Credit Supply and Sovereign Debt Crises: Evidence from Petrodollar Recycling*

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Abstract

What are the origins of sovereign debt crises? We document a prominent role for expansions in credit supply by internationally active banks in the context of a canonical case study: the Less Developed Country (LDC) crises of the 1980s. Using a newly-digitized historical loan-level dataset, we show that banks exposed to the Eurodollar market and inflows of oil receipts from foreign governments increased their supply of credit during the 1970s. Following the Mexican default in 1982, these banks contracted lending and faced severe losses. Countries more exposed to loan inflows from global banks experienced a compression of spreads during the boom, followed by painful recessions and sovereign debt crises during the bust. Taken together, our findings highlight how a credit supply shock to global banks can translate into boom-bust cycles in faraway places and ultimately sow the seeds of sovereign default.

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I. INTRODUCTION

In the history of financial crises, the period between World War II and the early 1980s stands out as one of exceptional calm. Variously called the *Trente Glorieuses* in France, the *Wirtschaftswunder* in Germany, or *Golden Age of Capitalism* in the United States, this period of high and relatively stable economic growth was followed by recurring boom-bust cycles in the years since, starting with the Less Developed Country (LDC) crises of the 1980s. Surprisingly, however, there is relatively limited empirical evidence documenting the causes of this first wave of boom-bust cycles that particularly hit developing countries in Latin America.

In this paper, we study the role of international banks in propagating global boom-bust cycles, drawing on newly digitized contract-level data on large loans during the period 1971 to 1989. In essence, our new databank is a historical counterpart to widely used commercial offerings such as Refinitiv's Dealscan. Importantly, these data allow us to track essentially the universe of cross-border lending flows at the time, including information on the borrowers, lenders, and detailed contract terms. We complement these data with several other newly constructed historical datasets on the branch presence and balance sheets of global banks.

Equipped with these data, we revisit the long-standing narrative that the boom-bust cycles of the 1970s and 80s could ultimately be traced back to a recycling of petrodollars through global banks' London branches. Still the world's dominant financial center at the time, London maintained its unique role for global finance through the Eurodollar market. Driven partly by regulatory arbitrage, the Eurodollar market involved the trading of U.S. dollars outside of the United States. As such, banks with an existing presence in London as part of their historical branch networks were more likely to attract dollar deposits from oil-producing states as oil prices rallied in the 1970s.

Our empirical analysis proceeds in three parts. We begin by showing that U.S. banks with a branch in London as of 1967 were considerably more likely to receive increased foreign deposits, particularly those received from foreign governments. The timing of these increases corresponds closely with the oil price shocks of the 1970s. Having a branch in London is associated with a 27.8% higher share of deposits outside of the United States at the beginning of the lending boom in 1976. Corresponding with the oil price shock of 1979, banks with a presence in London also saw a jump in their share of deposits coming from foreign governments by more than 10 percentage points.

We show that this higher recycling of petrodollars was associated with a considerable credit expansion during the boom, but also sowed the seeds of the bust. Banks with

London branches extended more credit and charged lower spreads during the late 1970s. U.S. banks with London branches also expanded their overall balance sheet, particularly by increasing their lending to foreign borrowers. Importantly, most of this credit expansion by global banks was *not* driven by lending to foreign governments, but to non-financial corporations. This is important because it suggests that the boom at least initially was concentrated in *private* rather than public debt.

After the inflection event of Mexico's default in 1982, however, banks with London branches soon contracted their loan book. They also ultimately recorded more non-performing loans and decreasing profitability. They reduced their exposure to emerging markets, and extended credit at more restrictive terms than during the credit boom. These findings are a first indication that the London-specific credit supply shock caused by an inflow of Eurodollar deposits played a role in the boom-bust cycles to developing countries.

Next, we use the detailed loan-level data to causally identify a role for credit supply in this story. After all, banks' credit expansion and subsequent contraction may also reflect demand factors such as a change in the composition of borrowers. By comparing loans to the same borrower by banks with and without London branches (Khwaja and Mian, 2008), we can rule out such alternative explanations. Consistent with the bank-level results, we provide evidence that banks exposed to the Eurodollar market in London lent more freely during the boom while also charging lower spreads, consistent with an increase in credit supply.

In the final part of the paper, we assess the macroeconomic implications of a credit supply shock permeating through the networks of global banks. We show that countries experiencing a larger inflow of cross-border loans during the boom of the 1970s initially saw a larger economic expansion, but ultimately fell victim to severe recessions and a series of economic crises. A greater expansion in cross-border lending during the boom predicts a greater contraction in both loan volume and economic growth during the bust. Increased borrowing of one percentage point of GDP during the boom also preddicts a 0.8 percentage point increase of experiencing a sovereign debt crisis during the 1980s. As such, these findings point to potentially severe implications of major swings in global credit supply.

We augment our cross-country analysis with individual case studies. We document loan volumes and terms by lender for some well-known examples of banking- and currency crises in Latin America in the early 1980s, namely Argentina, Colombia, Mexico and Brazil. For all these countries, the crisis was preceded by an expansion in corporate lending at increasingly compressed spreads. Likewise, borrowers in these countries experienced sharp increases in spreads as the crises unfolded, as well as a near complete halt of lending to corporations. Instead, loans to governments, who had

borrowed very little leading up to the crisis, grew rapidly in its aftermath.

We generalize these individual examples and conduct event studies for different types of crises as classified by Laeven and Valencia (2020). Both banking crises and sovereign debt crises are preceded by major credit expansions, particularly to private borrowers, at ever more compressed spreads. In the wake of the crisis, private credit issuance dried up and spreads spiked for both types of crises. Unsurprisingly, sovereign debt crises are also associated with an almost complete halt of public lending, while governments are still able to borrow in the aftermath of banking crises.

Lastly, we document novel country-specific facts about the performance of the *domestic* banking sector in selected crisis countries, which amplified the boom-bust pattern we previously studied in our sample of international banks. In Argentina, the crisis was associated with an increase in foreign-currency loans. In the immediate aftermath of the crisis, almost 60% of loans by domestic banks to the public sector were denominated in foreign currency. This *original sin* arguably contributed to the continued propensity for financial crises that characterized Argentina during the following decades. In Bolivia, the share of non-performing loans by state-owned banks exceeded 40% for most of the 1980s and reached as high as 80%. These large losses borne by public creditors exemplify the *doom loop* between bank failures and government defaults that contributed in transmitting a crisis initially concentrated in private credit into widespread sovereign defaults.

While our analysis is centered around a particular historical case study, the Eurodollar-funded boom of the 1970s and LDC crisis wave of the 1980s, we believe the implications are much more general. For one, as of 2023, the Eurodollar market is estimated to have a size of $14 trillion and remains a critical funding market for global banks. Indeed, in many ways, the credit boom many Eurozone countries experienced during the 2000s was reminiscent of the run-up to the LDC crisis, in that global banks awash with Eurodollar liquidity extended their supply of credit to periphery countries in a search for yield (Reinhart and Rogoff, 2009; Blanchard, Giavazzi et al., 2010). As such, we believe our findings underscore the potential macroeconomic risks stemming from credit supply shocks to the international banking system.

Related literature. To the best of our knowledge, our paper is the first to tie a clearly identifiable funding shock to global banks to a boom-bust cycle in faraway periphery countries. Our work extends the existing literature in three ways. First, we contribute to the literature on credit booms and the often severe busts that tend to follow them (Gourinchas and Obstfeld, 2012; Schularick and Taylor, 2012; Jorda, Schularick, and Taylor, 2015; Müller and Verner, 2023). The overwhelming majority of this literature has focused on expansions in *domestic* credit, although there is some evidence

that cross-border borrowing and global financing conditions also foreshadows banking crises (e.g., Cesa-Bianchi, Eguren Martin, and Thwaites, 2019; Aldasoro, Borio, and Drehmann, 2018) Lending to ever more distant places has also been shown to be one indication of a dangerous credit boom (Granja, Leuz, and Rajan, 2022; Giannetti and Jang, 2023), perhaps because of the information asymmetries inherent in providing loans across borders (Khwaja and Mian, 2005). By constructing several new historical datasets, we are able to link a specific, clearly identifiable credit supply shock from its London origins to the ultimate crashes in the developing world, using not only aggregate time series but also granular loan-level data.

The second literature we speak to is that on spillovers through global banks more broadly. While there is considerable evidence that crises are transmitted through the internal capital markets of banks (e.g., Huber, 2018; Tripathy, 2020; Popov and Horen, 2015; Ongena, Peydró, and van Horen, 2015; Hale, Kapan, and Minoiu, 2019), there is less evidence on how funding shocks affect the phase of credit expansion. From a theoretical perspective, models with

We also speak to a third literature that specifically investigates the LDC crises and preceding boom. In a classic early account of the Latin American crises, Diaz-Alejandro (1985) focused on the role of financial liberalization in driving the boom, including the role of unfettered cross-border lending flows. Other accounts have emphasized the role of structural problems in the borrowing countries (Sachs, 1989), a piling up of government debt (Krugman, 1988), rising US interest rates (Meyer, 1989), and the collapse of commodity prices (Cline, 1989). To be clear, our work does not negate a role for these other factors. But the evidence we provide suggests that the boom and bust in developing countries during the 1970s-80s is perhaps best understood as a classic case of an excessive increase in private sector indebtedness fueled by credit supply, which then turns into a government debt crisis. As such, our paper complements Robert Devlin's eloquent 1989 book "Debt and Crisis in Latin America: The Supply Side of the Story" (Devlin, 1989), and other accounts putting an emphasis on the role of international lenders rather than borrowers (Sachs, 1987; Federal Deposit Insurance Corporation, 1997).

II. DATA

For the main part of our analysis, we draw on several historical datasets: (1) a newly digitized dataset of (mostly syndicated) loan contracts covering 1972-89; (2) newly digitized data on the historical branch network of banks in each country as of 1967; (3) bank-level data from the FDIC Call Reports and manually-collected historical data from *The Banker* magazine; and (4) cross-country data on macroeconomic statistics,

sovereign debt events, and banking crises. We describe these datasets in turn and provide more details, including additional summary statistics, in Online Appendices VII.1 & VII.2.

II.1 A New Global Loan-Level Dataset, 1972-1989

The backbone of much of our analysis is a rich new dataset on 17,215 loan contracts covering 153 countries for the period 1972-89. These data were painstakingly digitized and recorded in a harmonized manner in a structure that resembles widely used commercial data providers such as Refinitiv's Dealscan.

Figure 1 shows images of the two sources underlying this data effort. From 1974 to 1981, the World Bank published a report called "Borrowing in International Capital Markets" that tabulated newly issued cross-border loans. The report includes information on the borrower, lender(s), loan size, maturity, interest rate spread, reference rate, and other contract details. While the structure of these tables is relatively standardized, the data still had to be manually transcribed due to some intricancies of how some variables are recorded.

Unfortunately, the World Bank stopped the publication of this report in mid-1981. We thus draw on a second source: historical print editions of Euromoney magazine. Since the inception of the Eurodollar market, Euromoney publicized new loan issues in almost all of its monthly editions, mostly in a less structured full-text format. In essence, these data resembled that reported in "tombstones" of loan contracts, a print notice formally announcing the transaction. Similar to the World Bank publication, we can extract all key variables of a loan contract. We use the Euromoney data for the years 1971-72, when there is no data from the World Bank's report, as well as for the years 1981-89, which are not (fully) covered by the World Bank.[1]

Table 1 provides an overview of the new database we construct. In total, we have information on 17,215 individual loan contracts adding up to a total issuance of USD billion. Between the early 1970s and late 1980s, the international loan market saw a staggering increase in size from $21 billion in 1973 to $320 in 1988. A look at the yearly volume of newly issued loans also clearly shows two major demarcation points in the history of cross-border lending: the pull-back in 1975 during the foreign exchange market turbulences following the collapse of the Herstatt Bank, and the staggering contraction in new loans surrounding the LDC crises in the early 1980s.

[1] One limitation of the Euromoney data is that we do not know the exact issuance date of a loan for all years, only when it was reported in Euromoney magazine. Throughout the paper, we allow for a reporting lag and assume that a loan was issued two months before it appears in Euromoney. Because we do not make use of the monthly dimension of the data, this admittedly ad-hoc assumption does not affect any of our results.

Our database also highlights the global nature of this period of international cross-border lending. The 5,473 unique borrowers in our data come from a total of 17,215 countries, covering the entire gamut of economic and financial development. These loans are arranged by a total of 827 unique lead banks, although–similar to the modern period–the market is highly concentrated among a relatively small number of big players.

II.2 How Comprehensive Is The Historical Loan-Level Data?

A natural question is how representative the newly collected loan-level is relative to the size of cross-border lending at the time. Answering this question is complicated by the fact that the widely used Locational Banking Statistics produced by the Bank for International Settlements (BIS) were in their current form only introduced in 1977. In fact, the BIS started compiling these statistics precisely because the major central banks had become worried about the extent of cross-border borrowing.

That said, we have reason to believe that our loan-level data likely captures close to the universe of cross-border lending flows at the time. The most detailed comparison we can make is that with statistics on the size of the Eurodollar loan market published by Morgan Guaranty Trust in its World Financial Markets publication. Time series produced by the BIS and published in its annual reports at the time also gives us some indication.

As Figure 2a shows, the total issuance of new loans in our dataset captures essentially the entirety of this market between 1971 and 1983, the most critical period of boom and bust for our analysis. Figure 2b shows there is also an almost perfect cross-sectional correlation between the amount of newly issued loans we observe in our data relative to what is reported in World Financial Markets.

II.3 Historical Bank Branching Networks

A critical input for our empirical analysis is banks' exposure to the London Eurodollar market. Ideally, we would like to have data on bank balance sheets that unambiguously shows their US dollar deposits in London from the beginning of the Eurodollar market's expansion in the 1960s onwards. Unfortunately, such data are not available. Even for large US institutions, the FDIC Call Reports only record much more aggregated information on deposits in branches outside of the United States, and these data were only collected starting in the late 1970s.

We thus rely on a measure of exposure to London based on a bank's branch presence. This measure, while simple, has several appealing features. For one, the *Banker's Al-*

manac published historical data on the addresses of bank branches in essentially every country, including a comprehensive list of banks with a London presence. By digitizing these data for the period well before the credit boom preceding the LDC crisis, we can assess for each bank active in the cross-border loan market whether they likely had access to London's Eurodollar market or not.

II.4 Bank-Level Data

We draw on two sources of bank-level information. One has been widely used (the FDIC Call Reports), the other has been newly digitized from print editions of *The Banker's* Top Banks ranking.

FDIC Call Report Data For banks in the United States, we use an extended version of the FDIC's Call Reports data. From 1976 onwards, these data are relatively easily accessible through WRDS. We use the version available from Philipp Schnabl's website (Drechsler, Savov, and Schnabl, 2017), which pre-processes some variables to create consistent time series. Because this version of the Call Reports does not include all variables we need for our analysis, we add additional data from the Call Reports available on the website of the Federal Reserve Bank of Chicago.

Because we are also interested in the period before 1976, we obtained Call Reports for 1960-1975 through a FOIA request from the Board of Governors of the Federal Reserve System. These data have a similar structure to the later Call Reports. Section VII.2.2 contains additional information on data cleaning and variable construction.

Historical International Bank Data Because the Call Reports only cover US banks, we also draw on historical editions of *The Banker* to add balance sheet information for international banks. In particular, we digitize data on banks' total assets, leverage, and profits published in the "Top 500" or "Top 300" rankings of the world's largest institutions for the benchmark years 1975, 1980, and 1988.

These data are by no means comprehensive. By definition, they are limited to the largest institutions, some of which may disappear from the ranking from one year to another. For this reason, we focus entirely on *changes* in international bank outcomes, where we require a bank to be present in all three years (1975, 1980, and 1988). See Section VII.2.3 for details.

II.5 Cross-Country Macroeconomic Data

The main source of macroeconomic data we use is the Global Macro Project (**?**). This dataset merges, cleans, and combines time series from major aggregators such as the World Bank and IMF, and further extends them using historical data sources. For our purposes, what matters is that their coverage also extends to no longer existing countries such as the German Democratic Republic or Czechoslovakia, who were relatively frequent borrowers in the cross-border loan market.

We are also interested in information on whether countries experience various types of crises. We thus obtain data on the incidence of systemic banking crises from Laeven and Valencia (2020). Information on sovereign defaults and haircuts comes from Cruces and Trebesch (2013) & Asonuma and Trebesch (2016).

III. The Eurodollar Market and the Least Developed Country Debt Crisis

This section describes the historical origins of the boom in global lending during the 1970s that sow the seeds of the LDC crisis.

III.1 The Rise of the Eurodollar Market

The Eurodollar market is constituted by institutions that operate outside of the United States, whose liabilities are denominated in U.S. dollars (Friedman, 1971). In 1968, these institutions, or Euro-banks, operated mostly in Western Europe, primarily in London, as well as some other financial centers such as Canada, the Caribbean Islands, and Lebanon (Klopstock, 1968). In the beginning era of the Eurodollar market, banks' roles were limited to financial intermediation to channel deposits from multinational corporations to borrowers that were constituted by other banks, foreign governments, and corporations (Swoboda, 1968).

