Regulatory Enforcement and Jurisdictional Reach in Global Banking

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Abstract

U.S. regulators rely on global banks to project oversight abroad, but enforcement can shift activity beyond U.S. jurisdiction. Using data on 7,085 enforcement actions across 45 jurisdictions, I show that U.S. settlements raise funding costs and reallocate credit away from regulated banks toward lenders outside U.S. oversight. This reallocation occurs within borrowers and largely within the dollar system. I use this variation to quantify the dynamics of jurisdictional reach in a structural model. Under current conditions, enforcement implies a half-life of approximately 15 years for U.S. regulatory influence.

Keywords: *Regulatory Enforcement, Global Banking, Cross-Border Lending, Jurisdictional Reach*

JEL: *G21, G28, F33, K42*

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1 Introduction

U.S. regulators project influence over global finance through the institutions they supervise, penalize, and can ultimately exclude from the dollar system. This influence depends on the share of global financial intermediation conducted by these institutions, what I refer to as *jurisdictional reach*. The same enforcement actions that discipline regulated banks, however, can also shift financial activity outside the regulatory perimeter. This paper examines that trade-off and quantifies how unilateral enforcement reshapes the global allocation of credit and jurisdictional reach.

Using hand-collected data on 7,085 enforcement actions across 45 jurisdictions, I show that U.S. regulators account for the majority of global monetary penalties since 2011. This enforcement raises funding costs for regulated banks and induces credit reallocation toward lenders outside U.S. oversight. The reallocation occurs within borrowers and largely within the dollar system: firms substitute across lender *blocs* with different exposure to U.S. enforcement but continue to rely on dollar-denominated intermediation. This asymmetry reflects the institutional structure of enforcement: U.S. regulators target banks with deep operational ties to the U.S. financial system, such as large U.S. and European intermediaries, while lenders with limited U.S. integration, such as Chinese banks, remain largely outside U.S. jurisdiction.

This within-borrower reallocation identifies the elasticity of substitution across regulatory blocs with respect to enforcement-driven funding premia. I estimate this elasticity as the key empirical object of the paper and map it into a dynamic model in which jurisdictional reach evolves as borrowers switch across blocs. The key result is that reach is persistent but not permanent: even under a substantial liquidity advantage to dollar intermediation, enforcement-induced reallocation implies a half-life of approximately 15 years.

The empirical analysis proceeds in three steps. First, I show that enforcement operates through a funding channel. Large U.S. settlements increase CDS spreads and short-term funding and reduce non-USD payment processing. Second, these funding shocks reduce cross-border syndicated lending. In a staggered difference-in-differences design, compliance-intensive U.S. settlements (e.g., tied to sanctions violations) lead to a contraction of roughly 40% in lending, an effect absent for non-compliance-intensive or non-U.S. regulatory actions. Third, this contraction propagates beyond penalized banks. Using a shift-share design based on borrower exposure to penalized lenders, I show that enforcement acts as a negative bloc-wide supply shock to regulated intermediaries and generates partial substitution toward lenders outside U.S. jurisdiction.

I then map these moments into a dynamic model of jurisdictional reach. The model features a bloc of regulated lenders and an unregulated bloc outside the regulator's reach. Enforcement raises funding costs within the regulated bloc and borrowers face switching costs across blocs. A liquidity benefit to intermediation in the dominant currency dampens substitution, so jurisdictional reach evolves endogenously as borrowers reallocate across blocs.

The model delivers three insights. First, enforcement exhibits a Laffer-curve tradeoff: tighter enforcement improves compliance but shrinks the supervised network. Second, the persistence of jurisdictional reach is governed by the elasticity of cross-bloc substitution with respect to enforcement-driven funding premia. Third, erosion is uneven across currency segments: activity outside the dominant currency exits first, while intermediation in the dominant currency remains locally insulated by its liquidity advantage.

I take the model to the data by mapping the estimated reallocation moments into a switching function that governs borrower movement across blocs. Because extensive-margin bloc switching is concentrated in fragile non-USD lending, I use this segment to

identify the local slope and distribution of switching costs. These estimates discipline the hazard rate of exit from the regulatory perimeter and imply that modest increases in funding premia generate large changes in exit rates. As a result, even a strong liquidity advantage to the dollar does not prevent the gradual erosion of U.S. jurisdictional reach. This implies that enforcement has diminishing returns: beyond a threshold, tighter enforcement accelerates the erosion of the enforceable network.

1.1 Related Literature

This paper relates to the literatures on global banking, dollar dominance, regulatory arbitrage, and economic statecraft.

A first strand studies internal capital markets in global banks. For instance, Cetorelli and Goldberg (2011, 2012) examine how shocks propagate across affiliates within banking organizations. I instead focus on reallocation across banks: enforcement shocks shift credit across intermediaries and induce substitution from regulated to non-regulated lender blocs.

A second strand examines dollar dominance and its role in global financial transmission (Jiang, Krishnamurthy, and Lustig, 2024; Krishnamurthy and Lustig, 2019; Farhi and Maggiori, 2018; Gopinath and Stein, 2021; Gourinchas, Rey, and Sauzet, 2019). I show that the dollar's liquidity advantage shapes regulatory transmission by dampening substitution within dollar intermediation. As a result, enforcement-induced reallocation occurs primarily outside the dollar margin.

Third, a large literature studies regulatory arbitrage in global banking (Houston, Lin, and Ma, 2012; Berrospide, Correa, Goldberg, and Niepmann, 2016; Smolyansky, 2019). Existing work emphasizes how banks shift activity toward jurisdictions with laxer

rules. In contrast, I show that unilateral enforcement raises funding costs and induces borrower reallocation across intermediaries, which shrinks the regulated bloc itself.

Finally, this paper relates to work on network-based economic statecraft (Clayton, Maggiori, and Schreger, 2023; Clayton, Coppola, Maggiori, and Schreger, 2025). Farrell and Newman (2019) show that centrality in global financial markets enables coercive power, and Drezner (2015) documents the effectiveness of sanctions as tools of foreign policy. I show that this is self-limiting: the same network centrality that enables extraterritorial enforcement can be eroded as activity reallocates outside a regulator's jurisdiction.

The remainder of the paper proceeds as follows. Section 2 introduces the data and documents key features of the global enforcement environment. Section 3 examines how U.S. settlements affect banks and borrowers. Section 4 develops a dynamic model of enforcement and jurisdictional reach. Section 5 uses the model to estimate the dynamics of jurisdictional reach. Section 6 concludes.

2 Data And Institutional Context

I combine hand-collected enforcement actions with data on global bank balance sheets, syndicated lending, and Chinese development finance to examine how regulatory enforcement reshapes global banking activity. The sample covers the world's largest banks by assets and lending volume.

2.1 Data Sources and Sample Construction

I define global banks using the largest institutions by assets or syndicated lending. I begin with S&P Global Intelligence's rankings of the world's largest banks by assets,[1] which are stable over time, and supplement them with SDC data on the most active global lenders. I manually link branches and subsidiaries to parent banks (Cerutti, Dell'Ariccia, and Peria, 2007). The final sample includes 126 banks headquartered in 29 countries.[2]

Compliance Enforcement Data. I compile data on 7,085 civil and criminal settlements from 176 agencies across 45 jurisdictions. To my knowledge, this is the first comprehensive cross-country record of bank enforcement actions. The data cover violations by bank headquarters, subsidiaries, and branches, ranging from sanctions breaches to investor-protection infractions.

I collect cases from regulatory announcements and press releases, supplemented by the Violation Tracker for the U.S. and U.K., which I verify manually for complex settlements. Appendix A.1 lists all sources. Figure C1 shows the geographic coverage of enforcement agencies.

Global Banking Activity Data. I measure global banking activity using syndicated loans from SDC, systemic risk metrics from FR Y-15 filings, and project-level Chinese lending from AidData, supplemented with balance-sheet and market data from Worldscope and Bloomberg.

My primary measure of cross-border credit comes from SDC. I retain all loan is-

[1] These rankings are available at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/the-world-s-100-largest-banks-2022-69651785.

[2] I exclude nine asset managers, two non-deposit-taking banks (Japan Bank for International Cooperation and the Korean Export-Import Bank), and Sberbank due to sanctions.

suances and consolidate subsidiaries to parent companies using SDC and Orbis mappings, accounting for mergers and acquisitions. I exclude sovereign and financial borrowers and prorate loan shares when allocations are unavailable, following Ivashina, Scharfstein, and Stein (2015). The resulting dataset contains 568,850 firm-bank-date observations spanning 795 parent lenders, 52,716 borrowers, and 167 countries between 2011 and 2022, primarily in commercial and industrial lending.[3] Restricting to global banks yields 487,288 observations across 126 banks and 46,540 borrowers.

SDC closely tracks aggregate cross-border lending. Figure C4 shows that market shares align closely with BIS data, and Figure C5 shows similar aggregate volumes. I incorporate AidData's Global Chinese Development Finance Dataset (Dreher, Fuchs, Parks, Strange, and Tierney, 2021), which captures lending by Chinese banks that is not fully recorded in conventional datasets (Horn, Reinhart, and Trebesch, 2021). I match these records to SDC firms, adding 831 firm-bank observations (Table C4).

Bank-level data come from Bloomberg, Orbis, FactSet, and Worldscope. I also use FR Y-15 filings to measure systemic exposures such as payment flows and intra-financial liabilities. Macroeconomic controls are from the World Bank.

Summary Statistics. Table C5 reports summary statistics. The average penalty is $36 million (0.04% of bank capital), with substantial dispersion (Figure C2). At the firm level, average syndicated loans are $164 million at a 2.5% rate; at the country level, $507 million at 2.3%.

[3] Data primarily span commercial and industrial (C&I): loans tied to real estate account for approximately 4.4% of the sample.

2.2 Enforcement Variation and Identification

Enforcement varies substantially across violation types. Figure C3 shows that mortgage-related cases account for 57% of settlements, followed by fraud (13%) and sanctions violations (7%). Section 3 exploits this variation for identification.

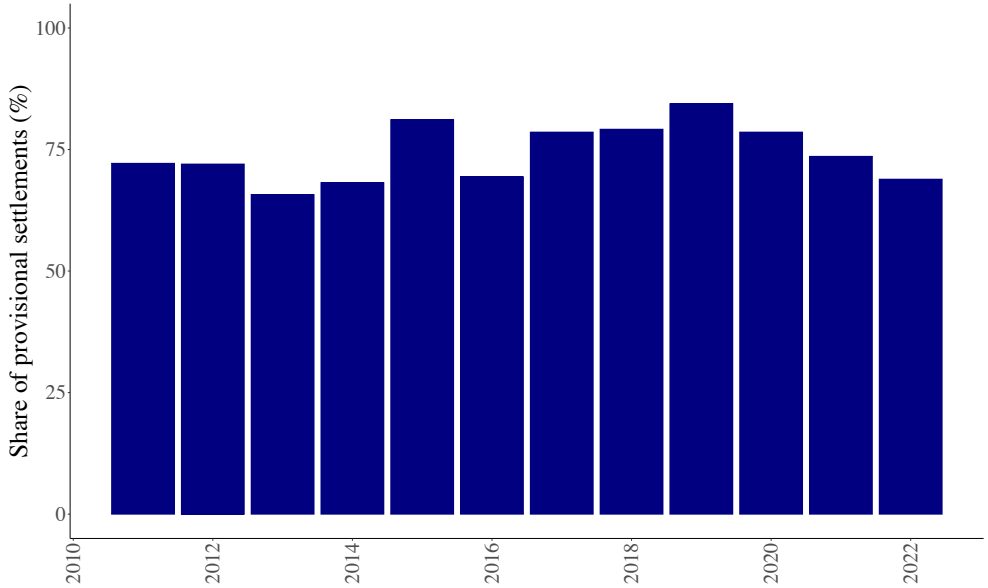
U.S. enforcement combines monetary penalties with binding compliance requirements. A typical case illustrates the nature of these actions. In 2018, U.S. authorities fined Société Générale over $1.3 billion for sanctions violations and mandated extensive compliance reforms, including enhanced monitoring and periodic reporting to U.S. authorities (Department of Justice, 2018). Such conditional settlements are standard: Figure 1 shows that most sizable U.S. settlements include remediation measures such as enhanced monitoring, internal controls, and periodic reporting. These provisions make settlements economically meaningful beyond the monetary fine itself.

U.S. enforcement combines monetary penalties with binding compliance requirements. For example, in 2018 U.S. authorities fined Société Générale over $1.3 billion for violating sanctions on Cuba and imposed extensive remediation measures, including enhanced monitoring and periodic reporting to regulators (Department of Justice, 2018). Such provisions are typical: Figure 1 shows that the majority of sizable U.S. settlements includes binding remediation measures.

Identification relies on two assumptions. First, public disclosure limits systematic reporting bias across jurisdictions. Second, violations are not penalized in non-monetary means: only 3 of 7,085 cases involve non-monetary sanctions such as license restrictions.

Figure 1: Provisional Agreements Dominate U.S. Regulatory Settlements

Note: This figure presents the share of provisional settlements with U.S. regulators relative to all U.S. settlements that exceed $100,000 in monetary penalties.



2.3 Jurisdictional Enforcement Patterns

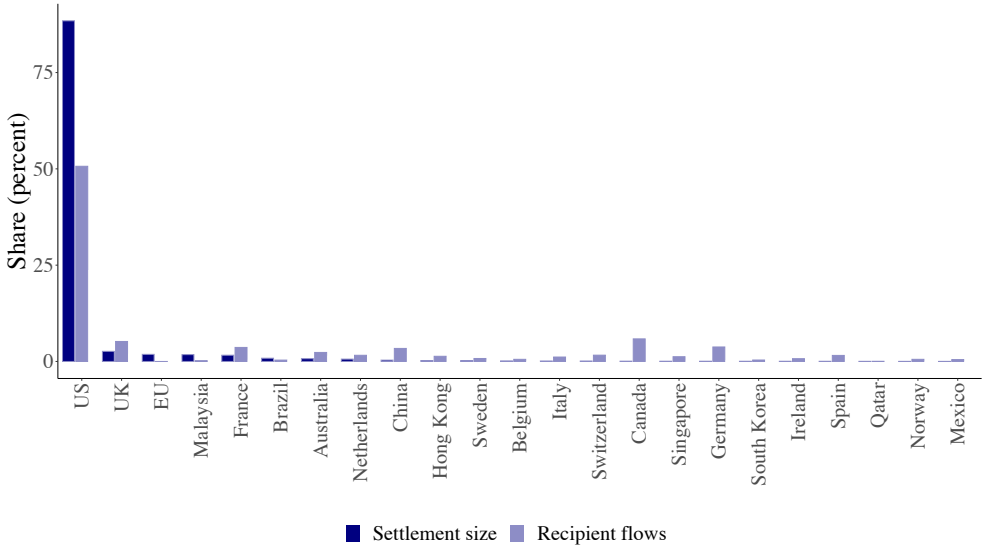
Two facts characterize the global enforcement environment.

Fact 1: The U.S. dominates global enforcement. Figure 2 shows that U.S. regulators account for 89% of global monetary penalties since 2011, despite U.S. borrowers receiving only about 50% of syndicated credit. This asymmetry generates substantial extraterritorial reach and defines the enforcement environment studied in Section 3.

Fact 2: U.S. enforcement is concentrated on "regulated" banks. Enforcement is not uniform across global institutions. U.S. settlements overwhelmingly target banks with deep integration into the U.S. financial system, primarily U.S. and European intermediaries. In contrast, globally active banks with limited U.S. presence, such as Chinese and Japanese institutions, are largely absent from major cases. I refer to the former group as

Figure 2: Asymmetry in Extraterritorial Enforcement Reach

Note: This figure compares jurisdictional shares of regulatory enforcement against shares of global lending activity from 2011 to present. The bars represent each jurisdiction's percentage of total global monetary penalties and syndicated credit received by borrowers.



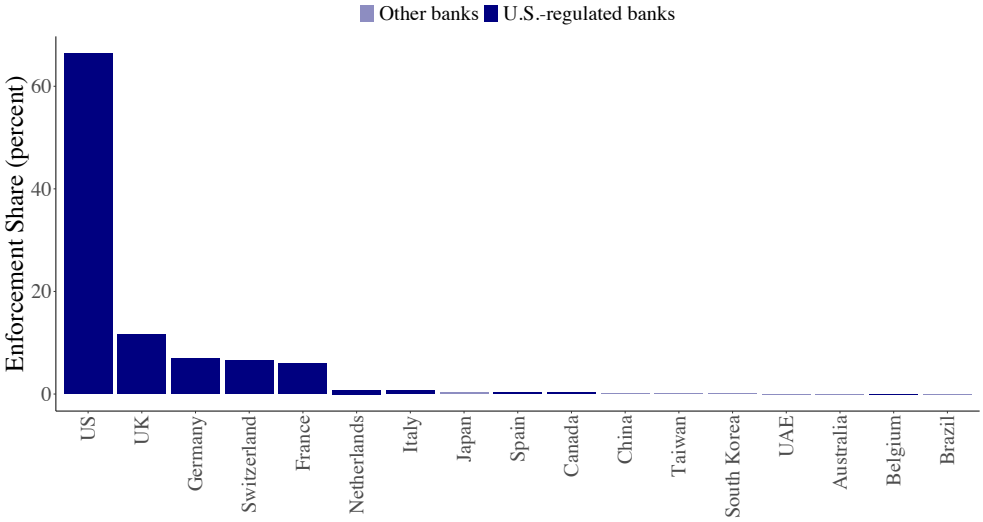
regulated banks. Figure 3 illustrates this concentration.

In the empirical analysis, I use this regulated group to define the treated network. Results are robust to broader samples, but this restriction isolates the core enforcement channel operating through globally integrated banks.

Together, Figures 2 and 3 describe an asymmetric enforcement environment. U.S. regulatory authority is transmitted globally through a concentrated network of regulated banks. The next section studies how enforcement shocks to this network distort global credit allocation and shift activity toward institutions outside the U.S. regulatory perimeter.

Figure 3: Concentration of U.S. Enforcement by Bank Headquarters

Note: This figure illustrates the distribution of U.S. regulatory penalties categorized by the home jurisdiction of the sanctioned financial institution.



3 The Effects of Unilateral Enforcement

This section shows that U.S. enforcement operates through a simple mechanism: it raises funding costs for regulated banks, contracts their credit supply, and induces borrowers to reallocate to lenders outside the U.S. regulatory perimeter.

3.1 Enforcement Raises the Cost of Global Intermediation

Monetary penalties are small relative to bank balance sheets. In the sample, settlements average only 0.04% of bank capital (Table C5), so the main effect of enforcement is unlikely to operate through direct capital losses. I instead show that large U.S. settlements trigger a persistent repricing of bank risk and a deterioration in funding conditions. This is consistent with the structure of U.S. settlements, which combine monetary penalties with intrusive compliance monitoring, remediation requirements, and ongoing supervisory scrutiny.

I estimate this effect using the staggered difference-in-differences specification

$$\log Outcome_{bt} = \gamma_b + \gamma_t + \beta \times \mathbb{1}(Settlements_{bt} > P50) + \epsilon_{bt}, \tag{1}$$

where γ_b and γ_t are bank and time fixed effects. Treatment is a bank's first compliance-intensive settlement (for sanctions, anti-money laundering, or bribery violations) above the sample median ($>$ \$55.5 million). Table C6 lists the treatment events. I use the Borusyak, Jaravel, and Spiess (2024) estimator to construct the counterfactual group from never-treated and not-yet-treated banks and cluster standard errors at the bank level.

