Geopolitics and the Payment Demand for Reserve: Theory and Evidence from China and U.S.

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The Paper in One Slide

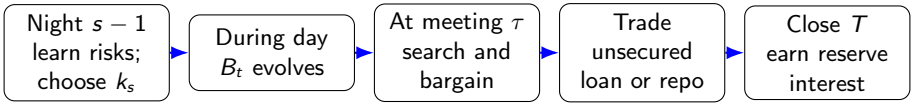
Research question

How does geopolitical tension change reserve demand and interbank funding?

This paper

- Reserves combine an asset return with intraday payment convenience.
- Freeze risk reduces the payment value of holding reserves.
- Primary-sanction risk reduces the asset value of holding reserves.
- Secondary-sanction risk weakens unsecured funding; with freeze risk, it raises reserves.
- The same geopolitical tension can therefore move reserve demand both ways.

Banks Choose Reserves Before They Know Their Payment Need



Loans are repaid at the start of the next period.

Ex ante

Carry reserves before payment needs are known and avoid later market frictions.

Ex post

Search for a counterparty and bargain over an unsecured loan or a repo.

Risk Type Determines the Sign; Reserve Rates Determine the Strength

Risk rises	Reserves	Unsecured borrowing	Repo	Reserve response stronger when
Freeze	−	+	+	reserve rate is low
Primary sanction	−	+	+	reserve rate is high
Secondary sanction	+	−	+	reserve rate is low

- Low reserve rates magnify freeze/secondary reserve responses; high rates magnify primary.
- More repos mitigate the geopolitical risks.

The Empirical Design Uses Two Host Markets

Host	Target institutions	Reserve asset	Sample
China	U.S. banks operating in China	Excess PBOC reserves in RMB	2007–2024
U.S.	Chinese banks in the U.S.	Excess Fed balances in USD	2002–2021

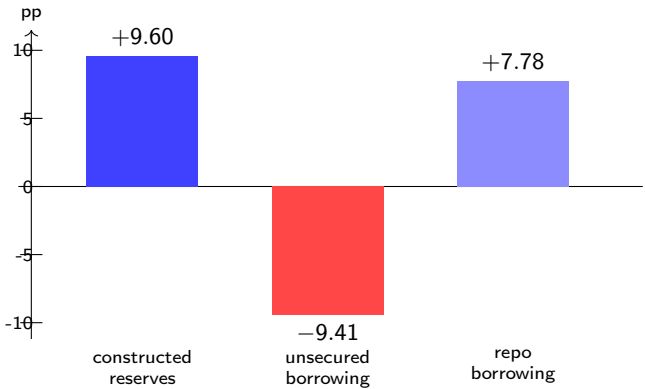
$$k_{it}^{\text{pre}} = k_{it}^{\text{post}} - \text{Unsec}_{it}^{\text{borrow}} + \text{Unsec}_{it}^{\text{lend}} - \text{Repo}_{it}^{\text{borrow}} + \text{ReverseRepo}_{it}.$$

$$y_{it} = \alpha_i + \tau_t + \beta\big(\text{UCT}_t \times \text{Target}_i\big) + \boldsymbol{X}_{it}'\gamma + \varepsilon_{it}.$$

- The U.S. regression uses count UCT; the China regression uses sentiment UCT-CN.
- β compares target banks with other banks in the same host market and date.

Estimated Signs for U.S. Banks in China: $(+, -, +)$

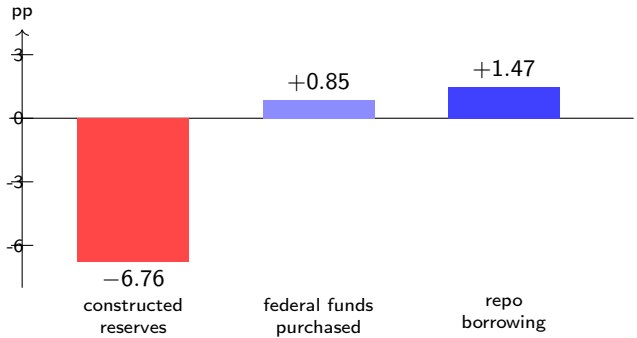
Peak versus pre-2018 mean



The $(+, -, +)$ pattern is consistent with secondary-sanction risk.

Estimated Signs for Chinese Banks in the U.S.: $(-, +, +)$

Peak versus pre-2018 mean



The $(-, +, +)$ pattern is consistent with freeze or primary-sanction risk.

Comment 1: Two Headline Signs Require Freeze Risk

Risk rises	Reserves	Unsecured borrowing	Repo	Reserve response stronger when
Freeze	$-$	$+$	$+$	reserve rate is low
Primary sanction	$-$	$+^*$	$+$	reserve rate is high
Secondary sanction	$+^*$	$-$	$+$	reserve rate is low

- The starred signs require positive freeze risk in the paper's closed forms.

