United States Financial Sanctions and the Surge of Chinese Lending *

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Abstract

This paper argues that U.S. financial sanctions between 1990 and 2023 facilitated a surge in Chinese lending in the global syndicated loan market. Using detailed firm- and deal-level data, we find that U.S. financial sanctions led to a reduction in the supply of U.S. and G7-origin syndicated loans to firms in sanctioned countries that was partially offset with a greater supply of Chinese-origin syndicated loans. Borrowers in sanctioned countries that turned to Chinese lenders became less transparent, as measured by a reduction in disclosures and increased delistings or mergers. Compared to U.S.-origin contracts, Chinese-origin loans featured shorter maturities, more covenants, and higher refinancing rates, granting lenders stronger control rights. These contractual differences were associated with lower firm-level productivity and slower sales growth.

Keywords: financial sanctions, syndicated loans, cross-border lending, opaqueness

JEL Classification: F51, G15, G20

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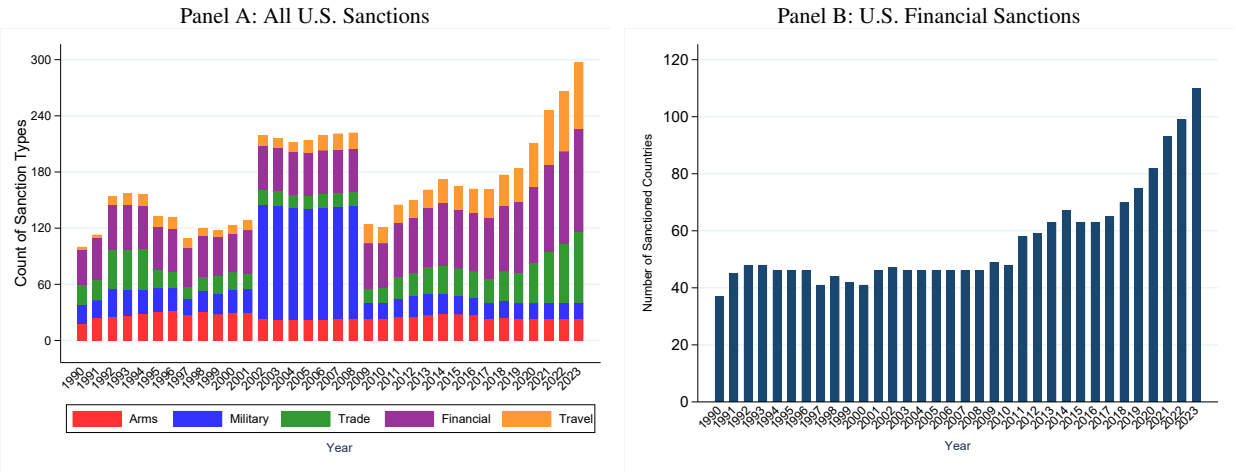
1 Introduction

Several influential studies have documented that the Chinese government and its state owned banks are challenging the United States in global financial markets (Gelpern et al., 2023), particularly to low-income and emerging economies (Horn et al., 2021). There is also evidence that China is competing with the United States (the U.S.) in the rapidly growing syndicated loan market that, by some estimates, made deals worth roughly four trillion U.S. dollars in 2020. The market share of U.S. banks holding lead positions in syndicated loans was 64% during 1990-2001 and fell to 45% during 2016-2023. During the same period, the market share of lead loans issued from banks in mainland China and from China's affiliated banks in Hong Kong, Taiwan and Macau, increased from 2.6% in 1990-2001 to 7.4% by 2016-2023.

Meanwhile, the U.S. government has sanctioned "bad actor" countries for reasons including their military aggression, their participation in international drug cartels, their trading in weapons of mass destruction, etc. Figure 1 Panel A shows that the scope of U.S. sanctions—covering trade, finance, arms, military cooperation, and travel- expanded steadily over time, with financial sanctions becoming the dominant tool after 2011. Panel B further indicates that the number of countries subject to U.S. financial sanctions rose from about 40 in 1990 to nearly 60 in 2001 and exceeded 110 by 2011.

The imposition of U.S. financial sanctions can reduce the supply of external finance from U.S.-origin and other G7-origin syndicated lenders for companies in sanctioned countries for three reasons. First, financial firms under jurisdiction of the U.S. government can only legally make loans to companies in sanctioned countries if they can secure a license from the U.S. government. In general, these licenses are available to a subset of firms within sanctioned countries that are unrelated to military and heavy industry, such as suppliers of medical or food goods. These licenses also contain restrictions, for example, that loans can only be used for winding down the U.S. bank's involvement. Second, the U.S. government coordinates financial sanctions with its G7 allies. Third, a contraction in the supply of U.S. and G7 loans can create an opportunity for alternative sources of finance. For example, Efing et al. (2023) document that after the U.S. and G7 imposed financial

Figure 1 U.S. SANCTIONS, 1990-2023



NOTE. Panels A and B in Figure 1 plot the number of U.S. sanctions during 1990-2023 from the Global Sanction Database (GSDB) (Yalcin et al., 2025). Panel A presents the distribution of five sanction types including trade, arms, military and travel sanctions. Panel B shows Efing et al. (2023) documentU.S. financial sanctions. The countries subject to U.S. financial sanctions and the timing of these sanctions is contained in Appendix Table A3.

sanctions on Russia in 2014 German banks reduced loans to Russian firms by 38% while their branches located in countries with less stringent financial regulation made up for part of this credit contraction.

Figure 2 suggests that U.S. financial sanctions created an opportunity for Chinese-origin syndicated lenders to expand their operations in sanctioned countries. The horizontal axis in each panel portrays the duration of U.S. financial sanctions for a country. The vertical axes in Panels A and B show the corresponding annual syndicated loan deals originating from U.S. and Chinese lenders.[1] In Panel A the number of syndicated loan deals originating from the U.S. is negatively correlated with the duration of financial sanctions.[2] In Panel B, deals originating from China are significantly positively correlated.[3] This suggests that U.S.-origin syndicated lenders retreated while Chinese-origin syndicated lenders expanded in countries that the U.S. government had financially sanctioned.

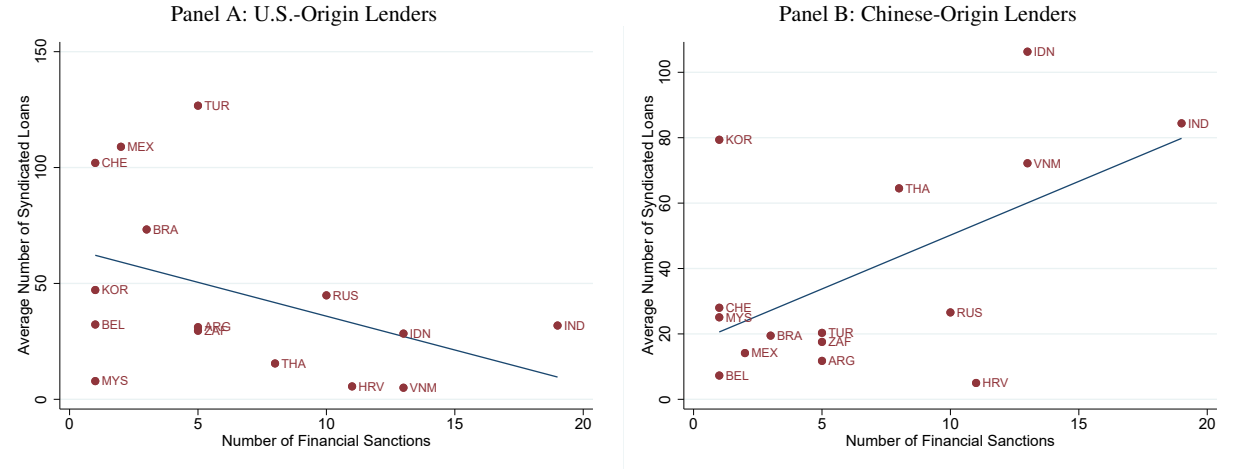
According to Figure 2, we find that after a country was financially sanctioned by the U.S., on

[1]The sample includes only borrower countries that received a substantial and sustained volume of lending, defined as an average of at least five syndicated loan deals per year from Chinese lenders over the sample period. We drop outliers including Singapore (SGP), the Philippines (PHL), Colombia (COL), Nigeria (NGA), and Bulgaria (BGR).

[2]The correlation is ρ = -0.42 with p-value = 0.12

[3]The correlation is ρ = 0.56 with p-value = 0.03.

Figure 2 AVERAGE ANNUAL SYNDICATED LOAN DEALS AND THE DURATION OF U.S. FINANCIAL SANCTIONS, 1990-2023



NOTE. Panels A (B) illustrate the correlation between the annual average number U.S. (Chinese) syndicated loan deals to firms in sanctioned countries and the duration, in years, of these sanctions. Chinese lenders include Mainland China, Hong Kong, Macau and Taiwan, China. We take the average number of loans and the number of U.S. financial sanctions from 1990 to 2023. The detailed lists for financially sanctioned countries can be found in Appendix Table A3.

average its volume and price of syndicated loans originating from the U.S. and G7 fell by 33% and increased by 6.7 basis points. Importantly, Chinese-origin syndicated lenders filled the credit "hole" and provided 15.1% more loans that were 2.6 basis points lower. These findings are consistent with a leftward-shift in the supply of syndicated loans to sanctioned countries originating from U.S. and G7 countries and a rightward-shift of the supply from China. While syndicated lenders operating in Mainland China contributed to this surge, the strongest increase in loan volume and the steepest cut in loan prices came from commercial banks in Hong Kong such as The Hongkong and Shanghai Banking Corporation (HSBC) and from branches of the Bank of China operating in Hong Kong.

As documented by Gelpern et al. (2023) and Horn et al. (2021), loans from Chinese state banks and from the Chinese government use non-transparent contracts that take more control rights from their borrowers: these contracts have shorter maturities and they are more likely to include covenants that enable the lenders to use net proceeds from non-ordinary asset sales to pay down outstanding debt. Consistent with this view, in our study companies de-listed, and thus made information about their operations less accessible to the public, when sanctions were imposed and

these companies obtained more syndicated loans from Chinese lead lenders.

Importantly, we find evidence that lending from transparent U.S. deals to more opaque Chinese lenders in sanctioned countries has significant real effects. Firms receiving Chinese loans experience: (1) a 7% decrease in total factor productivity (TFP), suggesting potential efficiency loss under Chinese lending; (2) a 11.5% decline in sales growth indicates that lending from China does not appear to effectively translate into enhanced market expansion or revenue generation capabilities for firms; (3) a 10% decrease in investment shows greater relative reliance on Chinese financing is associated with a significant reduction in investment in long-term productive assets. These effects collectively demonstrate how lender opacity and state influence reshape firm behavior beyond pure sanction evasion—altering investment efficiency, risk allocation, and capital discipline in sanctioned economies.

Related Literature

This paper contributes to several lines of research. First, the rapidly growing literature on sanctions has focused on the impact of trade restrictions (e.g., De Souza et al. (2024)). However, following the global financial crisis in 2008, financial sanctions have become the U.S. government's most important sanction tool. Cipriani et al. (2023) provide an overview of how financial sanctions enacted by North American and European countries can deny sanctioned countries access to international payment systems. Efing et al. (2023) show that financial sanctions restricting the activities of German banks had unintended consequences: while their domestic banks cut lending to sanctioned firms by 38%, lax enforcement enabled their overseas branches to fill the credit hole. Our paper studies the unintended consequences of U.S. financial sanctions including the rise of Chinese banks and the decline of transparency and firms' productivity in sanctioned countries.

Our paper is related to several studies of China's growing economic influence. Horn et al. (2020, 2021) analyze China's government overseas lending, Cerutti et al. (2023) study Chinese private banks and Morck et al. (2008) study China's outward foreign direct investment (OFDI). Ma et al. (2025) study the growing importance of Chinese households that buy U.S. stocks.