Table 1 shows a sharp repricing of treated banks. CDS spreads rise by about 16 basis points (bps) after settlement. The liability side of the balance sheet adjusts as well. Intra-financial liabilities fall by 38%, long-term debt falls by 25%, and short-term debt rises by 15%. Liabilities therefore shorten in maturity and become more fragile following enforcement.

The timing of these responses is informative. CDS leads are statistically insignificant, suggesting that the formal settlement triggers a discrete market repricing. By contrast, long-term and wholesale debt begin to decline before settlement, consistent with the fact that investigations are prolonged, negotiations are often disclosed in regulatory filings, and counterparties can start to retrench before the legal event is finalized. The balance-sheet response therefore begins during the investigation phase and intensifies once the settlement terms are final.

The same funding shock induces a selective retreat from the periphery of global intermediation. Using FR Y-15 payment data, I find that treated banks reduce non-USD and foreign-currency payment flows while maintaining stable USD and home-currency flows. The response is therefore compositional rather than aggregate: banks preserve core domestic and dollar franchises while retrenching from the cross-border segments

where compliance and funding costs become most burdensome.

These results are robust across treatment definitions. The funding response strengthens with penalty severity (Table C7 and Figure C9), remains when treatment is normalized by bank size (Table C9), and is not driven by mega-settlements (Panel C of Figure C9). Taken together, the evidence indicates that U.S. settlements operate through a persistent funding and compliance wedge rather than through the direct capital effect of fines.

Table 1: Balance-Sheet Adjustments and Operational Retrenchment

Note: This table presents the results of Equation (1), with each row representing a different specification. All dependent variables are logged and quarterly unless otherwise noted. CDS spreads are at the monthly level. For quarterly variables, I restrict the event window to $[-12; 12]$ quarters around settlement dates. Pre_t for $t = [-4, -1]$ are pre-trend coefficients. Dependent variables are from Worldscope and the FR Y-15 forms. Δ Total, Δ USD, Δ Home, Δ Non-USD, and Δ Foreign capture the 1-year change in a bank's payment flows in aggregate, USD, home currency, non-USD, and non-home currencies, respectively, expressed in billion USD. * corresponds to $p < 0.10$, ** corresponds to $p < 0.05$, and *** corresponds to $p < 0.01$. Observations are clustered at the bank level.

Variable	**Coefficient**	Pre_1	Pre_2	Pre_3	Pre_4	**Observations**
Panel A: Funding variables						
CDS (monthly, bps)	16.32^{**}	4.91	5.66	-14.20	7.02	2,604
	(7.19)	(14.10)	(15.64)	(16.36)	(10.02)	
Long-term debt	-0.25^{***}	-0.29^{***}	-0.08	-0.05	-0.08	2,857
	(0.06)	(0.09)	(0.10)	(0.06)	(0.06)	
Short-term debt	0.15^{**}	-0.12	-0.08	-0.02	0.23	3,364
	(0.07)	(0.41)	(0.37)	(0.35)	(0.30)	
Short-term wholesale debt	-0.10	-0.27^{***}	-0.28^{***}	-0.21^{**}	-0.16	507
	(0.08)	(0.09)	(0.10)	(0.10)	(0.11)	
Intra-financial liabilities	-0.38^{**}	-0.04	-0.04	-0.09	0.03	734
	(0.19)	(0.14)	(0.15)	(0.11)	(0.10)	
Panel B: Payment Flows						
Δ Total payment flow ($)	-461.49	-934.52	$-1,020.62$	-267.57	-249.47	628
	(352.03)	(624.97)	(675.34)	(633.75)	(495.17)	
Δ USD payment flow ($)	-316.66	-812.22	-985.16	-312.75	-282.74	628
	(351.39)	(611.45)	(635.71)	(613.50)	(455.17)	
Δ Home payment flow ($)	-307.35	-520.23	-677.17	-719.47	-521.67	628
	(345.34)	(322.29)	(445.03)	(503.46)	(342.78)	
Δ Non-USD payment flow ($)	-144.83^{***}	-122.30	-35.46	45.18	33.27	628
	(21.84)	(104.76)	(92.38)	(47.42)	(56.35)	
Δ Foreign payment flow ($)	-154.14^{**}	-414.29	-343.45	451.90	272.19	628
	(63.45)	(451.64)	(399.71)	(410.95)	(282.60)	

3.2 Enforcement Shrinks Enforceable Intermediation

This funding wedge translates into a contraction in regulated intermediation, as higher marginal costs reduce the scale of cross-border lending by affected banks. Following a large settlement, market capitalization falls by about 10%, total assets by 6%,

and total debt by 12% (Table C8). Markets therefore do not price U.S. settlements as one-off fines. They price them as shocks to the long-run profitability and global scale of penalized banks.

The sharpest contraction appears on the cross-border lending margin. To isolate this response from borrower demand, I estimate

$$\log \text{Lending}_{bct} = \gamma_b + \gamma_{ct} + \beta \times \mathbb{1}(\text{Settlements}_{bt} > P50) + \epsilon_{bct}, \tag{2}$$

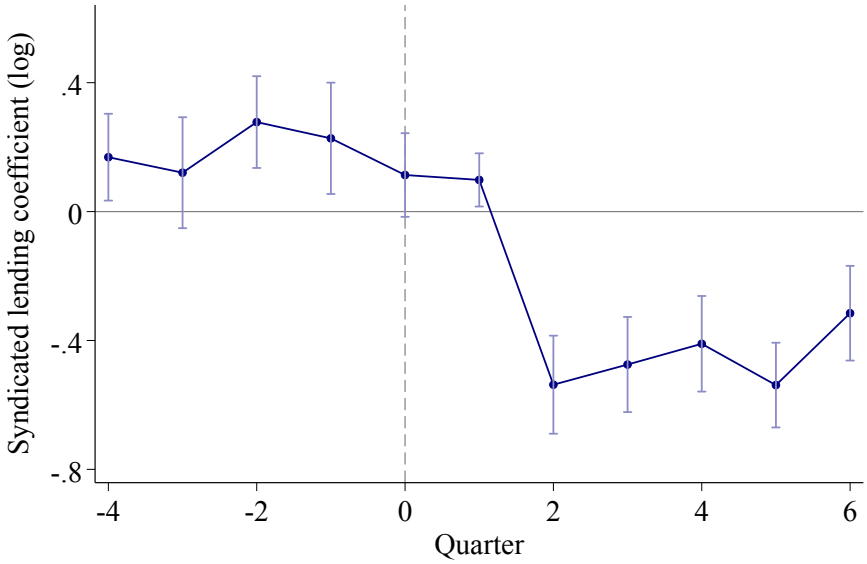
where Lending_{bct} is syndicated credit from bank b to firms in country c in quarter t. Bank fixed effects absorb time-invariant differences across lenders, and country-quarter fixed effects absorb borrower-country demand shocks. I exclude untreated banks to mitigate selection bias. Identification therefore comes from comparing treated and not-yet-treated banks lending into the same country at the same time. The sample is restricted to regulated banks, excludes U.S. borrowers, and uses an event window of $[-4, 6]$ quarters around settlement.

Figure 4 shows a large and persistent fall in cross-border lending after U.S. enforcement. Relative to pre-treatment levels, large settlements reduce syndicated credit by roughly 43%. Lead coefficients are either statistically insignificant or move in the opposite direction of the treatment effect, which reduces concern about differential pre-trends. The event study therefore points to a large supply-side contraction in cross-border intermediation.

This contraction is specific to U.S. enforcement rather than to regulatory penalties in general. When I broaden treatment from sanctions and anti-money laundering settlements to include mortgage or consumer-protection settlements or non-U.S. settlements, the lending effect largely weakens (Figure C6, Panel A). The response is also stronger and more persistent for foreign banks than for U.S. banks (Panel B), consistent with the

Figure 4: U.S. Enforcement Reduces Cross-Border Syndicated Lending

Note: This figure presents the event study estimates of Equation (2). The outcome is log syndicated lending from bank b to borrowers in country c in quarter t. Treatment (dashed line) is the first time a bank enters an above-median, compliance-intensive settlement with U.S. authorities. The sample excludes unregulated banks and U.S. borrowers. The horizontal axis shows quarters relative to settlement.



extraterritorial nature of U.S. oversight and the greater salience of U.S. settlements for non-U.S. institutions operating inside the dollar-centered regulatory perimeter.

The results are also robust to treatment intensity. Larger penalties generate larger lending contractions, and excluding settlements above $1 billion does not qualitatively alter the findings (Figures C7 and C8). U.S. enforcement therefore reduces the global footprint of regulated intermediation along the margin most relevant for jurisdictional reach: cross-border credit.

3.3 Reallocation Across Lenders Is Incomplete

The bank-level evidence establishes a large contraction in regulated intermediation. Given this contraction, I now show that borrowers reallocate across banks and substitute

toward lenders outside U.S. jurisdiction, though this substitution is incomplete due to switching frictions.

I begin with a within-borrower specification:

$$\log \text{Lending}_{fbt} = \text{FEs} + \beta \times \mathbb{1}\{\text{Settlements}_{bt} > P50\} + \epsilon_{fbt}, \tag{3}$$

where Lending_{fbt} denotes syndicated credit from bank b to firm f in quarter t. The baseline includes bank and quarter fixed effects and restricts the event window to $[-4; 4]$ quarters around settlements. I then progressively absorb borrower demand using country-industry, country-quarter, and country-borrower-year fixed effects.[4] The sample excludes U.S. and Chinese borrowers and focuses on cross-border lending relationships.

This design identifies the supply shock by comparing how the same borrower adjusts across differently exposed lenders. Identification requires that settlements reflect bank-level compliance failures rather than borrower-specific demand shocks. Appendix Section C provides additional evidence on this assumption through heterogeneity analysis and instrument validation.

Table 2 shows that the contraction survives increasingly demanding controls for borrower demand. With only bank and quarter fixed effects, penalized banks reduce lending to a given firm by about 2.1%. In the most saturated specification, which absorbs within-year, within-firm demand variation, the estimate remains negative and statistically significant at 0.7%. U.S. enforcement therefore reduces credit supply to the same borrower even after netting out rich borrower-level demand shocks.

These borrower-level contractions are specific to U.S. lending-related settlements. When treatment is broadened to include all U.S. or all global settlements, the effect

[4] Including all three simultaneously together with borrower-bank fixed effects is infeasible because of limited power.

disappears in the most saturated specifications (Table C10). I also find no comparable response in loan pricing or maturity, and penalized banks do not reduce lending to U.S. borrowers (Table C11). Instead, the contraction is strongest in Western Europe (Table C12). The adjustment therefore occurs on the cross-border supply margin rather than through a general contraction in all bank credit.

Table 2: The Negative Lending Impact of Enforcement Shocks Survives Firm Demand Shocks

Note: This table reports estimates from Equation (3), where the dependent variable is the log of syndicated credit from bank b to firm f in quarter t. The treatment variable equals one if bank b experiences a settlement above the sample median in quarter t. The event window consists of $[-4;4]$ quarters around settlement dates. Columns vary by the set of included fixed effects. Observations are clustered at the bank level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$			
	(1)	(2)	(3)	(4)
Coefficient	-0.021^{***}	-0.012^{**}	-0.030^{***}	-0.007^{***}
	(0.008)	(0.005)	(0.008)	(0.002)
Pre_1	-0.036	-0.030	-0.024	-0.008
	(0.027)	(0.027)	(0.031)	(0.018)
Pre_2	-0.033	-0.017	-0.025	0.018
	(0.025)	(0.022)	(0.022)	(0.013)
Pre_3	-0.008	0.017	-0.033	-0.002
	(0.034)	(0.025)	(0.034)	(0.009)
Pre_4	0.045^{**}	0.019	0.004	0.008
	(0.020)	(0.022)	(0.020)	(0.010)
Observations	72,614	72,509	72,577	71,865
Fixed effects				
Bank	✓	✓	✓	✓
Country×Industry		✓		
Country×Quarter			✓	
Country×Borrower×Year				✓

I then ask whether other lenders replace this lost credit. To do so, I construct a

borrower-level shift-share measure of exposure to enforcement:

$$\text{Settlement Exposure}_{ft} = \sum_{b'} \text{Share}_{fb't-1} \times \mathbb{1}\{\text{Settlements}_{b't} > P50\},$$

where $\text{Share}_{fb't-1}$ is the share of firm f's syndicated credit provided by bank b' prior to the shock.[5] This measure summarizes how strongly a firm is exposed to the enforcement shock through its pre-existing lender network.

I estimate

$$\log \text{Lending}_{fbt} = \gamma_{fb} + \gamma_{ci} + \gamma_{ct} + \gamma_{cfy} + \beta \times (\text{Settlement Exposure}_{ft} \times \text{Group}_b) + \epsilon_{fbt}, \tag{4}$$

where Group_b indexes lender nationality. The specification includes bank-borrower, country-industry, country-quarter, and country-borrower-year fixed effects. Identification therefore comes from asking whether different types of lenders respond differently to the same borrower when that borrower's pre-existing lender network is hit by U.S. enforcement. Following Goldsmith-Pinkham, Sorkin, and Swift (2020), I validate the instrument in Appendix Section C.1 through pre-trends checks and Rotemberg weight decompositions.

I separate non-penalized lenders into four groups: U.S., Western/OECD, Chinese, and other banks.[6] Other banks provide the baseline comparison group (e.g., Itau Unibanco, Woori Bank). Chinese banks provide the cleanest comparison group: they face almost no U.S. enforcement exposure in the sample, and the sample period coincides with their rapid expansion in cross-border lending (Dreher, Fuchs, Parks, Strange, and

[5] Because syndicated credit is lumpy, I define the prior period as the most recent observation before settlement rather than a fixed window. Results are robust to using initial shares instead; see Table C3.

[6] The Western/OECD category includes banks headquartered in Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, and the U.K.

Tierney, 2022). Appendix B shows that they operate under a distinct regulatory regime with weaker enforcement constraints on global activity. These banks therefore combine the capacity to expand with limited exposure to the U.S. regulatory perimeter.

Table 3 reports three results. First, substitution is incomplete. A one-standard-deviation increase in settlement exposure reduces total lending to exposed firms by about 10%, so borrowers facing more exposed lender networks still experience a net credit contraction.

Second, enforcement shocks propagate beyond directly penalized banks. The interaction with penalized lenders is small and insignificant, indicating that U.S. enforcement depresses credit supply across the broader regulated network rather than only at the treated institution.

Third, the response differs sharply by lender nationality. Non-penalized U.S. banks also retrench, Western banks provide little offset, and Chinese banks expand credit by about 5% relative to other lenders. The final column shows that this relative increase is specific to Chinese lenders by holding fixed the baseline (omitted) group to emerging-market lenders. Reallocation therefore occurs, but selectively and incompletely.

Regional heterogeneity reinforces this interpretation. Chinese substitution is negligible in Western Europe, where established Western banking relationships likely keep switching costs high. In Africa, the Middle East, and around Russian exposures, Chinese lenders respond much more strongly (Table C13). Reallocation is therefore not uniform across markets; it is strongest where regulated-bank retrenchment is deepest and where lenders outside the U.S. perimeter are already positioned to expand.

Table 3: Enforcement Causes Spillovers and Selective Substitution Across Lenders

Note: This table reports estimates from Equation (4), where the dependent variable is the log of syndicated credit from non-penalized bank b to firm f in quarter t. The Bartik instrument is standardized. Column (1) interacts the shock with an indicator for whether the lender was penalized. Columns (2)-(5) interact the shock with indicators for U.S., Western (OECD ex-U.S.), and Chinese banks, respectively. All specifications include quarter, bank-borrower, country-industry, country-quarter, and country-borrower-year fixed effects. Observations are clustered at the bank-borrower level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$				
	(1)	(2)	(3)	(4)	(5)
Settlement Exposure	-0.100^{***}	-0.095^{***}	-0.099^{***}	-0.099^{***}	-0.097^{***}
	(0.020)	(0.019)	(0.026)	(0.020)	(0.023)
Penalized × Settlement Exposure	-0.006				
	(0.009)				
Interaction Effects (Non-Penalized Banks)					
U.S. Bank × Settlement Exposure		-0.013^{**}			-0.012
		(0.006)			(0.014)
Western Bank × Settlement Exposure			0.003		0.000
			(0.006)		(0.013)
Chinese Bank × Settlement Exposure				0.050^{***}	0.049^{***}
				(0.015)	(0.018)
Observations	53,905	51,443	51,443	51,443	51,443
R^2	0.95	0.95	0.95	0.95	0.95
Fixed Effects:					
Bank×Borrower	✓	✓	✓	✓	✓
Country× Industry	✓	✓	✓	✓	✓
Country× Quarter	✓	✓	✓	✓	✓
Country× Borrower× Year	✓	✓	✓	✓	✓

3.4 Where Reallocation Occurs: Relationships and Currency

The remaining question is where substitution occurs. Two patterns stand out. Reallocation is concentrated in existing lending relationships, and much of the offsetting response on the intensive margin occurs in USD-denominated credit.

Table 4 splits the sample into repeat and new bank-borrower relationships. I find that the Chinese substitution effect is concentrated entirely in repeat lending. For ex-

isting relationships, Chinese credit rises by 8.3%, substantially above the full-sample estimate; for new relationships, the effect is economically small and statistically insignificant. Enforcement-induced reallocation therefore occurs primarily by deepening existing ties rather than by forming new matches.

This pattern points to relationship-specific switching frictions. Borrowers can replace lost credit, but doing so is much easier when an alternative lending relationship already exists. Regional results reinforce this interpretation. In Western Europe, where Chinese substitution is muted overall, the limited adjustment that does occur is concentrated on the intensive rather than the extensive margin (Table C14). The same conclusion holds when Russian borrowers are excluded.

Table 4: Enforcement Drives Relative Substitution Through Existing Relationships

Note: This table reports estimates from Equation (4), where the dependent variable is log syndicated credit from non-penalized bank b to firm f in quarter t. The Bartik instrument is standardized. Column (1) includes all Chinese bankfirm relationships. Column (2) restricts the sample to repeat relationships, while Column (3) considers new relationships. Sample sizes differ because repeat relationships require prior deals to be absorbed by bankborrower fixed effects. Standard errors are clustered at the bankborrower level. *, **, and *** denote significance at the 10%, 5%, and 1% levels.

Dependent variable:	$\log \text{Lending}_{fbt}$		
Sample:	All	Repeat relations	New relations
	(1)	(2)	(3)
Settlement Exposure	-0.099^{***}	-0.125^{***}	-0.179^{***}
	(0.025)	(0.034)	(0.060)
Chinese Bank × Settlement Exposure	0.050^{***}	0.083^{***}	0.005
	(0.017)	(0.028)	(0.008)
Observations	51,443	25,888	48,693
R^2	0.95	0.95	0.96
Fixed Effects:			
Bank× Borrower	✓	✓	
Country×Industry	✓	✓	✓
Country×Quarter	✓	✓	✓
Country×Borrower×Year	✓	✓	✓

The currency composition of reallocation is also informative. Table 5 decomposes

the response by loan currency. For USD-denominated loans, Chinese banks increase lending by 6.3% relative to other lenders; for non-USD loans, the corresponding coefficient is small and statistically insignificant. The observable offset in this specification therefore comes primarily through alternative provision of dollar credit.

This distinction matters for interpretation. Borrowers do not respond to unilateral enforcement by broadly exiting dollar credit. Instead, they seek alternative intermediaries that can continue to supply it. Dollar dominance is therefore more durable than regulated-bank dominance: the currency remains central even as the composition of lenders shifts.