The Eurodollar market's origins can be traced to 1958, coinciding with the full implementation of the Bretton Woods system and the adoption of currency convertibility. Financial innovation was pivotal in the market's development and London's emergence as its hub. The first documented example of such innovation occurred when Midland Bank utilized dollar-denominated debt to address its liquidity needs and capitalize on profitable domestic investments in the United Kingdom, setting a precedent for the Eurodollar market's operational dynamics (Schenk, 1998).

Moreover, the growth of the Eurodollar market in London proceeded largely unim-

peded, as regulatory bodies demonstrated a combination of inability, reluctance, and uncertainty regarding the necessity of regulatory interventions. This stood in stark contrast to the more proactive stance adopted by their counterparts elsewhere in Europe: "In mid-1960s the Swiss launched a gentlemen's agreement with Swiss banks not to accept short term foreign currency deposits in order to stop the inflow of hot money... France and Germany also prohibite the payment of interest to foreigners" (Schenk, 1998, p. 234). In conclusion, regulators in London tacitly approved London as the center of the Eurodollar market. In 1968, a Bank of England official acknowledged this: "however much we dislike hot money we cannot be international bankers and refuse to accept money" (Schenk, 1998, p. 235).

In the United States, banks operated under Regulation Q, which imposed a ceiling on deposit interest rates. However, this regulation did not extend to deposits accepted by U.S. banks' overseas branches (Bernal, 1982). This regulatory discrepancy, coupled with the expansion of American multinational corporations, incentivized U.S. banks to open branches abroad to collect deposits. Additionally, these banks faced intensifying domestic competition for funds as the money market and Certificates of Deposit (CDs) attracted substantial deposit inflows (Devlin, 1989).

In summary, (Schenk, 1998, p. 237) concludes about the factors that gave rise to the Eurodollar market with London as its epicenter: "A combination of Bank of England support, Treasury tolerance, and controls elsewhere created a regulatory environment which gave London a competitive advantage in the Eurodollar market".

III.2 Petrodollar Recycling and the 1970s Boom

Petrodollars refer to the funds generated from dollar-denominated oil transactions, which at the time were almost exclusively earned by OPEC members. Member countries were recipient of large inflows following the oil price increases of 1973 and 1979. Their net foreign assets increased by $485 billion between 1973 and 1982.

However, oil producers facing this sudden increase in revenue often did not have the domestic capacity to absorb these excess savings. Furthermore their financial systems were not developed to facilitate the intermediation of these savings to borrowers abroad (Sherbiny, 1986). This led to the implementation of multiple international consortia of banks, where Arab banks relied on the expertise and scale of their international counterparts to deploy the excess savings they had amassed.

The largest recipient of these savings were the United States with a share of 16%, followed by the United Kingdom, whose share stood at 11%. Not just did the UK receive an outsize share of funds compared to its size, the uses of funds were also vastly different. While the majority of the funds flowing to the United States were invested in

safe assets, OPEC's investments in the United Kingdom were dominated by foreign currency deposits into Euro-banks (Sherbiny, 1986).

As described in the previous section, London's Eurodollar market had been established as banks venue to collect international deposits. This situated banks active in this market as prime recipients of dollar-denominated funds, just at the time when an excess of such funds became available in the form of Petrodollars. Banks consequently engaged in so-called "Petrodollar recycling", where these excess funds were lent to borrowers around the world, often non-oil producing LDC countries faced with severe financing needs in the wake of the oil price shocks.

The IMF under its Managing Director Johannes Witteveen set up multiple facilities in an attempt to alleviate the global imbalances that resulted from the oil price shocks: first was the "Oil Facility" immediately after the oil price shock of 1974, and after its expiry in 1976, the "Supplementary Financing Facility", often called the "Witteveen facility" (Boughton, 2001). These facilities' stated objective was to provide relief for oil importers facing rising trade deficits by channeling Petrodollars from oil exporters who were flush with savings (International Monetary Fund, 1996).

However, officials in the IMF realized that private institutions would play a major role in channeling excess savings to countries in need of financing, and singled out the Eurodollar market as the main mechanism to do so (International Monetary Fund, 1996). Banks were politically pressured to participate in this process. As a former economic advisor to President Ford noted: "the entire Ford Administration, including me, told the large banks that the process of recycling petrodollars to the less developed countries was beneficial, and perhaps a patriotic duty" (Hanc, 1998, p. 206).

Whether as a "patriotic duty" or for other reasons, private banks engaged in large amounts of Petrodollar-recycling via the Eurodollar market. Total outstanding loans by US commercial banks to Latin America skyrocketed from 29 billion dollars in 1970 to 159 billion dollars in 1979, to 327 billion in 1982 (Federal Deposit Insurance Corporation, 1997). For the largest nine US lenders, loans to Latin America amounted to 176% of their capital, and total LDC debt even reached 290% of capital in 1982.

III.3 From Boom to LDC Crisis

The *Golden Age of Capitalism* of the period after World War II came to an abrupt halt in 1982, and turned into what in Latin America is know as *la decada perdida* – the lost decade during. It was ushered in by Mexico's finance minister declaring in August of 1982 that Mexico would be unable to service its debt. Many other developing countries followed subsequent to Mexico's pivotal declaration. A study by the world bank shows that 38 developing countries have engaged in external debt re-negotiations dur-

ing 1982-1985 (World Bank Group, 1986). This need to restructure debt loads was particularly severe in Latin America: all major Latin American countries with the exception of Colombia faced an external debt crisis during the 1980s (Sachs, 1987).

The *lost decade* had severe real economic consequences in Latin America. Devlin (1989) motivates his analysis of the causes of the Latin American debt crisis as follows: "A good summary statistic of the region's plight is per capita income: at the end of 1987 it was nearly 6 percent lower than the figure registered in 1980". This particularly painful adjustment was in part necessitated by the fact that in course of the credit boom preceding the crisis, Latin American economies increasingly neglected the export-oriented production of tradable goods. This made the adjustments to generate surpluses sufficient for the external transfers necessary to repay their debt all the costlier (Sachs, 1986).

In narrative accounts on the causes of the LDC crises, petrodollar recycling via commercial banks has frequently been discussed as a main culprit for the over-extension of loans that sowed the seeds for the subsequent bust (Devlin, 1989; Sachs, 1987; Federal Deposit Insurance Corporation, 1997)[2]. However, for a lack of evidence and data available, this popular explanation for the LDC debt crisis has to this point not been empirically tested in a rigorous way. In the following sections of this paper, we provide granular bank- and loan-level evidence to back up this narrative explanation.

IV. Global Banks and Boom-Bust Cycles: The Supply Side Story

In this section, we provide evidence that the expansion of the Eurodollar market played a role in the boom-bust cycle of the 1970s and 80s. During the boom, higher exposure to the Eurodollar market led to an expansion of credit supply, particularly in Less Developed Countries (LDCs), which then reverted during the crisis episodes of the 1980s.

IV.1 Measuring Petrodollar Exposure

We begin our empirical analysis with a simple observation: the Eurodollar funding market of the 1960s and 70s was decidedly geographically concentrated in London. Because of the British capital's long history as a financial hub, it was here that banks

[2]Other popular explanations include, but are not limited to: profligate borrowing and spending by LDC governments, adverse effects of commodity price declines on exporters, increasing debt servicing burdens from rising US interest rates

received large inflows of US dollar deposits, and especially so during the second half of the 1970s.

To test for the effects of this credit supply shock, we exploit variation in banks' historical branch presence. While the Eurodollar market expanded starting in the 1960s, it was not before the major inflows in the mid-1970s and the subsequent additional increase in petrodollars with the late-1970s oil price shock that it became an important funding source for global banks. To measure a bank's exposure to the Eurodollar market, we thus construct a simple dummy variable called *London branch*$_i$, equal to 1 for banks that had a branch in London as of 1967, and thus before the boom, and 0 otherwise.

Table A.1 in the Online Appendix plots summary statistics for several variables depending on whether or not a bank had a London branch as of 1967. We also report a t-test for the equality of means between the different groups of banks. Because it is not entirely clear what a reasonable "control group" of non-London banks should look like, we report these statistics for three samples: the full sample of US banks in the Call Reports ($N = 10,950$), US banks active in the international loan market ($N = 25$), and a sample of the largest global banks ($N = 300$).

Perhaps unsurprisingly, banks with a London branch are different than other banks. They are larger and have somewhat higher leverage. Importantly, they also differ in their funding structure, and in particular rely considerably more on funding from foreign depositors.

To more formally test whether our London indicator indeed captures differences in the exposure of banks to the Eurodollar market, we run the following regression specification:

$$Y_i = \alpha + \beta \textit{London branch}_i + \varepsilon_i, \tag{1}$$

where *London branch*$_i$ continues to measure whether a bank has a London branch as of 1967. Note that, because the Call Reports only start reporting some variables in 1976, the years for which we can define the dependent variables differ somewhat across specifications. Similarly as above, we run our estimations for three different samples (all banks, banks involved in international loans, and the largest global banks).

Table 2 reports the results. Columns (1)-(3) look at measures of funding structure, which we can measure for US banks only. In column (1), we start by looking at the share of banks deposits in foreign branches as of 1976, the first year this information is reported in the Call Reports. This measure essentially measures a bank's reliance on

Eurodollars, defined as US dollars held outside of the United States. The coefficient of 0.278 is highly statistically significant at the 1% level. It suggests that banks with a London branch had a 248.766% higher reliance on Eurodollar deposits relative to the mean of 0.001. The results are similar when we look at the more comparable groups of banks active in the international loan market or the subsample of banks among the largest global banks, suggesting these patterns are not merely driven by bank size.

In column (2), we use a smaller sample of publicly-listed US banks, for which we have data on foreign deposits starting in 1970. The coefficient implies that London banks not only had higher foreign deposits as of 1976, but indeed increased their reliance on Eurodollars between 1970 and 1976 by 0.090 percentage points.

The results in column (3) provide some suggestive evidence that the increase in foreign deposits was at least in part driven by petrodollar recycling. When we look at the change in the share of deposits coming from foreign governments between 1976 and 1981, we find that they increased by 0.053, and the timing of this increase lines up precisely with the late-1970s oil price shock and the accompanying dollar windfall gains of oil-producing states.

Columns (4)-(6) look at a broader sample of international banks for which we have information either on bank branches or international loans. Column (4) shows that banks with a London branch also have branches in 2.652 additional countries on average, and column (5) suggests they are 0.212 more likely to have a branch in an oil-producing country. Finally, column (6) shows that London banks are also considerably more likely to found a consortium with banks from oil states, which played an important role in the credit expansions of the 1970s.

To better understand the dynamics of the increases in Eurodollar deposits documented above, we turn to a bank-level event study specification:

$$Y_{it} = \alpha_i + \alpha_t + \sum_{t \neq b} \beta_t \text{London branch}_i \times \text{Year}_t + \gamma \mathbf{X}' + \varepsilon_{it}, \tag{2}$$

where Y_{it} refers either to the foreign deposit share (based on Compustat Bank data) or the foreign government deposit share (constructed from the Call Reports. London branch$_i$ is a dummy for whether a bank had a London branch in 1967, which we interact with dummies for each year between the first year the dependent variable is available and 1989. Because of differences in data availability, the excluded period b is 1973 for the foreign deposit share and 1978 for the share of deposits from foreign governments.

Figure 6 plots the resulting event study estimates. Figure 6a shows that banks with a London branch were on similar trends in terms of their foreign deposit share un-

til around 1974, when they saw an increase lasting several years. After the Mexican default in 1982, and the ensuing crises engulfing many emerging economies, London banks' Eurodollar reliance markedly decreased. Overall, the resulting pattern suggests a boom-bust cycle in reliance on Eurodollar funding liquidity. Figure A.1 in the Online Appendix shows a highly similar dynamics when measuring foreign deposits using Call Report data, which becomes available in 1976.

Figure 7b plots event study estimates where we use the share of deposits from foreign governments as a dependent variable. While we do not have information on which countries exactly increasingly deposited money at banks with a London branch, our estimates show a striking similarity with changes in the oil price during that period. This suggests that the reliance on Eurodollars of some globally active US banks towards the end of the 1970s was at least in part driven by inflows of US dollars from oil-producing states.

In sum, the results in this section highlight a key pattern in the funding structure of global banks at the eve of the boom of the 1970s. If they had a pre-existing branch presence in London, global banks were considerably more likely to fund themselves with foreign deposits, and thus more exposed to the expansion of the Eurodollar market which gained additional steam during the petrodollar inflow of the late 1970s. In the next sections, we show that variation in this pre-determined exposure is highly predictive of banks' lending activity during the boom and ensuing bust.

IV.2 Eurodollars and Bank Balance Sheets

Equipped with our measure of exposure to the Eurodollar market, we next ask whether such exposure was also associated with differences in bank lending.

Our starting point is again a bank-level event study specification as in Equation (2), where the dependent variable is either Log(Total assets), Log(C&I loans), or Book leverage. Given that we have a much larger sample size for these variables, we can also include a vector of control variables $\mathbf{X}'$, which include deciles of bank size and leverage in 1973, also interacted with year dummies. These size decile $\times$ year fixed effects effectively absorb any unobserved shocks that would affect large banks differently from small banks during this period. Because we only have a bank-level panel for the balance sheets of US institutions, the sample is constructed from the Call Reports and covers the period 1970-89.

The identifying assumption underlying equation (2) is that, in the absence of the Eurodollar funding shock, the balance sheet of banks with and without a London branch would have seen a similar trajectory.

Figure 7 plots the event study estimates from equation (2). Banks with and without

London branches exhibited similar trends before the increase in Eurodollar funding starting in the mid-1970s. Over the course of the 1970s, banks grew in terms of assets and loan book, and this growth came with a marked increase in book leverage. After the wave of crisis events in the early 1980s, however, the same banks saw a substantial contraction and corresponding decrease in leverage.

Table 3 confirms these pattern with a set of cross-sectional regressions, where we compute the change of log(Total assets), log(Loans), and book leverage separately for the boom period (1973-81) and the bust (1981-85):

$$Y_i = \alpha + \beta London\ branch_i + \gamma \mathbf{X}' + \varepsilon_i, \tag{3}$$

where $London\ branch_i$ and $\mathbf{X}'$ are defined as above. We apply a bank's total assets in the base year (1973 or 1981) as weight. Standard errors heteroskedasticity-robust.

In line with the event study figures, London banks exhibit a clear boom-bust pattern, even when compared against relatively comparable banks that were also active in the international loan market or among the largest global banks. In column (1), we start by looking at the change in total assets between 1973 and 1981. The coefficient of 0.266 is highly statistically significant at the 1% level and implies a sizeable magnitude relative to the mean change in the dependent variable of 0.846. Column (2) documents a similar pattern and magnitude for changes in total loans. Column (3) shows that banks exposed to the Eurodollar market used the foreign deposits to increase their leverage by 1.433 percentage points over this period.

Columns (4)-(6) show a striking reversal of fortunes during the 1981-85 period. Banks with a London branch saw a contraction in assets, lending, and leverage that is quite similar in magnitude to the expansion during the boom. Taken together, these patterns are thus consistent with a cycle driven by Eurodollar funding in which banks overextend during the boom and contract during the bust.

IV.3 From Foreign Loan Exposure to Loan Losses

Table A.5 explores several indicators suggestive of the underlying mechanism, where we again run cross-sectional regressions as in Equation (3). The regressions are specified in the equivalent way, with the only differences being that the dependent variables differ in the time periods for which they are available.

Column (1) looks at changes in the share of loans going to foreigners, which is available for a subset of US banks in the Call Reports. The coefficient of 0.075 is statistically significant at the 5% level in Panel A and suggests that banks used their Eurodollar

deposits disproportionately to lend to foreign countries.

Columns (2)-(3) document that this increase in lending abroad went both to governments and the private sector. The coefficients of 0.023 and 0.340 imply that banks with a London branch ended up with a share of loans to foreign governments in total loans and share of foreign loans in total loans to non-financial corporations that were 77.777 and 2522.766 percent above their respective mean. Unfortunately, the Call Reports do not report these variables for the 1970s, which means we can only look at their level rather than their increase over the 1970s.

Columns (4)-(5) show that the credit expansion during the boom was associated with severe losses for banks exposed to the Eurodollar market. As of 1989, banks with a London branch had a 2.946 percentage point higher ratio of non-performing loans. They also saw a considerably lower return on equity, as suggested by the negative and highly statistically significant estimates in column (5).

The takeaway from these exercises is that banks relying on Eurodollar deposits were much more likely to extend credit to foreigners during the boom but ultimately faced severe losses during the bust.

IV.4 Banks' Loan Terms during Boom and Bust

The results in the previous sections document a boom-bust cycle for banks that were plausibly more exposed to the Eurodollar market. To better understand the underlying mechanism, we next turn to our newly digitized loan-level data.

This exercise serves two principal purposes. First, we would like to have some indication that the results we have documented so far are not only specific to the United States. While US banks played a major role in cross-border lending in the 1970s, they were also exposed to a series of other shocks, including the collapse of the Bretton Woods system, changes in monetary policy, and many others. Because we have loan-level data for a large sample of international banks, we can ask whether there was also a credit expansion for banks exposed to Eurodollars outside of the United States.