Our findings relate to studies of how syndicated lending responds to global shocks. Berg et al. (2021) examine the 24% decline in loan issuances in the UK syndicated loan market after the Brexit. Gustafson et al. (2021) highlights the monitoring role of lenders in the global syndicated loan market. Giannetti and Jang (2025) suggests that foreign lenders tend to expand credit more aggressively than domestic lenders during lending booms, which can contribute to banking crises. Giannetti and Laeven (2012) also finds that global lenders tend to lend more domestically during financial crisis. Our paper shows how U.S. financial sanctions is strongly associated with the reallocation of syndicated loan reallocation from the west to the east.

Finally, our work builds on studies of creditor-induced opacity and corporate control decisions. LaPorta et al. (1998) finds that when minority-investor protections are weak, controlling shareholders have incentives to entrench themselves and reap personal benefits. In the case of bank systems, Levine (2002) finds that relationship-lenders hoard information to extract rents. Our findings suggest that Chinese banks now superimpose both frictions: they extend covenant-heavy loans to sanctioned firms, eroding their legal shields while locking them into exclusive bank relationships. This can grant the Chinese banks de facto control of cash flows and asset sales and leaves insiders with little litigation risk if they delist or merge. In fact, the resulting wave of delistings and M&A transactions of firms with domiciles in sanctioned countries that we document is an equilibrium outcome in the LaPorta et al. (1998) legal-opportunism channel and the Levine (2002) information-monopoly channel.

The paper is organized as follows. Section 2 outlines the theoretical background and testable hypotheses. Section 3 describes the data, construction of variables, and empirical methodology. Section 4 reports our main results. Section 5 presents a variety of robustness tests. Section 6 concludes the paper.

2 Institutional Background and Hypothesis Development

This section contains provides an overview of relevant institutional facts and then develops several testable hypotheses.Further details are available in the online Appendix.

2.1 Institutional Background

Sanctions have become the primary tool of post-Cold War economic statecraft. The Global Sanctions Database (GSDB) Version 4 (Yalcin et al., 2025) represents a significant methodological advance by offering: (1) comprehensive multilateral coverage (1950-2023) including UN, EU, and bilateral sender-target relationships; (2) differentiation between implemented sanctions and threatened measures; (3) six categorized sanction types (arms, military, trade, financial, travel, other) with intensity indicator (comprehensive versus partial); (4) automated text analysis of United Nations resolutions, WTO dispute-settlement reports, and national government documents with manual validation. Compared with the Office of Foreign Assets Control(OFAC), [4] these advantages make GSDB particularly well-suited for international study with unified measure for the financial sanctions.

Several shifts in international financial institutions have strengthened U.S. market power in global financial markets. Several of the changes have enabled the U.S. to reduce the supply of loans to countries that it has financially sanctioned. These changes include (1) the financialization of trade through derivative instruments and capital markets, increasing systemic sanction vulnerability; (2) dollar hegemony in payment systems, enabling economic exclusion; and (3) Western institutional control over financial infrastructure (SWIFT, clearing systems), formalizing asymmetric power structures. Finally, while the U.S. is the largest supplier of syndicated loans, it coordinates sanctions with its EU and G7 that also supply syndicated loans.

As a capital-abundant country with massive household savings—yet maintaining strict capital

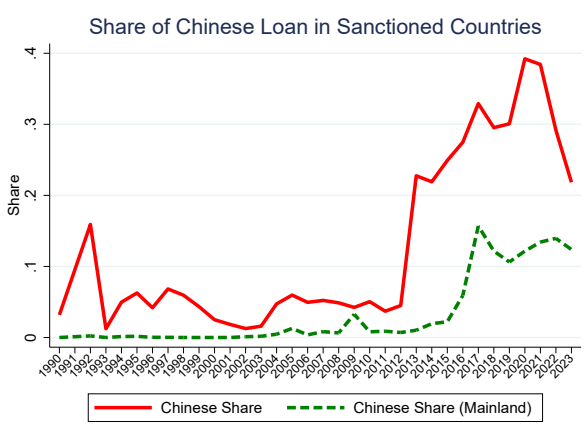
[4] OFAC concentrates almost exclusively on financial sanctions such as asset freezes and transaction bans, and they are organized around the static attributes of listed individuals, entities, or vessels rather than around dynamic, dyadic relationships. OFAC relies on administrative notices and legal texts that are updated irregularly and without external cross-checking. They focus on sanctions the United States has formally imposed.

Figure 3 THE FOOTPRINT OF PRIVATE CHINESE OVERSEA SYNDICATED LOAN COMPARED WITH U.S.

Panel A: Share of Chinese(U.S.) Loans in All Countries



Panel B: Share of Chinese(U.S.) Loan in Sanctioned Countries



NOTE. Panel A shows average share of syndicated loans from Chinese lenders and U.S. lenders to all countries from year 1990 to 2023. Panel B shows the average share of syndicated loans provided by all Chinese lenders (including those from Mainland China, Hong Kong, Taiwan, and Macao) versus those from Mainland China alone to sanctioned countries worldwide from 1990 to 2023. The detailed lists for financial sanctioned countries in can be found in Appendix Table A3.

controls—China has both the financial capacity and institutional mechanisms to offer alternatives to Western-dominated financing. Its policy banks (e.g., China Development Bank) and state-owned commercial banks operate under a dual mandate that blends geopolitical objectives with commercial interests, enabling them to extend credit to high-risk jurisdictions that Western institutions avoid.

Why are Chinese lenders willing to provide credit to overseas markets? The tendency for Chinese banks to expand abroad ("Go Abroad" policy), which was formally launched in 1999 and accelerated in the 2000s, further amplifies this dynamic. Figure 3, Panels A and B, trace the growth of China's overseas syndicated loans post-2000, revealing a strategic pivot amid domestic financial stress. Following the 2008 global financial crisis, China faced successive shocks—the 2015 stock and currency market turmoil, the pandemic, and a housing crisis—which dampened returns in its real economy. In response, state-backed lenders expanded abroad, particularly in sanctioned markets. Though China's global syndicated loan share remains modest, its presence in sanctioned economies grew consistently during turbulent years. For example, in 2012, amid domestic volatility, its share in sanctioned markets rose to 4.5% up from 22.8% in 2013. Similar

resilience appeared in 2017 (32.9%) and 2020 (39.2%).

This expansion underscores a deliberate shift toward geopolitically contested regions where Western lenders retreated. While China's global loan share fluctuated modestly (almost nothing from 1.6% in 1990 to 8.8% in 2023), its strategic focus on sanctioned economies intensified, especially during domestic downturns. The trend reflects both a diversification from softer home-market returns and a bid to solidify influence in spaces vacated by traditional actors like the U.S., which saw its share stabilize at 35% in recent decades.

2.2 Hypothesis Development

When a country becomes subject to U.S. financial sanctions, it is compelled to reassess external financial ties and explore alternative economic channels. This includes strengthening partnerships with non-Western actors and investing in domestic financial resilience. Strict compliance by U.S. banks triggers a cascading effect, reducing credit availability to sanctioned states and prompting them to diversify financial alliances (Mamonov et al. (2023)). The resulting hypothesis is that U.S. sanctions lead to a decline in credit supply from U.S. banks and a corresponding increase in reliance on alternative financial systems. This shift may also foster regional cooperation among sanctioned states as they seek to mitigate financial isolation.

As the world's second-largest economy, China has increasingly sought to develop external alternatives to the Western-dominated financial system. Key initiatives include the Belt and Road Initiative (BRI), which facilitates infrastructure investment and trade connectivity across partners, and a growing network of bilateral currency swap agreements to promote the use of the renminbi (RMB) in cross-border transactions. These efforts align with China's strategic goal of reducing dependence on U.S.-centric financial infrastructure while bolstering its monetary autonomy.

Moreover, China's high domestic savings rate—approximately 40% in 2023 [5]—provides a substantial and stable funding base for its banking system. This enables Chinese banks to raise capital at relatively low cost within domestic markets, supporting potential outward financial expansion

[5]Details can be found here at World Bank. https://data.worldbank.org/indicator/NY.GNS.ICTR.ZS

when the return in domestic markets is limited. State-oriented financial institutions together with capital abundant domestic capital, positions China to offer alternative financing to countries excluded from Western financial systems, bolstering its role in the global financial market.

Therefore, it is reasonable to assume that as U.S. banks exit sanctioned markets, Chinese banks will step in to fill the gap, responding to the persistent credit demand from local firms in emerging economies. The theoretical framework posits that Chinese banks will provide a significant increase in credit supply to sanctioned countries following the imposition of U.S. financial sanctions.

Hypothesis 1 *Financial sanctions lead to a reduction in credit supply from U.S. and G7 lead-lenders in sanctioned economies. In turn, this sparks an increase in credit supply from lead lenders operating in China.*

When sanctioned firms replace Western syndicated loans with Chinese financing, they are likely to alter their strategic operating performance (Ahn and Ludema (2020)).As U.S. banks withdraw from the market due to sanctions compliance, Chinese lenders have stepped in to fill the credit void. However, their offerings come with unique contractual terms and monitoring priorities that may ultimately jeopardize the financial health of borrowers.

Three key mechanisms contribute to this phenomenon: Firstly, Chinese lenders offer shorter maturities in the loan contract. Secondly, Chinese lenders prioritize political compliance over financial covenants, redirecting corporate investments toward geopolitically aligned projects rather than profit-maximizing ventures. Thirdly, the lack of rigorous financial monitoring and technical assistance typically provided by Western banks reduces operational efficiency. This decline in performance emerges gradually, often masked initially by the liquidity injection, before the structural weaknesses of the new financing arrangement become apparent.

Hypothesis 2 *Chinese lenders offer shorter maturities and are more likely to rely on safe deals, which allows loans issued by Chinese banks to contain a significantly higher number of covenants and greater refinancing requirements.*

With higher syndicated loan requirements from Chinese lenders, sanctioned firms will face

dual mandates, both economically and politically. These additional costs will reflect into their real decision in the long term faced by global economic and geopolitical pressures. They could result in an increase in their assets growth but less profitable (Keerati, 2023). The reduced informativeness of Chinese lenders will also lead to less efficiency for firms under financial sanctions. Firms may tend to be delisted or acquired by other entity to survive from being sanctioned by the U.S..

Hypothesis 3 *U.S. financial sanctions cause firms to substitute U.S. bank loans with Chinese lending, resulting in lower productivity, weaker corporate performance, and a higher likelihood of acquisition and delisting.*

3 Data, Variable and Specification

3.1 Data

Our empirical analysis combines multiple data sources to examine how financial sanctions affect syndicated lending patterns.

We exclude from our primary analysis firms that are identified as 'switchers'—those that transitioned from having no Chinese lending influence to having such influence only after the sanction event as shown in Table A4. This sample refinement is critical for isolating our hypothesized mechanism. Our core thesis is that China's influence was cultivated through pre-existing, durable financial relationships with strategically important firms. We posit that the response to the sanctions was led by these already-connected firms, which could rapidly leverage their established ties to Chinese capital to navigate the new financial environment. The behavior of 'switcher' firms—representing less than 0.5% of our sample—is inconsistent with this story, as they lacked any prior connection. These switchers may represent a different phenomenon, such as firms engaging in a desperate search for new funding in a crisis, rather than the activation of deep, strategic partnerships. By focusing our tests on the set of firms that were consistently connected to Chinese capital, we ensure that our results are driven by the cohort central to our narrative of entrenched

and expanding influence.

We begin by using syndicated loan data from both private and public firms, sourced from DealScan. This database is maintained by the Loan Pricing Corporation (LPC). LPC compiles data on loan facilities based on information derived from Securities and Exchange Commission (SEC) filings or disclosures made by borrowers or lenders, covering the period from year 1980 to 2024. Variables include detailed loan terms at loan origin including loan size, collateral usage, facility type, covenants, and pricing. Additionally, LPC DealScan reports the domiciles of the lead lender and the borrowing firm, and the currency denomination. To ensure consistency, the loan amount is converted to U.S. dollars. Following the literature, we exclude loans issued to regulated utility companies (SIC between 4900-4999) and financial companies (SIC between 6000 and 6999). Observations with missing SIC codes are dropped and missing values of key variables are set to zero.