Taken together, the borrower-level evidence points to a supply-driven reallocation of credit with incomplete substitution. Credit moves toward lenders outside the U.S. regulatory perimeter, but primarily where switching frictions are low: existing relationships and segments of dollar intermediation. These frictions discipline the model in the next section.

Table 5: Substitution Toward Chinese Lenders Is Concentrated in USD Lending

Note: This table reports estimates from Equation (4), where the dependent variable is logged syndicated credit from bank b to firm f in quarter t. Columns are split by loan currency: USD (columns 1–2) and non-USD (columns 3–4). Observations are clustered at the bank-borrower level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$			
Loan currency:	USD		Non-USD	
	(1)	(2)	(3)	(4)
Settlement Exposure	-0.100^{***}	-0.094^{**}	-0.070^{**}	-0.087^{***}
	(0.036)	(0.039)	(0.029)	(0.030)
Penalized × Settlement Exposure	-0.004		-0.012	
	(0.021)		(0.017)	
Interaction Effects (Non-Penalized Banks)				
U.S. Bank × Settlement Exposure		-0.023		0.003
		(0.016)		(0.012)
Western Bank × Settlement Exposure		-0.007		0.013
		(0.014)		(0.010)
Chinese Bank × Settlement Exposure		0.063^{***}		0.017
		(0.024)		(0.016)
Observations	23,811	23,412	30,401	29,914
R^2	0.96	0.96	0.97	0.97
Fixed Effects:				
Bank×Borrower	✓	✓	✓	✓
Country×Industry	✓	✓	✓	✓
Country×Quarter	✓	✓	✓	✓
Country×Borrower×Year	✓	✓	✓	✓

4 A Model of Enforcement and Jurisdictional Reach

The empirical evidence points to a simple mechanism: U.S. enforcement raises funding premia inside the regulated banking network, reduces the share of global intermediation conducted within that network, and induces incomplete borrower reallocation toward lenders outside it. This section develops a parsimonious dynamic model of jurisdictional reach that maps the reduce-form estimates into an elasticity of jurisdictional

reach with respect to enforcement.

Time is continuous and indexed by $t \geq 0$. Banks belong to one of two blocs. Bloc $\mathcal{R}$ denotes the enforceable bloc: banks headquartered in jurisdictions subject to U.S. regulation and credible enforcement. Bloc $\mathcal{U}$ denotes intermediaries outside that perimeter. The state variable $S_t \in [0,1]$ is the share of borrowers attached to bloc $\mathcal{R}$ at time t, which I call *jurisdictional reach*. Initially, $S_0 \in (0,1)$.

Borrowers of unit mass receive investment projects at Poisson rate $\eta > 0$. Each arrival has currency type $j \in \{d, f\}$, with $\Pr(j = d) = \pi$ exogenous to the intermediation bloc. Projects are financed through the incumbent lending relationship, so moving from $\mathcal{R}$ to $\mathcal{U}$ requires rewiring that relationship. A switch from $\mathcal{R}$ to $\mathcal{U}$ is a one-time, irreversible decision that costs $\kappa \sim G(\cdot)$, with support $[\underline{\kappa}, \bar{\kappa}]$ and $\underline{\kappa} > 0$. Borrowers may borrow in either currency while attached to a given bloc; the switching cost applies to the intermediation relationship, not separately to currency choice. This is the model's only switching friction.[7]

Currency and jurisdictional reach. Jurisdictional reach is an institutional object: the share of global intermediation conducted by banks subject to U.S. enforcement. This is distinct from currency denomination. A loan may be dollar-denominated yet intermediated by a bank outside the U.S. regulatory perimeter, so USD use does not mechanically imply regulatory exposure. The model therefore separates a *currency layer*, which sustains demand for dollar financing, from an *institutional layer*, which determines whether that financing remains inside the enforceable perimeter.

The dominant currency is sustained by an underlying financial infrastructure (e.g., correspondent banking networks) in which regulated banks play a central role. As a

[7] An equivalent formulation would allow currency-specific switching-cost distributions and eliminate the wedge ℓ. I adopt a common distribution to match the empirically identified switching margin, which is observed only in the non-dollar segment.

result, while d-denominated credit can be intermediated by institutions outside the regulatory perimeter, access to d-denominated funding and liquidity is deeper and more reliable within $\mathcal{R}$. I capture this distinction with a d-specific convenience yield that is available only when dollar borrowing is intermediated through the regulated bloc. Let ℓ_j^b denote the liquidity benefit from borrowing in currency $j \in \{d, f\}$ through bloc $b \in \{\mathcal{R}, \mathcal{U}\}$:

$$\ell_j^b = \begin{cases} \ell & \text{if } (j,b) = (d,\mathcal{R}), \\ 0 & \text{otherwise.} \end{cases}$$

This formulation allows d-denominated lending to occur outside $\mathcal{R}$, but assumes that such lending does not benefit from the same infrastructure. The parameter ℓ therefore captures the incremental advantage of intermediating d-denominated credit within the regulated bloc. Intuitively, the model separates which bloc intermediates from what currency is used, and allows dollar borrowing to occur outside the regulated bloc but with a lower liquidity benefit.

Enforcement and funding costs. The regulator chooses an enforcement path $\{c_t\}_{t\geq 0}$ to maximize discounted compliance influence,

$$\mathcal{I} = \mathbb{E}_0 \int_0^\infty e^{-\beta t} c_t^\theta S_t dt, \tag{5}$$

where $\beta > 0$ is the discount rate and $\theta \in (0,1)$ governs the concavity of compliance returns. The product $c_t^\theta S_t$ captures the central trade-off: enforcement raises compliance within the bloc, but S_t scales the size of that bloc, so influence within a shrinking bloc is less valuable.

Enforcement risk in bloc $\mathcal{R}$ arrives as a Poisson process with intensity $\lambda(c_t)$, with $\lambda' > 0$. Each realization generates a liquidity disruption of size $F > 0$. Risk-neutral

wholesale creditors therefore price expected liquidity losses into funding costs, so regulated banks face

$$r_R^F(c_t) = r + \Phi(c_t), \tag{6}$$

where $\Phi(c_t) = \lambda(c_t)F$ is the regulatory risk premium, with $\Phi' > 0$ and $\Phi'' > 0$. Banks in bloc $\mathcal{U}$ face funding cost $r_{\mathcal{U}}^F(t) = r$. This bloc-wide premium is the funding channel: enforcement tightens funding conditions for all regulated banks, not only penalized institutions.

Borrower switching. Conditional on a project arrival, a borrower compares intermediation through $\mathcal{R}$ and $\mathcal{U}$. Intermediation in $\mathcal{R}$ carries the enforcement-induced funding premium $\Phi(c)$, but may also deliver a currency-specific convenience yield. Under the normalization above, borrowing in d through $\mathcal{R}$ yields an incremental convenience $\ell > 0$, while borrowing in f does not. A borrower therefore switches from $\mathcal{R}$ to $\mathcal{U}$ when

$$\Phi(c) \;>\; \ell \cdot \mathbb{1}\{j = d\} + \kappa.$$

This implies the currency-specific thresholds

$$\kappa_d^*(c) \;=\; \Phi(c) - \ell, \qquad \kappa_f^*(c) \;=\; \Phi(c).$$

These cutoffs partition borrowers into three groups:

1. **Never-switchers** ($\kappa \geq \kappa_f^*(c)$): they remain in $\mathcal{R}$ under either currency.
2. **f-margin switchers** ($\kappa_d^*(c) \leq \kappa < \kappa_f^*(c)$): they exit only when the first f-project arrives.
3. **Immediate switchers** ($\kappa < \kappa_d^*(c)$): they exit at the first arrival of either currency.

Let $h(c)$ denote the Poisson hazard of exiting $\mathcal{R}$ for a borrower currently attached to $\mathcal{R}$. Then

$$h(c) = \underbrace{\eta\pi}_{d \text{ arrival rate}} \cdot \underbrace{G\big(\Phi(c) - \ell\big)}_{\text{switch if } d \text{ arrives}} + \underbrace{\eta(1-\pi)}_{f \text{ arrival rate}} \cdot \underbrace{G\big(\Phi(c)\big)}_{\text{switch if } f \text{ arrives}} . \tag{7}$$

This clarifies why erosion concentrates outside d-markets. Dollar convenience lowers the d-cutoff and therefore shrinks the set of borrowers willing to exit on dollar-denominated opportunities. The f-cutoff remains $\kappa_f^*(c) = \Phi(c)$, so erosion is naturally concentrated outside the dominant-currency segment.

Jurisdictional reach evolves according to

$$dS_t = -h(c_t) \cdot S_t dt, \tag{8}$$

with solution

$$S_t = S_0 \exp\left(- \int_0^t h(c_s) ds \right). \tag{9}$$

Because the model abstracts from re-entry into $\mathcal{R}$, reductions in enforcement do not restore lost reach: S_t is non-increasing.

Optimal enforcement. The regulator chooses $\{c_t\}_{t \geq 0}$ to maximize $\mathcal{I}$ subject to Equation (8). Let $V(S)$ denote the value function. The Hamilton-Jacobi-Bellman equation is

$$\beta V(S) = \sup_{c \geq 0} \{ c^\theta S - h(c) S V'(S) \}.$$

The currency layer enters only through the reduced-form hazard $h(c)$ in Equation (7). Because the problem is homogeneous in S, it admits a linear value function.

Proposition 1 (Optimal Enforcement)**.** *Suppose h is continuously differentiable with $h' > 0$.*

An interior optimum c^* of the regulator's dynamic problem satisfies

$$c^* = \theta \cdot \frac{\beta + h(c^*)}{h'(c^*)}, \tag{10}$$

and the value function is linear:

$$V(S) = \frac{(c^*)^\theta}{\beta + h(c^*)} \cdot S.$$

If, in addition,

$$\lim_{c \to 0} \frac{ch'(c)}{\beta + h(c)} = 0, \qquad \lim_{c \to \infty} \frac{ch'(c)}{\beta + h(c)} > \theta,$$

then such a $c^* > 0$ exists.

Proof: Appendix D.1.

Optimal enforcement equates the marginal compliance gain to the marginal cost of jurisdictional erosion, capitalized at rate $\beta + h(c^*)$. To interpret this condition, define the elasticity of discounted erosion

$$\varepsilon_h(c) \equiv \frac{ch'(c)}{\beta + h(c)} = \underbrace{\frac{ch'(c)}{h(c)}}_{\text{elasticity of switching hazard}} \times \underbrace{\frac{h(c)}{\beta + h(c)}}_{\text{effective discount weight}}.$$

The first term captures how sharply borrower switching responds to enforcement. The second term scales that response by the regulator's weight on future erosion relative to time discounting.

Proposition 2 (Influence and Compliance Elasticity)**.** *Under constant enforcement c, the regulator's compliance influence is*

$$\mathcal{I}(c) = S_0 \frac{c^\theta}{\beta + h(c)}.$$

Then,

$$\mathcal{I}'(c) > 0 \text{ iff } \varepsilon_h(c) < \theta \quad \text{and} \quad \mathcal{I}'(c) < 0 \text{ iff } \varepsilon_h(c) > \theta,$$

and any interior optimum satisfies $\theta = \varepsilon_h(c^*)$. If ε_h is strictly increasing, c^* is unique.
Proof: Appendix D.2.

Compliance influence is hump-shaped in enforcement intensity. Below c^*, the marginal compliance gain dominates the erosion cost; above c^*, the erosion cost dominates. The condition $\varepsilon_h(c^*) = \theta$ provides a convenient elasticity representation of the regulator's trade-off between compliance gains and jurisdictional erosion.

Lemma 1 (Scale Invariance)**.** *Let c^* satisfy $\varepsilon_h(c^*) = \theta$. Then c^* is independent of S_0, and equilibrium influence is linear in the initial jurisdiction reach:*

$$\mathcal{I}^* = S_0 \cdot \frac{(c^*)^\theta}{\beta + h(c^*)}.$$

Because the problem is linear in S, initial dominance scales influence proportionally but does not alter the marginal trade-off governing c^*. A larger bloc increases the returns to any given enforcement level without changing the optimal intensity.

Define the currency-segment hazards

$$h_d(c) \equiv \eta\, G\big(\Phi(c) - \ell\big), \qquad h_f(c) \equiv \eta\, G\big(\Phi(c)\big),$$

so that $h(c) = \pi h_d(c) + (1-\pi)h_f(c)$. Proposition 3 characterizes when the dollar segment is locally insulated from erosion.

Proposition 3 (USD-Layer Dominance Threshold)**.** *Define $\bar{\ell}_d \equiv \Phi(c^*) - \underline{\kappa}$. Then $h_d(c^*) = 0$ if and only if $\ell \geq \bar{\ell}_d$, equivalently $\kappa_d^*(c^*) \leq \underline{\kappa}$. If $\ell < \bar{\ell}_d$, then $h_d(c^*) > 0$ and the d-margin is subject to erosion at the optimum.*

Proof: Appendix D.3.

Proposition 3 formalizes layered dominance. When the convenience wedge ℓ is sufficiently large, the dollar-denominated margin lies in an inaction region at the optimum: funding premia rise, but dollar intermediation does not reallocate across blocs. Outside dollar lending, where $\ell = 0$, switching may remain active, so overall institutional reach can still erode even when the dollar segment is locally insulated. This prediction matches the borrower-level evidence in Table 5, which shows that observable reallocation is concentrated in the dollar segment.

The model yields a clear empirical implication. The durability of regulatory dominance depends on the elasticity of institutional reallocation with respect to enforcement-induced funding premia and on the strength of the dominant currencys liquidity advantage. Estimating the former and disciplining the latter therefore allows the data to determine how close the current equilibrium lies to the dominance-erosion threshold.

5 Structural Inference of Jurisdictional Reach

This section uses the model to quantify the erosion margin of jurisdictional reach. I first estimate how enforcement-induced funding premia affect cross-bloc borrowing. I then map those moments into a local switching curve and use the model to characterize the persistence of jurisdictional reach for a given enforcement premium.

5.1 Enforcement-Induced Funding Premia and Cross-bloc Switching

The model links jurisdictional erosion to the switching behavior of marginal borrowers. I estimate this object in two steps. First, U.S. settlements raise regulated banks'

wholesale funding costs, proxied by CDS spreads. Second, borrowers exposed to those higher funding costs become more likely to borrow from unregulated lenders.

Large U.S. settlements raise the marginal cost of wholesale funding for treated banks (Section 3). In particular, 5-year CDS spreads rise by roughly 16 bps following above-median, lending-related U.S. settlements, with positive effects across alternative treatment thresholds (Table C7). To translate bank-level funding premia into borrower-level exposure, I construct

$$\textit{CDS Exposure}_{ft} = \sum_b \text{Share}_{fb,t-1} \cdot \text{CDS}_{bt},$$

where $\text{Share}_{fb,t-1}$ is the share of firm f's syndicated borrowing from bank b in the most recent pre-period.

I instrument this measure with the analogous shift-share exposure to large U.S. settlements:

$$\textit{Settlement Exposure}_{ft} = \sum_b \text{Share}_{fb,t-1} \cdot \mathbb{1}\{\text{Settlement}_{bt} > P50\}.$$

This uses the same identifying variation as Section 3: conditional on rich fixed effects, settlement timing is orthogonal to borrower demand. Table C15 reports a strong first stage. A one-standard-deviation increase in *Settlement Exposure* raises *CDS Exposure* by about 0.33 standard deviations. I then estimate whether firm f receives any credit from an unregulated (Chinese) lender in quarter t:

$$\mathbb{1}\left(L^U_{ft} > 0\right) = \alpha_f + \eta_{ict} + \beta \widehat{\textit{CDS Exposure}}_{ft} + \epsilon_{ft}, \tag{11}$$

where α_f are firm fixed effects and η_{ict} are country-industry-time fixed effects. The sample includes only regulated-bank and Chinese-bank borrowing. The coefficient β

is a LATE estimator: it identifies the effect of enforcement-induced funding premia on cross-bloc borrowing for complier borrowers at the margin of switching, which is the relevant local object for the model.

Table 6 reports the results. A one-standard-deviation increase in *CDS Exposure* raises the probability of cross-bloc borrowing by about 6 percentage points (p.p.) relative to a baseline of 14%. This effect is concentrated entirely in non-USD lending, where the TSLS estimate is about 17 p.p., and is negligible in USD loans. This currency asymmetry is the key result: it is exactly the pattern implied by the model's liquidity wedge. The first-stage *F*-statistics are comfortably above conventional thresholds and OLS estimates are smaller, consistent with attenuation from measurement error in uninstrumented funding conditions.

Table 6: Funding Premia Induce Cross-Bloc Switching on the Extensive Margin

Note: The dependent variable is $\mathbb{1}(L^{U}_{ft} > 0)$. CDS exposure is instrumented with settlement exposure as in Table C15. All specifications include borrower and quarter fixed effects and country×industry×quarter fixed effects. Standard errors clustered at the borrower level.

Sample:	All loans		Non-USD loans		USD loans	
Estimator:	OLS	TSLS	OLS	TSLS	OLS	TSLS
$\widehat{CDS\ Exposure}$	0.026***	0.072**	0.043***	0.186***	0.018	−0.023
	(0.007)	(0.027)	(0.012)	(0.056)	(0.011)	(0.044)
Observations	2,533	2,533	1,159	1,159	621	621
Kleibergen–Paap *F*-statistic		56.9		17.9		26.8
Mean dep. var.	0.140	0.140	0.122	0.122	0.164	0.164
Fixed Effects:						
Borrower	✓	✓	✓	✓	✓	✓
Country×Industry×Quarter	✓	✓	✓	✓	✓	✓

5.2 Switching Moments and a Locally Identified Curve

I next map the reduced-form switching evidence into a structural switching curve. The goal is local rather than global identification: I use the data to pin down the baseline

flow of borrowers exiting the regulated bloc and the local sensitivity of that flow to enforcement-driven funding premia.

5.2.1 The Economic Trade-Off

In the model, a borrower reallocates from the regulated bloc $\mathcal{R}$ to the unregulated bloc $\mathcal{U}$ when the funding wedge Φ exceeds the relevant liquidity benefit plus an idiosyncratic switching cost:

$$\Phi \; > \; \ell \cdot \mathbb{1}\{j = d\} + \kappa, \qquad \kappa \sim G(\cdot),$$

where $j \in \{d, f\}$ denotes the dominant (USD) and fragile (non-USD) segments. I assume that switching costs are common across currencies, while liquidity benefits differ by segment. The switching probabilities are therefore

$$p_j(\Phi) = G\big(\Phi - \ell \cdot \mathbb{1}\{j = d\}\big), \qquad \frac{\partial p_j}{\partial \Phi} = g\big(\Phi - \ell \cdot \mathbb{1}\{j = d\}\big),$$

where $g(\cdot)$ is the density associated with $G(\cdot)$.

Because switching is tightly estimated only in non-USD lending (Table 6), I use the fragile segment to identify the switching curve locally. Section 3 showed that observable borrower reallocation in USD lending is largely an intensive-margin phenomenon within existing relationships. The hazard in the model, by contrast, is disciplined by the extensive-margin decision to source credit from the unregulated bloc.

5.2.2 From Moments to Structure

I identify the curve using two moments from the fragile segment. I use the baseline switching rate,

$$\bar{p}_f \equiv \mathbb{E}\big[\mathbb{1}(L_{ft}^U > 0) \mid j = f\big],$$

and the local semi-elasticity of switching with respect to the funding premium,

$$\widehat{g}_f = \frac{\hat{\beta}_f}{\sigma_{\Phi,f}},$$

where $\hat{\beta}_f$ is the TSLS coefficient from Equation (11) and $\sigma_{\Phi,f}$ is the standard deviation of the fragile-segment funding premium. These two moments pin down the level and slope of the switching function at the observed equilibrium, which is sufficient to characterize local dynamics.