Second, because we have data on both the amount of newly issued loans and the interest rate spreads charged on these loans, we can test whether the boom-bust cycle was predominantly driven by credit demand or supply. The key hypothesis we have in mind is the following. If the credit expansion is mainly due to overborrowing due to an increase in the demand for credit, this should be reflected in its price or risk premium, and banks with a London branch should thus charge higher loan spreads. If the expansion is predominantly due to an increase in credit supply, we should see a decrease in spreads, as banks become increasingly willing to lend even to riskier borrowers during the boom.

Table 5 provides some evidence that is broadly consistent with the credit supply view. We run cross-sectional regressions as in Equation (3), where the dependent variable are several measures of banks' lending activity constructed from loan-level data. In particular, we calculate the average loan volume, interest rate spread, loan maturity, share of loans to governments, and share of loans to emerging markets for the periods 1973-75 ("pre-period"), 1976-81 ("boom"), and 1981-89 ("bust"), where loan terms are collapsed on the bank-level using the size of the loan as weight. We then relate the change in these average loan terms on the bank-level during the boom and bust to the preceding time period.

Panel A plots the results for the boom period. Column (1) uses the volume of newly issued loans (in logs) as the dependent variable. The highly statistically significant coefficient of 0.703 shows that banks with a London branch extended more loans even in this sample of international banks. Column (2) looks at interest rate spreads. The coefficient of -0.102 suggests that the spreads of new loans issued by London banks *decreased* during the boom. This finding is important because it suggests that the lending expansion was predominantly not driven by higher demand but higher supply of credit.

Column (3) shows a negative coefficient for loan maturity that is not statistically significantly different from zero. In principle, it is not clear how one would expect to see with regard to loan maturities if the credit expansion is indeed driven by credit supply. On one hand, one may expect to see an increase if banks are willing to extend credit for longer tenors and thus accept a higher probability borrowers will default over the life of the loan. On the other hand, in response to a credit supply shock, one may also expect a much broader group of borrowers to enter the market that typically borrow at shorter maturities. For example, working capital loans to corporations usually have short maturities but are usually considered much riskier than long-term loans to governments.

Columns (4)-(5) look at the share of lending to governments and emerging markets. The estimated coefficients are small in magnitude and statistically indistinguishable from zero. Our interpretation of this finding is that banks exposed to the Eurodollar market broadly increased their credit supply to a large set of borrowers, which critically included but was not limited to emerging market sovereigns.

Panel B documents the corresponding patterns for the period of the bust, defined as the period 1981-89. We find that, while banks exposed to the Eurodollar market continued to lend more than other banks, they increased the interest rate spreads charged on their loans, extended credit at shorter maturities, and pulled back significantly from government loans and emerging markets.

Taken together, our interpretation of these findings is as follows. The expansion of

funding availability in the Eurodollar market was a credit supply shock to banks with a pre-existing presence in London. Faced with this shock, these banks increased their credit supply during the boom, lending broadly to many borrowers including governments in emerging markets. But after the defaults of the early 1980s, the same banks then pulled back decisively, effectively shutting developing countries and governments out of the market, and tightened their loan terms in the process. These findings thus suggest a role for credit supply in the boom-bust cycle of the 1970s and 80s.

IV.5 Loan-Level Results

The above results are suggestive of banks more exposed to the Eurodollar market increasing the supply of credit during the boom, as implied by the greater volume of credit extended at *lower* spreads. But they are not conclusive, because of potential changes in borrower composition. For example, above's patterns could be explained by borrowers of lower credit risk increasing their demand of credit from international banks exposed to the Eurodollar market during the expansion phase. While previous research has found that the quality of borrowers in fact tends to go down during credit booms (Greenwood and Hanson, 2013; Kirti, 2024), we next exploit variation in Eurodollar exposure across banks lending to the same borrower countries, which allows us to abstract from country-level demand factors in the spirit of Khwaja and Mian (2008).[3]

As before, we proxy for banks' exposure to Petrodollar recycling via the Eurodollar market using their presence in London as the center of the Eurodollar market. In addition to this *push* factor – capturing the increased ability and willingness of banks to make loans due to their access to funding via the Eurodollar market – we also introduce a *pull* factor to identify the likely targets of banks' increased supply in loans.

Specifically, in the construction of our *pull* factor we exploit the fact that banks were particularly eager to open up new lending markets during the credit boom. This was driven by two main factors: The first was a desire to capture market share and be the first to establish a relationship with borrowers in a country relatively under-served thus far, as this opened up appealing future revenue streams from lending and beyond (Devlin, 1989). The other factor was that bank risk management at the time mandated maximum exposures to debtor countries (Devlin, 1989). This was at least in part driven by the fact that OCC regulation at the time mandated a maximum loan share of 10%

[3]While their original methodology uses firm fixed effects in credit registry data to compare different lenders issuing loans to the same *firm*, our international syndicated loan dataset simply does not include enough loans by different syndicates to the same firms to reliably estimate coefficients measuring the different loan terms they extend. To circumvent this issue while still controlling for factors determining credit demand, we instead use country-year dummies to compare loans by different syndicates extended to the same *countries*.

per borrower, and there was uncertainty about whether these limits would apply on the borrower- or country-level (Hanc, 1998). Overall, at the margin banks were more likely to lend to countries that they had not yet extended credit to, as countries with the largest distance to the bank's country limits promised the greatest potential to do future business with.

We therefore construct a dummy variable $Untapped\ market_{bc}$, which takes the value of 1 for bank-country pairs that had no lending relationship in the period of 1973-1975 and 0 otherwise. This dummy captures borrowers for which banks can be expected to be competing for at the margin, and thus price these loans as competitively as possible and without being affected by any pre-existing lending relationships and loan arrangements. Furthermore, the interaction of *Untapped market* with *London branch* introduces variation on the bank-country level, and thus allows us to absorb unobserved bank characteristics using lender-year fixed effects. Finally, we estimate the following regression, separately for the boom period of 1976-1981 and the bust period of 1981-1989:

$$Y_{icbt} = \alpha_{ct} + \delta_{bt} + \beta London\ branch_b\ x\ Untapped\ market_{bc} + \varepsilon_{icbt}, \tag{4}$$

where α_{ct} are country-year fixed effects, δ_{bt} are bank-year fixed effects, and we also include the non-interacted $Untapped\ market_{bc}$ which is omitted in (4) for brevity (while $London_b$ is absorbed by the bank fixed effects). Standard errors are clustered by borrower and bank.

By construction, this specification abstracts from differences in credit demand of firms within the same country due to the inclusion of the country-year fixed effects. Therefore the coefficient of interest β captures the difference in loan terms between a bank with and without a London branch, extended to a borrower in the same country. Including the interaction with $Untapped\ market_{bc}$ ensures β only captures the terms of loans to new borrowers. Intuitively, we are capturing the ability of banks with access to ample Eurodollar funding to extend more generous loan terms when competing for new market shares with banks who do not have access to the same funding source.

Table 6 presents the results of regression (4) for log loan amounts, spreads and maturities. In the first specification for each of these three dependent variables, we omit the *London* variable to validate using *Untapped market* as a pull-factor for international credit.

Columns (1)-(3) shows the results for log loan amounts during the boom. In column (1) we can see that countries without previous loan issuance indeed provides an attractive lending market *for all banks*. Loan amounts issued in such countries are on av-

erage 1.3% percent larger than in markets that banks had previously extended credit to. Including the *London* variable in column (2) shows that banks with branch presence in London were able to offer even larger loans in these untapped markets than their counterparts without access to Eurodollar deposits: their average loan amount was 0.5% higher than that of their competitors. The coefficient decreases somewhat in magnitude when including country-year and bank-year fixed effects, and is no longer statistically significant, but overall banks with a presence in London extended at least as large loans as their competitors, if not larger ones.

For loan spreads, column (4) shows that borrowers in untapped markets were afforded more generous loan terms than borrowers in other countries. This again validates the fact that these markets constituted an attractive lending destination for banks, so much so that they were willing to charge spreads that were 21 basis points lower than in markets they already had a presence in. When including the interaction with the *London* in columns (5), we see that it was almost exclusively London-banks that were able to extend these lower spreads. In column (6), where we include both country-year and bank-year fixed effects, we can see that London-banks charged spreads 17 basis points lower than their competitors lending to the *same* previously untapped countries. This result, which controls for any loan demand effects on the country-year level, is evidence in favor of a credit expansion driven by the increase in the banks' supply of credit, independent of any compositional or other demand effects.

Columns (7)-(9) report the results for average maturities, which are very noisily estimated and do not allow for a clear interpretation. The overall results for the boom however paint a clear picture: Banks with branches in London extend at least as large, if not larger amounts of credit, and do so at significantly lower spreads than their competitors without a London presence while lending *to the same borrower countries*.

The results for the bust period, reported in Panel B of Table 6, do show as clear a delineation of the loans issued by banks with presence in London to those by banks without. The only statistically significant difference in their loan terms is a shorter average maturity, but that effect only holds with country & bank fixed effects in column (8), not when these fixed effects are allowed to vary by year in column (9). However, this is not particularly surprising, given that *untapped markets* are defined in the period preceding the boom, so by the time boom has turned to bust, these markets have long been "tapped". Neither does this non-result take away from the argument made in this section, which was about the credit expansion during the boom to begin with.

We can conclude from the results presented in this section that the contemporaneous increase in loan volumes and decrease in spreads we observed on the bank-level are not driven by compositional effects in their borrower base. Using a country-level fixed effects methodology in the spirit of Khwaja and Mian (2008), we show that banks with

a greater exposure to the Eurodollar market extend larger loans at lower spreads to borrowers *in the same country*. While strictly speaking, there could still be compositional effects taking place *within* the borrowing countries, we can rule out that our results are due to banks primarily lending to safer debtor countries during a credit expansion. In fact, the next section explores how this bank-driven credit boom shaped real economic outcomes in the less-developed world, culminating in the LDC debt crisis.

V. The Macroeconomic Consequences of Petrodollar Recycling

This section provides evidence that the Eurodollar-fuelled boom and bust in bank lending had a predictable macroeconomic aftermath. Countries with a larger inflow of cross-border credit saw higher real GDP growth during the boom. But starting in the early 1980s, the same countries experienced a wave of banking and sovereign debt crises, painful restructurings, and an economic contraction.

V.1 Cross-Border Lending Around Financial Crises

We begin by documenting trends in loan characteristics for some of the most prominent examples of the LDC crises in the 1980s. In Figure 8, we plot loan issuance and spreads for the years around the crises episodes of Argentina in 1980, Brazil in 1982, Mexico in 1981 and Colombia in 1982 [4].

In the run-up to the crises, all of these countries exhibited large amounts of loan issuance, particularly in the corporate sector. This corporate issuance all but completely dried up in the years after the crisis. In contrast, issuance of government loans only played a minor role before the crisis. As the crisis unfolded however, governments became the prevalent borrower, consistent with a "doom loop" in which systemic banking crises necessitate government bail-outs, and thus financing needs for the government which in turn increases sovereign credit risk (Acharya, Drechsler, and Schnabl, 2011).

Importantly, spreads became increasingly compressed as loan issuance boomed. As argued before, this finding suggests that the lending boom was driven by supply factors, consistent with Petrodollar recycling via the Eurodollar market. Spreads compressed for private and public borrowers alike, and to a point were corporations were

[4]Crises definitions are from Laeven and Valencia (2020). For Brazil, which did not experience a banking crisis according to their classification, we use the currency crisis of 1982 instead.

charged the same or lower spreads than government borrowers just before the crisis. In stark contrast, spreads increased sharply after the beginning of the crisis, and corporate borrowers now were charged substantial risk premia in excess of government borrowers.

We broaden and systematize the evidence provided in these select crisis episodes by running an event study around all crises episodes in our sample[5]. Figure 9 shows these event studies separately for banking crises and sovereign debt crises. For both crises types, we confirm the pattern in spreads exhibited by the case studies above, namely a large compression in spreads leading up to the crisis, and a rapid expansion after its onset. Likewise, maturitites shorten in the wake of the crisis episodes, but with a less pronounced boom-bust pattern as compared to spreads. Both crises types also exhibit the large reduction in loan issuance volumes after the crisis episodes compared to the lending boom beforehand. This exclusion from international credit markets is particularly strong following sovereign debt crises, after which loan issuance almost entirely dries up, particularly for government loans[6]. In the next subsection, we explore how this boom-bust pattern in lending to less-developed countries shaped real economic outcomes long after the actual crisis episodes.

V.2 Credit Expansion and the 1970s-80s Boom-Bust Cycle

It has been well-documented that credit expansions are a frequent precursor of deep recessions and financial crises (Gourinchas and Obstfeld, 2012; Kalantzis, 2015; Müller and Verner, 2023). If the narrative evidence about the LDC crisis is to believed (Devlin, 1989; Sachs, 1987; Federal Deposit Insurance Corporation, 1997), the countries that saw the largest credit booms also experienced the most painful adjustments in their aftermath.

Figure 15 confirms this pattern based on our newly collected data. Between 1976 and 1981, the countries experiencing the largest inflow of cross-border credit also had a more rapidly expanding economy, as measured by the growth rate of their real GDP. Likewise, they experienced a greater compression in spreads, again suggesting that the credit boom was fuelled by an expansion in credit supply. When boom turned to bust however, the same economies saw a larger economic contraction and a greater

[5]We exclude episodes in countries that received less than five loans in the five years preceding the crisis. Crisis definitions are again taken from Laeven and Valencia (2020). See notes for Figure 9 for details.

[6]Note that this contrasts with our finding on the selected banking crises presented in Figure 8, where governments became the prevalent borrowers. In the broader set of crisis episodes considered here, many more countries were completely excluded from international borrowing after the onset of the crisis than for the larger countries considered in the case studies – corporate and government borrowers alike

increase in spreads.

Table 7 challenges this correlation to a statistical test. In particular, we run a set of country-level regressions relating various financial indicators and measures of economic activity to the extent to which countries experienced an inflow of cross-border credit, as proxied by the loan issuance relative to GDP over the boom period of 1976-1981. Specifically, we estimate the following regression:

$$Y_{ct} = \alpha + \beta \text{Loan Issuance}_{c,76_81} + \varepsilon_{ct}, \tag{5}$$

where Loan Issuance$_{c,76_81}$, our measure proxying the magnitude of the credit expansion, is defined as the total loan issuance in country c between 1976 and 1981, scaled by nominal GDP in 1973.

Column (1) reports the coefficient of a regression of the change in average spreads during the boom on our measure for the credit expansion. The coefficient implies that for every percentage point in additional loan issuance (as a share of GDP) during the boom, spreads actually decreased by 0.46 basis points. As argued before, the negative correlation between loan issuance and spreads is suggestive of a credit boom driven by supply as opposed to demand. The lower panels show that the same results holds when restricting the sample to emerging countries and to non-oil producers, with a striking similarity in the magnitude of the coefficients across these samples.

Column (2) shows that during the credit boom, countries who experienced a greater credit boom also experienced a contemporaneous boom in real GDP. Additional borrowing equivalent of 1 percentage point of GDP increased the annual growth rate of real GDP by 0.26 basis points above trend. Likewise, this holds with very similar magnitudes for the sample of emerging and non oil-producing countries.

In the ensuing bust of 1982-1989, we see a pronounced reversal of these patterns as reported in the remaining columns of Table 7. Additionally, we find that loan issuance during the boom period is predictive of a wide set of measures of likelihood and severity of subsequent sovereign debt crises.

Column (3) shows that during the bust period, spreads increased to a greater extent for countries that previously exhibited a greater credit boom. While this increase is not statistically significant, it suggests that the decline in spreads seen during the boom period is not simply capturing a long run trend of declining spreads, i.e. due to improving country fundamentals.

Column (4) shows that the stronger growth in real GDP growth seen during the boom reverted during the bust for countries with greater credit expansions. Additional loan

uptake during the boom of one percentage point of GDP predicts real GDP growing 0.24 basis points slower per year between 1981 and 1989.

In Column (5), we show that overall loan issuance mirrored the boom-bust pattern in real GDP growth. Loan issuance contracted more for countries that had previously experienced a greater credit boom: every percentage point of additional loan issuance relative to GDP predicts a decrease in loan issuance during the bust of 1.8 basis points, as compared to the boom. The coefficient is statistically significant in the full sample and the sample of non oil-producing countries, but not in the sample of emerging countries. One reason is that some emerging market governments actually increased loan uptake in the wake of the crisis, as seen in Figure 9.