In the sample, the domiciles of the branch banks that are lead lenders are the U.S., the G7, and China which comprises Mainland China, Hong Kong, Macau, and Taiwan. And the domiciles of the borrower companies are the countries that were subject to U.S. financial sanctions during all or part of 1990-2023 following the Global Sanctions Database. Table A3 lists all countries sanctioned during 1990-2023. The firms in the sanctioned countries are merged with syndicated deal-level data using the borrower country's ISO3 code; and we distinguish between periods when they were and were not sanctioned. Our final deal-level sample spans 1990–2023 and contains 187,043 observations, covering 11,094 firms with domiciles in sanctioned countries and 4,533 bank branches that are syndicated lead lender with domiciles in the US, G7 and China, of which 2,014 are Chinese and 2,519 are from the G7 (including the United States).

We obtain firm-level financial data from Thomson Reuters Worldscope, which offers extensive global coverage of publicly listed companies. Key financial variables include total assets, sales growth, and employment, among others. We exclude firms with missing ISIN codes, as well as those in the financial and utility sectors (SIC codes 4900–4999 and 6000–6999). Additionally, to avoid results being driven by small economies, we omit borrower countries with fewer than

100 listed firms. Table A5 shows the firm level statistics of sanctioned countries in our sample. The firm-level data are then merged with aggregated loan information from DealScan at the firm-year level using ISIN codes. Our measures of borrowing activity include both the total dollar amount and the number of loans obtained by each firm annually from 1990 to 2023. The final merged dataset comprises 403,392 observations, representing 28,880 unique listed firms across approximately 40 economies over the period 1990–2023. We also collect mergers and acquisitions data from Thomson Reuters' Securities Data Company M&A (SDC). To reduce the influence of extreme values, all continuous variables are winsorized at the 1st and 99th percentiles.

3.2 Summary Statistics for Key Variables

This opportunistic behavior by Chinese lenders is particularly striking given their smaller share of the global syndicated loan market during this period. Table A6 presents descriptive statistics for the top 20 syndicated loan markets between 1990 and 2023. The United States has consistently dominated as the largest market over the past three decades, accounting for more than 44% of global syndicated loan volume between 2016 and 2023. In contrast, China ranked second with a share of 7.44%. This pronounced gap underscores the central role of the U.S. in the global syndicated lending market, while reflecting China's still-developing involvement during the period. Despite remaining comparatively modest, China's share has increased nearly threefold from its level of around 2.56% during 1990–2001. Notably, the two markets exhibit distinct patterns in borrower composition as in Table A6. The U.S. syndicated loan market remains predominantly domestically oriented, with foreign borrowers accounting for merely 5.90% of total loan volume. In contrast, China's market demonstrates significantly greater international participation, with cross-border transactions comprising over 12% of syndicated lending activity. This structural divergence suggests China's syndicated loan market had achieved deeper global integration during the observed period, consistent with its strategic position in facilitating international trade flows and outward direct investment.

The definitions and sources of all variables used in the empirical analysis are provided in Ap-

pendix Table A1, with summary statistics in Appendix Table A2. The first panel of Table A2 presents the characteristics of the loan deal, showing that 35% of the loan tranches are post-sanction loans. The second panel presents firm-level statistics, with an average sanction exposure of 0.46 years under sanctions within the 1990 to 2024 sample period. Firms in the sample have an average TFP close zero, an average annual sales growth of 13% and an investment rate of -1%. The country-specific variables in the third panel indicate that 55% of the loans come from lead lenders in Greater China from which the 38%, 9%, 8% and less than 1% come from lead lenders in Taiwan, mainland China, Hong Kong and Macau.

4 Empirical Results

4.1 Syndicated Deal Level Responses

This section tests our hypotheses about the impact of U.S. financial sanctions. Thus, we estimate the following difference-in-differences (DID) set up:

$$\begin{aligned} Y_{f,b,t} =& \alpha + \beta_1 \mathbb{1}(ChineseLender_b) \times \text{Sanction}_{c,t} \\ &+ \beta_2 \text{Sanction}_{c,t} + \mu_j + \eta_b + \lambda_t + \varepsilon_{f,b,t} \end{aligned} \tag{1}$$

where $Y_{f,b,t}$ is the loan value (in millions of U.S. dollars) or loan rate and the subscripts f, c, b, and t represent firm, borrower country, bank branch, and year, respectively. The sample consists of lead syndicated lenders with branches in the U.S., G7 countries, and China, and their borrower firms that are domiciled in countries that were under U.S. financial sanctions some period during 1990 to 2023. The coefficient α is the average loan value (or loan rate [6]) for the reference group

[6] Due to the prevalence of missing observations for the "all in spread drawn bps" variable in Dealscan, we follow Laeven and Popov (2023) and employ a two-step procedure. In the first step, we estimate the following regression using the full sample of loans.

$$LoanRate_{f,b,t} = Log(Amount)_{f,b,t} + Log(Maturity)_{f,b,t} + \eta_c + \eta_t + \eta_b + \varepsilon_{f,b,t}$$

Subsequently, we compute a "Predicted loan rate" for the sample by utilizing the coefficient estimates obtained from the first-stage regression.

of lead lenders from the U.S. and G7 when sanctions were not enacted. The indicator variable $Sanction_{c,t}$ equals 1 when the borrower country is under U.S. financial sanctions and afterwards and equals 0 otherwise; and its associated coefficient, β_1, is the average change in loan value (or loan rate) for the reference group when U.S. financial sanctions were enacted. The indicator variable $\mathbb{1}(ChineseLender_b)$ equals 1 if the lead lender is from China and 0 otherwise. Thus, β_2, the coefficient for the interaction of $\mathbb{1}(ChineseLender_b)$ with $Sanction_{c,t}$, is the change in loan value (or loan price) from Chinese lead lenders versus the reference group when U.S. financial sanctions are enacted. On the demand side, we include borrower industry fixed effect μ_j, measured as SIC code 2 digits. For the supply side, we include bank branch fixed effect in a lender country (η_b). U.S. and Chinese leader fixed effects are not included in the estimating equation because they are absorbed by bank branch fixed effects. Year fixed effects λ_t are included to control for unobserved time factors. Standard errors are clustered at the firm and industry$\times$year level.

Our baseline results are presented in Table 1. Here we summarize the quantitative significance of sanctions on loan amounts.[7] In column (1) the estimates for $Sanction_{c,t}$ indicate that U.S. and G7 lenders overall reduced their lending by 32.9% following the enactment of sanctions. However, estimates for the interaction of $\mathbb{1}(ChineseLender_b)$ with $Sanction_{c,t}$ indicate that Chinese lenders partially, albeit significantly, offset the U.S. and G7 supply contraction by 15.8%. In Column (2) we modify equation (1) and decompose the "Greater China" lender category into Mainland China, Hong Kong, Taiwan, and Macau. We find that Mainland China and Hong Kong were largely responsible for filling the credit hole created by the U.S. and G7 supply contraction. Lead lenders from Hong Kong and Mainland China increased their loans by 29.2% and Mainland Chinese lenders by 15.3%, compared to the reference group.

Column (3) in Table 1 shows that lenders in Greater China reduced their loan rates by 13.7 basis points when financial sanctions were implemented versus the reference group. Column (4) shows that the cut in loan rates is largely attributable to Taiwan and Hong Kong, with decreases of approximately 13.2 and 23.2 basis points, respectively. The observed reduction in loan rates from

[7] Because loan amounts are logged, the quantitative significance of an estimated regression coefficient z associated with some explanatory categorical variable Z equals $((e^z - 1) * 100)\%$.

Greater China relative to the reference group is consistent with a strong increase in the supply of syndicated loans from lead lenders in Greater China relative to the reference group.

As a sanctioned firm increase syndicated loans lending from Chinese lenders, the character of the syndicated loan would be also replaced by unique Chinese features. Table 2 highlights distinctive features of Chinese lenders following U.S. financial sanctions. Their loans, in general, carry shorter maturities (in months), and stricter terms—including a higher likelihood of refinancing and more likely to contain covenants compared with other G7 lenders. In particular, in column (1), Hong Kong lenders, Macau lenders and Taiwan lenders shorten their maturities compared to the average G7 lenders by 14.2%,16.7% and 10.33%, respectively, while the mainland Chinese lenders remain unchanged. In column (2), Mainland Chinese lenders drive the main result with an increase of 33.68%, about one-third of the sample standard deviations. In column (3), the dependent variable is a dummy variable indicating whether the deal is refinanced or not. We find that the point estimate of all coefficients for Chinese lenders is positive and significant at least at 5% statistical level.

These findings support our second hypothesis: Chinese lenders offer shorter maturity and are more likely to rely on safe deals, which allows loans issued by Chinese banks to contain a significantly higher number of covenants and greater refinancing requirements. This strategy is consistent with the incentives of Chinese state-owned banks, which, driven by political mandates to minimize financial risk, prioritize control and adaptability. The stringent terms are a strategic mechanism to rigorously monitor sanctioned borrowers and ensure loan performance, thereby avoiding scenarios that would require a government bailout. This contrasts with U.S. lenders, who favor market-driven loan structures. This contractual design aligns with the observed syndicate structures and the nature of sanctioned economies and riskier borrowers. Tighter covenant controls are a rational response to this higher inherent risk.

Table 1 LENDER RESPONSES TO U.S. FINANCIAL SANCTIONS, 1990-2023

Model	(1)	(2)	(3)	(4)
Outcomes	Log(Loan Amount)		Loan Rate	
$\mathbb{1}(GreaterChinaLender)_b \times Sanction_{c,t}$	0.147**		-0.026***	
	(0.074)		(0.009)	
$\mathbb{1}(MainlandChinaLender)_b \times Sanction_{c,t}$		0.142*		-0.012
		(0.081)		(0.010)
$\mathbb{1}(HongKongLender)_b \times Sanction_{c,t}$		0.256***		-0.044***
		(0.078)		(0.009)
$\mathbb{1}(MacauLender)_b \times Sanction_{c,t}$		0.187		-0.038
		(0.260)		(0.031)
$\mathbb{1}(TaiwanLender)_b \times Sanction_{c,t}$		0.127		-0.025**
		(0.089)		(0.011)
$Sanction_{c,t}$	-0.399***	-0.399***	0.066***	0.066***
	(0.067)	(0.067)	(0.009)	(0.009)
Constant	5.602***	5.604***	1.510***	1.510***
	(0.034)	(0.034)	(0.005)	(0.005)
Sample Borrowers	All countries sanctioned by the US. Switchers are excluded			
Sample Lenders	China, Hong Kong, Taiwan, Macau and the G7			
Fixed Effects	Borrower's industry, lender branch, year			
Observations	185722	185722	185722	185722
Adjusted R^2	0.402	0.402	0.392	0.393

NOTES: The outcome variables "loan amount" and "loan rate" are the volume and price of a syndicated loan at the deal level amount from a branch of bank b which serves as the lead lender in a lender country for a firm f in year t in a country that is under U.S. financial sanctions during some period within 1990-2023. The "loan amount" is logged and measured in millions of US dollars. The "loan rate" is the spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points. The lender countries include the G7, Mainland China, Hong Kong, Taiwan and Macau. The borrower countries include all countries that were under financial sanctions during 1990-2023. We include borrower's industry (SIC 2-digit) fixed effect, lender branch fixed effect and year fixed effect. Standard errors are clustered at the industry-by-year and firm level and reported in parentheses.***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