Comment 1: Two Headline Signs Require Freeze Risk (Cont'd)

$$\frac{\partial q^p}{\partial \delta_p} = C_p \frac{\delta_f}{1-\delta_f}, \qquad \frac{\partial k^s}{\partial \delta_s} = C_s \frac{\delta_f}{1-\delta_f}, \qquad C_p, C_s > 0.$$

- Primary risk still lowers reserves when $\delta_f = 0$.
- Only the primary-risk effect on unsecured borrowing then vanishes.
- In the borrowing region, secondary risk still lowers the matched loan when $\delta_f = 0$.
- Only the secondary-risk effect on reserve demand then vanishes.
- These starred responses are joint-risk effects, not separable main effects.

Comment 1: Why Does Freeze Risk Create the Interaction?

- Primary risk lowers initial reserves, raising borrowing after a payment shock.
- It also lowers the value of borrowed reserves, reducing desired borrowing.
- Quadratic value and a freely adjustable rate make these effects cancel.
- Freeze risk adds an unoffset shortfall, so primary risk raises borrowing.
- Secondary risk changes insurance curvature; a freeze wedge shifts the optimum.

Economic question

Is the complementarity economic, or driven by the linear-quadratic, transferable-utility benchmark?

Show a zero-freeze benchmark and a 2×2 risk lattice.

Comment 2: Parent Funding Is an Outside Option

$$k_t^{\text{after}} = k_t + B_t + q_t + \underbrace{h_t}_{\text{pre-match interoffice funding}}, \qquad 0 \le h_t \le \bar{h}(z_t),$$

- Parent funding changes how affiliates obtain reserves, not the final settlement asset.
- If available before matching, a reliable parent line lowers prefunding and local borrowing.
- A sanctionable parent line can instead raise reserve self-insurance ex ante.

Corresponding empirical tests

- Interact tension with pre-period related-office funding and branch/subsidiary status.
- Use current related-office balances as outcomes, not controls, for the total effect.

Comment 3: Measurement and Decomposition of Geopolitical Risks

1. Use one external bilateral measure in both host markets

- The current panels use non-identical count and sentiment indices.
- Test whether tone adds beyond article counts.
- Alternative: $\text{Alignment}_{\text{US,China},t}$ from Fan, Wo, and Xiang (2025) (Objective measure)

2. Map legal events into the model's risk primitives

Model risk	Operational definition	Legal records
Freeze	Specified balances remain owned but cannot be transferred	Central-bank, court, or sanctions order
Primary	A named bank loses ownership or payoff on specified balances	Confiscation order, designation, or blocking notice
Secondary	Third parties face penalties for dealing with a named target	Statute, executive order, or enforcement action

Comment 3: Test the Risk Decomposition Directly

$$
\begin{aligned}
y_{it} = \alpha_i + \tau_t + & \sum_{r \in \{f,p,s\}} \beta_r \left(\text{Risk}_t^r \times \text{Exposure}_{i,0}^r \right) \\
& + \sum_{r \in \{f,p,s\}} \theta_r \left(\text{Risk}_t^r \times \text{Exposure}_{i,0}^r \times i_t^R \right) + \sum_{r \in \{f,p,s\}} \phi_r \left(\text{Exposure}_{i,0}^r \times i_t^R \right) \\
& + \boldsymbol{X}_{it}' \gamma + \varepsilon_{it}.
\end{aligned}
$$

- Predetermine risk-specific exposure.
- Test signed restrictions jointly across reserves, unsecured loans, and repo.
- Separate threats, announcements, and implementation in event time.
- Interact each risk with the reserve rate or its opportunity cost.

Payoff

The exercise becomes a mechanism test, rather than an ex post sign match.

Comment 4: Third-Country Tension Tests Secondary Sanctions

$$A_t = \sum_{c \notin \{\text{US,China}\}} w_c^0 \, \text{Tension}_{\text{China},c,t} \, \text{USAlly}_c,$$
$$N_t = \sum_{c \notin \{\text{US,China}\}} w_c^0 \, \text{Tension}_{\text{China},c,t} (1 - \text{USAlly}_c).$$

Current China panel

Estimate $\text{USBank}_i \times A_t$ and $\text{USBank}_i \times N_t$ together, controlling for direct U.S.–China tension.

Stronger design

For every foreign bank, interact China–home tension with predetermined U.S. alignment and bank-level exposure.

- Normalize pre-sample weights within group; code sanctions coordination and legal reach.
- The paper's secondary-risk pattern is $(+^*, -, +)$; $+^*$ requires freeze risk.

Comment 5: Russia Offers a Sharp Complementary Event Study

- SWIFT disconnected seven designated Russian entities and their designated Russia-based subsidiaries.
- SWIFT carries messages, not balances; exclusion is not an asset freeze.
- Named March treatment and later waves provide event-time variation.

Design

Compare designated with other Russian banks, or third-country banks with different pre-event Russia exposure, around announcement and implementation.

An interesting payment-liquidity paper!