As credit boom turned to bust, turmoil eventually ensued for sovereign borrowers. While the timing of sovereign debt crises and defaults varied across countries, we construct measures that capture their incidence broadly over the bust period of 1982-1989 and relate them to credit uptake during the boom. Columns (6)-(9) report the results. Additional loan issuance during the boom equal to 1% of GDP increased the probability of a sovereign debt crisis (according to the definition of Laeven and Valencia (2020)) by 0.8%, and the probability of a sovereign default (as classified by Asonuma and Trebesch (2016)) by 0.65%. Likewise, the cumulative haircut experienced by investors in sovereign debt (using the "Bulow-Rogoff"-measure of Graf von Luckner, Meyer, Reinhart, and Trebesch (2024)) increased by 12.8 basis points for every additional percentage point of loan issuance relative to GDP during the boom, albeit not statistically significant. Lastly, countries with a greater exposure to the credit boom also restructured a greater share of their sovereign debt during the 1980s: restructured debt increased by 0.48 percentage points of GDP for every additional percentage point of loan issuance relative to GDP during the boom (data on debt restructuring comes from Cruces and Trebesch (2013)). The magnitudes of the coefficients in columns (6)-(9) are again very similar across the three different samples considered.

In summary, the results presented in Table 7 exhibit a striking pattern of a credit boom that originated with a small number of banks active in the Eurodollar market in London during the 1970s turning to bust in a wide set of countries across the globe. These countries experienced painful defaults and adjustments for the rest of the 1980s (and for some of them, well after that). The next section explores for a few example countries in Latin America how the national banking system amplified the international boom-bust in credit domestically.

V.3 Amplification Through Domestic Banks

While the credit boom of the 1970s was inherently global in nature, it also had important domestic implications. An important fact we document is that the cross-border lending inflows during that period went to a significant extent to banks and other financial institutions. As such, it is important to understand what the banks in the recipient countries did with the funds they borrowed, and how their banking sectors fared during the bust period that followed.

We investigate this question using a number of important case studies centered around the Latin American debt crises. The advantage of looking at these cases is that they experienced some of the most pronounced boom-bust cycles, and they further published relatively detailed balance sheet data for banks at the time, which we were able to digitize.

The Argentinian experience The economic history of Argentina is well-known to be riddled with various crises. The 1980s were no exception. After experiencing a banking crisis in 1980 and currency collapse in 1981, Argentina also faced a sovereign debt crisis in 1982. The entire episode was accompanied by rampant inflation, prompting the government to change from the *peso ley* to the Argentine *peso* in 1983 and then the *austral* in 1985 (which should only last until 1991, when it was replaced by the *peso convertible*).

Figure 10a puts this experience into context by looking at the development of domestic bank balance sheets. Argentina was one of the major recipients of international loans during the 1970s boom, but it also saw a staggering increase in domestic credit. Importantly, the role of lending in foreign currency and lending to the government were extremely limited in the run-up to the 1980 banking crisis. While credit expanded rapidly after the mid-1970s, the share of foreign currency loans extended by domestic banks remained stable at approximately 10%. The share of loans to the government in fact decreased during this time period, reaching just below 15% in 1980, which suggests that the credit boom was decisively driven by lending to the private sector.

These patterns saw a dramatic change between the start of the banking crisis in 1980 and the 1982 default. Within a short time period, the share of lending to the government had increased to 20%, and further increased to around 50% by 1989, when the banking sector faced yet another crisis. Foreign currency lending saw a similar dramatic turn. Between 1980 and 1983, the share of foreign currency in private sector credit increased by 20 percentage points. The increase was even more dramatic for lending to the government, for which the foreign currency share went from less than 10% to almost 60%.

Our interpretation of the Argentinian case is that the cross-border loan inflows were accompanied by a boom in credit to the private sector, which turned into a foreign currency-fueled episode of financial repression as the government sled ever deeper into crisis. This view is consistent with the common finding in the literature that financial crises are often followed by sovereign debt issues (e.g., Reinhart and Rogoff, 2009), but rather inconsistent with the idea of the Argentinian problems of the early 1980s being caused by profligate government spending.

Venezuela's banking issues Venezuela was another major recipient of the supply-induced expansion of cross-border lending during the mid-1970s. Figure 10b shows that, similar to Argentina, it also experienced a massive expansion of domestic credit to the private sector during the 1970s.

Importantly, the run-up to Venezuela's 1982 sovereign debt crisis was riddled with banking sector problems. Figure 10b shows that the ratio of non-performing loans quadrupled between 1977 and 1979, and further increased in the early 1980s, amid the failures of Banco De Los Trabajadores, Banco de Desarrollo Agropecuario, and Banco Nacional de Descuento.

Although Venezuela was clearly directly affected by the movements in oil prices during this period, the patterns above suggest that its sovereign debt woes were at least in part amplified by a banking crisis preceded by a domestic credit expansion and foreign loan inflows.

Bolivia's private sector defaults While Bolivia was a relatively smaller economy and thus also loan recipient in the run-up to the LDC crises, it was one of the hardest-hit countries. Figure 13 shows that the haircuts on Bolivian loans and bonds were among the largest of all developing countries during the late 1980s.

To better understand the source of the Bolivian troubles, we turn to annual reports of the *Banco Central de Bolivia*, which include detailed information on the composition of non-performing loans during this period. According to Laeven and Valencia (2020), Bolivia's crisis started with sovereign debt issues in 1980, followed by a currency crisis in 1981 and a banking crisis several years later. Figure 12 plots several data points to investigate the potential underlying drivers through the lense of bank balance sheets.

Figure 12 plots the ratio of non-performing loans separately for private and state-owned banks between 1979 and 1989. While loan losses were already rampant in the late 1970s, they further increased in 1981-82, reaching the staggering levels of around 60% and 40% for government and private banks, respectively. While these numbers somewhat decreased over the course of the decade, especially for private institutions, the ratio of non-performing loans stood at over 80% for state-owned banks in 1987.

Figure 12 asks which borrowers were particularly likely to be in default, where we focus on the maximum NPL ratio for different sectors during the 1982-84 crisis period. This analysis shows that 70% of loans to the construction sector were non-performing, followed by the residual category of various industries and mining. Defaults among households were relatively "uncommon", with a NPL ratio of 25%. However, because the outstanding credit in Bolivia at the time was dominated by lending to agriculture and various industrial sectors, Figure 12 shows that these alone accounted for more than half of all outstanding non-performing loans.

Interpretation Our takeaway from these three case studies of Latin American debt crises is that the credit supply-driven boom-bust cycle fueled by the Eurodollar market had a substantive domestic component. While existing work has particularly emphasized the role of fiscal profligacy, poor institutions, and dependence on commodity exports, we find that an extension of credit to the private sector credit followed by banking crises and financial repression were often a clear contributor to sovereign debt issues. These results suggest that a foreign credit supply shock can ultimately lead to sovereign default events at least partly by fueling unsustainable domestic credit booms that predictably turn into loan losses on bank balance sheets.

VI. Conclusion

Booms in credit followed by severe recessions are a recurring theme in economic history. A better understanding of these cycles requires an analysis of what gave rise to the boom in the first place (Sufi and Taylor, 2021). Our analysis suggests that an increased willingness of a few global banks to extend long-term credit at low rates can precipitate boom-bust cycles in places far away from their headquarters.

We document evidence in favor of this view during a critical case study: the first wave of financial crises in Less Developed Countries (LDCs) following the long period of relative calm in the 30 years after World War II. Our findings point to a global source of coordinated booms and busts across countries, in line with the idea of a global financial cycle (Rey, 2015). Different from the existing literature, our setting allows us to pinpoint the specific origin of a global credit supply shock, the rise of the Eurodollar market, which we are able to tie to the wave of LDC crises.

Our work also poses some questions for theories motivated by the developing country defaults at the time. A frequent feature of such models is that buoyant fiscal spending by politicians with limited commitment is a core contributor to such defaults. While our results do not rule out such factors, they suggest a perhaps even more central role for an expansion of private debt fuelled by credit supply, which then ultimately

leads to issues with government debt. Consistent with this view, we find a hitherto perhaps underappreciated role for lending to non-financial corporations during the 1970s boom.

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TABLES

TABLE 1: A New Dataset on Loans Issued in International Markets, 1972-89

	Loan amount ($ billion) (1)	Number of loans (2)	Number of borrowers (3)	Number of countries (4)	Number of banks (5)
Full sample	2244.5	17215	5473	153	827
By year					
1973	20.5	393	264	61	115
1974	28.5	473	357	67	121
1975	20.6	418	297	70	127
1976	29.6	389	293	65	121
1977	31.1	406	297	76	118
1978	67.9	688	458	84	181
1979	67.0	746	498	89	175
1980	69.1	775	537	81	194
1981	162.3	1235	728	104	223
1982	132.8	1266	699	91	227
1983	98.2	926	541	88	210
1984	137.8	1151	585	80	230
1985	238.5	1392	773	76	252
1986	238.6	1570	877	77	219
1987	316.1	1972	1039	76	247
1988	319.5	1989	1078	68	235
1989	266.2	1426	816	73	225
By country group					
Advanced economies	1600.4	9059	3257	36	529
Emerging economies	628.8	8038	2253	115	575
Supranational	15.3	118	29	2	48

Notes: This table plots descriptive statistics on the coverage of our new loan-level dataset. See Section II for details on data sources and construction.

TABLE 2: First Stage – London Branches and Eurodollar Exposure

	$\frac{\text{Foreign dep.}}{\text{Total dep.}}_{76}$	Δ_{70-76} $\frac{\text{Foreign dep.}}{\text{Total dep.}}$	Δ_{76-81} Foreign gov. dep. share	Number of countries w/ branch	Branch in oil country	Joint Venture w/ oil bank$_{78}$
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All banks						
London branch	0.278**	0.090**	0.053**	2.652**	0.212**	0.123**
	(0.043)	(0.019)	(0.012)	(0.524)	(0.042)	(0.038)
Observations	12,695	34	2,015	344	630	1,714
R^2	0.39	0.30	0.08	0.10	0.07	0.03
Panel B: Banks involved in international loans						
London branch	0.199**	0.096**	0.043**	2.429**	0.207**	0.087+
	(0.060)	(0.019)	(0.013)	(0.843)	(0.059)	(0.048)
Observations	25	13	18	132	198	327
R^2	0.25	0.66	0.21	0.04	0.07	0.01
Panel C: Largest global banks						
London branch	0.202**	0.099**	0.047**	3.439**	0.309**	0.091*
	(0.048)	(0.017)	(0.013)	(0.756)	(0.054)	(0.040)
Observations	49	20	27	175	461	461
R^2	0.36	0.67	0.37	0.11	0.14	0.02

Notes: This table reports the results from regressions relating several indicators of banks' exposure to petrodollar inflows in the Eurodollar market to whether they had a London branch in 1967. In column (1), foreign deposits are defined based on Call Report data, which report such data for the first time in 1976. In column (2), we use data on publicly-listed banks from Compustat Bank, which includes data on foreign deposits since 1970. Column (3) looks at the share of foreign governments in total deposits, which rose during the oil boom of the late 1970s. Robust standard errors are reported in parentheses, with **, *, and + indicating statistical significance at the 1%, 5%, and 10% level, respectively.

Sources: The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). Information on bank branches in other countries are taken from the same source.Bank balance sheet and income statement data are taken from the FFIEC's *Consolidated Report of Condition and Income* ("Call Reports"). See Section VII.2.2 for details on data cleaning and variable construction. Data on joint ventures with banks in major oil-producing countries comes from a 1978 edition of *The Banker* (see Section VII.2.3).

TABLE 3: Eurodollar Exposure and Boom-Bust Among US Banks

	Boom period, 1973-80			Bust, 1981-85		
	Δ_{73-81} Assets	Δ_{73-81} Loans	Δ_{73-81} Leverage	Δ_{81-85} Assets	Δ_{81-85} Loans	Δ_{81-85} Leverage
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All banks						
London branch	0.266**	0.238**	0.014**	-0.206**	-0.198**	-0.012**
	(0.072)	(0.076)	(0.002)	(0.074)	(0.065)	(0.002)
Observations	9,345	9,343	9,345	7,812	7,809	7,812
R^2	0.08	0.05	0.08	0.09	0.07	0.16
Panel B: Banks involved in international loans						
London branch	0.332**	0.308**	0.008	-0.218*	-0.222+	-0.010**
	(0.074)	(0.091)	(0.005)	(0.097)	(0.107)	(0.003)
Observations	24	24	24	22	22	22
R^2	0.08	0.08	0.15	0.12	0.12	0.32
Panel C: Largest global banks						
London branch	0.299**	0.293**	0.009**	-0.275**	-0.283**	-0.012**
	(0.089)	(0.099)	(0.003)	(0.088)	(0.091)	(0.003)
Observations	46	46	46	39	39	39
R^2	0.10	0.09	0.23	0.21	0.20	0.43

Notes: This table reports the results from regressions of US banks' changes in total assets (in log), loans (in log), and book leverage on whether they had a London branch in 1967, our measure of exposure to the rise of the Eurodollar market. Regressions are weighted by total assets in the base year (1976 in columns 1-3, 1981 in columns 4-6). Robust standard errors are reported in parentheses, with **, *, and + indicating statistical significance at the 1%, 5%, and 10% level, respectively.

Sources: The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). Bank balance sheet and income statement data are taken from the FFIEC's *Consolidated Report of Condition and Income* ("Call Reports"). See Section VII.2.2 for details on data cleaning and variable construction.

TABLE 4: From Foreign Loan Exposure to Loan Losses

	Δ_{78-81} Foreign Loan Share	Foreign Gov. Loan Share_{81}	Foreign C&I Loan Share_{85}	NPL Ratio_{89}	Δ_{81-89} ROE
	(1)	(2)	(3)	(4)	(5)
Panel A: All banks					
London branch	0.075*	0.023*	0.340**	0.029**	-0.343*
	(0.032)	(0.011)	(0.069)	(0.005)	(0.156)
Observations	77	113	1,278	9,946	5,018
R^2	0.22	0.08	0.45	0.36	0.01
Panel B: Banks involved in international loans					
London branch	0.064	0.035**	0.286**	0.023**	-0.376*
	(0.041)	(0.011)	(0.065)	(0.006)	(0.175)
Observations	12	14	10	21	19
R^2	0.11	0.20	0.35	0.27	0.11
Panel C: Largest global banks					
London branch	0.070	0.030*	0.309**	0.029**	-0.336*
	(0.042)	(0.011)	(0.074)	(0.006)	(0.156)
Observations	19	23	18	38	30
R^2	0.15	0.23	0.54	0.44	0.15

Notes: This table reports the results from regressions relating different measures of US banks' loan exposure to foreigners as well as their non-performing loans and return on equity to whether they had a London branch in 1967, our measure of exposure to the rise of the Eurodollar market. The shares in columns (1) and (2) are defined relative to overall outstanding loans. The share of foreign C&I loans in column (3) is relative to all outstanding C&I loans. The indicated years are dictated by data availability. Regressions are weighted by total assets in the base year (e.g., 1978 in column 1, 1981 in column 2, etc.). Robust standard errors are reported in parentheses, with **, *, and + indicating statistical significance at the 1%, 5%, and 10% level, respectively.

Sources: The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). Bank balance sheet and income statement data are taken from the FFIEC's *Consolidated Report of Condition and Income* ("Call Reports"). See Section VII.2.2 for details on data cleaning and variable construction.

TABLE 5: Eurodollar Exposure and Bank Loan Terms

	Log Loan volume (1)	Interest rate spreads (2)	Loan maturity (3)	Share gov. loans (4)	Share emerging markets (5))
Panel A: Difference between 1976-81 and 1973-75					
London branch	0.703**	-0.102+	-3.613	-0.004	-0.047
	(0.210)	(0.053)	(3.533)	(0.042)	(0.053)
Observations	277	251	265	277	276
R^2	0.09	0.03	0.01	0.00	0.01
Panel B: Difference between 1981-89 and 1976-81					
London branch	1.059**	0.055	-6.545*	-0.049*	-0.135**
	(0.159)	(0.041)	(3.009)	(0.025)	(0.042)
Observations	544	496	526	544	543
R^2	0.23	0.01	0.03	0.02	0.09

Notes: This table reports the results from regressions relating changes in loan terms (averaged on the bank-level for different periods) to whether banks had a London branch in 1967. The dependent variables are changes in the volume of newly issued loans (annualized, in logs), interest rate spreads, loan maturity, the share of loans to governments, and the share of loans to emerging markets. Because we do not have clear information on lead arrangers, loans are collapsed on the bank-level assuming equal shares of all participants. Regressions are weighted by newly issued loans in the preceding period (i.e., 1973-75 in Panel A and 1976-81 in Panel B). Robust standard errors are reported in parentheses, with **, *, and + indicating statistical significance at the 1%, 5%, and 10% level, respectively.

Sources: The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details.