Table 2 FINANCIAL SANCTIONS ON LOAN FEATURES OF CHINESE LENDERS

Model	(1)	(2)	(3)
Outcomes	Log(maturity)	$\mathbb{1}(Covenant)$	$\mathbb{1}(DealRefinancing)$
$\mathbb{1}(MainlandChinaLender)_b \times Sanction_{c,t}$	0.044	0.128***	0.052**
	(0.064)	(0.021)	(0.025)
$\mathbb{1}(HongKongLender)_b \times Sanction_{c,t}$	-0.153***	0.032	0.131***
	(0.042)	(0.020)	(0.034)
$\mathbb{1}(MacauLender)_b \times Sanction_{c,t}$	-0.183**	-0.090	0.297***
	(0.078)	(0.069)	(0.096)
$\mathbb{1}(TaiwanLender)_b \times Sanction_{c,t}$	-0.109**	-0.011	0.172***
	(0.045)	(0.034)	(0.028)
$Sanction_{c,t}$	0.213***	-0.011	-0.076***
	(0.047)	(0.011)	(0.019)
Constant	3.737***	0.179***	0.444***
	(0.019)	(0.010)	(0.010)
Sample Borrowers	All countries sanctioned by the US. Switchers are excluded		
Sample Lenders	China, Hong Kong, Taiwan, Macau and the G7		
Fixed Effects	Borrower's industry, lender branch, year		
Observations	185722	185722	185722
Adjusted R^2	0.121	0.292	0.239

NOTE: The outcome variables are log of maturity, loan rate, covenant, or deal refinancing of a syndicated loan at the deal level from a branch of bank b which serves as the lead lender in a lender country for a firm f in year t in a country that is under US financial sanctions during some period of 1990-2023. The "Maturity" is in logarithm of months. The "$\mathbb{1}(Covenant)$" is a dummy variable and equals to one if the deal contains covenants and zero otherwise. The "$\mathbb{1}(DealRefinancing)$" is a dummy variable and equals to one if the deal is refinanced and zero otherwise. The lender countries include the G7, Mainland China, Hong Kong, Taiwan and Macau. The borrower countries include all countries that were under financial sanctions during 1990-2023. We include borrower's industry (SIC 2-digit) fixed effect, lender branch fixed effect and year fixed effect. Standard errors are clustered at the industry-by-year and firm level and reported in parentheses., and indicate significance at the 1%, 5% and 10% levels respectively.

4.2 Firm Level Responses

We have demonstrated that in response to financial sanctions, U.S. lenders decrease their lending to those borrowers, and Chinese lenders serve as a weak substitute. However, our analysis so far has been exclusively about bank lending, and we have not explored potential consequences for firms' economic activity. The latter is important because it would inform the debate on whether via changes in financial markets activity, financial sanctions have real consequences on borrowers.

To address this question, we form the following specification to examine the firm-level response

to financial sanctions:

$$\begin{aligned} Performance_{f,t} &= \beta_1 \mathbb{1}(China\text{–}U.S.)_{f,t} \times Sanction_{c,t} + \beta_2 \mathbb{1}(China\text{–}U.S.)_{f,t} \\ &+ \beta_3 Sanction_{c,t} + \eta_f + \eta_{jt} + \varepsilon_{j,t} \end{aligned} \tag{2}$$

where f, j, t denote the firm, industry and year, respectively. The dependent variables are firm-level productivity(total factor productivity, hereafter TFP) [8], sales growth, and investment. $\mathbb{1}(China - U.S.)_{f,t}$ is a dummy variable which equals one if firms that already relied more on Chinese lenders before sanctions and continued to do so afterward (i.e. the difference of number of deals from China minus U.S. is non-negative, and zero otherwise. $Sanctioned_{c,t}$ is a binary variable that equals one for all years t in which the firm's country c is under U.S. financial sanctions, and zero otherwise. And we include controls for industry-year and firm fixed effects. Standard errors are clustered at the industry and year level.

Table 3 analyzes how the enactment of U.S. financial sanctions affected the performance of corporations domiciled in sanctioned countries. There was a decline in performance based on several measures for those corporations in which the number of loan deals with China minus the number of loan deals with the U.S. was no less than zero. In this case, the quantitative impact of sanctions (measured as the change in the performance measure relative to its sample standard deviation) was -7%, -11.5% and -10% for total factor productivity (TFP), sales growth and investment. [9] The results suggest that firms domiciled in sanctioned countries that reallocated their loans from the U.S to Greater China had lower investment and efficiency and slower sales growth.

We further explore the impact of sanction on firms' opaqueness. A sanctioned firm might be also be more opaque under financial sanction. This opaqueness can arise from corporate decisions, such as being merged or delisted from stock exchange (from public to private). We replace our

[8] We calculate the TFP following Levinsohn and Petrin (2003), the core production function, typically Cobb-Douglas, is specified as:

$$Log(Sales) = Log(Employee) + Log(Material) + Log(Assets) + \lambda_i + \eta_t + \varepsilon_{i,t} \tag{3}$$

where i, t refer to firm and year. We take natural logarithm on *Sales*, *Employee*, *Assets*, and *Material* respectively. We also include firm and year fixed effects to calculate the TFP.

[9] These calculations are available upon request.

Table 3 FINANCIAL SANCTION ON CORPORATE DECISIONS: REAL IMPACT

Model	(1)	(2)	(3)
Outcomes	TFP	Sales Growth	Investment
$\mathbb{1}(China-U.S.)_{f,t} \times Sanction_{c,t}$	-0.193**	-0.076**	-0.008***
	(0.078)	(0.035)	(0.003)
$\mathbb{1}(China-U.S.)_{f,t}$	0.192**	0.027	-0.004
	(0.076)	(0.028)	(0.005)
$Sanction_{c,t}$	0.159	0.047	0.009***
	(0.112)	(0.055)	(0.003)
Constant	-0.175**	0.113***	-0.002
	(0.076)	(0.032)	(0.005)
Sample Firms	Firms in all countries sanctioned by the US. Switchers are excluded.		
Fixed Effects	Firm, Industry-Year		
Observations	402853	357708	301371
R^2	0.433	0.179	0.055

NOTE: This table shows the effect of financial sanctions on corporate performance from 1990 to 2023. The dependent variables are total factor productivity (TFP), sales growth, and investment. $\mathbb{1}(China-U.S.)$ equals to one if the difference in the number of loan from Chinese lenders and U.S. lenders (#Loan(China-U.S.)) is no less than zero, zero otherwise. $Sanction_{c,t}$ equals to one in the year for firm domiciled in country c under U.S. financial sanction at first year t and afterwards, zero otherwise. Firm and industry (SIC 2-digit)-year fixed effects are included. Standard errors clustered at the industry and year level are in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

firm level dependent variable with the likelihood of being delisted or acquired as our dependent variable.

Table 4 presents the impact of financial sanctions on corporate decisions to delist or to be acquired. We find that firms in sanctioned countries are more likely to be delisted or acquired, particularly during periods of prior sanctions. The quantitative significance derived from the regression coefficients indicates that firms are 6.7% (7.1%) more likely to be delisted (acquired) following the imposition of U.S. financial sanctions [10] Because delisting and M&A facilitate exit

[10] These calculations are available upon request.

Table 4 FINANCIAL SANCTION ON CORPORATE DECISIONS: DELISTED OR ACQUIRED

Model	(1)	(2)	(3)	(4)	(5)	(6)
Outcomes	$\mathbb{1}(Delisted)_{f,t}$			$\mathbb{1}(Acquired)_{f,t}$		
$Sanction_{c,t}$	0.008*			0.020***		
	(0.004)			(0.007)		
$Sanction_{c,t-1}$		0.013**			0.025***	
		(0.005)			(0.007)	
$Sanction_{c,t-2}$			0.018***			0.019**
			(0.006)			(0.008)
Constant	0.010***	0.009***	0.008***	0.080***	0.081***	0.087***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Sample Firms	Firms in all countries sanctioned by the US. Switchers are excluded.					
Fixed Effects	Firm, Industry-Year					
Observations	403006	368692	341212	402411	368146	340718
Adjusted R^2	0.167	0.184	0.198	0.092	0.097	0.102

NOTE: This table shows the effect of financial sanctions on delisted or acquired decision from 1990 to 2023. The dependent variables are dummies variables $\mathbb{1}(Delisted)_{f,t}$ and $\mathbb{1}(Acquired)_{f,t}$ equals to one if a firm is delisted from stock exchange or going to be acquired in year t, and zero otherwise. $Sanction_{c,t}$ ($Sanction_{c,t-1}$/$Sanction_{c,t-2}$) equals to one in the year for firm domiciled in country c under U.S. financial sanction at first year t ($t-1$/$t-2$), and zero otherwise. Firm and industry (SIC 2-digit)-year fixed effect are included. Standard errors clustered at the industry and year level are in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

from mandatory disclosure and reporting, these results indicate that sanctions incentivize firms to become more opaque, which could be a rational response to a constrained, high-scrutiny financing environment.

5 Robustness

5.1 Parallel Trend

Our staggered difference-in-differences design relies on the parallel trends assumption, which requires that no persistent pre-existing trends differentially affect treated and control groups prior to the imposition of sanctions (Wing et al., 2024). To test this assumption, besides the Greater Chinese lender, we utilize Hong Kong lenders as the representative, which offers a cleaner setting for identifying pre-trends due to its lower noise and more homogeneous economic structures compared to the full sample. We define a set of six event-time dummies, spanning from two years before to three years after the first sanction year, and extend Equation 1 by interacting these dummies with indicators for Chinese lenders. This approach allows us to examine dynamic effects and more reliably test for pre-trends in a less noisy context.

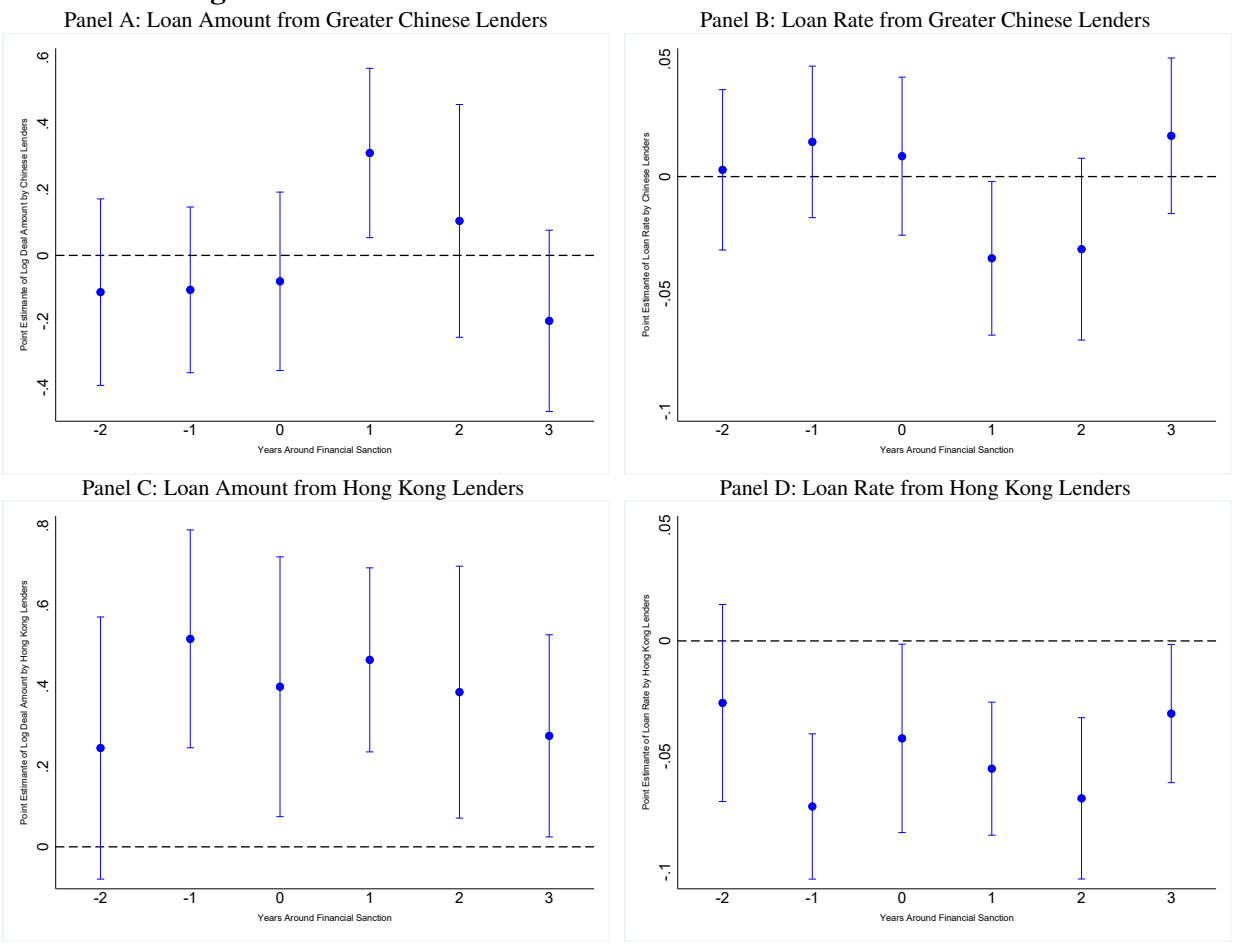
In order to test this assumption, we use a pre-trend test. We extend equation 1 by substituting the sanction variable with a series of annual dummy variables:

$$\begin{aligned} Log(LoanAmount)/LoanRate_{f,b,t} = \alpha + \sum_{k=-2}^{+3} \beta_k \times \mathbb{1}(Chinese_Lender)_b \times \text{Sanction}_{c,t+k} \\ + \sum_{k=-2}^{+3} \delta_k \times \text{Sanction}_{c,t+k} + \gamma Z_{f,b,t} + \varepsilon_{f,b,t} \end{aligned} \tag{4}$$

where $\{\beta_k\}_{k=-2}^{+3}$ indicates the coefficient of the interaction term of the relative year before and after financial sanction of country c relative to year t+k.

The results are visualized in Figure 4. We plot point estimates and 95% confidence bands of a regression where the dependent variables are loan amount and loan rate in panel A(C) and B(D)

Figure 4 PARALLEL TREND OF LOAN AMOUNT AND LOAN RATE



NOTE. : The figures present regression coefficients and 95% confidence bands in equation 1 for Chinese lenders' lending after U.S. financial sanction imposed. Panel A and B show the parallel trend of loan amount and loan rate from Greater Chinese lenders respectively. Panel C and D show the parallel trend of loan amount and loan rate from Hong Kong lenders respectively. The "loan amount" is logged and measured in millions of US dollars. The "loan rate" is the spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points. The lender countries include the G7, Mainland China, Hong Kong, Taiwan and Macau. The borrower countries include all countries that were under financial sanctions during 1990-2023. Standard errors are clustered at the industry-by-year and firm level.

respectively. The main explanatory variables are dummies equal to 1 in years -2, ..., 2, and 3 around sanctions being imposed and zero otherwise with the year of being sanction as the reference year. The parallel trends assumption holds in both panels for both Greater Chinese lenders and Hong Kong lenders: before sanctions, lending volumes and price from Chinese banks follow stable trajectories. In general, after sanctions were imposed, the loan amount gradually increased while the loan rate dropped. In particular, the evidence also points to a significant increase in lending (panel A) and a significant reduction in loan rate (panel B) in the two years after being sanctioned.

Notably, Hong Kong lenders show even stronger changes in both lending volume (panel C) and price (panel D), suggesting they were the primary drivers of this trend. The clean pre-trends and post-sanction divergence indicate these effects are driven by sanction imposition.

5.2 Other Robustness Tests

We examine the robustness of our results by addressing several issues. First, we test whether the baseline results are sensitive to sample selection. Also, we re-estimate the baseline specification using different outcome variables.

5.2.1 Sample Selection

We pay attention to possible sample selection bias. The original sample contains only the lender countries including the G7, Mainland China, Hong Kong, Taiwan, and Macau. This group is not a random sample of global lenders. It consists almost entirely of the world's largest, most developed, and most financially integrated economies, so the results found in this exclusive sample might not be generalizable to the broader world. To address this potential problem, we adjust our benchmark to global lenders. We then assess the robustness of our results in Appendix Table A7 with the global lender sample, finding that the baseline estimation results are robust.

In addition, to ensure our results are not driven by a small subset of branches, we conducted a robustness test using only those that appear in the sample for more than 15 years. The estimated effect present in Appendix Table A8 remains similar and is, in fact, larger in magnitude. To further investigate this pattern, we conduct an additional test focusing exclusively on non-advanced borrowers. The results, reported in Appendix Table A9, show that the magnitude of the estimated effect is even larger for this subsample, suggesting that our main findings are particularly pronounced for emerging market borrowers and are not driven solely by advanced economy relationships.

This pattern of larger effects for non-advanced borrowers and long-established branches provides greater confidence that our baseline results reflect meaningful economic relationships rather than sample-specific artifacts or transient banking relationships.

5.2.2 Different Outcome Variables

To ensure our baseline results are not dependent on a specific measurement choice, we conduct a robustness check using alternative outcome variables. In this section, we re-estimate our baseline results using different outcome variables, which are logarithm of number of deals and loan rate. The two outcome variables are different, but logically related. The results should be similar when we use these different outcome variables.

Appendix Table A10 reports the estimation results that are broadly consistent with our baseline findings in Table 1. The significance and direction of the key coefficients remain similar.

5.2.3 Persistent versus Lifted Sanctions

To further examine the sensitivity of our results to the nature of the sanctions, we distinguish between persistent sanctions and those that are eventually lifted. This categorization allows us to test whether the estimated effects are driven primarily by long-term, ongoing sanctions or are also evident in the case of temporary restrictions. We re-estimated the baseline specification by dividing the sanction variable into these two categories. The results, presented in Appendix Table A11, show that the coefficients for both persistent and lifted sanctions are consistent with the baseline findings. Interestingly, the estimated effect for lifted sanctions is larger in magnitude and exhibits stronger statistical significance compared to persistent sanctions. This suggests that the initial imposition of a sanction has a particularly sharp, disruptive effect on lending, which may moderate somewhat if the sanction becomes a permanent feature of the financial landscape. This pattern reinforces our main conclusion that international sanctions have a significant and robust impact on bank lending behavior, regardless of the specific temporal nature of the sanction event.

5.2.4 Controlling for Additional Covariates

A potential threat to our identification is omitted variable bias, as firm-level investment decisions may be influenced by time-varying characteristics beyond our baseline controls. To address this concern and test the robustness of our findings regarding the real impact, we augment our

difference-in-differences specification by sequentially incorporating a set of key firm-level controls. These include firm size (proxied by Total Assets), financial liquidity (Cash holdings), and investment opportunities (Tobin's Q).

As shown in Table A12, the estimated coefficient of interest remains statistically significant and economically stable across all specifications. This consistency strengthens our confidence that the documented treatment effect is not driven by the omission of these critical firm-level attributes.

6 Conclusion

This study provides systematic evidence of the divergent responses by U.S. and Chinese banks to financial sanctions imposed on global economies. Our findings reveal a fundamental reconfiguration of global credit flows amid rising geopolitical tensions: while U.S. banks reduced lending to sanctioned countries, Chinese banks increased their exposure, creating a partial but imperfect substitution effect.

Three key insights emerge from our analysis. First, financial sanctions have become potent tools of economic statecraft precisely because they exploit the structural advantages of dollar dominance and Western-controlled financial infrastructure. Second, China's state-directed banking system has developed institutional capacity to offset some sanctions effects, but with distinctive loan terms that reflect geopolitical priorities rather than pure commercial logic. Third, the resulting financial fragmentation produces a hybrid system where sanctioned countries maintain ties to both Western and Chinese financial networks, albeit with reduced efficiency and higher costs.

The policy implications are significant. For sanctioning countries, our results suggest that financial coercion may become less effective as alternative systems mature. For emerging markets, the findings highlight the strategic dilemma of navigating between Western financial compliance and Chinese financial dependence. Most importantly, the evidence points to an emerging bifurcation in global finance that could reshape international economic relations for decades to come.

Future research should examine how this financial decoupling affects corporate investment

patterns, technological diffusion, and, ultimately, the long-term growth trajectories of sanctioned economies. As great power competition intensifies, understanding these financial fault lines will only grow in importance for scholars and policymakers alike.

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Internet Appendix

United States Financial Sanctions and the Surge of Chinese Lending

(Intended for online publication only)

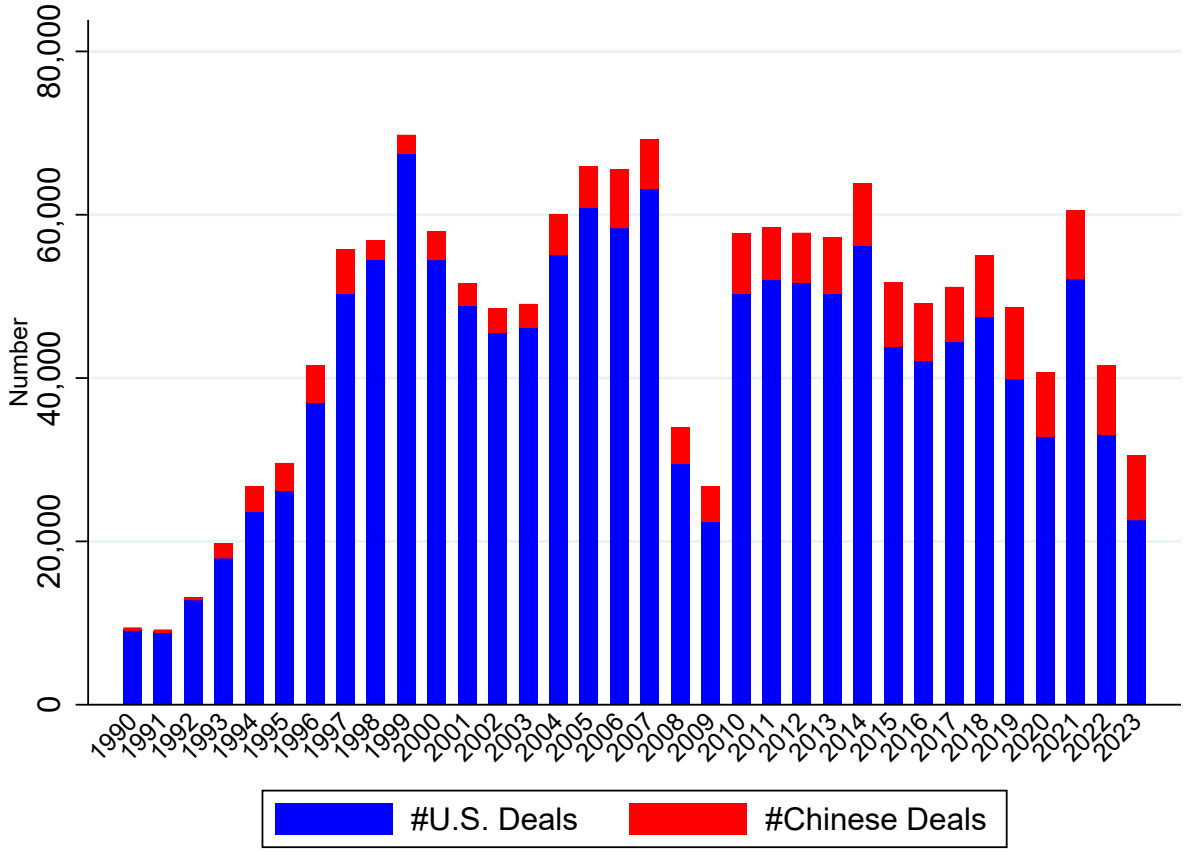
by Daniel Berkowitz, Yichen Sun, Zehao Wang and Sili Zhou