To map these moments into a disciplined switching curve, I approximate G with a logistic CDF with location μ and scale s:

$$G(x) = \frac{1}{1 + \exp\left(-\frac{x-\mu}{s}\right)}, \qquad g(x) = \frac{1}{s} G(x)\big(1 - G(x)\big).$$

I normalize the observed equilibrium premium to $\Phi_0 = 0$. The two moments $(\bar{p}_f, \widehat{g}_f)$ then uniquely determine the local curve:

$$s = \frac{\bar{p}_f(1 - \bar{p}_f)}{\widehat{g}_f}, \qquad \mu = s \log\left(\frac{1 - \bar{p}_f}{\bar{p}_f}\right). \tag{12}$$

A smaller s implies a more brittle jurisdiction: small changes in the enforcement premium trigger large changes in exit rates. The parameter μ captures the average distance of marginal borrowers from the switching threshold.

Auxiliary Parameters and Calibration. The remaining dynamic parameters are calibrated directly from the data at a quarterly frequency. I estimate the project-arrival rate η from relationship durations, defined as the share of quarters in which a firm obtains a loan. I compute π as the sample share of USD-denominated loans. I treat π as a fixed feature of the global credit market rather than an object to be identified within the model.

Inference and Uncertainty. To account for the nonlinear mapping from reduced-form moments to structural parameters, I implement a two-step procedure. First, I estimate the joint asymptotic distribution of $(\bar{p}_f, \hat{g}_f)$ using a cluster bootstrap. I then compute standard errors for (μ, s) via the delta method. For downstream objects, including the switching curve and half-life, I construct confidence bands by parametric Monte Carlo simulation, drawing 20,000 realizations from the estimated bivariate normal distribution of the moments and propagating them through the model.

5.2.3 Quantitative Results and Interpretation

Table 7 reports the resulting parameters. A baseline switching rate of 12.2% and a local slope of 0.8 p.p. per bp imply $\hat{s} = 14.3$ bps and $\hat{\mu} = 28.2$ bps. These values indicate a highly elastic erosion margin: a large mass of borrowers sits within a few basis points of indifference, so modest changes in funding premia induce sizable reallocation.

Figure 5 illustrates this sensitivity. By construction, the curve passes through the equilibrium point $(0, \bar{p}_f)$. Its steep local slope implies that modest increases in the enforcement premium translate into disproportionately large increases in exit rates. A 10 bp increase in the premium, well within the sample variation, nearly doubles the exit rate in the fragile segment.

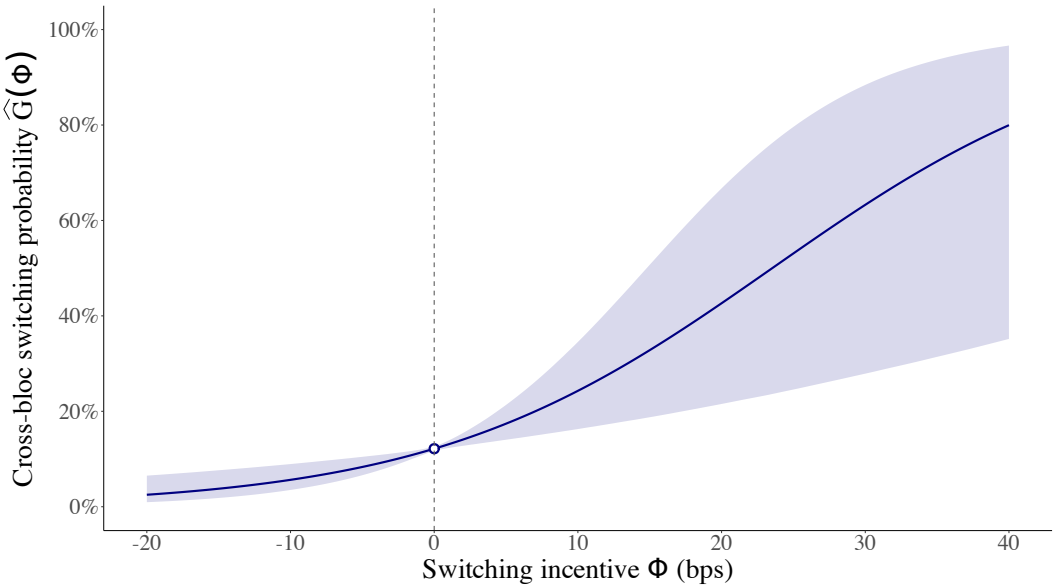
Table 7: Identified Moments and Implied Switching-Curve Parameters

Note: This table presents moments and parameters used to discipline the model. Panel A reports reduced-form switching moments identified from the data. Panel B reports the implied parameters of the logistic switching curve $p(\Phi) = G(\Phi - \Phi_0)$ with $G(x) = \left[1 + \exp\left(-\frac{x-\mu}{s}\right)\right]^{-1}$ and $\Phi_0 = 0$. Panel C reports dynamic parameters governing reach erosion. The standard errors in parentheses use the covariance between $(\hat{p}, \hat{g})$ (calculated with a cluster bootstrap) and are calculated via the delta method using the joint asymptotic distribution of $(\hat{p}, \hat{g})$.

Object	Interpretation	Value	Units
Panel A: Reduced-Form Moments			
$\sigma_{\Phi,f}$	Std. dev. of CDS exposure	20.715	bps
$\bar{p}$	Baseline switching rate	0.122 (0.003)	Probability/quarter
$\widehat{g}$	Local slope $\partial p/\partial \Phi$	0.009 (0.002)	Probability/bp
Panel B: Implied Switching-Curve Parameters			
s	Logistic scale parameter	11.900 (3.569)	bps
μ	Logistic location parameter	23.525 (7.071)	bps
Panel C: Dynamic Parameters			
η	Project arrival rate	0.119 (0.050)	Probability/quarter
π	Share of USD projects	0.346	Share

Figure 5: Estimated Switching Curve

Note: The figure plots the estimated switching function $\hat{G}(\Phi)$ against the enforcement premium Φ, normalized so that the observed equilibrium corresponds to $\Phi_0 = 0$. The curve therefore passes through $(0, \bar{p}_f)$, the equilibrium switching rate in the fragile segment. Shaded bands show 95% confidence intervals constructed by parametric Monte Carlo simulation, drawing $(\hat{p}_f, \hat{g}_f)$ from their joint asymptotic distribution and mapping each draw into (μ, s) via Equation (12).



5.3 The Dynamics of Jurisdictional Reach

The parameters identified in Section 5.2 allow the model to translate local switching behavior into reach dynamics. I summarize these dynamics in two ways. First, I compute the half-life of jurisdictional reach at a given enforcement premium. Second, I use the segmented hazard structure to trace the long-run evolution of aggregate reach under alternative liquidity advantages.

For segment $j \in \{d, f\}$, reach decays exponentially at hazard $h_j(\Phi)$:

$$h_d(\Phi) \equiv \eta\, G\big(\Phi - \ell\big), \qquad h_f(\Phi) \equiv \eta\, G\big(\Phi\big).$$

The dominant segment is insulated by the liquidity wedge ℓ, which represents the additional funding premium a USD borrower is willing to tolerate before switching becomes optimal.

To discipline this wedge, I set $\ell = 12.27$ bps using the 5-year Treasury convenience yield estimated by Krishnamurthy and Lustig (2019), which is a natural benchmark given the average five-year maturity of loans in my sample. The aggregate exit hazard is the π-weighted mixture

$$h(\Phi) = \eta\big(\pi \cdot G(\Phi - \ell) + (1 - \pi) \cdot G\big(\Phi\big)\big).$$

The corresponding half-life is

$$t_{1/2}(\Phi) = \frac{\ln 2}{h(\Phi; \hat{\mu}, \hat{s})}.$$

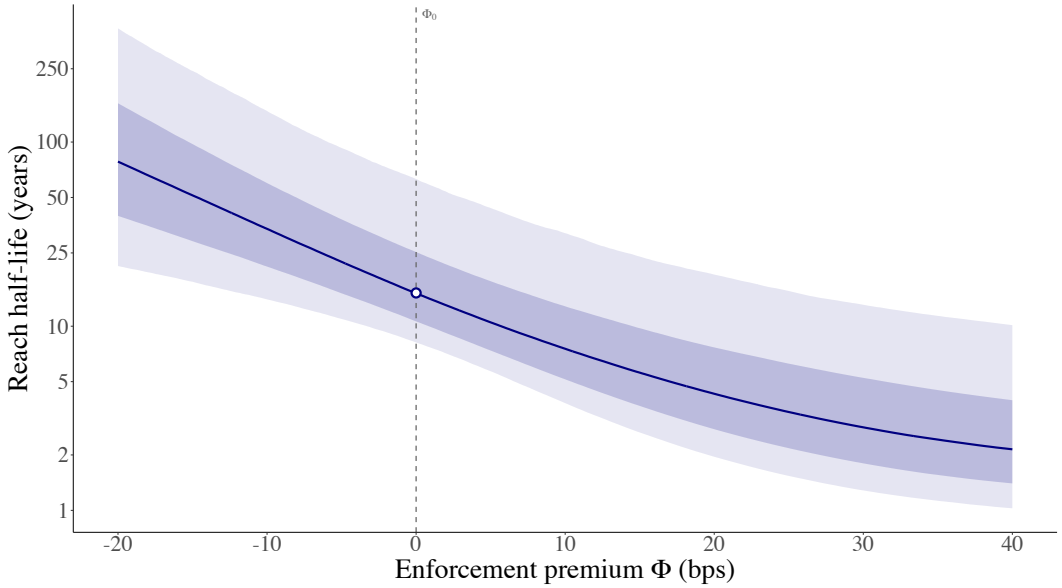
At the observed equilibrium, this object depends on the reduced-form moments $(\bar{p}_f, \eta)$. The parametric form of G matters only for counterfactual movements in Φ.

Figure 6 plots the implied half-life as a function of the enforcement premium. At the observed equilibrium, the model implies a half-life of approximately 15 years. This long duration reflects a substantial inaction region: even when funding costs rise, relationship frictions delay reallocation for many borrowers.

The half-life then declines sharply and nonlinearly as the premium rises. A 20 bp increase in the enforcement premium reduces the half-life to roughly 5 years. The current equilibrium is therefore persistent, but not robust to sustained increases in the regulatory funding wedge.

Figure 6: Half-Life of Jurisdictional Reach

Note: The figure plots the implied half-life of jurisdictional reach as a function of the enforcement premium Φ. The half-life equals $\ln(2)/h(\Phi)$, where $h(\Phi) = \eta\, G(\Phi - \ell)$ is the quarterly reallocation hazard. The vertical line marks the observed equilibrium premium. Shaded regions denote 68% and 95% confidence bands computed by Monte Carlo simulation. The figure quantifies how quickly enforcement erodes reach under alternative premia.



Long-run reach depends on the survival of the full borrower stock, not just on the local half-life. Because exit hazards differ across segments, aggregate reach evolves according to

$$dS_t = -\big(\pi h_d(\Phi) + (1-\pi)h_f(\Phi)\big)\, S_t\, dt.$$

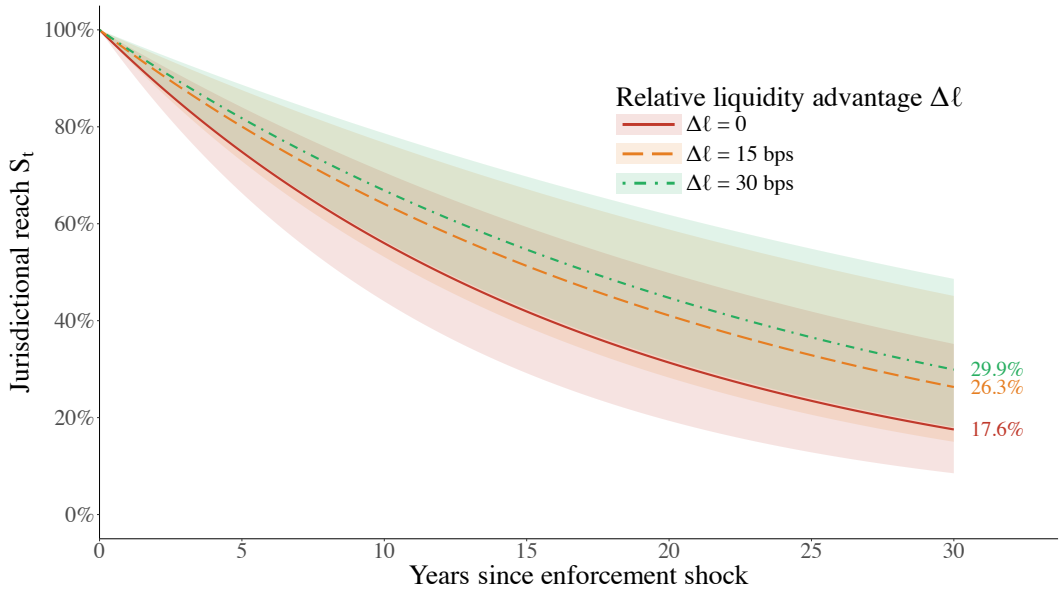
Thus, as the fragile segment erodes, the composition of surviving reach shifts toward the dominant-currency segment, where the liquidity wedge attenuates switching.

Figure 7 plots S_t over a 30-year horizon under three liquidity scenarios: equal dollar liquidity in the two blocs ($\Delta\ell = 0$), moderate dollar advantage in the regulated bloc ($\Delta\ell = 15$ bps), and a strong dollar advantage in the regulated bloc ($\Delta\ell = 30$ bps). The shaded bands represent one standard deviation of uncertainty propagated from the underlying IV moments through the nonlinear hazard.

The figure shows that dollar liquidity advantage in the regulated bloc operates as a structural buffer against enforcement-induced erosion. When $\Delta\ell = 0$, reach decays steadily as borrowers refinance into the alternative network. As $\Delta\ell$ increases, the exit hazard shifts downward and the decay path flattens, preserving a larger share of global intermediation within the regulated network even decades after the shock. Therefore, a relative dollar liquidity advantage compresses the effective elasticity of reallocation at the margin.

Figure 7: Dynamics of Jurisdictional Reach under Alternative Liquidity Advantages

Note: The figure plots the evolution of jurisdictional reach S_t following a one-time enforcement shock under three values of the relative liquidity advantage $\Delta\ell$. Reach declines at rate $h = \eta\, G(\Phi - \ell)$. Lines denote median Monte Carlo paths and shaded bands represent the 1-standard-deviation (68%) confidence bands. The figure illustrates how switching frictions discipline the speed of erosion.



5.3.1 Robustness and Sensitivity

Table 8 shows that the quantitative results are stable across both functional-form and calibration choices. Panel A varies the distribution of switching costs to either Normal or Gumbel distributions, while holding fixed the locally identified moments

$(\bar{p}_f, \hat{g}_f)$. Because the alternative distributions share the same level and slope at the observed equilibrium, they generate nearly identical dynamics: the implied half-life remains around 15 years and 30-year reach around 25%. This indicates that the long-run erosion of jurisdictional reach is pinned down by local substitution behavior, rather than by assumptions on the global shape of the switching function.

Panel B varies the dollar liquidity premium ℓ. Increasing ℓ frmo 0 bps to 100 bps slows jurisdictional erosion by reducing the mass of marginal borrowers, which increases the half-life from about 12 to 18 years and almost doubles long-run reach. However, even at $\ell = 100$ bps, the decline in reach remains substantial. A strong relative dollar liquidity advantage in the regulated bloc therefore attenuates but does not eliminate the erosion margin.

Table 8: Robustness of Reach Dynamics

Note: The table reports the half-life $t_{1/2} = \ln(2)/h(\Phi{=}0)$ and 30-year jurisdictional reach $S_{30} = \exp(-4 \times 30 \times h(\Phi{=}0))$. Panel A fixes $\ell = 12.27$ bps (Krishnamurthy and Lustig, 2019) and varies the switching distribution; all the CDFs satisfy $G(0) = \bar{p}_f$ and $G'(0) = \hat{g}_f$ by construction. Panel B uses the logistic baseline and varies ℓ from 0 to 100 bps in 20 bps increments. The 68% confidence interval is constructed from 30,000 parametric Monte Carlo draws of $(\hat{p}_f, \hat{g}_f, \eta)$, holding ℓ fixed.

Assumption	Half-life (years)	Confidence Interval	30-year Reach
Panel A: Distributional assumption			
Logistic	15.2	[10.6, 25.5]	25.4
Normal	15.4	[10.7, 25.8]	25.8
Gumbel-max	15.1	[10.6, 25.4]	25.2
Panel B: Dollar liquidity premium			
0	11.9	[8.4, 20.1]	17.5
20	16.5	[11.4, 27.5]	28.3
40	17.9	[12.5, 29.8]	31.3
60	18.2	[12.7, 30.4]	31.9
80	18.2	[12.8, 30.6]	32.0
100	18.3	[12.9, 30.6]	32.0

6 Conclusion

This paper examines how regulatory enforcement reshapes the global allocation of financial intermediation. Using data on 7,085 enforcement actions across 45 jurisdictions, I show that U.S. settlements raise funding costs for regulated banks, contract cross-border lending, and reallocate credit toward intermediaries outside the U.S. regulatory perimeter. I use this reallocation to estimate the elasticity of reallocation across regulatory blocs with respect to enforcement-induced funding premia and map it into the dynamics of jurisdictional reach. U.S. jurisdictional reach is persistent but not permanent: at current funding premia, enforcement implies a half-life of roughly 15 years. Currency dominance therefore does not guarantee regulatory influence.

More generally, when activity can reallocate across intermediaries, stricter enforcement reduces the set of entities it governs even as it raises compliance locally. This applies beyond banking to settings such as data governance or artificial intelligence, where influence depends on control over intermediating networks rather than formal jurisdiction.

References

Berrospide, Jose, Ricardo Correa, Linda Goldberg, and Friederike Niepmann. 2016. International banking and cross-border effects of regulation: Lessons from the United States. National Bureau of Economic Research.

Borusyak, Kirill, Xavier Jaravel, and Jann Spiess. 2024. Revisiting event-study designs: Robust and efficient estimation. *Review of Economic Studies* rdae007.

Brødsgaard, Kjeld Erik, and Kasper Ingeman Beck. 2021. Big business and cadre management in China. *The Copenhagen Journal of Asian Studies* 39:53–76.

Cerutti, Eugenio, Giovanni Dell'Ariccia, and Maria Soledad Martinez Peria. 2007. How banks go abroad: Branches or subsidiaries?. *Journal of Banking & Finance* 31:1669–1692.

Cetorelli, Nicola, and Linda Goldberg. 2011. Global banks and international shock transmission: Evidence from the crisis. *IMF Economic Review* 59:41–76.

Cetorelli, Nicola, and Linda Goldberg. 2012. Banking globalization and monetary transmission. *The Journal of Finance* 67:1811–1843.

Clayton, Christopher, Antonio Coppola, Matteo Maggiori, and Jesse Schreger. 2025. Geoeconomic pressure. National Bureau of Economic Research.

Clayton, Christopher, Matteo Maggiori, and Jesse Schreger. 2023. A framework for geopolitics and economics. Working paper.

Department of Justice. 2018. Manhattan U.S. Attorney Announces Criminal Charges Against Société Générale S.A. For Violations Of The Trading With The Enemy Act. Retrieved from https://www.justice.gov/usao-sdny/pr/manhattan-us-attorney-announces-criminal-charges-against-soci-t-g-n-rale-sa-violations.