TABLE 6: Loan Level Results

	Loan amounts			Spreads			Maturities		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Boom period, 1976-81									
Untapped market	1.278**	0.862**	0.604**	-0.207**	-0.084+	0.031	3.834	4.937	-5.010
	(0.202)	(0.217)	(0.215)	(0.068)	(0.049)	(0.044)	(2.328)	(4.480)	(4.853)
London x Untapped market		0.502*	0.349		-0.116+	-0.173**		-3.755	3.466
		(0.245)	(0.236)		(0.063)	(0.046)		(5.013)	(5.123)
Observations	3,608	3,445	2,991	2,826	2,689	2,273	3,212	3,055	2,625
R^2	0.14	0.60	0.76	0.04	0.51	0.86	0.00	0.38	0.62
Panel B: Bust period, 1982-89									
Untapped market	1.113**	0.953**	0.597*	0.061	0.134	-0.071	13.741**	23.003**	12.209**
	(0.170)	(0.335)	(0.257)	(0.050)	(0.109)	(0.096)	(3.760)	(6.779)	(4.568)
London x Untapped market		0.042	0.056		-0.107	0.131		-16.693*	-4.151
		(0.358)	(0.261)		(0.112)	(0.115)		(7.148)	(5.020)
Observations	8,205	7,841	7,147	4,457	4,248	3,702	6,790	6,490	5,873
R^2	0.10	0.49	0.69	0.00	0.35	0.60	0.02	0.36	0.54
Fixed Effects									
Bank & Country		✓			✓			✓	
Bank-Year & Country-Year	✓		✓	✓		✓	✓		✓

Notes: This table reports the result of regressions of loan characteristics on the interaction of a variable capturing whether a bank had a presence in London in 1967 with a dummy variable capturing whether banks had a pre-existing lending relationship in a country. The variable "Untapped market" takes the value of 1 for all bank-borrower pairs for which the bank issued no loans to the borrower's home country in the pre-period of 1973-1975. **, *, and + indicating statistical significance at the 1%, 5%, and 10% level, respectively. Standard errors are clustered on the borrower- and bank-level.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1).

TABLE 7: Cross-Border Loan Issuance and Boom-Bust Cycles

	Boom period, 1976-81		Bust Period, 1981-89						
	$\Delta_{7375-7681}$ Spreads	Δ_{76-81} GDP	$\Delta_{7681-8289}$ Spreads	Δ_{81-89} GDP	$\Delta_{7681-8289}$ Loan Issuance	Sovereign Debt Crisis$_{82-89}$	Sovereign Default$_{82-89}$	Cumulative Haircut$_{89}$	Debt Restructured$_{82-89}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: All countries									
Loan Issuance	-0.458*	0.026*	0.188	-0.024**	-1.833**	0.801**	0.650**	0.128	0.480*
	(0.183)	(0.011)	(0.172)	(0.007)	(0.662)	(0.220)	(0.217)	(0.084)	(0.204)
Observations	59	78	74	78	77	72	78	78	78
R^2	0.10	0.08	0.02	0.15	0.08	0.17	0.11	0.08	0.10
Panel B: Emerging economies									
Loan Issuance	-0.521*	0.023+	0.169	-0.023**	-0.520	0.669*	0.465+	0.126	0.429+
	(0.206)	(0.013)	(0.204)	(0.008)	(0.696)	(0.257)	(0.250)	(0.092)	(0.229)
Observations	43	59	55	59	58	53	59	59	59
R^2	0.11	0.05	0.01	0.11	0.01	0.12	0.06	0.07	0.07
Panel C: Exclude oil producers									
Loan Issuance	-0.437+	0.035*	0.167	-0.019**	-2.583**	0.791**	0.659*	0.060	0.284+
	(0.256)	(0.017)	(0.209)	(0.006)	(0.832)	(0.285)	(0.296)	(0.042)	(0.157)
Observations	45	60	58	60	60	58	60	60	60
R^2	0.08	0.16	0.01	0.13	0.13	0.15	0.09	0.04	0.03

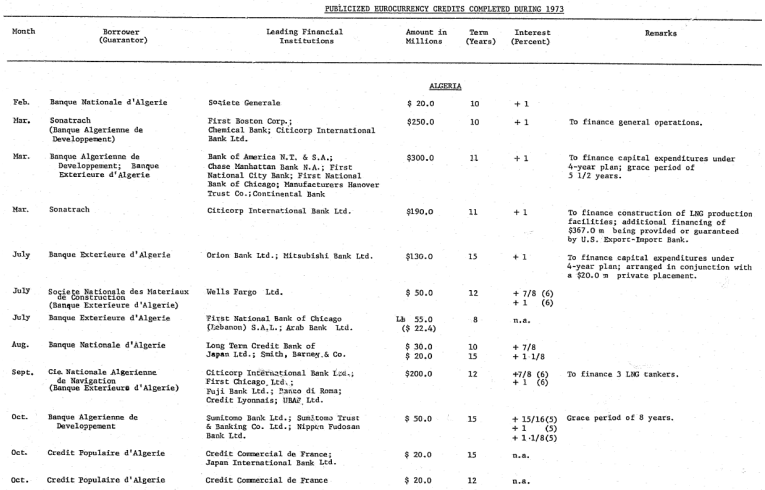
Notes: This table reports regressions relating inflows of cross-border loans to boom-bust cycles. The independent variable in all regressions is the total loan issuance in the boom period of 1976-1981, scaled by 1973 GDP. The dependent variables are constructed as follows: Column (1) is the change in average spreads from 1973-1975 to 1976-1981, weighted by loan amounts. Column (2) is the growth in real GDP between 1976 and 1981, residualized by country and year dummies over the 1973-1989 period. Column (3) is analogous to column (1), but the change is from 1976-1981 to 1982-1989. Column (4) is analogous to column (2), but between 1981 and 1989. Column (5) is the log change in total loan issuance from 1976-1981 to 1982-1989. Column (6) is a dummy for a country experiencing a sovereign debt crisis in 1982-1989. Column (7) is a dummy for a country experiencing a sovereign debt default in 1982-1989. Column (8) is the change in the cumulative haircut on sovereign debt between 1981 and 1989. Column (9) is the total amount of sovereign debt that was restructured between 1982 and 1989, scaled by GDP in 1975. We only include countries with at least five loans in 1976-1981. Standard errors are heteroskedasticity-robust, with **, *, and + indicating statistical significance at the 1%, 5%, and 10% level, respectively.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Macroeconomic variables come from **?**. Crisis definitions are based on Laeven and Valencia (2020). Data on sovereign defaults are from Asonuma and Trebesch (2016). Data on debt restructuring & haircuts are from Cruces and Trebesch (2013).

VII. FIGURES

FIGURE 1: Example Images of the Original Data Sources

(A) World Bank



PUBLICIZED EUROCURRENCY CREDITS COMPLETED DURING 1973

Month	Borrower (Guarantor)	Leading Financial Institutions	Amount in Millions	Term (Years)	Interest (Percent)	Remarks
			ALGERIA			
Feb.	Banque Nationale d'Algerie	Societe Generale	$ 20.0	10	+ 1	
Mar.	Sonatrach (Banque Algerienne de Developpement)	First Boston Corp.; Chemical Bank; Citicorp International Bank Ltd.	$250.0	10	+ 1	To finance general operations.
Mar.	Banque Algerienne de Developpement; Banque Exterieure d'Algerie	Bank of America N.T. & S.A.; Chase Manhattan Bank N.A.; First National City Bank; First National Bank of Chicago; Manufacturers Hanover Trust Co.; Continental Bank	$300.0	11	+ 1	To finance capital expenditures under 4-year plan; grace period of 3 1/2 years.
Mar.	Sonatrach	Citicorp International Bank Ltd.	$190.0	11	+ 1	To finance construction of LNG production facilities; additional financing of $367.0 m being provided or guaranteed by U.S. Export-Import Bank.
July	Banque Exterieure d'Algerie	Orion Bank Ltd.; Mitsubishi Bank Ltd.	$130.0	15	+ 1	To finance capital expenditures under 4-year plan; arranged in conjunction with a $20.0 m privace placement.
July	Societe Nationale des Materiaux de Construction (Banque Exterieure d'Algerie)	Wells Fargo Ltd.	$ 50.0	12	+ 7/8 (6) + 1 (6)	
July	Banque Exterieure d'Algerie	First National Bank of Chicago (Lebanon) S.A.L.; Arab Bank Ltd.	Lb 55.0 ($ 22.4)	8	n.a.	
Aug.	Banque Nationale d'Algerie	Long Term Credit Bank of Japan Ltd.; Smith, Barney & Co.	$ 30.0 $ 20.0	10 15	+ 7/8 + 1 1/8	
Sept.	Cie. Nationale Algerienne de Navigation (Banque Exterieure d'Algerie)	Citicorp International Bank Ltd.; First Chicago Ltd.; Fuji Bank Ltd.; Banco di Roma; Credit Lyonnais; UBAF Ltd.	$200.0	12	+7/8 (6) + 1 (6)	To finance 3 LNG tankers.
Oct.	Banque Algerienne de Developpement	Sumitomo Bank Ltd.; Sumitomo Trust & Banking Co. Ltd.; Nippon Fudosan Bank Ltd.	$ 50.0	15	+ 15/16(5) + 1 (5) + 1 1/8(5)	Grace period of 8 years.
Oct.	Credit Populaire d'Algerie	Credit Commercial de France; Japan International Bank Ltd.	$ 20.0	15	n.a.	
Oct.	Credit Populaire d'Algerie	Credit Commercial de France	$ 20.0	12	n.a.	

(B) Euromoney

Japan

● **Borrower:** Promise Co Ltd $15 million
Terms: Maturity 2 years
Lead managers and providers: Norwest Bank Minneapolis; Banco di Roma (Chicago); Pittsburgh National Bank; National Australia Bank

Korea

● **Borrower:** Kukje American Corporation $30 million
Guaranteed by: Kukje Corporation (Seoul)
Standby facility for the establishment of a commercial paper issuance programme. Master letter of credit to be issued by Marine Midland Bank in favour of American International Group which will issue its bonds in favour of the trustee acting on behalf of the commercial paper noteholders
Terms: 1 year with a ⅛% utilization fee payable quarterly. The margin for any drawdown is 2% above Marine Midland's prime rate
Lead manager: Marine Midland Bank
● **Borrower:** Hankuk Glass Industry Co $36 million
Tranche: (A) $31 million (B) $5 million — tax-spared, provided by NatWest
Terms: (A) Years 1-3 at 1% over Libor, years 4-8 at 1⅛% (B) 8 years at ⅜% over Libor
Lead managers: BA Asia; KDB International (Singapore)
● **Borrower:** Saehan Media Corporation $20 million
Guaranteed by: Hanil Bank Ltd
Terms: 8 years at 1⅛% above Libor
Lead managers: Citicorp Capital Markets Group; KEB (Asia) Finance Ltd

Malaysia

● **Borrower:** Perbadanang National Shipping Line Berhad $30 million
Guaranteed by: the Federation of Malaysia
Terms: 10 years at ½% over Libor
Lead managers: Chase Manhattan Bank; Bank Bumiputra Malaysia; Tokai Bank; United Malayan Banking Corp; Saitama Bank

New Zealand

● **Borrower:** Indosuez New Zealand Ltd £3 million
Sole provider: Indosuez Export Finance Ltd

Norway

● **Borrower:** A/S Pelican & Co K/S $100 million
Tranche: (A) $80 million — project loan (B) $20 million — corporate loan. Guaranteed by Bergen Bank SA
Terms: (A) maturity 8 years (B) 9 years at ½% over Libor
Lead managers and providers: Barclays Bank International; Banque de la Société Financière Européene; Algemene Bank Nederland; Amsterdam-Rotterdam Bank; Banque Nationale de Paris; Bank of Montreal; Banque Indosuez; Morgan Grenfell; Royal Bank of Canada; Union Bank of Switzerland
● **Borrower:** Sparebanken Oslo Akershus $45 million
Terms: 5 years at ⅛% over Libor
Lead manager and agent: Manufacturers Hanover Ltd
● **Borrower:** Tofte Industrier A/S $26.3 million
Temrs: Years 1-5 at ¾% above Libor, years 6-10 ⅞%
Lead manager and agent: Citicorp International Bank Ltd

Oman

● **Borrower:** National Hotels Company of Oman $6 million
Terms: maturity 7 years
Lead manager and agent: Banque Paribas

Panama

● **Borrower:** Westhydro Contractors (W.H.C.) SA Panama $30 million
Guaranteed by: Impersit SpA
Terms: 5 years at ¾% over Libor
Lead managers and providers: Banca Commerciale Italiana; Royal Bank of Canada (Barbados); Banca della Svizzera Italiana; Crédit Agricole; Cassa di Risparmio delle Provincie Lombarde (CARIPLO); Continental Illinois; Banca Union di Credito

Philippines

● **Borrower:** National Power Corporation of the Philippines $100 million
Guaranteed by: the US Eximbank (100%) and the Republic of the Philippines
Tranche: (A) $50 million (B) $50 million
Terms: (A) 8 years at ¼% over Libor (B) 8 years at 3/16% over Libor
Sole provider: American Express Export Credit Corp

Portugal

● **Borrower:** Companhia Nacional de Petroquimica £20 million
Terms: Maturity 2 years with the option to extend for a further year, at ⅜% over Libor plus MLAs. Fully revolving
Lead managers: Samuel Montagu; Banque Belge
● **Borrower:** Electricidade de Portugal $20 million
Terms: 1 year at ⅜% over Libor
Lead manager and agent: Al Saudi Banque
● **Borrower:** Republic of Portugal ¥ 5 billion
Terms: 8 years at 0.2% over JLTP. Fixed rate
Lead manager and agent: IBJ

Saudi Arabia

● **Borrower:** S. Al-Amry Establishment/CMC Construction $23.57 million (equivalent)
Tranche: (A) SR 10.75 million — performance guarantees (B) SR 43 million — advance payment guarantees (C) $2.5 million — (1) letter of credit and (2) refinancing facility (D) $2.5 million — progress payment facility (E) $3 million — working capital loan
Terms: (A) 2 years at 1⅛% guaranteed commission (B) 1 year at 1⅛% guarantee commission (C) 1¼ years at (1) 1⅛% letter of credit commission (2) 1¼% over Bibor (D) 1 year at 1¼% over Bibor (E) 1 year at 1⅛% over Bibor, extendable for 3 months
Lead managers: National Bank of Bahrain; Kuwait Asia Bank
● **Borrower:** Saudi Compound Company $53.3 million
Terms: Maturity March 31st, 1989. Margin 1¾% over Bibor
Lead managers: Bank of Bahrain and Kuwa Gulf Bank of Kuwait; KFTCIC

Seychelles

● **Borrower:** Seychelles Public Transport Corporation Swfr 22.7 million
Guaranteed by: the Republic of the Seychell and SACE
Terms: Maturity 5 years from each shipment at 7% fixed rate. There will be a Mediocredito Centrale subsidy for the difference between the fixed rate and a floating rate of ¾% over Libor
Arrangers: Euromobiliare Ltd; Samuel Montagu

Singapore

● **Borrower:** Indo-Cement Singapore Priva Ltd S$25 million
Terms: 7 years 3 months at 1¼% over Sibo
Arranger: First Pacific Finance
Lead managers and providers: Bank Negara Indonesia 1946; Amsterdam-Rotterdam Bank; Bank of America; Bank of Tokyo

South Africa

● **Borrower:** Barclays National Bank $140 million
Remarks: Club deal. Morgan Guaranty was one of the lead managers
● **Borrower:** Republic of South Africa Swfr 70 million
Terms: 5½ years at 6% fixed rate
Lead manager and agent: Union Bank of Switzerland
● **Borrower:** South African Transport Servi £10 million
Sole provider: Lloyds Bank International

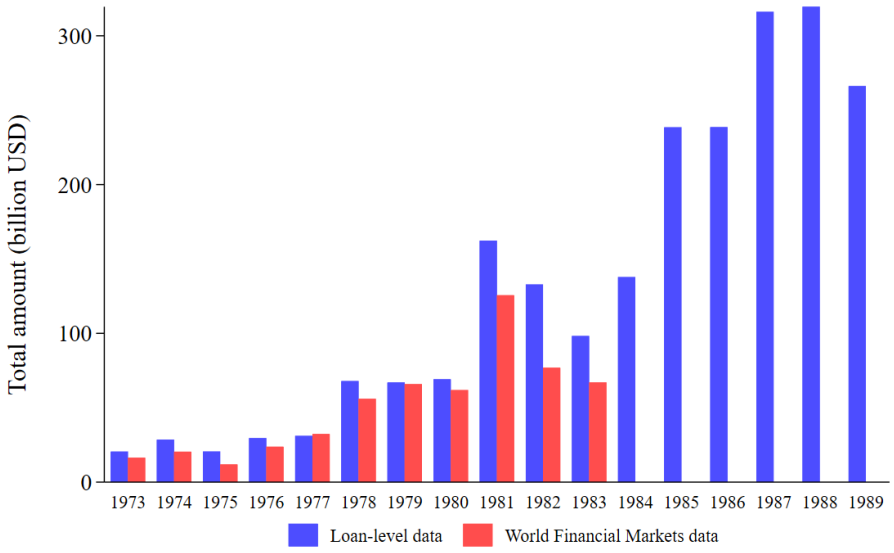
Spain

● **Borrower:** Autopistas del Atlantico, C.E.S.A. DM 75 million
Guaranteed by: the Kingdom of Spain
Terms: Years 1-3 at ¾% over Libor, years 4- at ⅞%
Lead managers and providers: Banco Arabe Espanol; Arab Banking Corp; Crédit Commercial de France; Kredietbank; KFTCIC; FRAB Bank; Arab Hellenic Ban
● **Borrower:** Compania Telefonica Nacional de Espana $100 million
Terms: Years 1-6 at ½% over Libor, years 7-10 at ⅝%
Lead managers and providers: Sumitomo Ban (Madrid); Taiyo Kobe Bank; Fuji Bank; Sanwa Bank; Dai-Ichi Kangyo Bank; Deutsche Bank Compagnie Financière Luxembourg; Banque Bruxelles Lambert; Banque Nationale de Paris; Toronto-Dominion International; Bank of Nova Scotia Group
● **Borrower:** Fuerzas Electricas de Cataluna SA $50 million
Terms: Commercial paper facility, supported by a surety bond issued by the National Union Fire Insurance Company of Pittsburgh, which expires after 3 years, extendable a further 2 years, with an extension fee of ⅛%. During this period the borrower can request 90 days loans at either ⅜% over US prime, or 1% over