December 24, 2025

Table A1 VARIABLE DESCRIPTIONS

Variable	Definition	Source
Panel A: Deal-level variables		
Log(Loan Amount)	Natural logarithm of deal amount in million dollar.	Dealscan
Log(Maturity)	The natural logarithm of the deal's maturity in months.	Dealscan
Loan Rate	The spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points.	Dealscan
$\mathbb{1}(Covenant)$	Dummy variable equals to one if the deal contains covenant, and zero otherwise.	Dealscan
$\mathbb{1}(DealRefinancing)$	Dummy variable equals to one if the deal has refinanced, and zero otherwise.	Dealscan
$\mathbb{1}(Secured)$	Dummy variable equals 1 if loan is secured (has collateral), and zero otherwise.	Dealscan
Panel B: Firm-level variables		
$\mathbb{1}(China-U.S.)$	A dummy variable equals to 1 if firm f received the Chinese deal number is no less than its from the U.S., and zero otherwise.	Dealscan
TFP	Firm-level total factor productivity, measured as the residual from Cobb-Douglas production function.	Worldscope
Sales Growth	Annual percentage growth rate of the sales.	Worldscope
Investment	Change of capital expenditures divided by lagged assets.	Worldscope
$\mathbb{1}(Delisted)$	Dummy indicator that equals one if the observation year is either the firm's inactive year or the year immediately preceding it, and zero otherwise.	Worldscope
$\mathbb{1}(Acquired)$	Dummy variable equals to one if the firm is going to be acquired in the given year, zero otherwise.	SDC
$\mathbb{1}(ChinaAcquired)$	Dummy variable equals to one if the firm is acquired by Chinese firms in the given year and afterwards, zero otherwise.	Worldscope
Cash	Cash scaled by lagged total assets.	Worldscope
Tobin's Q	The sum of total assets and market capitalization minus the book value of common equity, divided by total assets.	Worldscope
Log(Asset)	Natural logarithm of total assets.	Worldscope
Panel C: Country-level variables		
$Sanction_{c,t}$	Dummy variable equals to one in the year for country c received its first financial sanction from U.S. and on, zero otherwise .	Global Sanction Database
$\mathbb{1}(GreaterChinaLender)_b$	Dummy variable equals to one if a lender locates in China, Hong Kong, Macau or Taiwan and zero otherwise.	Dealscan
$\mathbb{1}(MainlandChina)_b$	An indicator equals to one if a lender locates in Mainland China and zero otherwise.	Dealscan
$\mathbb{1}(HongKong)_b$	An indicator equals to one if a lender locates in Hong Kong and zero otherwise.	Dealscan
$\mathbb{1}(Macau)_b$	An indicator equals to one if a lender locates in Macau and zero otherwise.	Dealscan
$\mathbb{1}(Taiwan)_b$	An indicator equals to one if a lender locates in Taiwan and zero otherwise.	Dealscan

Figure A1 NUMBER OF DEALS ISSUED BY U.S./CHINA IN THE WORLD



NOTE: This figure plots the number of deals issued by U.S./ China to the world over 1990-2023 using DealScan. The blue bar stands for the number of deals issued by U.S. banks, and red bar for Chinese banks.

Table A2 SUMMARY STATISTICS

	Obs (1)	Mean (2)	S.D. (3)	P25 (4)	P50 (5)	P75 (6)
Panel A: Deal-level Variables						
$\text{Sanction}_{c,t}(Deallevel)$	187043	0.35	0.48	0.00	0.00	1.00
Log(Loan Amount)	187043	5.49	1.50	4.38	5.39	6.50
Log(Maturity)	187043	3.79	0.89	3.58	4.09	4.09
Loan Rate	187043	1.53	0.19	1.42	1.55	1.67
$\mathbb{1}(Secured)$	187043	0.34	0.48	0.00	0.00	1.00
$\mathbb{1}(Covenant)$	187043	0.18	0.38	0.00	0.00	0.00
$\mathbb{1}(DealRefinancing)$	187043	0.45	0.50	0.00	0.00	1.00
Panel B: Firm-level Variables						
$\text{Sanction}_{c,t}(FirmLevel)$	403392	0.46	0.50	0.00	0.00	1.00
$\mathbb{1}(China-U.S.)$	403392	1.00	0.04	1.00	1.00	1.00
TFP	403239	0.00	2.74	-0.42	0.27	0.92
Sales Growth	358249	0.13	0.66	-0.09	0.07	0.25
Investment	302657	-0.01	0.08	-0.02	-0.00	0.01
Log(Assets)	403392	20.58	5.80	19.57	21.32	23.37
Tobin's Q	403392	1.36	1.60	0.61	1.01	1.59
Cash	403392	0.17	0.23	0.02	0.09	0.23
$\mathbb{1}(Delist)$	403392	0.01	0.12	0.00	0.00	0.00
$\mathbb{1}(Acquired)$	402791	0.09	0.28	0.00	0.00	0.00
Panel C: Country-level Variables						
$\mathbb{1}(GreaterChinaLender)_b$	187043	0.55	0.50	0.00	1.00	1.00
$\mathbb{1}(MainlandChinaLender)_b$	187043	0.09	0.29	0.00	0.00	0.00
$\mathbb{1}(HongKongLender)_b$	187043	0.08	0.27	0.00	0.00	0.00
$\mathbb{1}(MacauLender)_b$	187043	0.00	0.04	0.00	0.00	0.00
$\mathbb{1}(TaiwanLender)_b$	187043	0.38	0.48	0.00	0.00	1.00
$\mathbb{1}(USLender)_b$	187043	0.09	0.29	0.00	0.00	0.00
$\mathbb{1}(G7Lender)_b$	187043	0.45	0.50	0.00	0.00	1.00
Greater China Deal Amount	187043	223.56	762.14	0.00	28.59	154.55
Mainland China Deal Amount	187043	65.05	468.24	0.00	0.00	0.00
HongKong Deal Amount	187043	42.26	311.92	0.00	0.00	0.00
Macau Deal Amount	187043	1.32	53.48	0.00	0.00	0.00
Taiwan Deal Amount	187043	114.93	540.55	0.00	0.00	66.69
US Deal Amount	187043	124.08	749.69	0.00	0.00	0.00
G7 Deal Amount	187043	541.40	1454.97	0.00	0.00	355.00

Table A3 Sanctioned Economies List

Countries/Economies	ISO	G20	Sanctioned Period	Countries/Economies	ISO	G20	Sanctioned Period
Algeria	DZA		1990-2023	Liberia	LBR		2004-2015, 2020-2023
Angola	AGO		1990-2003, 2021-2023	Malaysia	MYS		2023
Argentina	ARG	Yes	2019-2023	Mali	MLI		2012-2013, 2017-2023
Azerbaijan	AZE		1992-2002, 2022-2023	Malta	MLT		2020-2023
Bahrain	BHR		1990-2023	Mexico	MEX	Yes	2022-2023
Bangladesh	BGD		2021-2023	Morocco	MAR		1990-2023
Belarus	BLR		2004-2023	Mozambique	MOZ		2021-2023
Belgium	BEL		2023	Nigeria	NGA		1993-1999, 2013-2023
Brazil	BRA	Yes	2021-2023	North Macedonia	MKD		1991-1996, 1998-2023
Bulgaria	BGR		2001-2023	Oman	OMN		1990-2023
Burundi	BDI		1995-1999, 2015-2023	Pakistan	PAK		1990-2001, 2012-2013
Cambodia	KHM		1990-1992, 1997-2007, 2018-2023	Panama	PAN		2012-2023
Cameroon	CMR		1992-1998, 2019-2023	Peru	PER		1992-1994, 2022-2023
Chile	CHL		1990-1991	Philippines	PHL		2002-2023
China	CHN	Yes	2017-2023	Qatar	QAT		1990-2023
Colombia	COL		1995-2023	Romania	ROU		1990-1991
Costa Rica	CRI		2011-2023	Russian Federation	RUS	Yes	2014-2023
Croatia	HRV		1991-1996, 1998-1999, 2021-2023	Saudi Arabia	SAU	Yes	1990-2023
Dominican Republic	DOM		2011-2023	Serbia	SRB		1991-1996, 1998-2023
Ecuador	ECU		2013-2014, 2022-2023	Singapore	SGP		2023
Egypt	EGY		1990-2023	Slovenia	SVN		1991-1996, 2021-2023
El Salvador	SLV		2019-2023	South Africa	ZAF	Yes	2019-2023
Ghana	GHA		2018-2023	South Korea	KOR	Yes	2023
Greece	GRC		2013-2023	Sri Lanka	LKA		2022-2023
Guatemala	GTM		1993, 2011-2023	Switzerland	CHE		2023
Guinea	GIN		2009-2011, 2021-2023	Taiwan	TWN		2013-2021
Honduras	HND		2009, 2019-2020	Tanzania	TZA		2016, 2021-2023
Hong Kong	HKG		2020-2023	Thailand	THA		1991-1992, 2014-2019
India	IND	Yes	1990-2008	Tunisia	TUN		1990-2023
Indonesia	IDN	Yes	2011-2023	Turkey	TUR	Yes	2018, 2020-2023
Iran	IRN		1990-2023	Uganda	UGA		2021-2023
Israel	ISR		2023	Ukraine	UKR		2014-2023
Ivory Coast / Cote d'Ivoire	CIV		2000-2002, 2004-2017	United Arab Emirates	ARE		1990-2023
Jordan	JOR		1990-2023	Uzbekistan	UZB		2022-2023
Kenya	KEN		1990-1993, 2012-2014, 2017-2023	Venezuela	VEN		2008-2023
Kuwait	KWT		1990-2023	Vietnam	VNM		1990-1998, 2020-2023
Laos	LAO		1990-1995, 2023	Zambia	ZMB		1996-1998
Latvia	LVA		2019-2023	Zimbabwe	ZWE		2003-2023

NOTE: This table shows the country list about financial sanctioned economies, which has made no less than 100 deals within 1990-2023. ISO stands for the ISO-3 characters for each country. G20 indicates whether the country is a member of G20. Sanctioned Period shows the years for each country received financial sanctions from the United States from 1990 to 2023.