Dreher, Axel, Andreas Fuchs, Bradley Parks, Austin Strange, and Michael Tierney. 2021. Aid, China, and growth: Evidence from a new global development finance dataset. *American Economic Journal: Economic Policy* 13:135–74.

Dreher, Axel, Andreas Fuchs, Bradley Parks, Austin Strange, and Michael Tierney. 2022. *Banking on Beijing: The Aims and Impacts of China's Overseas Development Program* Cambridge University Press.

Drezner, Daniel W. 2015. Targeted sanctions in a world of global finance. *International Interactions* 41:755–764.

Farhi, Emmanuel, and Matteo Maggiori. 2018. A model of the international monetary system. *The Quarterly Journal of Economics* 133:295–355.

Farrell, Henry, and Abraham L Newman. 2019. Weaponized interdependence: How global economic networks shape state coercion. *International security* 44:42–79.

Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift. 2020. Bartik instruments: What, when, why, and how. *American Economic Review* 110:2586–2624.

Gopinath, Gita, and Jeremy C Stein. 2021. Banking, trade, and the making of a dominant currency. *The Quarterly Journal of Economics* 136:783–830.

Gourinchas, Pierre-Olivier, Hélene Rey, and Maxime Sauzet. 2019. The international monetary and financial system. *Annual Review of Economics* 11:859–893.

Horn, Sebastian, Carmen Reinhart, and Christoph Trebesch. 2021. China's overseas lending. *Journal of International Economics* 133:103539.

Houston, Joel, Chen Lin, and Yue Ma. 2012. Regulatory arbitrage and international bank flows. *The Journal of Finance* 67:1845–1895.

Ivashina, Victoria, David Scharfstein, and Jeremy Stein. 2015. Dollar funding and the lending behavior of global banks. *The Quarterly Journal of Economics* 130:1241–1281.

Jiang, Zhengyang, Arvind Krishnamurthy, and Hanno Lustig. 2024. Dollar safety and the global financial cycle. *Review of economic studies* 91:2878–2915.

Krishnamurthy, Arvind, and Hanno N Lustig. 2019. Mind the gap in sovereign debt markets: The us treasury basis and the dollar risk factor. in *2019 Jackson Hole Economic Symposium, Stanford University Graduate School of Business Research Paper*. number 3443231.

Smolyansky, Michael. 2019. Policy externalities and banking integration. *Journal of Financial Economics* 132:118–139.

Regulation and Competition in Global Banking

This section presents the online appendix of *Regulation and Competition in Global Banking*. Section A presents sources of the hand-collected compliance data. Section B explores patterns in Chinese regulatory enforcement and its relationship to Chinese bank globalization. Section C presents additional empirical results. Lastly, Section D presents proposition proofs.

A Data Sources

A.1 Compliance Enforcement

Listed below by country are the regulatory agencies whose penalty cases I collect. Please see Section 2 for more information.

Australia. The Australian Securities and Investments Commission (ASIC), the Australian Transaction Reports and Analysis Centre (AUSTRAC), the Australian Federal Court.

Austria. The Financial Market Authority (FMA).

Belgium. The National Bank of Belgium, the Public Prosecutor's Office.

Brazil. The Administrative Council for Economic Defense (CADE), tax authorities, Sao Paulo's fiscal authority, the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the Mato Grosso federal prosecutors, the Securities and Exchange Commission of Brazil (CVM).

Canada. The Ontario Securities Commission (OSC), the Financial Consumer Agency, the Investment Industry Regulatory Organization of Canada (IIROC), the Financial Transactions and Reports Analysis Centre of Canada (FINTRAC).

Chile. The Chilean Supreme Court.

China. The People's Bank of China (PBOC), State Administration of Foreign Exchange (SAFE), the Banking Regulatory Commission (CBRC), the Banking and Insurance Regulatory Commission (CBIRC).

Colombia. The Autorregulador del Mercado de Valores.

Croatia. The Croatian Financial Inspectorate.

Cyprus. The Cyprus Securities and Exchange Commission.

Denmark. The Danish Public Prosecutors, the Danish Financial Supervisory Authority, the Danish Data Supervisory Authority.

Estonia. The Estonian Financial Supervisory Authority (FI).

European Union. The European Central Bank (ECB), the European Securities and Markets Authority (ESMA), the European Commission.

Finland. The Finnish Financial Supervisory Authority.

France. The French Prudential Supervision and Resolution Authority (ACPR), Autorité des Marchés Financiers (AMF), Parquet National Financier, French court system, Autorité de la Concurrence.

Germany. The Frankfurt Public Prosecutors, The Cologne Public Prosecutors, The Munich Public Prosecutor, The Dusseldorf Public Prosecutor, the Federal Financial Supervisory Authority (Bafin).

Hong Kong. The Hong Kong Monetary Authority (HKMA), the Hong Kong Securities and Futures Commission of Hong Kong.

Hungary. The Hungarian National Bank.

India. The Reserve Bank of India, the Indian anti-money laundering agency.

Ireland. The Central Bank of Ireland.

Italy. The Bank of Italy, the Italian Competition Authority (AGCM), Italian courts, the Italian Data Protection Authority, the Italian Public Prosecutors.

Japan. Japan's Financial Services Agency, the Tokyo Stock Exchange, the Osaka Stock Exchange.

Latvia. The Latvian Financial and Capital Market Commission (FCMC).

Lithuania. The Lithuanian Competition Council, the Bank of Lithuania.

Luxembourg. La Commission de Surveillance du Secteur Financier (CSSF).

Malaysia. The Government of Malaysia.

Mexico. The Mexican National Banking and Securities Commission (CNBV).

Netherlands. De Nederlandsche Bank, the Dutch Public Prosecution Office, the Netherlands Authority for the Financial Markets (AFM).

New Zealand. The High Court of New Zealand.

Norway. The Financial Supervisory Authority of Norway.

Paraguay. The Central Bank of Paraguay.

Poland. The Polish Office of Competition and Consumer Protection (UOKiK), the Personal Data Protection Office (UODO).

Qatar. Qatar Financial Center Regulatory Authority.

Romania. The Romanian National Supervisory Authority.

Singapore. The Monetary Authority of Singapore (MAS), the Singaporean Attorney General.

South Africa. The South African Reserve Bank, the Competition Commission.

South Korea. The Financial Supervisory Service (FSS), the Fair Trade Commission (FTC), the Financial Services Commission (FSC).

Spain. The National Securities Market Commission (CNMV), the Bank of Spain, the Spanish Data Protection Agency.

Sweden. The Swedish Financial Supervisory Authority (FI), the Swedish Nasdaq.

Switzerland. The Swiss Competition Commission (WEKO), the Swiss Federal Criminal Court, the Swiss Financial Market Supervisory Authority (FINMA).

Taiwan. The Financial Supervisory Commission (FSC).

Turkey. The Capital Markets Board of Turkey.

UAE. The Dubai Financial Services Authority (DFSA).

UK. The Financial Conduct Authority (FCA), the Financial Services Authority (FSA), the Environment Agency, the Bank of England (BOE), the Prudential Regulation Authority (PRA), Tribunals, the Competition and Markets Authority (CMA), the Office of Financial Sanctions Implementation (OFSI), the Information Commissioner's Office, the Serious Fraud Office (SFO).

US. The Office of Foreign Assets Control (OFAC), the Financial Crimes Enforcement Network (FinCen), the Office of the Comptroller of the Currency (OCC), the Federal Reserve, the Securities and Exchange Commission (SEC), the Consumer Financial Protection Bureau (CFPB), the National Credit Union Administration (NCUA), the Bureau of Industry and Commerce (BIS), the Department of Labor (DOL), the Justice Department (DOJ), the Department of Housing and Urban Development (HUD), the Federal Deposit Insurance Corporation (FDIC), the Commodity Futures Trading Commission (CFTC), the Equal Employment Opportunity Commission (EEOC), the 50 state district attorneys, the DC district attorney, the Los Angeles district attorney, the New York City district attorney, the Intercontinental Exchange Inc (ICE), the National Labor Relations Board (NLRB), the Occupational Safety and Health Administration (OSHA), Freddie Mac, Fan-

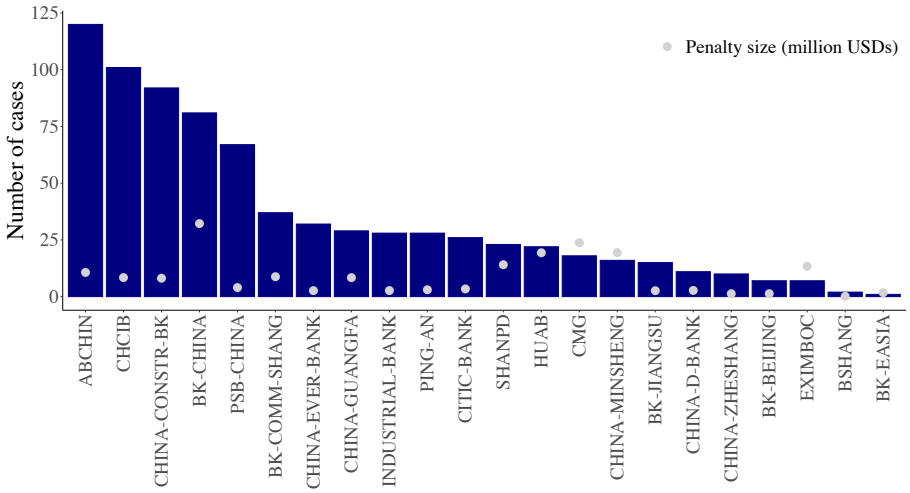
nie Mae, the Federal Housing Finance Agency (FHFA), the Federal Energy Regulatory Commission (FERC), the Financial Industry Regulatory Authority (FINRA), the Environmental Protection Agency (EPA).

B Chinese Bank Regulation and Global Expansion

This appendix examines whether Chinese banks face comparable regulatory constraints when expanding globally. Chinese regulators intensely monitor bank activity (Figure B1), yet this enforcement does not appear to bind global expansion. Exploiting variation in cross-border activity driven by domestic industrial production (Dreher et al., 2021), I show that internationally active Chinese banks receive smaller monetary penalties, consistent with weaker enforcement constraints on cross-border activity.

Figure B1: Chinese Regulators Closely Monitor Bank Activities

Note: This figure shows the number of enforcement cases brought by Chinese regulators against global banks in 2021. Dots indicate the total penalty amounts paid to Chinese regulators in 2021, measured in million USDs. For more details, see Section 2.1.



I construct a Bartik instrument that interacts bank-level initial foreign exposure with time-series variation in China's industrial production:

$$Outcome_{bt} = \gamma_{by} + \beta \sum_{c} z_{bc0} \times Factor_{t-1} + \epsilon_{bt}, \tag{13}$$

where z_{bc0} denotes bank b's initial lending exposure to country c and $Factor_{t-1}$ is the first principal component of monthly production in construction-related sectors (e.g., steel, cement). The specification compares outcomes within a bank-year across periods of high versus low domestic production.

The identifying assumption is that domestic industrial fluctuations shift the supply of Chinese cross-border lending. While this assumption cannot be directly tested, existing evidence supports its plausibility (Brødsgaard and Beck, 2021, e.g.,).

Table B1 reports the results. A one standard-deviation increase in the instrument raises cross-border lending by 27.6% and increases interest rates by 12 bps. At the same time, monetary penalties decline by 12.6%. This indicates that enforcement does not tighten with global expansion.

Table B2 shows that these results are robust to alternative constructions of the instrument and sample restrictions. The effect on penalties disappears when using longer lags, which suggests that the relationship between expansion and enforcement is short-lived.

Taken together, the evidence suggests that Chinese banks operate under weaker enforcement constraints when expanding abroad. This asymmetry helps explain why they are the primary margin of substitution following U.S. enforcement shocks in the main analysis.

Table B1: Chinese Industrial Production Impacts Cross-Border Lending and Regulation

Note: This table reports estimates of Equation (13). The Bartik instrument is standardized. Dependent variables include cross-border lending, RMB-denominated lending, interest rates, and future monetary penalties. All specifications include bank-year fixed effects and exclude borrowers in the U.S., China, Hong Kong, and Luxembourg. Confidence intervals are computed using wild bootstrap.

Dependent Variable	Lending_{bt}	$\text{Lending}^{RMB}_{bt}$	Rate_{bt}	$\text{Fines}_{b,t+1}$
	(1)	(2)	(3)	(4)
Coefficient	0.276	0.527	12.33	-0.126
	[0.05; 0.49]	[0.21; 0.82]	[2.52; 23.70]	[−0.23; −0.001]
Observations	492	492	428	422
Clusters	19	19	19	15
R^2	0.78	0.30	0.50	0.57
Bank×Year Fixed Effects	✓	✓	✓	✓

Table B2: Strategic Chinese Regulation Is Robust to Alternative Specifications

Note: This table reports robustness of Equation (13) to alternative constructions of the instrument and sample restrictions. Outcomes include cross-border lending and future monetary penalties. Columns (1)–(3) use cement-specific industrial indices. All specifications include bank-year fixed effects and exclude borrowers in the U.S., China, Hong Kong, and Luxembourg. Confidence intervals are computed using wild bootstrap.

	Using a specific sector			Using $Factor_{t-2}$			Excluding policy banks		
Dependent Variable	Lending_{bt}	Rate_{bt}	$\text{Fines}_{b,t+1}$	Lending_{bt}	Rate_{bt}	$\text{Fines}_{b,t+1}$	Lending_{bt}	Rate_{bt}	$\text{Fines}_{b,t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Coefficient	0.31	10.26	-0.08	0.23	16.42	-0.09	0.28	11.07	-0.17
	[0.20; 0.43]	[1.16; 17.10]	[−0.17; 0.01]	[0.07; 0.39]	[4.21; 25.63]	[−0.29; 0.06]	[0.03; 0.53]	[−3.10; 23.58]	[−0.30; −0.05]
Observations	492	428	422	492	428	422	402	353	336
Clusters	19	19	15	19	19	15	17	17	13
R^2	0.79	0.50	0.57	0.78	0.50	0.56	0.86	0.50	0.56

I assess the variation in the Bartik instrument $B_{bt} = \sum_c z_{bc0} \times Factor_{t-1}$ following Goldsmith-Pinkham et al. (2020).

Table B3 reports the Rotemberg weights. The weights are strictly positive and not excessively concentrated: the top five countries account for 61% of total weight. These results indicate that the instrument is not driven by a small set of observations.

Figure B2 shows that instrument-specific estimates are centered around the aggregate effect and do not display systematic dispersion with first-stage strength. Together, these patterns alleviate concerns about instrument misspecification or heterogeneous treatment effects.

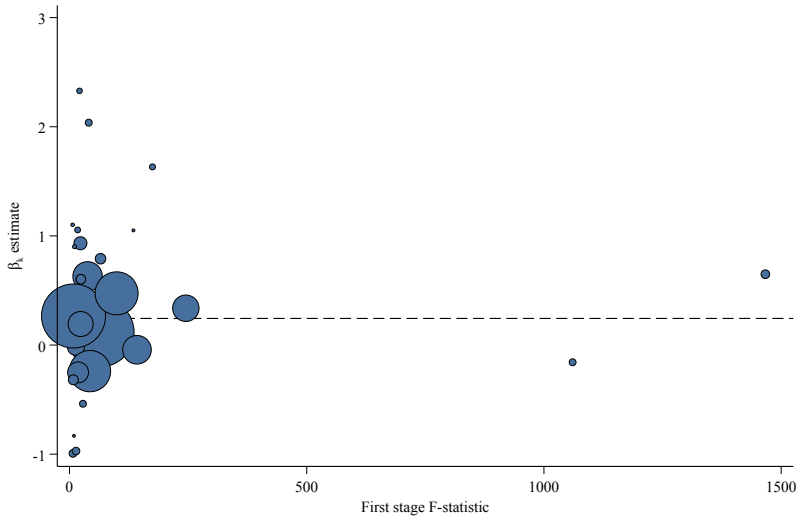
Table B3: Summary of Rotemberg Weights

Note: This table reports Rotemberg weights for the Bartik instrument. Weights are positive and moderately concentrated across countries.

Panel A: Negative and positive weights	Sum	Mean	Share	
Negative	0	-	0	
Positive	1	0.017	1	
Panel B: Correlation	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$	$\hat{F}_k$
$\hat{\alpha}_k$	1			
g_k	0.218	1		
$\hat{\beta}_k$	-0.051	-0.052	1	
$\hat{F}_k$	-0.091	-0.248	-0.131	1
Panel C: Variation across years in $\hat{\alpha}_k$	Sum	Mean		
2011Q1	0.043	0.001		
2021Q4	0.150	0.003		
Panel D: Top 5 Rotemberg weight countries	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$	95% CI
Australia	0.216	-0.141	0.115	[-0.10, 0.40]
Singapore	0.186	-0.077	0.266	[-0.10, 0.60]
South Africa	0.084	-0.204	0.474	[0.30, 0.70]
UK	0.077	-0.056	-0.239	[-0.90, 0.40]
Netherlands	0.050	-0.240	0.322	[0.10, 0.80]

Figure B2: Heterogeneity of Instrument Coefficients

This figure plots instrument-specific β_k estimates against first-stage F-statistics. Point sizes reflect Rotemberg weights. The horizontal line marks the average β reported in Column (1) of Table B1.



C Additional Empirical Results

Below I test the validity of the results presented in Section 3. Section C.1 presents additional results and robustness checks to the Bartik instrument Settlement Exposure$_{ft}$ defined in the main text. Section C.2 presents supplemental results and heterogeneity analysis.

C.1 Validation of the Instrument Settlement Exposure$_{ft}$

I argue that Settlement Exposure$_{ft}$ is plausibly exogenous because it is driven by U.S. enforcement shocks that are orthogonal to local credit demand. I assess the validity of this instrument in several ways. First, I examine the variation in the instrument following Goldsmith-Pinkham et al. (2020). Second, I test whether substitution patterns vary systematically with the exposure shares that define the instrument. Third, I replicate the results using initial exposure shares to ensure that the instrument is not contaminated by endogenous adjustments.

Table C1 reports the Rotemberg weights. The weights are strictly positive and not excessively concentrated, which indicates that the instrument is not driven by a small set of banks.

Table C1: Summary of Rotemberg Weights

Note: This table reports Rotemberg weights for the Bartik instrument. Weights are positive and moderately concentrated across banks.

Panel A: Negative and positive weights	Sum	Mean	Share	
Negative	0	-0.0003	0.001	
Positive	1	0.059	0.999	
Panel B: Correlation	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$	$\hat{F}_k$
$\hat{\alpha}_k$	1			
g_k	0.495	1		
$\hat{\beta}_k$	-0.375	-0.054	1	
$\hat{F}_k$	0.685	-0.088	-0.212	1
Panel C: Variation across years in $\hat{\alpha}_k$	Sum	Mean		
2012Q3	-0.0004	-0.0003		
2022Q4	0.09	0.005		
Panel D: Top 5 Rotemberg weight banks	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$	
JPM	0.205	0.735	2.029	
Citi	0.098	0.612	1.786	
Commerzbank	0.081	0.653	0.415	
ING	0.080	0.898	1.037	
HSBC	0.080	0.837	0.833	

Strategic Segmentation. To further assess relationship persistence, I partition borrowers into terciles based on their pre-shock exposure to penalized lenders (Table C2). The patterns suggest a high degree of strategic segmentation. In the bottom tercile of exposure, we observe a mass withdrawal by non-penalized regulated banks, which contract by 7.6% and 13.3%, respectively. This creates a vacuum that Chinese banks fill by expand intensive-margin lending by about 14.6% among repeat relationships. Substitution is then complete.