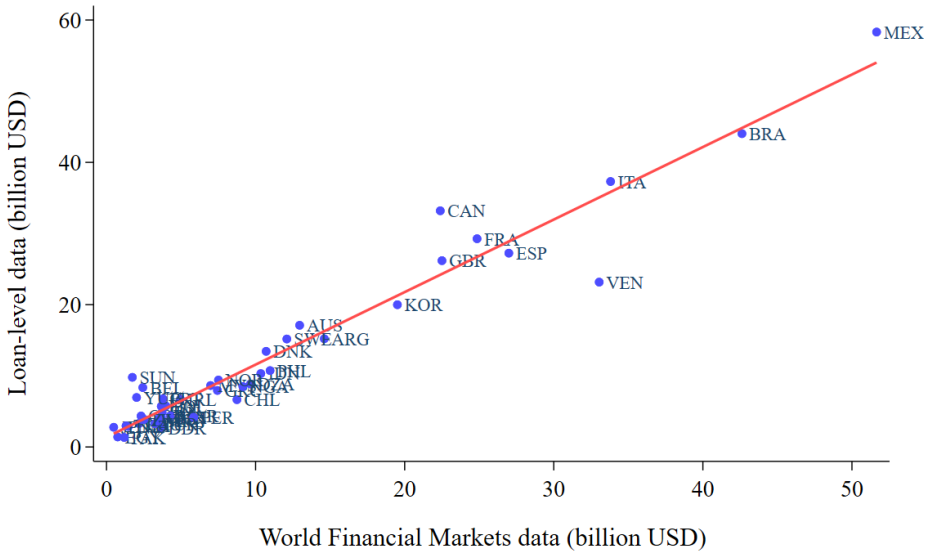
128 Euromoney March 1984

FIGURE 2: Comparing Loan-level and Aggregate Data on Cross-Border Loan Issuance

(A) Global Time Series



(B) Average Loan Issuance by Country

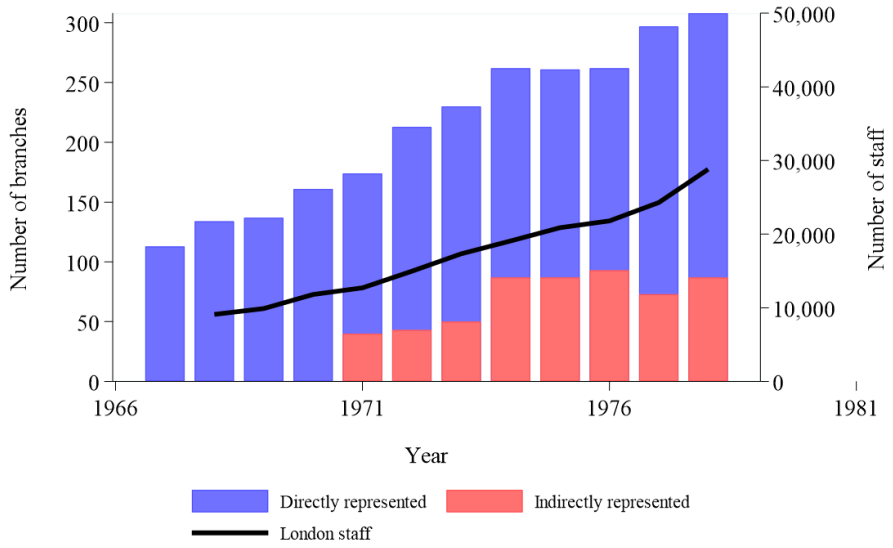


Notes: These figures compare the newly-constructed loan-level data with existing estimates of the size of cross-border loan issuance published in *World Financial Markets*. Panel (A) compares the total amount of newly issued loans globally by year. Panel (B) compares the total amount of loans by recipient country for the years available in both sources.

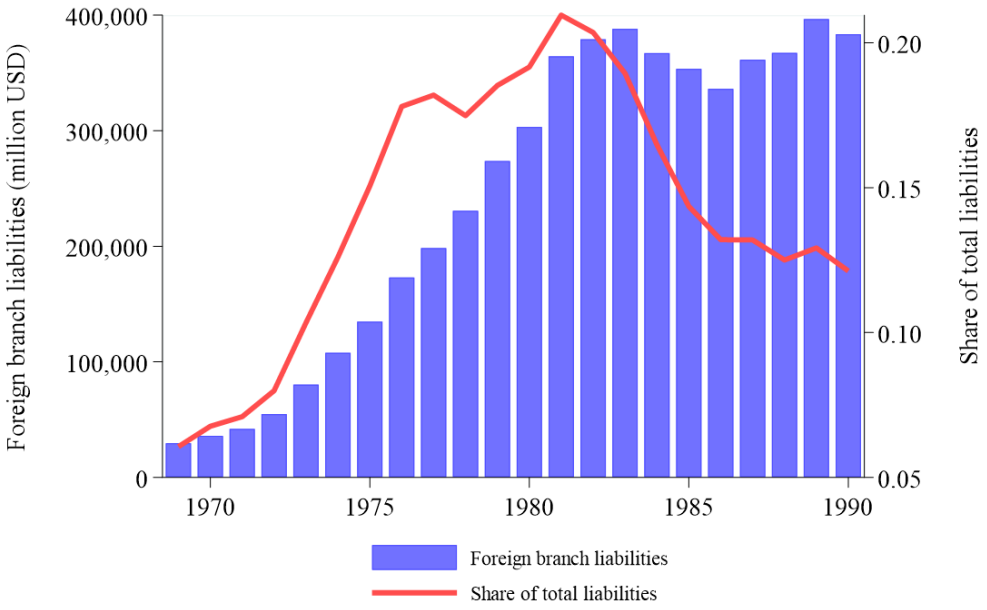
Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Aggregate data on "eurocurrency loan issuance" was digitized from physical copies of *World Financial Markets* (various issues).

FIGURE 3: London and the Rise of the Eurodollar Market

(A) Foreign bank presence in London



(B) US banks' foreign branch liabilities

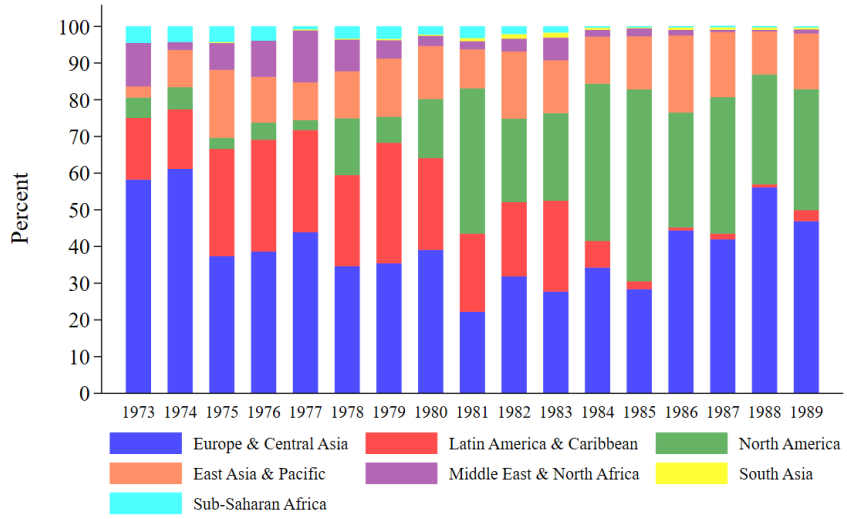


Notes: These figures document the concurrent rise of foreign banking presence in London and the increasing importance of foreign deposits in US banks' funding structure. Panel (A) plots the number of foreign bank branches and employees in London. Branches are split into direct representations (own branches) and indirect representations (branches of joint ventures with other banks). Panel (B) plots the total liabilities of US banks' foreign branches (in USD billions), and the share of foreign branches in their overall liabilities.

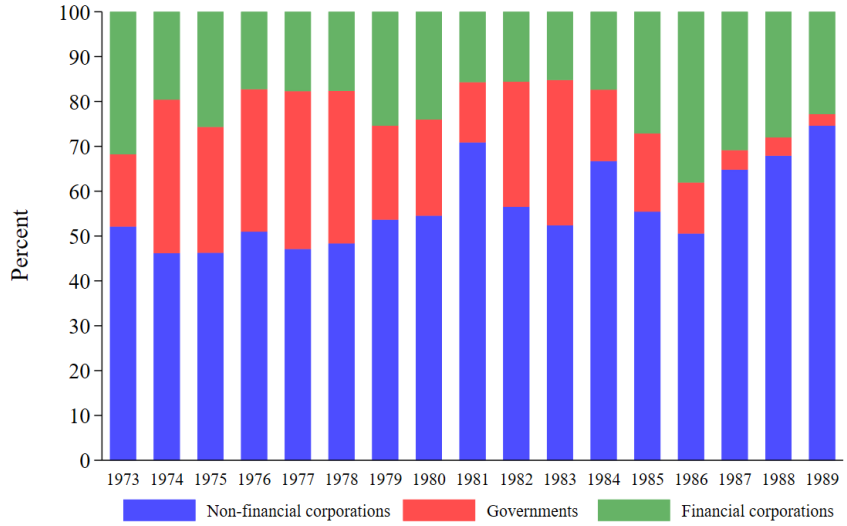
Sources: Foreign branches and number of employees are taken from *The Banker*, November 1978. The liabilities of US banks and their foreign branches up to 1975 are from the *Federal Reserve Bulletin* (various years). Total liabilities after 1975 are from the *Federal Reserve*'s H.8 release.

FIGURE 4: Loan Shares by Borrower Region and Sector

(A) Issuance share by region



(B) Issuance share by sector



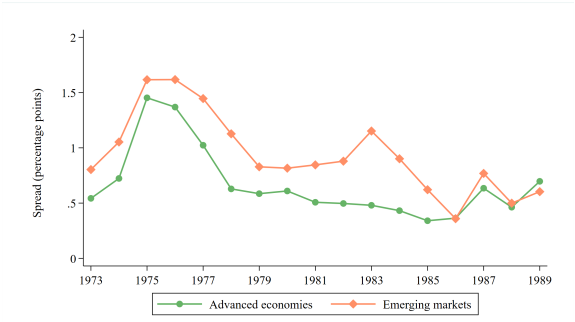
Notes: These figures plot the composition of new loan issuance by the region or sector of the borrower.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Country classifications are based on the World Bank's *World Development Report* (1980 edition).

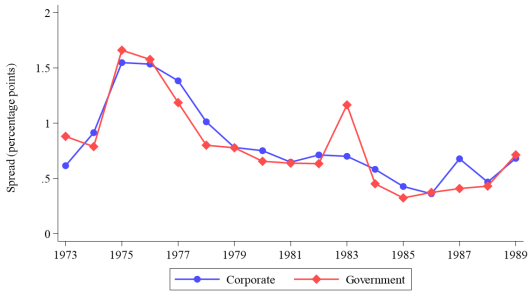
FIGURE 5: Loan Terms of Newly Issued Loans in International Markets

(A) Spreads

Emerging vs. advanced

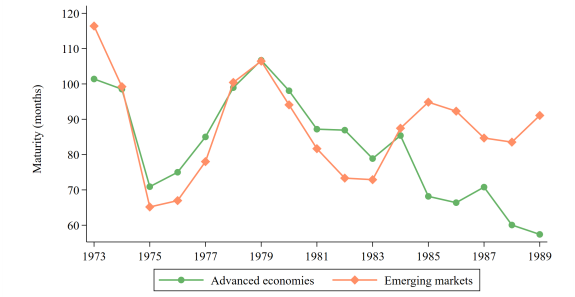


Government vs. corporates

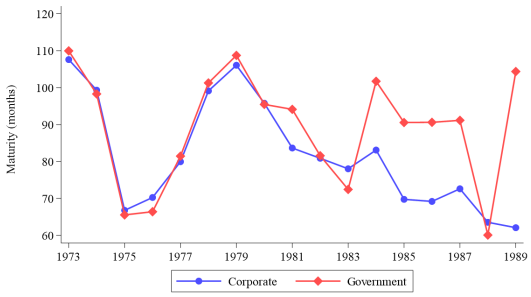


(B) Maturities

Emerging vs. advanced economies



Government vs. corporates

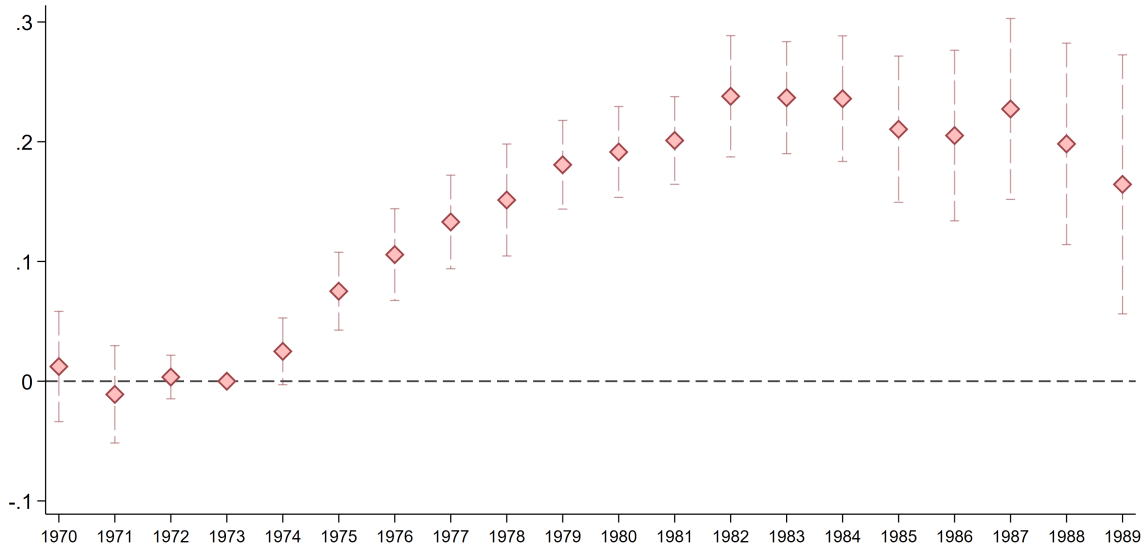


Notes: These figures plot the average interest rate spreads and maturity of newly issued loans by country group and the sector of the issuer. We classify non-financial and financial corporations as corporate. Loan terms are weighted by loan size.

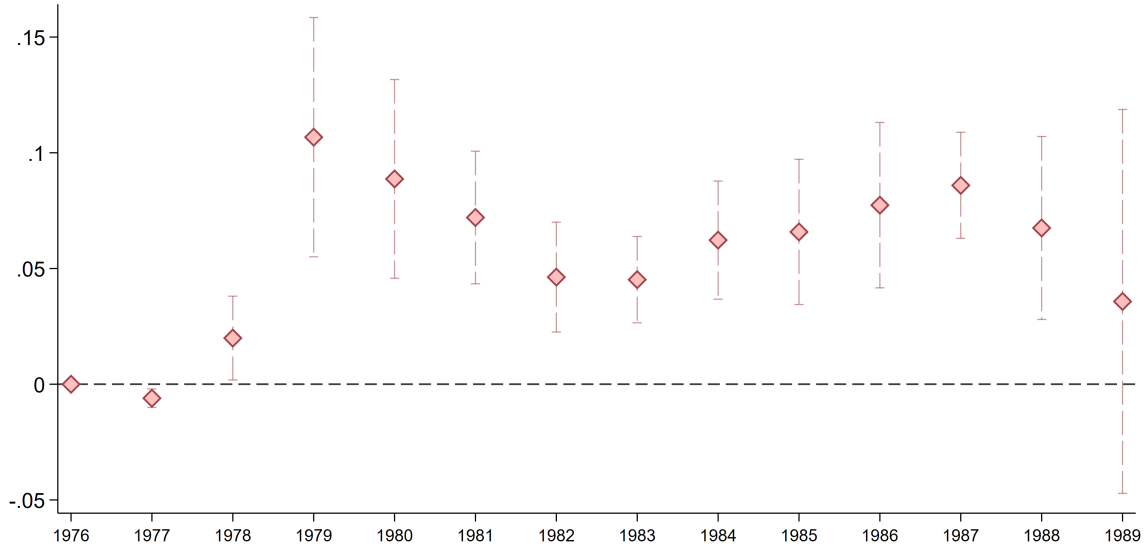
Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Country classifications are based on the World Bank's *World Development Report* (1980 edition).