Table A4 Switcher Firms in Sanctioned Economies

Name	SIC	ISO	Name	SIC	ISO
JIANGXI COPPER CO	3339	CHN	CHINA JINMAO	1531	CHN
ORANGE SKY	7832	HKG	TONGFU MICROELE	3825	CHN
SM PRIME HOLDINGS	1542	PHL	CHINA AOYUAN	1531	CHN
PHIHONG TECHNOLOGY	3699	TWN	WEST CHINA CEMENT	3241	CHN
UNIMICRON TECH	3672	TWN	CENTURY IRON AND	1791	TWN
KWONG LUNG ENT	2329	TWN	SWANCOR	2821	TWN
CHUNG HWA PULP CORP	2621	TWN	ACES ELECTRONIC CO	3678	TWN
I-HWA INDUSTRIAL	1531	TWN	BETTER LIFE CO	5411	CHN
ETERNAL MATERIAL	2821	TWN	COWEALTH MEDICAL	3844	TWN
KNH ENTERPRISE	2676	TWN	CHINA EVERGRANDE	1531	CHN
WEI CHUAN FOOD CORP	2026	TWN	BIONIME	2835	TWN
TAIWAN MASK	3674	TWN	LONGFOR GROUP	1542	CHN
ZTE CORP	3661	CHN	APEX INTERNATIONAL	3672	TWN
L&K ENGINEERING CO	1541	TWN	SHENZHEN HONGTAO	8711	CHN
UNITTEC CO	4111	CHN	TPK HOLDING CO LTD	3679	TWN
HUMANWELL HEALTHCARE	2834	CHN	S.F. HOLDING	4215	CHN
CHINA GRAND AUTO	5012	CHN	TAIMIDE TECH. INC	2821	TWN
SIGURD MICROELECTRON	3674	TWN	LB GROUP CO LTD	2819	CHN
COSCO SHIPPING	4412	CHN	CHAILEASE HOLDING	7359	TWN
ZJ HUAHAI PHARM.	2834	CHN	CHINA YONGDA	5511	CHN
MEIHUA HOLDINGS	2869	CHN	PT MNC	7375	IDN
BEIJING DALONG WEIYE	1531	CHN	CNQC INTERNATI	1531	HKG
CAREER TECHNO	3672	TWN	MEGAFON PAO	4812	RUS
CHIEN KUO CONSTR CO	1542	TWN	HERAN CO	3679	TWN
ADVANCETEK ENT CO	1531	TWN	MIDEA GROUP CO	3585	CHN
ALLTEK TECHNOLOGY CO	5065	TWN	ZHEN DING	3679	TWN
HENGTONG OPTIC	3357	CHN	SHANGHAI AMARSOF	7371	CHN
SHIN RUENN	1531	TWN	BEST PACIFIC	2241	HKG
DYNAPACK INTL TECH	3691	TWN	ANJI TECHNOLOGY CO	3674	TWN
ATE ENERGY INTL	1623	TWN	GLOBALWAFERS CO LTD	3674	TWN
CENTER LABORATORIES	2834	TWN	SHUNSIN TECH	3674	TWN
G.M.I TECHNOLOGY INC	3572	TWN	HKBN LTD	4812	HKG
KEE TAI PROPERTIES	1531	TWN	GENERAL INTERFAC	3679	TWN
DE LICACY INDU	2211	TWN	58.COM INC	7375	CHN
JIIN YEEH DING ENTER	3356	TWN	CAYMAN ENGLEY	3714	TWN
LOTUS PHARMACEUTICAL	2834	TWN	ALEXANDER MA	3731	TWN
CHAIN QUI DEVELOP	1542	TWN	CHINA MERCHANTS SHE	1531	CHN
RUN LONG CONS	1531	TWN	WUXI HONGHUI	2821	CHN
CHUN YU WORKS	3452	TWN	ZHEJIANG WA	3351	CHN
DIANA SHIPPING INC	4412	GRC	KEHUA HOLDINGS	3714	CHN
INNOLUX CORP	3679	TWN	HAIDILAO INT	5812	HKG
GREENLAND HONG KONG	1531	CHN	JIANGSU FENGSHAN	2879	CHN
SUNSPRING METAL	3432	TWN			

NOTE: This table lists firms in financially sanctioned economies that switched their lending sources. It shows that before the sanctions (1990-2023), these firms obtained more, or at least comparable loans from U.S. banks than from Chinese banks, but borrowed less from the U.S. after the sanctions took effect.

Table A5 Firm-level Statistics by Sanctioned Economies

Country	# Firms	#Obs.	Country	# Firms	#Obs.
ARE	84	1021	KWT	104	1597
ARG	107	1348	LKA	197	3518
BEL	207	2659	MEX	185	2136
BGD	97	1167	MYS	1273	23083
BGR	215	3023	NGA	110	1475
BIH	68	928	OMN	88	1342
BRA	475	3951	PAK	395	6266
CHE	309	3693	PER	142	1612
CHL	192	3556	PHL	219	3838
CHN	10144	141597	ROU	191	2406
COL	71	1111	RUS	851	11459
EGY	206	3052	SAU	205	2569
GRC	363	5655	SGP	849	14107
HRV	116	1535	SRB	124	1424
IDN	750	9129	THA	736	8415
IND	3840	55393	TUR	431	6244
ISR	626	8234	UKR	99	1156
JOR	135	2069	VNM	1137	13696
KOR	2935	41570	ZAF	689	7969

NOTE: This table displays summary statistics for listed firms for U.S. sanctions from year 1990 to 2023. The country lists ISO-3C codes. The #Firms column indicates the total number of distinct firms in each country, while the #Obs. column corresponds to the total number of firm-level observations for each country.

Table A6 THE TOP 20 SYNDICATED LOAN MARKETS, 1990-2023

Panel A: Top 20 syndication markets in 1990-2001

Rank	Country Of Syndication	# Observations	Loan Amount in US$ Billion	%	Cum. %	% of Foreign Lender	% of Foreign Borrower
1	United States	54839	9710.20	64.10%	64.10%	66.42%	1.98%
2	United Kingdom	3510	1240.22	8.19%	72.29%	43.16%	5.21%
3	Canada	1801	429.52	2.84%	75.13%	25.51%	9.03%
4	China	3403	387.41	2.56%	77.68%	54.04%	7.77%
5	France	961	361.68	2.39%	80.07%	77.26%	4.02%
6	Germany	526	238.40	1.57%	81.64%	46.91%	7.57%
7	Japan	796	229.98	1.52%	83.16%	20.76%	0.42%
8	Australia	958	198.45	1.31%	84.47%	37.78%	2.96%
9	Netherlands	533	194.08	1.28%	85.75%	75.91%	6.15%
10	Italy	515	190.40	1.26%	87.01%	95.20%	6.66%
11	South Korea	1538	172.34	1.14%	88.15%	80.67%	4.85%
12	Spain	639	149.30	0.99%	89.13%	72.09%	1.67%
13	Sweden	326	120.96	0.80%	89.93%	84.81%	1.81%
14	Indonesia	1470	98.67	0.65%	90.58%	88.70%	10.24%
15	Malaysia	684	90.40	0.60%	91.18%	65.98%	4.72%
16	Mexico	507	88.77	0.59%	91.77%	96.73%	5.53%
17	Switzerland	228	79.49	0.52%	92.29%	87.91%	5.15%
18	Thailand	1020	76.05	0.50%	92.79%	85.75%	6.26%
19	Brazil	457	68.75	0.45%	93.25%	93.89%	4.70%
20	Norway	357	64.62	0.43%	93.67%	76.67%	8.18%
	Rest	6560	958.19	6.33%	100.00%		
	Total	81628	15147.90	100.00%			

Panel B: Top 20 syndication markets in 2002-2015

Rank	Country Of Syndication	# Observations	Loan Amount in US$ Billion	%	Cum. %	% of Foreign Lender	% of Foreign Borrower
1	United States	71038	18365.63	41.82%	41.82%	63.60%	5.52%
2	Japan	28150	3373.09	7.68%	49.50%	7.54%	4.32%
3	United Kingdom	8587	2995.80	6.82%	56.32%	33.35%	11.18%
4	China	11421	2084.72	4.75%	61.07%	27.66%	11.01%
5	France	6072	1907.10	4.34%	65.41%	80.73%	4.85%
6	Germany	5381	1837.23	4.18%	69.59%	54.31%	3.69%
7	Australia	4967	1141.16	2.60%	72.19%	36.35%	5.56%
8	Spain	4021	1118.73	2.55%	74.74%	43.98%	2.26%
9	Canada	4935	1101.29	2.51%	77.25%	20.45%	4.16%
10	Netherlands	2164	730.91	1.66%	78.91%	84.61%	17.82%
11	Italy	2714	724.14	1.65%	80.56%	77.25%	3.45%
12	India	3181	687.87	1.57%	82.13%	35.39%	13.03%
13	Russian Federation	1593	627.24	1.43%	83.55%	86.21%	11.82%
14	Switzerland	710	579.75	1.32%	84.87%	91.94%	4.14%
15	Greece	442	410.85	0.94%	85.81%	98.49%	3.27%
16	Belgium	711	410.66	0.94%	86.75%	94.42%	6.71%
17	Singapore	1608	374.74	0.85%	87.60%	58.52%	15.33%
18	South Korea	2635	353.06	0.80%	88.40%	37.21%	12.17%
19	United Arab Emirates	714	333.07	0.76%	89.16%	80.71%	2.87%
20	Sweden	937	329.98	0.75%	89.91%	59.64%	3.48%
	Rest	16585	4430.16	10.09%	100.00%		
	Total	178566	43917.20	100.00%			

Panel C: Top 20 syndication markets in 2016-2023

Rank	Country Of Syndication	# Observations	Loan Amount in US$ Billion	%	Cum. %	% of Foreign Lender	% of Foreign Borrower
1	United States	40920	13881.84	44.65%	44.65%	63.50%	5.90%
2	China	10004	2312.32	7.44%	52.08%	25.19%	12.52%
3	Japan	20895	2189.76	7.04%	59.12%	4.47%	4.79%
4	United Kingdom	4001	1515.12	4.87%	64.00%	50.32%	21.70%
5	Germany	4667	1249.96	4.02%	68.02%	48.18%	2.76%
6	France	4747	1053.60	3.39%	71.41%	64.72%	2.77%
7	Australia	4176	786.54	2.53%	73.94%	46.92%	6.87%
8	Canada	3769	767.47	2.47%	76.40%	23.81%	4.32%
9	Spain	4104	537.45	1.73%	78.13%	24.61%	4.89%
10	India	2118	488.67	1.57%	79.70%	46.12%	14.99%
11	Netherlands	1307	483.49	1.55%	81.26%	85.42%	6.43%
12	Italy	2560	468.04	1.51%	82.76%	70.58%	1.93%
13	Switzerland	685	438.51	1.41%	84.17%	90.88%	8.82%
14	Singapore	1451	425.72	1.37%	85.54%	40.43%	14.04%
15	United Arab Emirates	536	315.29	1.01%	86.56%	63.00%	6.01%
16	Saudi Arabia	339	311.55	1.00%	87.56%	73.30%	0.44%
17	Sweden	812	256.40	0.82%	88.38%	59.92%	0.88%
18	Turkey	799	210.34	0.68%	89.06%	87.72%	1.82%
19	Indonesia	806	204.17	0.66%	89.72%	76.21%	3.28%
20	Russian Federation	263	174.04	0.56%	90.28%	61.02%	9.35%
	Rest	12745	3023.27	9.72%	100.00%		
	Total	121704	31093.57	100.00%			

NOTE: This table reports statistics for the top 20 syndicated loan markets ordered by their total loan volume between 1990 and 2023. "Rest" captures the remaining 160 countries and "Total" the sum of a column. The first two columns show the ranks and names of each economies. The third and forth columns show the total number of deals as well as the total volume in US$ billions between 1990 and 2023. The next two columns show a country's share in the total loan volume and the cumulative share in the total loan volume. The last two columns show the percentage of foreign lenders and of foreign borrowers loans based on the total loan volume between 1990 and 2023 of the respective country.

Table A7 LENDER RESPONSES TO U.S. FINANCIAL SANCTIONS, 1990-2023, GLOBAL LENDERS

Model	(1)	(2)	(3)	(4)
Outcomes	Log(Loan Amount)		Loan Rate	
$\mathbb{1}(GreaterChinaLender)_b \times Sanction_{c,t}$	0.168**		-0.027***	
	(0.070)		(0.009)	
$\mathbb{1}(MainlandChinaLender)_b \times Sanction_{c,t}$		0.172**		-0.014
		(0.077)		(0.010)
$\mathbb{1}(HongKongLender)_b \times Sanction_{c,t}$		0.262***		-0.043***
		(0.074)		(0.009)
$\mathbb{1}(MacauLender)_b \times Sanction_{c,t}$		0.198		-0.039
		(0.265)		(0.031)
$\mathbb{1}(TaiwanLender)_b \times Sanction_{c,t}$		0.151*		-0.027**
		(0.085)		(0.010)
$Sanction_{c,t}$	-0.363***	-0.364***	0.063***	0.063***
	(0.062)	(0.062)	(0.009)	(0.009)
Constant	5.713***	5.714***	1.496***	1.496***
	(0.036)	(0.036)	(0.005)	(0.005)
Sample Borrowers	All countries sanctioned by the US. Switchers are excluded			
Sample Lenders	Global Lenders			
Fixed Effects	Borrower's industry, lender branch, year			
Observations	279982	279982	279982	279982
Adjusted R^2	0.388	0.388	0.370	0.370

NOTES: The outcome variables "loan amount" and "loan rate" are the volume and price of a syndicated loan at the deal level amount from a branch of bank b which serves as the lead lender in a lender country for a firm f in year t in a country that is under U.S. financial sanctions during some period within 1990-2023. The "loan amount" is logged and measured in millions of US dollars. The "loan rate" is the spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points. The lender countries include the global lender countries. The borrower countries include all countries that were under financial sanctions during 1990-2023. Standard errors are clustered at the industry-by-year and firm level and reported in parentheses., and indicate significance at the 1%, 5% and 10% levels respectively.