In contrast, in the top tercile, where reputational costs from U.S. enforcement might minimal, penalized banks contract lending by about 3.8% relative to non-penalized lenders, but this is not significant nor persistent across specifications. Non-penalized banks do not withdraw and Chinese banks do not gain additional share.

Table C2: Relative Substitution Varies With Borrower Exposure to Penalized Lenders

Note: This table reports estimates from Equation (4). The Bartik instrument is standardized. All specifications include quarter, bank-borrower, country-industry, and country-quarter fixed effects. Observations are clustered at the bank-borrower level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$		
Sample:	All	All	Repeat relations
	(1)	(2)	(3)
Panel A: Bottom Exposure Tercile			
Settlement Exposure	-0.080^{*}	-0.004	-0.085^{*}
	(0.044)	(0.032)	(0.045)
Penalized × Settlement Exposure	0.034		
	(0.029)		
Interaction Effects (Non-Penalized Banks)			
U.S. Bank × Settlement Exposure		-0.133^{***}	
		(0.035)	
Western Bank × Settlement Exposure		-0.076^{***}	
		(0.030)	
Chinese Bank × Settlement Exposure		0.068	0.146^{***}
		(0.046)	(0.049)
Observations	9,875	9,464	9,439
R^2	0.90	0.90	0.90
Panel B: Mid Exposure Tercile			
Settlement Exposure	-0.042	-0.043	-0.039
	(0.031)	(0.071)	(0.030)
Penalized × Settlement Exposure	-0.072		
	(0.054)		
Interaction Effects (Non-Penalized Banks)			
U.S. Bank × Settlement Exposure		0.002	
		(0.073)	
Western Bank ×Settlement Exposure		0.000	
		(0.070)	
Chinese Bank × Settlement Exposure		0.085	0.084
		(0.109)	(0.069)
Observations	7,686	7,310	7,267
R^2	0.90	0.91	0.91
Panel C: Top Exposure Tercile			
Settlement Exposure	-0.038^{*}	-0.073	-0.043^{*}
	(0.023)	(0.095)	(0.023)
Penalized × Settlement Exposure	0.115		
	(0.093)		
Interaction Effects (Non-Penalized Banks)			
U.S. Bank ×Settlement Exposure		0.041	
		(0.102)	
Western Bank ×Settlement Exposure		0.028	
		(0.096)	
Chinese Bank × Settlement Exposure		-0.024	-0.053
		(0.154)	(0.122)
Observations	7,160	6,797	6,781
R^2	0.80	0.80	0.80

Initial Exposure Shares. I construct an alternative Bartik instrument using initial exposure shares:

$$\text{Settlement Exposure}_{ft} = \sum_{b'} \text{Share}_{fb'0} \times \mathbb{1}\{\text{Settlements}_{b't} > P50\},$$

where $\text{Share}_{fb'0}$ denotes the share of firm f's syndicated credit from bank b' in the initial sample period.

Table C3: Substitution Effects Are Robust to Alternative Bartik Instrument

Note: This table reports estimates from Equation (4) using initial exposure shares in the standardized Bartik instrument. All specifications include quarter, bank-borrower, country-industry, country-quarter, and country-borrower-year fixed effects. Observations are clustered at the bank-borrower level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$					
Sample:	All	All	All	All	Repeated Loans	New Loans
	(1)	(2)	(3)	(4)	(5)	(6)
Settlement Exposure	−0.100***	−0.095***	−0.099***	−0.099***	−0.125***	−0.179***
	(0.020)	(0.019)	(0.026)	(0.025)	(0.034)	(0.060)
Penalized ×Settlement Exposure	−0.006					
	(0.009)					
Interaction Effects (Non-Penalized Banks)						
U.S. Bank × Settlement Exposure		−0.013**				
		(0.006)				
Western Bank × Settlement Exposure			0.003			
			(0.006)			
Chinese Bank × Settlement Exposure				0.050***	0.083***	0.005
				(0.017)	(0.028)	(0.008)
Observations	53,897	51,435	51,445	51,435	25,888	48,675
R^2	0.95	0.95	0.95	0.95	0.95	0.96
Fixed Effects:						
Quarter	✓	✓	✓	✓	✓	✓
Bank×Borrower	✓	✓	✓	✓	✓	
Country×Industry	✓	✓	✓	✓	✓	✓
Country×Quarter	✓	✓	✓	✓	✓	✓
Country×Borrower×Year	✓	✓	✓	✓	✓	✓

C.2 Additional Figures and Reduced-Form Evidence

Figure C1: Geographical Coverage of Regulatory Data

Note: This figure presents the coverage of the hand-collected civil and criminal penalty cases, expressed in terms of the number of national regulatory agencies. These cases proxy for local compliance enforcement regimes. The number of agencies shown below is meant to convey data representativeness, not to suggest that countries with more agencies have tighter regulatory regimes. Excluded from this figure are the 50 states and the District of Columbia, as well as the EU Commission and the European Central Bank. Please refer to Section 2 for more information.

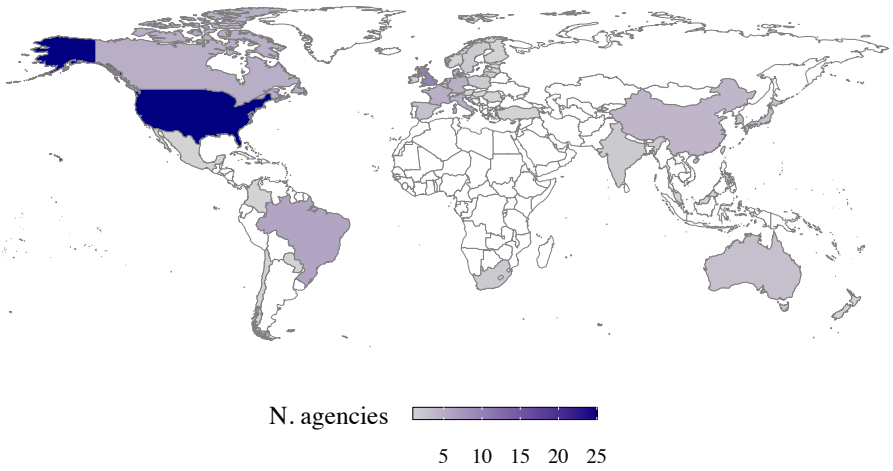


Figure C2: The Distribution of Monetary Penalties Is Highly Skewed

Note: This figure plots the distribution of monetary penalties associated with compliance enforcement across all regulators. For more information, please see Section 2.

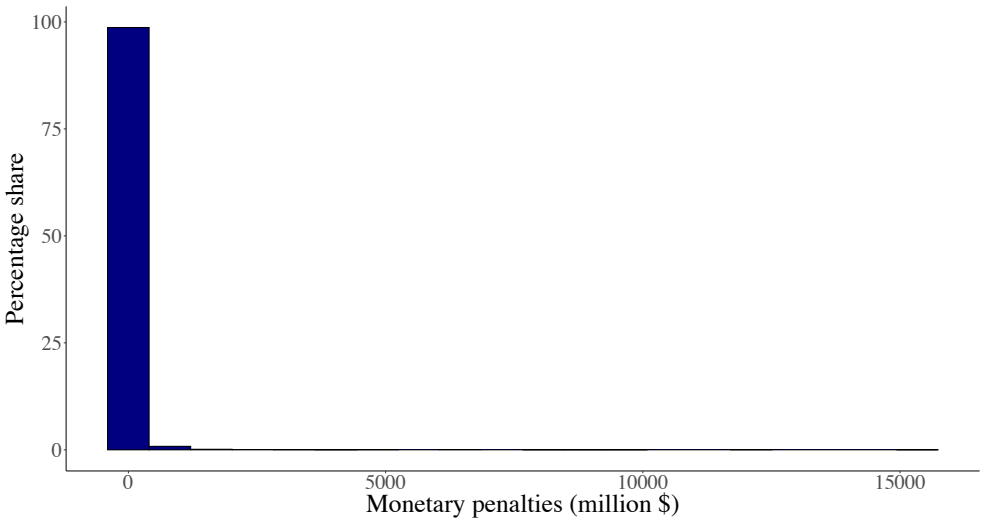


Figure C3: Substantial Variation in Violation Categories

Note: This figure presents the percentage share of each violation category in the hand-collected dataset. *Mortgage Practices* includes litigation related to mortgage practices. *Fraud* covers asset-price manipulation and consumer fraud. *Sanctions* pertains to violations of international sanctions. *AML/KYC* refers to breaches of anti-money laundering or know-your-customer regulations. *Consumer Protection* and *Investor Protection* include public cases filed on behalf of consumers and investors that resulted in restitution. *Risk Management* captures cases requiring banks to improve internal risk controls. *Tax* and *Bribery* correspond to tax violations and bribery cases, respectively. *Discrimination* includes cases involving employees, consumers, and investors. *Employment* covers disputes between banks and employees. *Environment* refers to environmental violations.

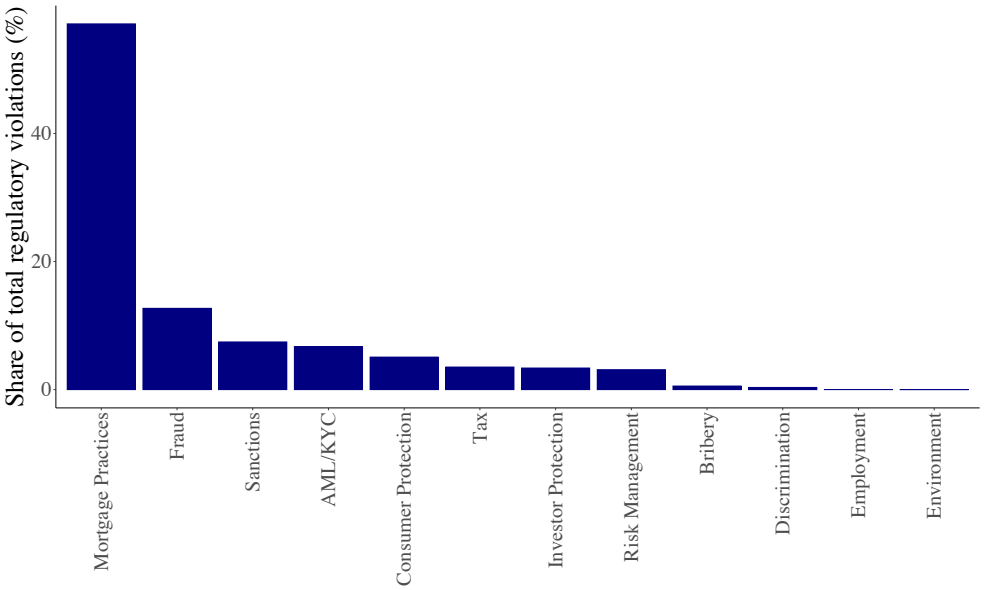
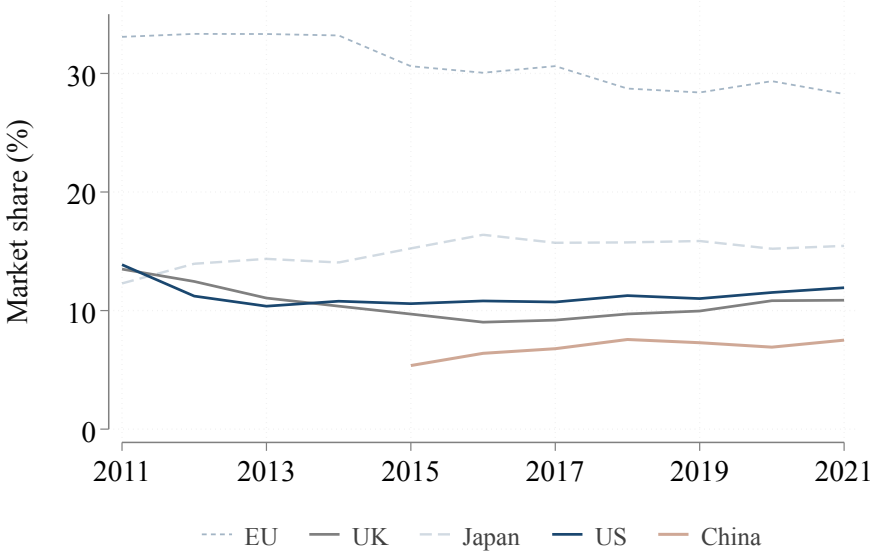


Figure C4: Market Shares in Cross-Border Lending by Bank Nationality

Note: This figure presents the market shares of global banks in cross-border lending by their nationality in percent. Panel A uses total cross-border lending data from the BIS Locational Statistics (of which Table A4 reports aggregate positions based on bank nationality), while Panel B uses the subset of syndicated cross-border lending data from the SDC. This figure reports these market shares for banks headquartered in the EU, the UK, Japan, the US, and China.

Panel A: Total cross-border lending (source: BIS)



Panel B: Syndicated cross-border lending (source: SDC)

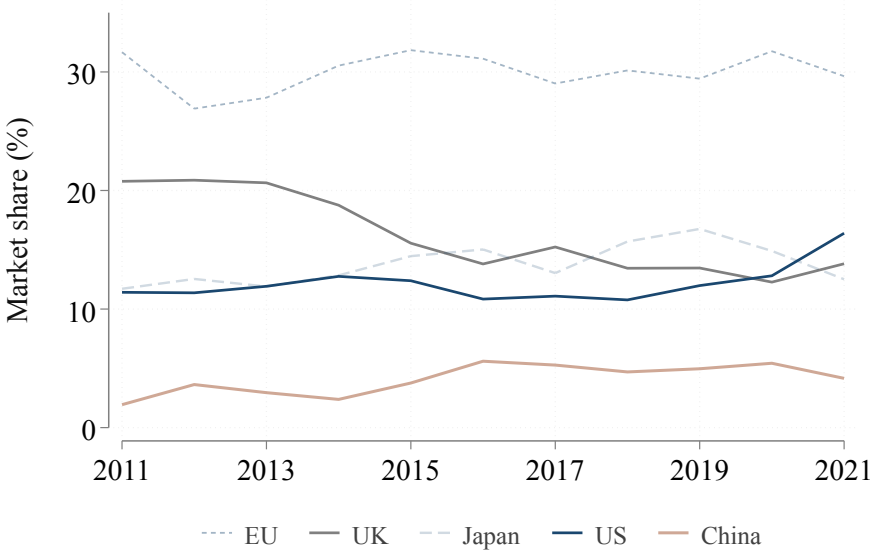


Figure C5: Comparison of Cross-Border Credit Across Datasets

Note: This figure compares cross-border loan quantities in billion USDs across three datasets: total lending as reported by the BIS in the left-hand panel, official (public) lending as reported by Horn and coauthors in the middle panel, and syndicated lending as reported by the SDC. Data are reported between 2011 and 2021 based on availability for the EU, the UK, Japan, the US, and China.

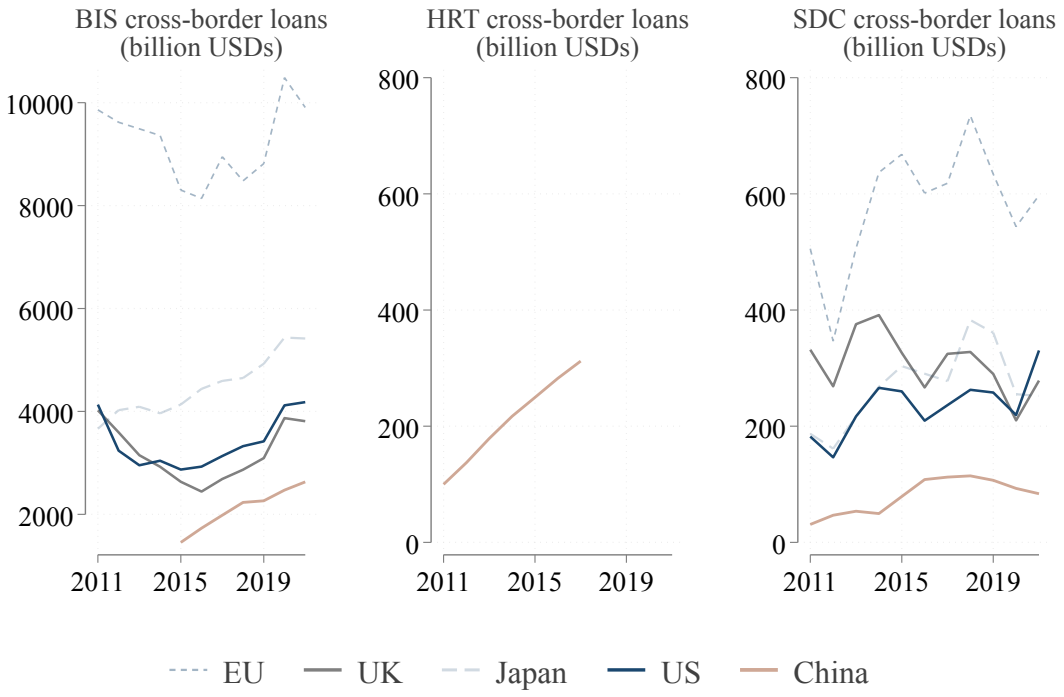


Table C4: Coverage Difference Across Datasets

Note: This table presents the number of syndicated facilities that consist of Chinese banks, Chinese and other banks, and non-Chinese banks across the SDC and AidData datasets. The statistics covering the SDC exclude domestic syndicates and government borrowers. An example of the first type of syndicate could solely consist of one or more Chinese banks. An example of the second type would consist of Chinese banks and banks from other headquarters, such as Germany. An example of the last type would consist of any bank except Chinese.

	SDC	AidData
Facilities with only Chinese lenders	156	1,635
Facilities with Chinese and other lenders	3,559	136
Facilities with non-Chinese lenders	56,979	0

Table C5: Summary Statistics of Key Variables

Note: This table presents presents summary statistics organized by three levels of analysis over 2011-2022. Rows 2-3 show bank-level penalties in million USD and as a percentage of average capital obtained from Orbis. Rows 5-6 present bank-firm syndicated lending. Rows 8-11 show aggregate bank-country lending. Hand-collected penalty data exclude repealed and pending cases.

	Observations	Mean	Std. Dev.	Min	Max
Bank-Level Penalties					
Penalties (million USD)	7,085	36.3	415.4	0	15,336
Penalties (% of $\overline{Capital}$)	7,085	0.04	0.33	0	9.16
Bank-Firm Lending					
Loans (million USD)	115,060	164.2	314.7	0	21,300
Rate (%)	64,637	2.54	3.00	0	359
Bank-Country Aggregate Lending					
Loans (million USD)	41,948	507.1	1,809.3	0	46,225
Rate (%)	24,263	2.28	1.52	0	104

Table C6: Large Settlements as Treatment Events

Note: This table lists treatment events for the baseline specification (Equation (1)). The sample includes sanctions, AML/KYC, and bribery violations exceeding the median for regulated banks. Penalties are reported in million USD.