FIGURE 6: London Branches, Eurodollars, and the Petrodollar Shock

(A) Foreign Deposit Share



(B) Deposit Share from Foreign Governments and Oil Prices

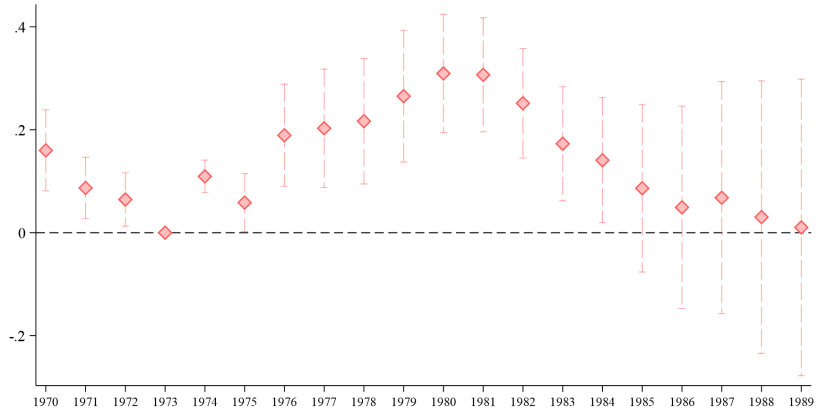


Notes: These figures plot the regression estimates β_t of a bank-level event study specification as in **??**. In Panel A, the dependent variable is the share of banks' foreign in total deposits, i.e. their share of Eurodollar deposits, based on data from Compustat Bank. In Panel B, the dependent variable is the share of deposits by foreign governments, where we plot the event study coefficients next to the price of crude oil. Note that the data on foreign government deposits is only available in the Call Reports starting in 1976. We plot 95% confidence intervals based on standard errors clustered by banks.

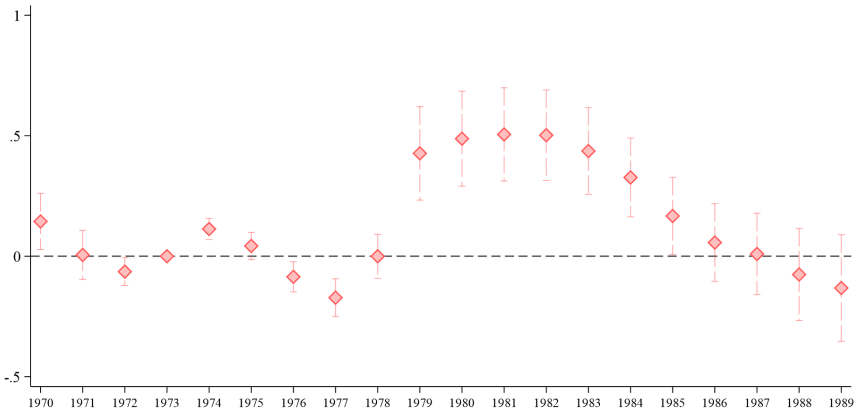
Sources: The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). In Panel A, we use data from Compustat Bank. In Panel B, the data are taken from the FFIEC's *Consolidated Report of Condition and Income* ("Call Reports"). See Section VII.2.2 for details on data cleaning and variable construction.

FIGURE 7: Eurodollar Exposure and Bank Balance Sheets

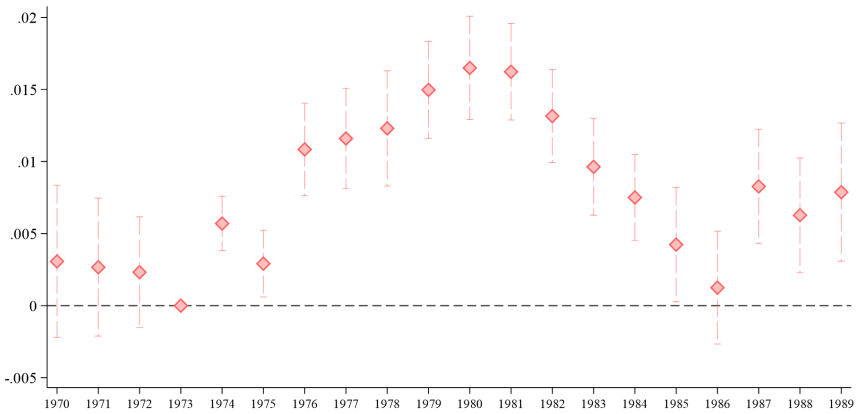
(A) Log(Total assets)



(B) Log(C&I loans)



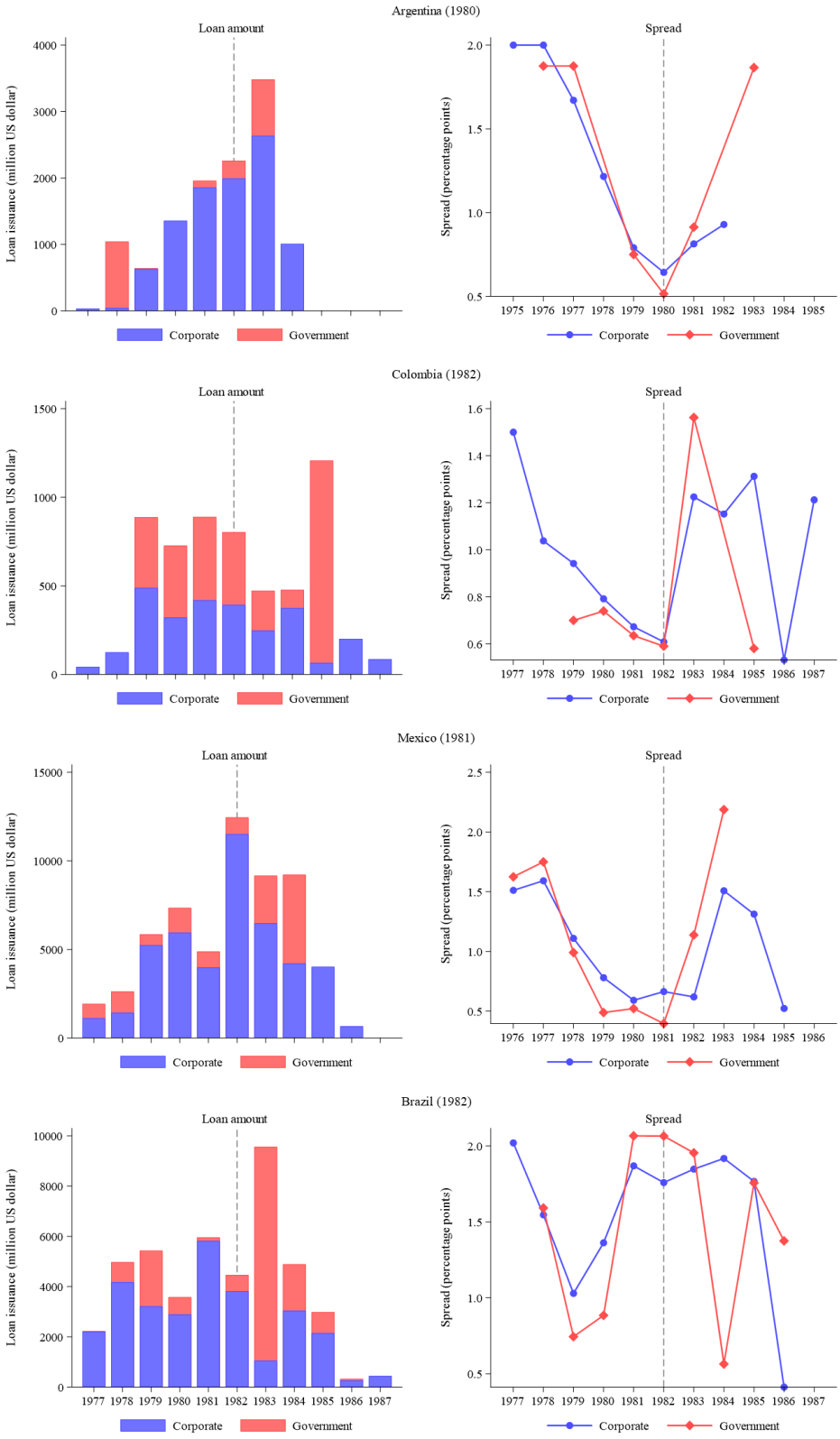
(C) Book leverage



Notes: These figures plot the regression estimates β_t of a bank-level event study specification as in Equation (2). The dependent variables are total assets (in log), C&I loans (in log), and book leverage (book equity over total assets). We plot 95% confidence intervals based on standard errors clustered by banks.

Sources: The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). The data are taken from the FFIEC's *Consolidated Report of Condition and Income* ("Call Reports"). See Section VII.2.2 for details on data cleaning and variable construction.

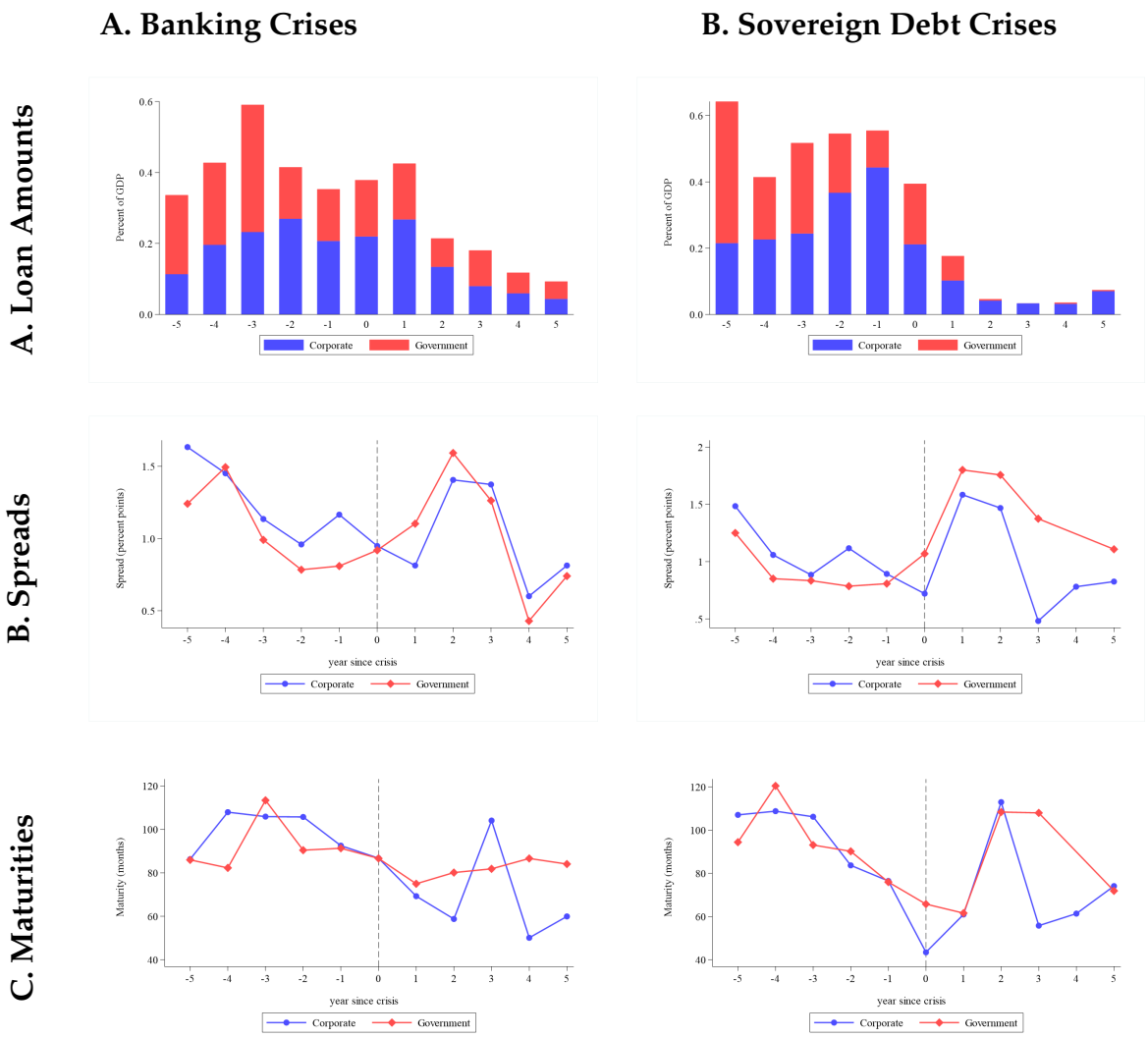
FIGURE 8: Crisis Case Studies



Notes: These figures plot total loan issuance and interest rate spreads around the banking and currency crises in Argentina (1980), Colombia (1982), Mexico (1981), and Brazil (1982). All crises are banking crises as classified by Laeven and Valencia (2020) except Brazil, which is classified as a currency crisis. Issuance amounts are measured in $m. Spreads are weighted by loan amounts.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Crisis definitions are based on Laeven and Valencia (2020).

FIGURE 9: Crisis Event Studies

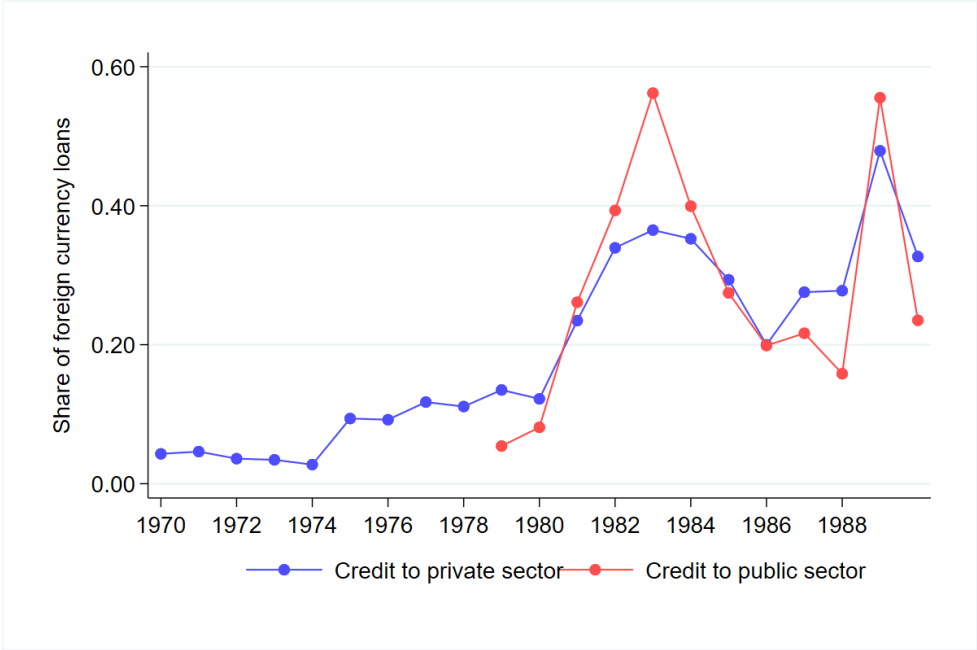


Notes: These figures plot loan characteristics around sovereign debt crises and private crises. Banking crises also include currency crises for countries that did not exhibit a banking crisis. We only consider countries that received at least 5 loans in the lead-up to the crisis. If a country experienced multiple crises, we only include the first one. Loan amounts are scaled by GDP, loan terms are weighted by loan amount. Banking crisis episodes consist of: Argentina in 1980, Chile in 1981, Colombia in 1982, Ecuador in 1982, Kenya in 1985, Mexico in 1981, Morocco in 1980, Niger in 1983, Peru in 1983, Philippines in 1983, Thailand in 1983, Turkey in 1982, Uruguay in 1981. Currency crisis episodes consist of: Bolivia in 1981, Brazil in 1982, Costa Rica in 1981, Indonesia in 1979, Nigeria in 1983, South Africa in 1984. Sovereign debt crisis episodes consist of: Argentina in 1982, Brazil in 1983, Chile in 1983, Costa Rica in 1983, Dominican Republic in 1982, Ecuador in 1982, Egypt in 1984, Honduras in 1981, Morocco in 1983, Madagascar in 1981, Mexico in 1982, Niger in 1983, Nigeria in 1983, Panama in 1983, Philippines in 1983, Uruguay in 1983, Venezuela in 1982, South Africa in 1985.