Table A8 LENDER RESPONSES TO U.S. FINANCIAL SANCTIONS, 1990-2023, BRANCH FILTER

Model	(1)	(2)	(3)	(4)
Outcomes	Log(Loan Amount)		Loan Rate	
$\mathbb{1}(GreaterChinaLender)_b \times Sanction_{c,t}$	0.148*		-0.028***	
	(0.081)		(0.010)	
$\mathbb{1}(MainlandChinaLender)_b \times Sanction_{c,t}$		0.096		-0.008
		(0.090)		(0.012)
$\mathbb{1}(HongKongLender)_b \times Sanction_{c,t}$		0.250***		-0.050***
		(0.094)		(0.011)
$\mathbb{1}(MacauLender)_b \times Sanction_{c,t}$		0.178		-0.025
		(0.340)		(0.052)
$\mathbb{1}(TaiwanLender)_b \times Sanction_{c,t}$		0.146		-0.029***
		(0.092)		(0.011)
$Sanction_{c,t}$	-0.430***	-0.429***	0.070***	0.070***
	(0.072)	(0.072)	(0.010)	(0.010)
Constant	5.638***	5.638***	1.508***	1.508***
	(0.038)	(0.038)	(0.005)	(0.005)
Sample Borrowers	All countries sanctioned by the US. Switchers are excluded.			
Sample Lenders	China, Hong Kong, Taiwan, Macau and the G7			
Fixed Effects	Borrower's industry, lender branch, year			
Observations	133434	133434	133434	133434
Adjusted R^2	0.390	0.390	0.396	0.396

NOTES: The outcome variables "loan amount" and "loan rate" are the volume and price of a syndicated loan at the deal level amount from a branch of bank b which serves as the lead lender in a lender country for a firm f in year t in a country that is under U.S. financial sanctions during some period within 1990-2023. The "loan amount" is logged and measured in millions of US dollars. The "loan rate" is the spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points. The lender countries include the G7, Mainland China, Hong Kong, Taiwan and Macau. The borrower countries include all countries that were under financial sanctions during 1990-2023. Standard errors are clustered at the industry-by-year and firm level and reported in parentheses., and indicate significance at the 1%, 5% and 10% levels respectively.

Table A9 LENDER RESPONSES TO U.S. FINANCIAL SANCTIONS, 1990-2023, NON-ADVANCED ECONOMIES

Model	(1)	(2)	(3)	(4)
Outcomes	Log(Loan Amount)		Loan Rate	
$\mathbb{1}(GreaterChinaLender)_b \times Sanction_{c,t}$	0.182**		-0.019*	
	(0.088)		(0.010)	
$\mathbb{1}(MainlandChinaLender)_b \times Sanction_{c,t}$		0.148		-0.007
		(0.117)		(0.013)
$\mathbb{1}(HongKongLender)_b \times Sanction_{c,t}$		0.161*		-0.030***
		(0.084)		(0.010)
$\mathbb{1}(MacauLender)_b \times Sanction_{c,t}$		0.206		-0.030
		(0.210)		(0.025)
$\mathbb{1}(TaiwanLender)_b \times Sanction_{c,t}$		0.250**		-0.032**
		(0.114)		(0.014)
$Sanction_{c,t}$	-0.168***	-0.169***	0.036***	0.036***
	(0.063)	(0.063)	(0.008)	(0.008)
Constant	5.736***	5.736***	1.489***	1.489***
	(0.038)	(0.038)	(0.004)	(0.004)
Sample Borrowers	All non-advanced countries sanctioned by the US. Switchers are excluded.			
Sample Lenders	China, Hong Kong, Taiwan, Macau and the G7			
Fixed Effects	Borrower's industry, lender branch, year			
Observations	71596	71596	71596	71596
Adjusted R^2	0.377	0.377	0.282	0.283

NOTES: The outcome variables "loan amount" and "loan rate" are the volume and price of a syndicated loan at the deal level amount from a branch of bank b which serves as the lead lender in a lender country for a firm f in year t in a country that is under U.S. financial sanctions during some period within 1990-2023. The "loan amount" is logged and measured in millions of US dollars. The "loan rate" is the spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points. The lender countries include the G7, Mainland China, Hong Kong, Taiwan and Macau. The borrower countries include all countries that were under financial sanctions during 1990-2023. Standard errors are clustered at the industry-by-year and firm level and reported in parentheses., and indicate significance at the 1%, 5% and 10% levels respectively.

Table A10 LENDER RESPONSES TO U.S. FINANCIAL SANCTIONS, 1990-2023

Model	(1)	(2)	(3)	(4)
Outcomes	Log(# of Deal)		log(Loan Rate)	
$\mathbb{1}(GreaterChinaLender)_b \times Sanction_{c,t}$	0.596***		-0.018***	
	(0.097)		(0.007)	
$\mathbb{1}(MainlandChinaLender)_b \times Sanction_{c,t}$		0.834***		-0.010
		(0.119)		(0.007)
$\mathbb{1}(HongKongLender)_b \times Sanction_{c,t}$		0.192*		-0.031***
		(0.100)		(0.007)
$\mathbb{1}(MacauLender)_b \times Sanction_{c,t}$		0.672***		-0.024
		(0.184)		(0.022)
$\mathbb{1}(TaiwanLender)_b \times Sanction_{c,t}$		0.609***		-0.017**
		(0.112)		(0.008)
$Sanction_{c,t}$	-0.811***	-0.810***	0.048***	0.048***
	(0.051)	(0.051)	(0.007)	(0.007)
Constant	5.339***	5.336***	0.403***	0.403***
	(0.023)	(0.024)	(0.004)	(0.004)
Sample Borrowers	All countries sanctioned by the US. Switchers are excluded.			
Sample Lenders	China, Hong Kong, Taiwan, Macau and the G7			
Fixed Effects	Borrower's industry, lender branch, year			
Observations	185722	185722	185722	185722
Adjusted R^2	0.760	0.760	0.390	0.391

NOTES: The outcome variable "Log(# of Deal)" is the number of deal in a lender country in year t in a country that is under U.S. financial sanctions during some period within 1990-2023. The outcome variable "Log(Loan Rate)" is the price of a syndicated loan at the deal level amount from a branch of bank b which serves as the lead lender in a lender country for a firm f in year t in a country that is under U.S. financial sanctions during some period within 1990-2023. The "Log(# of Deal)" is logged. The "Log(Loan Rate)" is the spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points and is logged. The lender countries include the G7, Mainland China, Hong Kong, Taiwan and Macau. The borrower countries include all countries that were under financial sanctions during 1990-2023. Standard errors are clustered at the industry-by-year and firm level and reported in parentheses., and indicate significance at the 1%, 5% and 10% levels respectively.

Table A11 LENDER RESPONSES TO U.S. FINANCIAL SANCTIONS, 1990-2023, LIFTED V.S. PERSISTENT

Model	(1)	(2)	(3)	(4)
Outcomes	Log(Loan Amount)		Loan Rate	
$\mathbb{1}(GreaterChinaLender)_b \times PersistentSanction_{c,t}$	0.070		-0.016*	
	(0.080)		(0.010)	
$\mathbb{1}(GreaterChinaLender)_b \times LiftedSanction_{c,t}$	0.627***		-0.086***	
	(0.126)		(0.016)	
$\mathbb{1}(MainlandChinaLender)_b \times PersistentSanction_{c,t}$		0.083		-0.004
		(0.086)		(0.011)
$\mathbb{1}(MainlandChinaLender)_b \times LifttedSanction_{c,t}$		0.359**		-0.063***
		(0.154)		(0.018)
$\mathbb{1}(HongKongLender)_b \times PersistentSanction_{c,t}$		0.212**		-0.041***
		(0.084)		(0.010)
$\mathbb{1}(HongKongLender)_b \times LiftedSanction_{c,t}$		0.412***		-0.051***
		(0.132)		(0.014)
$\mathbb{1}(MacauLender)_b \times PersistentSanction_{c,t}$		0.135		-0.032
		(0.260)		(0.031)
$\mathbb{1}(MacauLender)_b \times LiftedSanction_{c,t}$		-0.436		0.050
		(0.438)		(0.065)
$\mathbb{1}(TaiwanLender)_b \times PersistentSanction_{c,t}$		0.047		-0.016
		(0.094)		(0.011)
$\mathbb{1}(TaiwanLender)_b \times LiftedSanction_{c,t}$		0.764***		-0.104***
		(0.164)		(0.020)
$LiftedSanction_{c,t}$	-0.677***	-0.677***	0.058***	0.058***
	(0.093)	(0.093)	(0.010)	(0.010)
$PersistentSanction_{c,t}$	-0.331***	-0.331***	0.099***	0.099***
	(0.073)	(0.073)	(0.011)	(0.011)
Constant	5.602***	5.603***	1.510***	1.510***
	(0.034)	(0.034)	(0.005)	(0.005)
Sample Borrowers	All countries sanctioned by the US. Switchers are excluded.			
Sample Lenders	China, Hong Kong, Taiwan, Macau and the G7			
Fixed Effects	Borrower's industry, lender branch, year			
Observations	185722	185722	185722	185722
Adjusted R^2	0.403	0.403	0.394	0.394

NOTES: The outcome variables "loan amount" and "loan rate" are the volume and price of a syndicated loan at the deal level amount from a branch of bank b which serves as the lead lender in a lender country for a firm f in year t in a country that is under U.S. financial sanctions during some period within 1990-2023. The "loan amount" is logged and measured in millions of US dollars. The "loan rate" is the spread of the interest rate over The London Inter-Bank Offered Rate (LIBOR) in basis points. The lender countries include the G7, Mainland China, Hong Kong, Taiwan and Macau. The borrower countries include all countries that were under financial sanctions during 1990-2023. We include borrower's industry (SIC 2-digit) fixed effect, lender branch fixed effect and year fixed effect. Standard errors are clustered at the industry-by-year and firm level and reported in parentheses.***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

Table A12 ROBUSTNESS CHECK: FIRMS' REAL IMPACT

Model	(1)	(2)	(3)
Outcomes	TFP	Sales Growth	Investment
$\mathbb{1}(China-U.S.)_{f,t} \times Sanction_{c,t}$	-0.180**	-0.084**	-0.009***
	(0.075)	(0.036)	(0.002)
$\mathbb{1}(China-U.S.)_{f,t}$	0.151**	0.025	-0.006
	(0.063)	(0.025)	(0.007)
$\text{Sanction}_{c,t}$	0.191*	0.058	0.012***
	(0.106)	(0.055)	(0.002)
L.Log(Assets)	-0.010	-0.034***	-0.019***
	(0.008)	(0.004)	(0.002)
L.Tobin's Q	-0.030***	0.013***	0.001***
	(0.006)	(0.004)	(0.000)
L.Cash	-0.050	0.128***	-0.037***
	(0.035)	(0.023)	(0.003)
Constant	0.088	0.823***	0.422***
	(0.194)	(0.093)	(0.037)
Sample Firms	Firms in all countries sanctioned by the US. Switchers are excluded.		
Fixed Effects	Firm, Industry-Year		
Observations	368550	357708	301371
R^2	0.478	0.185	0.080

NOTES: This table shows the effect of financial sanctions on corporate performance from 1990 to 2023. The dependent variables are total factor productivity (TFP), sales growth, and investment. *L.Log*(*Assets*), *L.Tobin'sQ*, and *L.Cash* are the natural logarithm of total assets, Tobin's Q, and cash, all lagged by one period. Firm and industry (SIC 2-digit)-year fixed effects are included. Standard errors clustered at the industry and year level are in parentheses. , and indicate significance at the 1%, 5% and 10% levels respectively.