Bank	**Date**	**Penalty**
BNP Paribas	2014 Q2	8,973.6
Capital One	2021 Q1	290
Citibank	2015 Q3	140
Commerzbank	2015 Q1	1,454
Crédit Agricole	2015 Q4	870.6
Deutsche	2015 Q4	258
Goldman Sachs	2020 Q4	2,573.4
HSBC	2012 Q4	1,921
ING	2012 Q2	619
Intesa Sanpaolo	2016 Q4	235
J.P. Morgan	2014 Q1	2,050
Rabobank	2018 Q1	418.7
Standard Chartered	2012 Q3	340
Société Générale	2018 Q2	564.6
Unicredit	2019 Q2	1,367.7
U.S. Bank	2018 Q1	613

Table C7: Funding Effects of Enforcement

Note: This table reports estimates from Equation (1) while varying the treatment threshold and where the dependent variable is the 5-year CDS spread (in bps) of bank b in month t, obtained from Bloomberg. The treatment variable equals one if bank b experiences a lending-related U.S. settlement above the 10^{th} (Column 1), the 25^{th} (Column 2), the 50^{th} (Column 3), the 75^{th} (Column 4), and the 90^{th} percentile of the settlement amount distribution. Treatment date is shifted by one quarter to account for potential anticipation effects. γ_b and γ_t denote bank and month fixed effects, respectively. Observations are clustered at the bank level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	CDS Spread$_{bt}$				
Percentile:	10^{th}	25^{th}	50^{th}	75^{th}	90^{th}
	(1)	(2)	(3)	(4)	(5)
Coefficient	26.13***	26.61***	16.32**	21.01***	24.48***
	(8.77)	(8.75)	(7.19)	(7.68)	(7.49)
Pre_1	9.33	5.16	4.91	6.81	16.04
	(12.62)	(12.75)	(14.10)	(15.30)	(17.50)
Pre_2	16.28	13.76	5.66	9.29	11.41
	(11.57)	(12.64)	(15.64)	(8.28)	(8.96)
Pre_3	−7.27	−6.41	−14.20	−5.21	−5.51
	(12.41)	(14.00)	(16.36)	(11.14)	(16.36)
Pre_4	8.42	4.40	7.02	4.17	8.78
	(8.32)	(8.67)	(10.02)	(8.30)	(10.94)
Observations	2,604	2,604	2,604	2,604	2,604

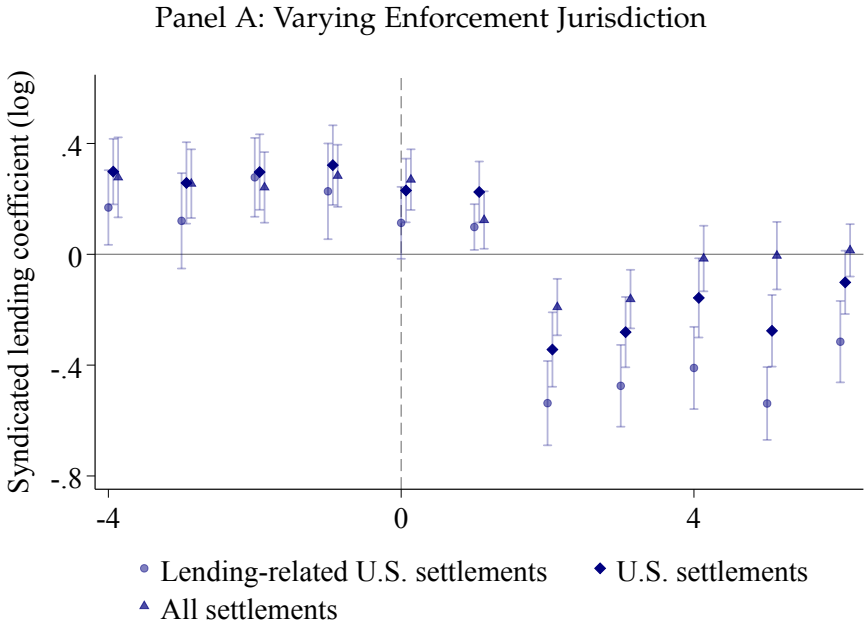
Table C8: U.S. Compliance Enforcement Shrinks Bank Activity

Note: This table presents the results of Equation (1), with each row representing a different specification. All dependent variables are logged unless otherwise noted. Pre_t for $t = [-4, -1]$ are pre-trend coefficients. I restrict the event window to $[-12; 12]$ quarters around settlement dates. Some specifications control for the 1-year lagged change in net margin. * corresponds to $p < 0.10$, ** corresponds to $p < 0.05$, and *** corresponds to $p < 0.01$. Observations are clustered at the bank level.

Variable	**Coefficient**	Pre_1	Pre_2	Pre_3	Pre_4	**Observations**
Cross-border syndicated credit	-0.20^{**}	-0.17	-0.02	-0.30^{*}	-0.26	882
	(0.10)	(0.21)	(0.10)	(0.16)	(0.18)	
Market capitalization	-0.10^{**}	0.05	0.05	0.04	0.01	3,429
	(0.04)	(0.04)	(0.05)	(0.02)	(0.03)	
Total assets	-0.06^{*}	-0.06^{*}	-0.03	-0.04	-0.04	2,856
	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	
Total debt	-0.12^{**}	-0.10	-0.09	-0.08	-0.07	2,858
	(0.06)	(0.12)	(0.10)	(0.12)	(0.10)	
Leverage ratio (%)	-0.08	-1.39	-1.29	-0.49	-0.35	3,369
	(0.42)	(1.30)	(1.17)	(1.10)	(1.01)	

Figure C6: U.S. Enforcement Drives Lending Contraction Across Bank Nationalities

Note: This figure presents event-study estimates of Equation (2) under alternative treatment definitions. Panel A examines the jurisdictional scope of enforcement by comparing the impact of lending-related U.S. settlements, any U.S. settlement, and any global regulatory settlement. Panel B compares the lending response of U.S. and non-U.S. banks to U.S. enforcement actions.



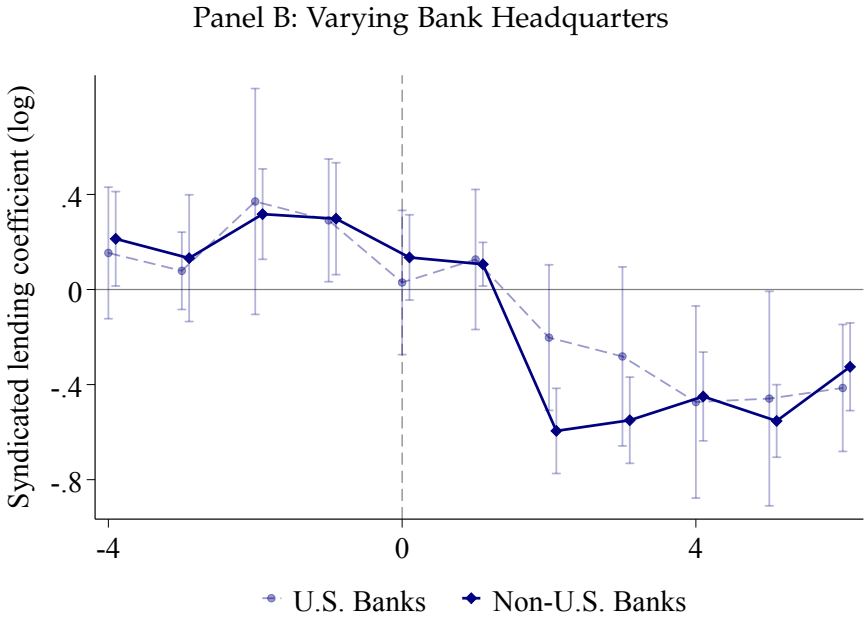


Figure C7: Lending Contraction Is Robust to Alternative Treatment Thresholds

Note: This figure presents the event study estimates of Equation (2) using different percentile cutoffs for treatment definition. Circles refer to the 10^{th} percentile. Diamonds refer to the 25^{th} percentile. Triangles refer to the 75^{th} percentile. Squares refer to the 90^{th} percentile. See Section 3 for more information.

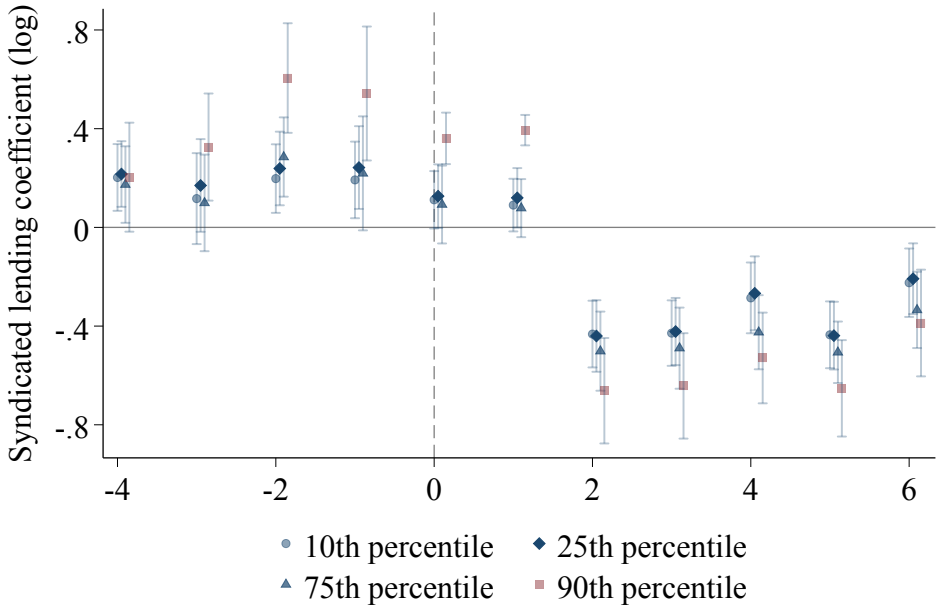


Figure C8: The Impact of Enforcement on Lending Excluding the Largest Settlements

Note: This figure presents the results of Equation (2) excluding the largest settlements (those with monetary penalties exceeding $1 billion). The outcome variable is logged syndicated lending from bank b to borrowers in country c at time t. The treatment event at the dashed line is the first time the bank entered an above-median and lending-related settlement with U.S. authorities. The horizontal axis plots the number of quarters around the treatment event. For more information, please refer to Section 3.

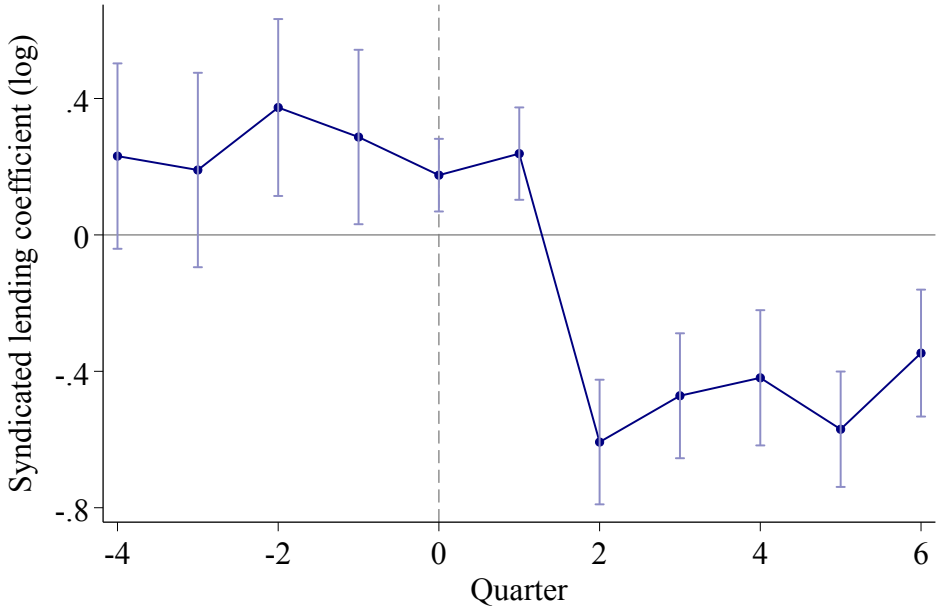
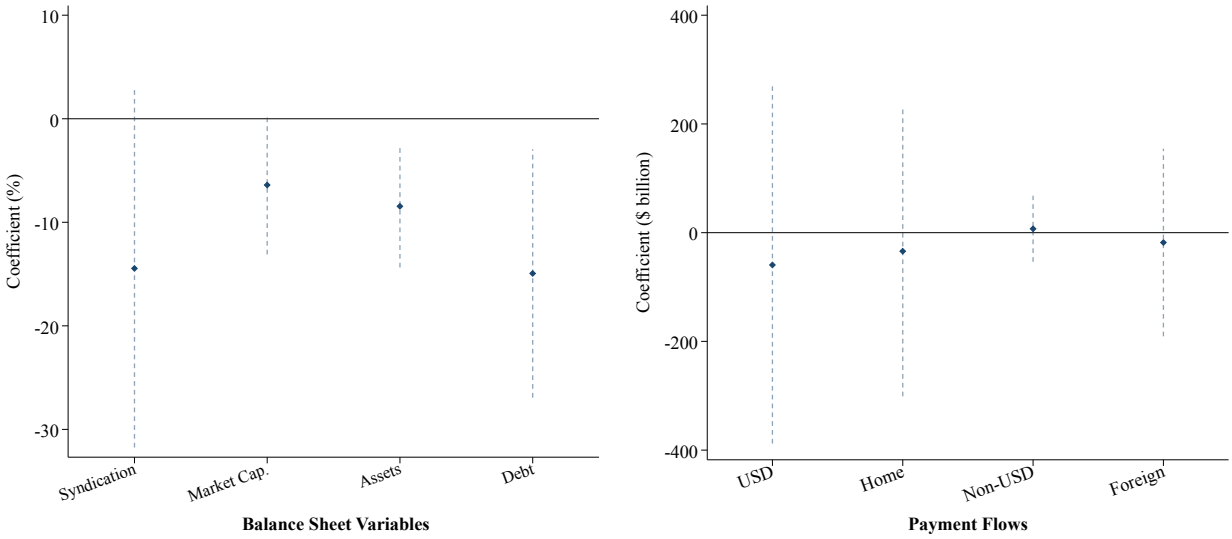


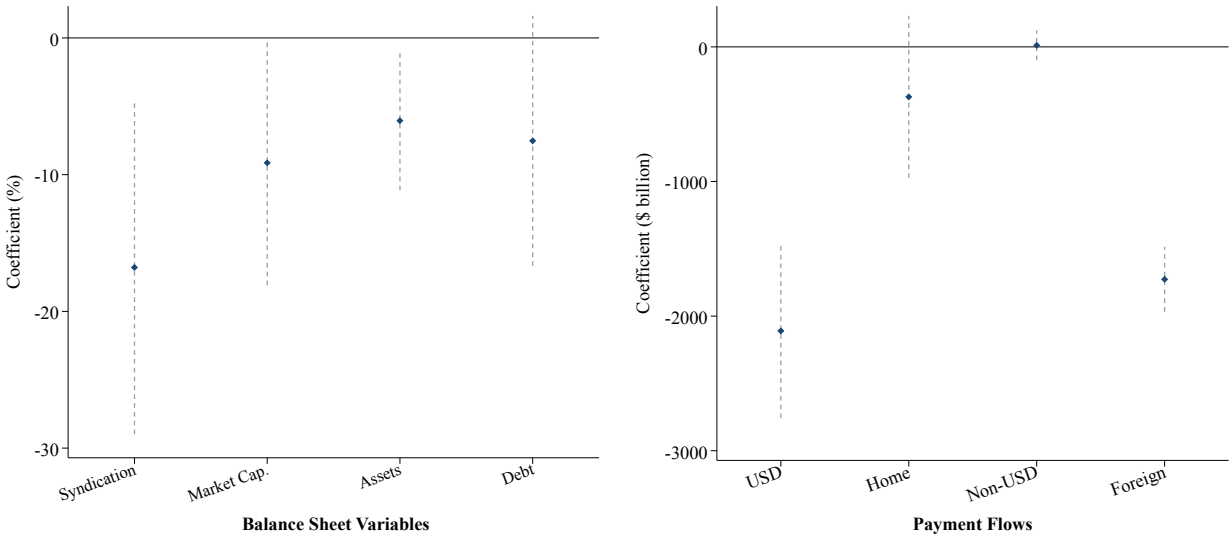
Figure C9: Impact of Compliance on Bank Activity Is Relatively Robust

Note: This figure presents robustness tests of the main outcomes of Table 1. Panel A reports results that use the 25^{th} percentile of monetary penalties, instead of the median, as treatment threshold. Panel B reports results that use the 75^{th} percentile of monetary penalties for treatment threshold. Panel C excludes the largest settlements (those with monetary penalties above $1 billion) from treatment. See Section 3 for more information.

Panel A: Treatment using the 25th percentile



Panel B: Treatment using the 75th percentile



Panel C: Treatment excluding the largest settlements

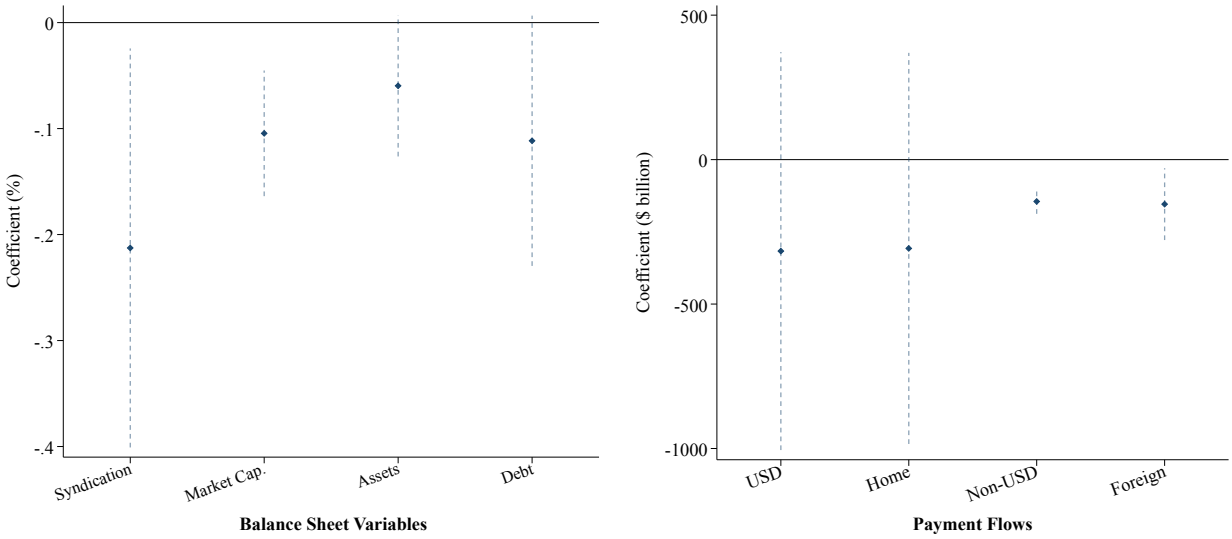


Table C9: Normalized Compliance Enforcement Also Shrinks Bank Activity

Note: This table presents robustness results after normalizing settlement size by lagged total assets to define treatment. All dependent variables are logged unless otherwise noted. Pre_t for $t = [-4, -1]$ are pre-trend coefficients. Event window is $[-12; 12]$ quarters around settlement dates. Δ Total, Δ USD, Δ Home, Δ Non-USD, and Δ Foreign capture the 1-year change in a bank's payment flows in aggregate, USD, home currency, non-USD, and non-home currencies, respectively, expressed in billion USD. * corresponds to $p < 0.10$, ** corresponds to $p < 0.05$, and *** corresponds to $p < 0.01$. Observations are clustered at the bank level.

