
LS_{bt}					
$\Delta \log(BGPR_{bt})$	-0.073*** (0.020)	-0.061*** (0.019)	-0.045** (0.021)	-0.113*** (0.040)	-0.004 (0.025)
$\Delta \log(BGPR_{bt-1})$	-0.066*** (0.022)	-0.047*** (0.021)	-0.058** (0.026)	-0.081* (0.046)	-0.043 (0.032)
Loan demand $_{bt}$			-0.041*** (0.015)	-0.056** (0.022)	-0.031 (0.019)
Loan demand $_{bt-1}$			-0.018 (0.013)	-0.016 (0.019)	-0.021 (0.018)
Bank FE	Yes	Yes	Yes	Yes	Yes
Macro Controls	No	Yes	Yes	Yes	Yes
Observations	3047	3047	2788	1258	1528
R^2	0.233	0.233	0.297	0.314	0.297

- Effect driven by more internationally active banks.
- Changes in GPR have 90 percent of effect of changes in VIX (contemporaneous and lag).

Drivers: Banks' capital positions and economic outlook

- Dependent variable: Change in lending standards because of specific reason.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LS_{bt}	Capital	Outlook	Specif.	Comp.	Risk	Sec. Market	Defaults	Liquidity	Legal
$\Delta \log(BGPR_{bt})$	-0.006 (0.016)	-0.048* (0.029)	-0.040 (0.027)	-0.027 (0.026)	0.009 (0.019)	0.006 (0.011)	-0.007 (0.008)	-0.003 (0.005)	-0.009** (0.004)
$\Delta \log(BGPR_{bt-1})$	-0.082*** (0.027)	-0.055** (0.028)	-0.056* (0.031)	-0.050* (0.029)	0.015 (0.019)	-0.008 (0.013)	-0.010 (0.008)	-0.005 (0.007)	-0.000 (0.004)
Loan demand $_{bt}$	-0.001 (0.006)	-0.021* (0.011)	-0.010 (0.010)	-0.011 (0.011)	-0.016 (0.011)	-0.010 (0.008)	-0.011** (0.006)	-0.007* (0.004)	-0.008*** (0.003)
L.Loan demand $_{bt}$	-0.000 (0.006)	-0.011 (0.011)	-0.024*** (0.010)	-0.010 (0.011)	-0.002 (0.010)	-0.013* (0.007)	-0.006 (0.005)	-0.001 (0.004)	0.000 (0.002)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2788	2788	2788	2788	2788	2788	2788	2788	2788
R^2	0.179	0.376	0.299	0.435	0.331	0.329	0.411	0.205	0.163

CRE loan standards also respond to BGPR

	(1)	(2)	(3)
LS_{bt}	Baseline	Macro controls	Demand control
$\Delta \log(\text{BGPR}_{bt})$	-0.044 (0.042)	-0.037 (0.042)	-0.048 (0.042)
$\Delta \log(\text{BGPR}_{bt-1})$	-0.100** (0.048)	-0.089* (0.046)	-0.090** (0.045)
CRE loan demand $_{bt}$			-0.129*** (0.026)
CRE loan demand $_{bt-1}$			-0.027 (0.025)
Macro Controls	No	Yes	Yes
Bank FE	Yes	Yes	Yes
Observations	1156	1156	1152
R^2	0.254	0.306	0.333

- Banks also tighten commercial real estate loan standards when BGPR increases.

Additional Results and Robustness

- Regressions of total C&I loans on bank balance sheets on BGPR also show lower lending in response to higher BGPR (using FR Y-9C and Call Reports).
- All results hold conditioning on indices based on non-GPR risk measures.
- Are the results driven by the global financial cycle? No.
- LGD of loans increases when GPR in the country of borrower increases.
- Banks lower cross-border exposures less to core markets in response to higher GPR.
- When banks have a larger share of their local exposures in subsidiaries, their exposures are stickier.
- Alternative weights: 1q lagged, claims as a share of total assets.
- Alternative clustering of standard errors.

Conclusion

- Three facts about GPR and global banking:
 - ① An increase in GPR increases credit risk of exposed banks.
 - ② U.S. banks reduce cross-border lending to high GPR countries, but not local lending.
 - ③ Bank do not adjust foreign exposure in similar ways in response to other types of risk.→ Banks face more difficult trade-offs and potentially more friction when reducing local exposures.
- Global banks play a significant role in transmitting geopolitical risk to the United States.
 - ▶ In response to increasing GPR, U.S. banks
 - ★ reduce C&I lending to domestic firms;
 - ★ tighten lending standards.
 - ▶ Effects mostly stem from countries where banks have local operations.

Ongoing work:

- Examining longer-term and nonlinear effects.