Variable	**Coefficient**	Pre_1	Pre_2	Pre_3	Pre_4	**Observations**
Panel A: Balance-Sheet Effects						
Cross-border syndicated credit	-0.20^{**}	-0.17	-0.02	-0.30^{*}	-0.26	882
	(0.10)	(0.21)	(0.10)	(0.16)	(0.18)	
Market capitalization	-0.10^{**}	0.05	0.05	0.04	0.01	3,429
	(0.04)	(0.04)	(0.05)	(0.02)	(0.03)	
Total assets	-0.06^{*}	-0.06^{*}	-0.03	-0.04	-0.04	2,856
	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	
Leverage ratio (%)	-0.08	-1.39	-1.29	-0.49	-0.35	3,369
	(0.42)	(1.30)	(1.17)	(1.10)	(1.01)	
Total debt	-0.12^{**}	-0.10	-0.09	-0.08	-0.07	2,858
	(0.06)	(0.12)	(0.10)	(0.12)	(0.10)	
Panel B: Funding Effects and Operational Retrenchment						
Long-term debt	-0.25^{***}	-0.29^{***}	-0.08	-0.05	-0.08	2,857
	(0.06)	(0.09)	(0.10)	(0.06)	(0.06)	
Short-term debt	0.15^{**}	-0.12	-0.08	-0.02	0.23	3,364
	(0.07)	(0.41)	(0.37)	(0.35)	(0.30)	
Short-term wholesale debt	-0.21^{***}	-0.28^{***}	-0.29^{***}	-0.21^{**}	-0.16	517
	(0.05)	(0.08)	(0.09)	(0.10)	(0.10)	
Intra-financial liabilities	-0.42^{*}	-0.00	-0.00	-0.08	0.07	746
	(0.23)	(0.17)	(0.19)	(0.13)	(0.12)	
Δ Total payment flow ($)	-543.25	$-1,053.57$	$-1,252.84^{*}$	-319.63	-300.11	638
	(356.08)	(705.78)	(704.47)	(748.50)	(587.76)	
Δ USD payment flow ($)	-344.74	-893.98	$-1,212.34^{*}$	-379.86	-350.45	638
	(355.40)	(710.81)	(661.52)	(721.76)	(533.59)	
Δ Home payment flow ($)	-298.66	-453.58^{*}	-781.98^{*}	-890.32	-646.89^{*}	638
	(355.87)	(252.25)	(461.93)	(548.94)	(361.42)	
Δ Non-USD payment flow ($)	-198.51^{***}	-159.59	-40.50	60.23	50.34	638
	(17.30)	(127.67)	(115.37)	(63.55)	(79.74)	
Δ Foreign payment flow ($)	-244.59^{***}	-599.99	-470.86	570.69	346.79	638
	(47.91)	(545.02)	(455.04)	(525.66)	(356.12)	

Table C10: The Impact of Enforcement Is Specific to U.S. Lending-Related Shocks

Note: This table reports estimates from Equation (3), where the set of enforcement shocks includes any U.S. regulatory settlement (Panel A) or any settlement (Panel B). The treatment variable equals one if bank b experiences a settlement above the sample median in quarter t. Observations are clustered at the bank level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$			
	(1)	(2)	(3)	(4)
Panel A: Any U.S. Settlement				
Coefficient	-0.028^{***}	-0.000	-0.045^{***}	-0.001
	(0.008)	(0.005)	(0.009)	(0.003)
Pre_1	0.017	0.012	0.044	0.005
	(0.027)	(0.026)	(0.031)	(0.012)
Pre_2	0.012	0.032	0.035	0.011
	(0.025)	(0.023)	(0.024)	(0.015)
Pre_3	0.013	0.026	0.007	-0.001
	(0.025)	(0.018)	(0.032)	(0.008)
Pre_4	0.040^{*}	0.042^{**}	0.006	0.016^{*}
	(0.022)	(0.016)	(0.023)	(0.009)
Observations	55,493	55,254	55,423	54,099
Panel B: Any Settlement				
Coefficient	-0.018^{**}	0.008	-0.016^{**}	0.002
	(0.008)	(0.005)	(0.007)	(0.002)
Pre_1	0.033	0.025	0.059^{**}	0.002
	(0.030)	(0.026)	(0.024)	(0.013)
Pre_2	0.008	0.044^{**}	0.004	0.009
	(0.024)	(0.020)	(0.021)	(0.015)
Pre_3	0.017	0.038^{**}	0.003	0.007
	(0.026)	(0.019)	(0.027)	(0.011)
Pre_4	0.024	0.019	-0.003	0.018
	(0.028)	(0.023)	(0.027)	(0.015)
Observations	47,641	47,254	47,509	45,701
Fixed Effects:				
Bank	✓	✓	✓	✓
Quarter	✓	✓	✓	✓
Country×Industry		✓		
Country×Quarter			✓	
Country×Borrower×Year				✓

Table C11: No Impact of Enforcement Shocks on Lending to U.S. Borrowers

Note: This table reports estimates from Equation (3) for the sample of U.S. borrowers. The event window consists of $[-4;4]$ quarters around settlement dates. Column (1) includes bank and quarter fixed effects. Column (2) adds country-industry fixed effects. Column (3) adds country-quarter fixed effects to absorb all time-varying country-level demand shocks. Column (4) adds country-borrower-year fixed effects to control for firm-year demand shocks. Observations are clustered at the bank level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$			
	(1)	(2)	(3)	(4)
Coefficient	-0.018	-0.016	-0.018	0.002
	(0.015)	(0.013)	(0.015)	(0.002)
Pre_1	-0.009	-0.009	-0.009	-0.019^{*}
	(0.039)	(0.033)	(0.039)	(0.010)
Pre_2	-0.067^{*}	-0.052	-0.067^{*}	0.004
	(0.035)	(0.033)	(0.035)	(0.013)
Pre_3	-0.054	-0.057^{*}	-0.054	-0.001
	(0.039)	(0.034)	(0.039)	(0.016)
Pre_4	0.012	-0.001	0.012	0.009
	(0.032)	(0.028)	(0.032)	(0.024)
Observations	99,549	99,544	99,549	98,751
Fixed Effects:				
Bank	✓	✓	✓	✓
Quarter	✓	✓	✓	✓
Country×Industry		✓		
Country×Quarter			✓	
Country×Borrower×Year				✓

Table C12: The Lending Impact of Enforcement Shocks Differs by Region

Note: This table reports estimates from Equation (3). The treatment variable equals one if bank b experiences a settlement above the sample median in quarter t. Estimation coefficients for $t = \{-4, -3\}$ are omitted for brevity. Observations are clustered at the bank level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$			
	(1)	(2)	(3)	(4)
Panel A: Western Europe				
Coefficient	-0.036^{***}	-0.007	-0.045^{***}	-0.011^{***}
	(0.008)	(0.006)	(0.009)	(0.002)
Pre_1	-0.002	-0.002	-0.031	0.014
	(0.044)	(0.039)	(0.039)	(0.020)
Pre_2	-0.028	0.002	-0.010	0.012
	(0.039)	(0.034)	(0.037)	(0.015)
Observations	39,050	38,996	39,045	38,651
Panel B: Africa and the Middle East				
Coefficient	0.014	-0.014	0.061^{***}	-0.009
	(0.033)	(0.023)	(0.022)	(0.009)
Pre_1	-0.241	-0.047	-0.181^{*}	-0.013
	(0.174)	(0.043)	(0.094)	(0.034)
Pre_2	-0.055	-0.026	-0.055	-0.052
	(0.092)	(0.076)	(0.092)	(0.035)
Observations	3,895	3,886	3,887	3,860
Panel C: Excluding Russia				
Coefficient	-0.020^{**}	-0.012^{**}	-0.031^{***}	-0.006^{***}
	(0.008)	(0.005)	(0.008)	(0.002)
Pre_1	-0.026	-0.024	-0.020	-0.005
	(0.029)	(0.026)	(0.033)	(0.016)
Pre_2	-0.026	-0.015	-0.018	0.020
	(0.026)	(0.022)	(0.024)	(0.012)
Observations	71,501	71,397	71,464	70,761
Fixed Effects:				
Bank	✓	✓	✓	✓
Quarter	✓	✓	✓	✓
Country×Industry		✓		
Country×Quarter			✓	
Country×Borrower×Year				✓

Table C13: Substantial Spillovers and Substitution Effects by Geography

Note: This table reports estimates from Equation (4) for different geographical regions regions. The Bartik instrument is standardized to have mean zero and unit standard deviation. All specifications include quarter, bank-borrower, country-industry, country-quarter, and country-borrower-year fixed effects. Observations are clustered at the bank-borrower level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$				
	(1)	(2)	(3)	(4)	(5)
Panel A: Western Europe					
Settlement Exposure	−0.130***	−0.124***	−0.138***	−0.128***	−0.114***
	(0.030)	(0.031)	(0.032)	(0.031)	(0.030)
Penalized × Settlement Exposure	0.004				
	(0.010)				
Interaction Effects (Non-Penalized Banks)					
U.S. Bank × Settlement Exposure		−0.017***			−0.027
		(0.007)			(0.019)
Western Bank × Settlement Exposure			0.013**		−0.011
			(0.006)		(0.017)
Chinese Bank × Settlement Exposure				0.020	0.006
				(0.014)	(0.022)
Observations	32,480	30,950	30,950	30,950	30,950
R^2	0.95	0.95	0.95	0.95	0.95
Panel B: Africa and the Middle East					
Settlement Exposure	−0.084	−0.083	−0.095	−0.085	−0.156**
	(0.057)	(0.058)	(0.058)	(0.057)	(0.076)
Penalized × Settlement Exposure	0.080				
	(0.057)				
Interaction Effects (Non-Penalized Banks)					
U.S. Bank × Settlement Exposure		−0.005			0.092*
		(0.011)			(0.054)
Western Bank × Settlement Exposure			0.016		0.097*
			(0.016)		(0.054)
Chinese Bank ×Settlement Exposure				0.041	0.130**
				(0.037)	(0.066)
Observations	2,588	2,444	2,444	2,444	2,444
R^2	0.97	0.98	0.98	0.98	0.98
Panel C: Excluding Russia					
Settlement Exposure	−0.093***	−0.087***	−0.094***	−0.091 ∗ ∗∗	−0.090***
	(0.025)	(0.025)	(0.026)	(0.025)	(0.022)
Penalized × Settlement Exposure	−0.006				
	(0.009)				
Interaction Effects (Non-Penalized Banks)					
U.S. Bank × Settlement Exposure		−0.013**			−0.011
		(0.006)			(0.014)
Western Bank × Settlement Exposure			0.005		0.002
			(0.006)		(0.013)
Chinese Bank × Settlement Exposure				0.040**	0.040**
				(0.017)	(0.018)
Observations	53,100	50,664	50,664	50,664	50,664
R^2	0.95	0.95	0.95	0.95	0.95

Table C14: U.S. Enforcement Drives Substitution Differentially Across Regions

Note: This table reports estimates from Equation (4). The Bartik instrument is standardized. Observations are clustered at the bank-borrower level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	$\log \text{Lending}_{fbt}$		
Sample:	All	Repeat relations	New relations
	(1)	(2)	(3)
Panel A: Western Europe			
Settlement Exposure	-0.128^{***}	-0.150^{***}	-0.203^{**}
	(0.031)	(0.039)	(0.080)
Chinese Bank × Settlement Exposure	0.020	0.043^{**}	0.015^{*}
	(0.014)	(0.019)	(0.009)
Observations	30,950	16,050	25,598
R^2	0.95	0.95	0.96
Panel B: Excluding Russia			
Settlement Exposure	-0.091^{***}	-0.120^{***}	-0.178^{***}
	(0.025)	(0.034)	(0.061)
Chinese Bank × Settlement Exposure	0.040^{**}	0.078^{***}	0.004
	(0.017)	(0.029)	(0.008)
Observations	50,664	25,460	47,963
R^2	0.95	0.95	0.96
Fixed Effects:			
Quarter	✓	✓	✓
Bank×Borrower	✓	✓	
Country×Industry	✓	✓	✓
Country×Quarter	✓	✓	✓
Country×Borrower×Year	✓	✓	✓

Table C15: Settlements Shift Borrower-Level Funding Premia (First Stage)

Note: This table presents the first-stage results of Equation (11), in which the independent variable is the standardized borrower *CDS Exposure*: $\sum_b \text{Share}_{fb,t-1} \cdot \text{CDS}_{bt}$. The instrument is the standardized *Settlement Exposure*: $\sum_b \text{Share}_{fb,t-1} \cdot \mathbb{1}\{\text{Settlement}_{bt} > P50\}$. All specifications include borrower and quarter fixed effects and country×industry×quarter fixed effects. Stan dard errors clustered at the borrower level.

Sample:	All loans	USD loans	Non-USD loans
Settlement Exposure	0.341^{***}	0.257^{***}	0.334^{***}
	(0.045)	(0.050)	(0.079)
Observations	2,533	621	1,159
R^2	0.72	0.73	0.76
Fixed Effects:			
Borrower	✓	✓	✓
Country×Industry×Quarter	✓	✓	✓

D Model Proofs

D.1 Proof of Proposition 1

Proof. Given the linear structure of the flow payoff and the law of motion with respect to the state variable S, we conjecture that the value function is linear in S:

$$V(S) = A \cdot S,$$

where A is a constant to be determined. If this guess is correct, then the marginal value of jurisdictional reach is constant:

$$V'(S) = A.$$

Substituting this into the HJB and simplifying:

$$\beta A = \sup_{c \geq 0} \{u(c) - h(c)A\}.$$

So the interior optimum for c must satisfy:

$$0 = u'(c) - h'(c)A \implies A = \frac{u'(c)}{h'(c)}.$$

To verify the guess, substitute $V'(S) = A$ back into the HJB equation:

$$\beta A = u(c) - h(c)A.$$

Solving for A, we get:

$$A(\beta + h(c)) = u(c) \implies A = \frac{u(c)}{\beta + h(c)}.$$

We therefore have two equations in two unknowns (A and c^*):

$$A = \frac{u'(c)}{h'(c)}, \qquad A = \frac{u(c)}{\beta + h(c)}.$$

Equating them and substituting yields the characteristic equation:

$$\frac{\theta c^{\theta-1}}{h'(c)} = \frac{c^\theta}{\beta + h(c)}, \tag{14}$$

which simplifies to

$$c^* = \theta \frac{\beta + h(c^*)}{h'(c^*)}. \tag{15}$$

Existence. Define

$$\varphi(c) \equiv \frac{c\,h'(c)}{\beta + h(c)}.$$

The characteristic equation is equivalent to $\varphi(c^*) = \theta$. By assumption, $\lim_{c\to 0} \varphi(c) = 0 < \theta$ and $\lim_{c\to\infty} \varphi(c) > \theta$. Since h is continuously differentiable, φ is continuous on $(0, \infty)$. By the intermediate value theorem, there exists at least one $c^* \in (0, \infty)$ satisfying $\varphi(c^*) = \theta$.

*Second-order condition.*The reduced HJB objective is $\Psi(c) = c^\theta - h(c)A$, with

$$\Psi''(c) = \theta(\theta - 1)c^{\theta-2} - h''(c)A.$$

Since $\theta \in (0, 1)$, the first term is strictly negative. The second term is non-positive since $h'' \geq 0$ and $A > 0$. Hence $\Psi''(c^*) < 0$ and the first-order condition characterizes a strict maximum.

Transversality. For the value function to be well-defined, we verify:

$$\lim_{t\to\infty} e^{-\beta t} V(S_t) = 0.$$

Since $S_t = S_0 e^{-h(c^*)t}$:

$$\lim_{t\to\infty} A S_0 e^{-(\beta + h(c^*))t} = 0,$$

which holds since $\beta + h(c^*) > 0$.

The equilibrium is therefore characterized by the time-invariant enforcement level c^*, and the value function is $V(S) = AS$ with

$$A = \frac{(c^*)^\theta}{\beta + h(c^*)}.$$

□

D.2 Proof of Proposition 2

Proof. Under constant enforcement $c_t = c$, Equation (9) implies that the regulator's discounted compliance influence is:

$$\mathcal{I}(c) = \int_0^\infty e^{-\beta t} u(c) S_t dt = \int_0^\infty e^{-(\beta + h(c)t} c^\theta S_0 dt = S_0 \frac{c^\theta}{\beta + h(c)}.$$

Define the elasticity of jurisdictional erosion with respect to enforcement as

$$\varepsilon_h(c) \equiv \frac{c h'(c)}{\beta + h(c)}.$$

Differentiate $\mathcal{I}(c)$ to obtain:

$$\begin{aligned}\mathcal{I}'(c) &= S_0 \left(\frac{\theta c^{\theta-1}}{\beta + h(c)} - \frac{c^\theta h'(c)}{(\beta + h(c))^2} \right) \\ &= S_0 \frac{c^{\theta-1}}{\beta + h(c)} \left(\theta - \frac{c h'(c)}{\beta + h(c)} \right) \\ &= S_0 \frac{c^{\theta-1}}{\beta + h(c)} \big(\theta - \varepsilon_h(c) \big).\end{aligned}$$

Therefore,

$$\mathcal{I}'(c) > 0 \iff \theta > \varepsilon(c), \qquad \mathcal{I}'(c) < 0 \iff \theta < \varepsilon(c).$$

Any interior maximizer c^* satisfies $\mathcal{I}'(c^*) = 0$, hence $\varepsilon_h(c^*) = \theta$. Substituting the definition of ε_h and rearranging further recovers the characteristic equation of Proposition 1.

Lastly, if ε_h is strictly increasing, the equation $\varepsilon_h(c) = \theta$ has at most one solution. Combined with the fact that $\mathcal{I}'(c) \gtrless 0 \iff \varepsilon(c) \lessgtr \theta$, we conclude that $\mathcal{I}$ is strictly increasing for $c < c^*$ and strictly decreasing for $c > c^*$, so c^* is the unique global maximizer of $\mathcal{I}$.

□

D.3 Proof of Proposition 3

Proof. Recall that the switching threshold is $\kappa_d^*(c) = \Phi(c) - \ell$ and the switching hazard is $h(c) = \eta G(\Phi(c) - \ell)$, where G has support $[\underline{\kappa}, \bar{\kappa}]$ with $\underline{\kappa} > 0$.

Since $G(\kappa) = 0$ for all $\kappa \leq \underline{\kappa}$, we have $h_d(c) = 0$ if and only if $\kappa_d^*(c) \leq \underline{\kappa}$, i.e., if and only if

$$\Phi(c) - \ell \leq \underline{\kappa}.$$

Evaluated at the optimal enforcement level c^*, this condition becomes

$$\ell \geq \Phi(c^*) - \underline{\kappa}.$$

Define

$$\bar{\ell} \equiv \Phi(c^*) - \underline{\kappa}.$$

Since $\Phi(c^*) > 0$ and $\underline{\kappa} > 0$, the sign of $\bar{\ell}$ depends on their relative magnitudes, but $\bar{\ell}$ is well-defined for any $c^* > 0$.

Case 1: $\ell \geq \bar{\ell}$. Then $\Phi(c^*) - \ell \leq \underline{\kappa}$, so $\kappa_d^*(c^*) \leq \underline{\kappa}$. Since G has support bounded below by $\underline{\kappa}$, no borrower finds it optimal to switch at enforcement level c^*, and $h_d(c^*) = \eta G(\kappa_d^*(c^*)) = 0$. Jurisdictional reach satisfies $dS_t = 0$, so $S_t = S_0$ for all t: enforcement has no effect on the regulator's bloc.

Case 2: $\ell < \bar{\ell}$. Then $\Phi(c^*) - \ell > \underline{\kappa}$, so $\kappa_d^*(c^*) > \underline{\kappa}$. Since G is strictly positive on the interior of its support and $g > 0$ on $(\underline{\kappa}, \bar{\kappa})$, we have $h_d(c^*) = \eta G(\kappa_d^*(c^*)) > 0$. Enforcement therefore strictly erodes jurisdictional reach at rate $h_d(c^*) > 0$.

□