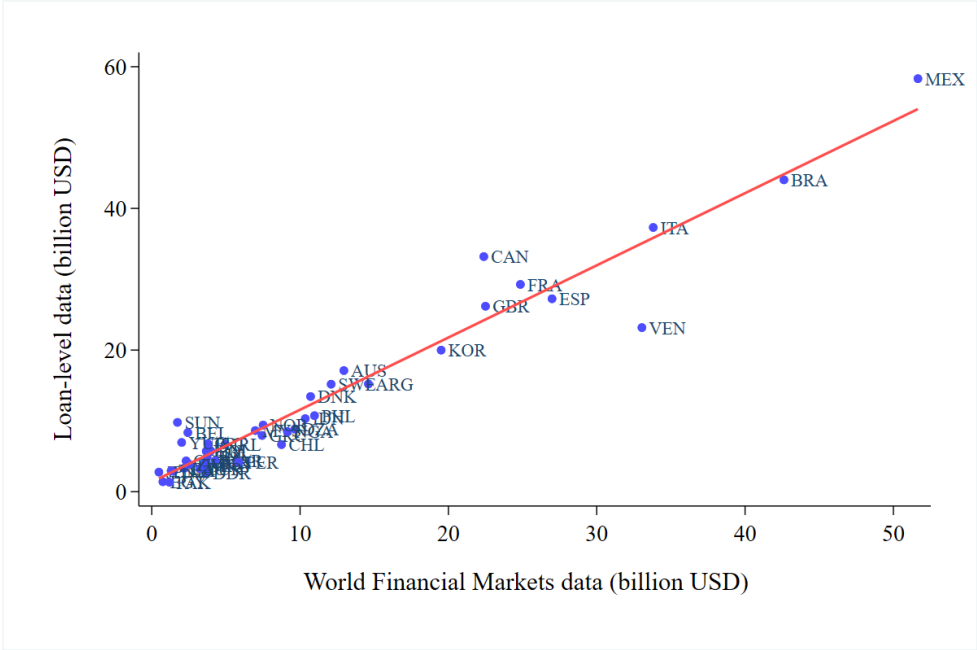
Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Crisis definitions are based on Laeven and Valencia (2020).

FIGURE 10: Cross-Border Loan Inflows and Domestic Banks

(A) Argentina



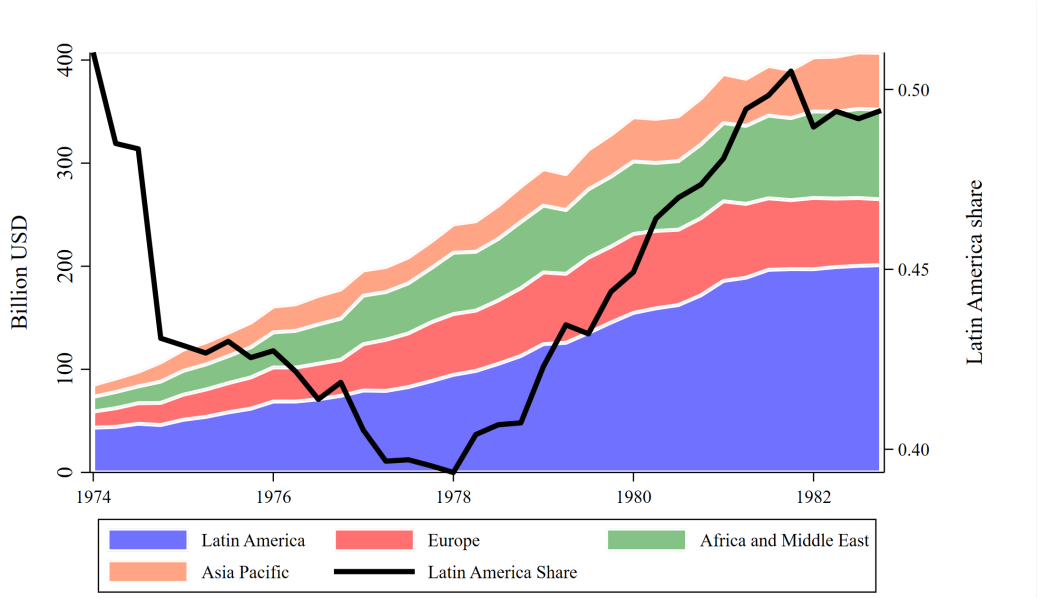
(B) Venezuela



Notes: These figures compare the newly-constructed loan-level data with existing estimates of the size of cross-border loan issuance published in *World Financial Markets*. Panel (A) compares the total amount of newly issued loans globally by year. Panel (B) compares the total amount of loans by recipient country for the years available in both sources.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Aggregate data on "eurocurrency loan issuance" was digitized from physical copies of *World Financial Markets* (various issues).

FIGURE 11: Cross-Border Loans by Region

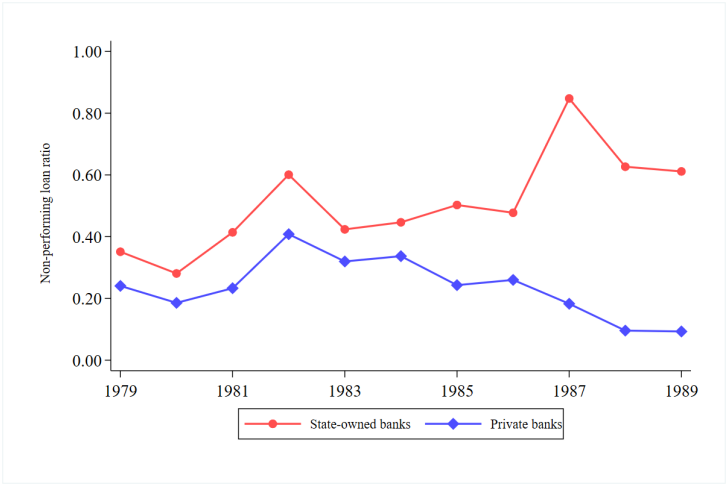


Notes: Cross-border claims on emerging market economies by region of borrower (in USD bn). Claims on EMEs are underestimated because they exclude loans channelled through Caribbean financial centres. In Q4 1983, Caribbean centres joined the countries reporting the LBS; their joining boosted claims on EMEs by over 25%.

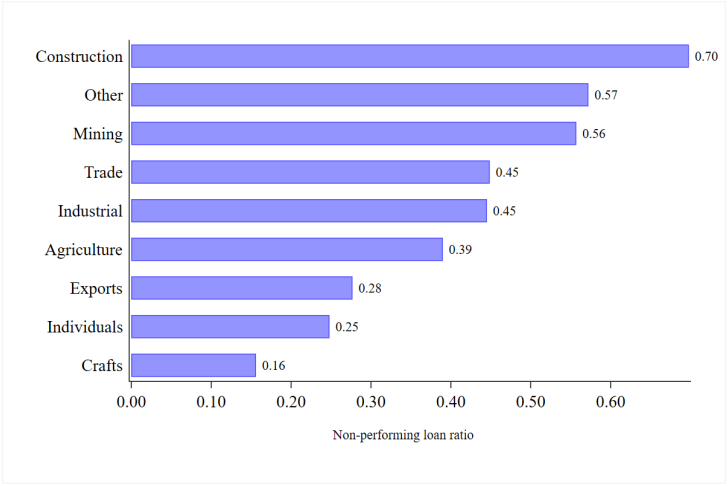
Sources: BIS consolidated banking statistics; BIS locational banking statistics (LBS), reproduced from McCauley, McGuire, and Wooldridge (2021).

FIGURE 12: Non-Performing Loans in Bolivia

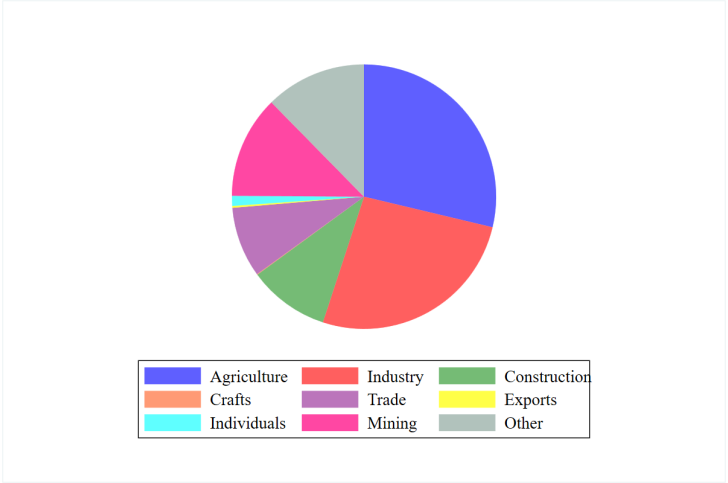
(A) Overall NPL ratio



(B) Maximum NPL ratios by sector



(C) Sectoral share in NPLs

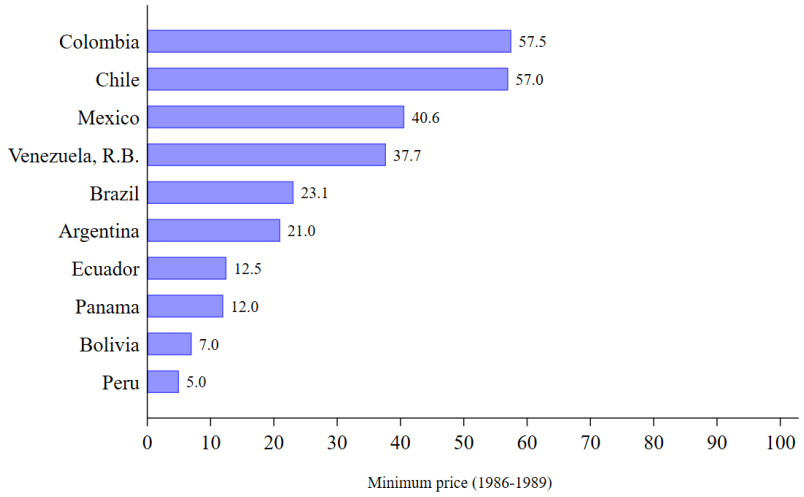


Notes: Panel (A) plots the ratio of non-performing in total outstanding loans held by state-owned and privately-owned commercial banks in Bolivia. Panel (B) plots NPL ratios by sector, where we take the maximum NPL ratio during the period 1982-84, which followed the currency crisis in 1981 and sovereign debt crisis in 1980. Panel (C) shows the share of each sector in total non-performing loans.

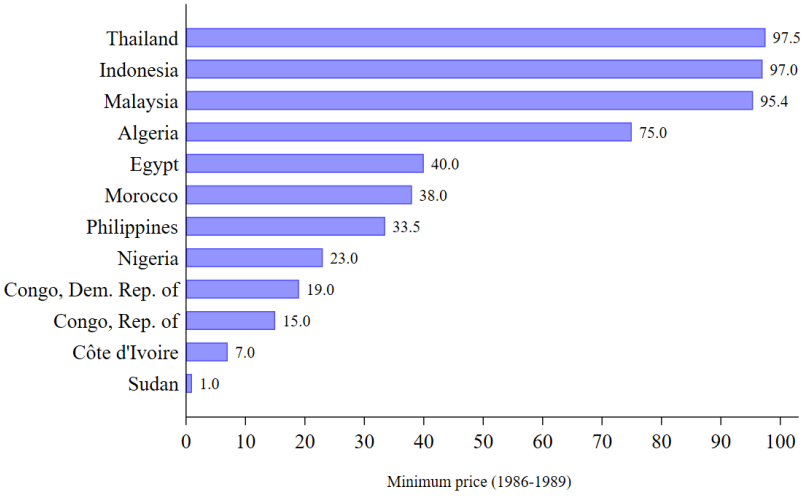
Sources: Data on non-performing and outstanding loans is taken from *Memoria de Banco Central de Bolivia* (various years). Crisis dates are taken from Laeven and Valencia (2020).

FIGURE 13: Secondary Market Prices for Emerging Market Debt

(A) Latin America



(B) Other emerging markets

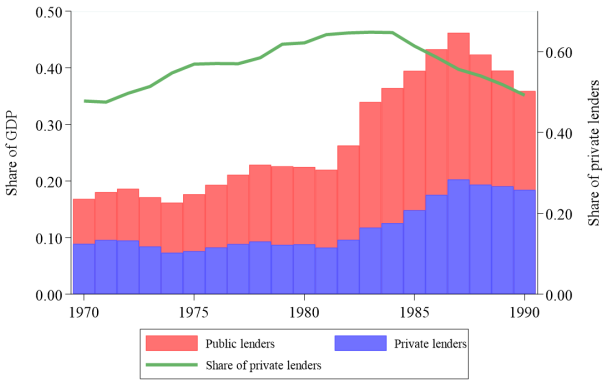


Notes: Prices listed are the minimum secondary market prices (in cents on the dollar) for emerging market sovereign debt over the period 1986-1989. Lower prices mean a larger haircut to creditors.

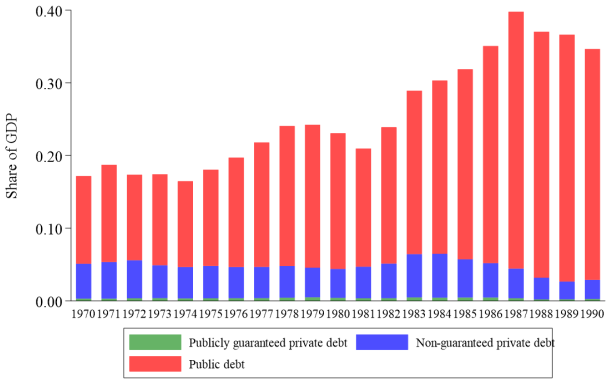
Sources: Data reported by Zettelmeyer, Weder, and Klingen (2004); first data point in 1986.

FIGURE 14: Composition of External Debt

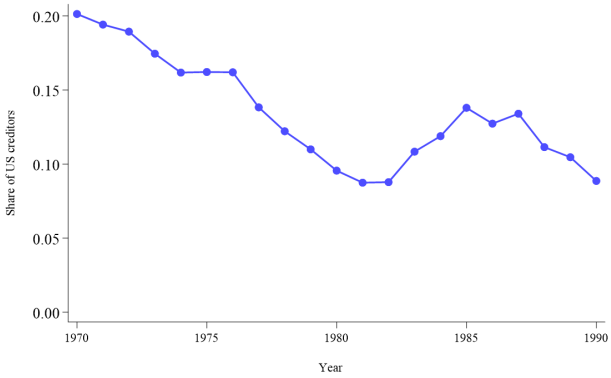
(A) Composition by Lender Type



(B) Composition by Borrower Type



(C) Share of US Creditors in Global External Debt



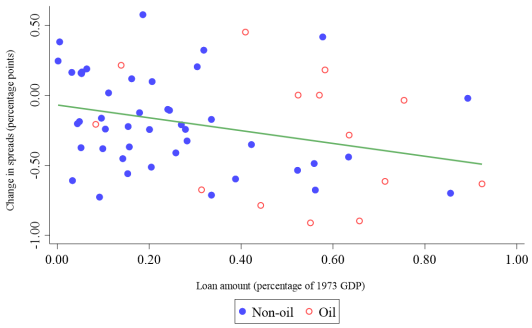
Notes: Panel (A) plots total external debt relative to GDP for a set of countries, divided up by whether the debt is owed to public lenders (e.g., the IMF) or private lenders (e.g., commercial banks). The green line depicts the share of private lenders. Panel (B) plots the composition of borrowers. Panel (C) plots the share of US creditors in total external debt.

Sources: World Bank's *International Debt Statistics*

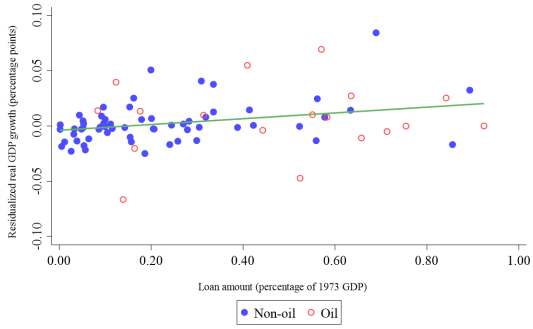
FIGURE 15: Credit Supply and Boom-Bust Cycles on the Country Level

(A) Boom period: 1976-81

Changes in spreads

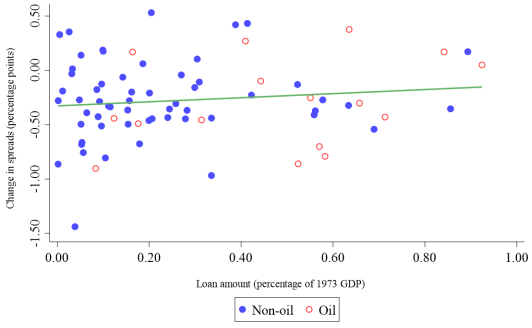


Growth in real GDP

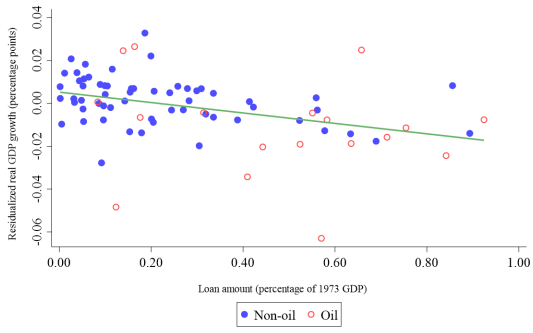


(B) Bust period: 1982-89

Changes in spreads



Growth in real GDP



Notes: These figures plot changes in spreads and real GDP growth during boom and bust periods against the amount of loans issuance during the boom. The boom period here is defined as 1976-1981, the bust period as 1982-1989. Loan amounts are scaled by nominal GDP in 1973. Average spreads by country are weighted by loan size. Real GDP is residualized using year- and country-dummies over the entire sample period, 1973-1989.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Country classifications are based on the World Bank's *World Development Report* (1980 edition). Macroeconomic variables come from **?**.

ONLINE APPENDIX

VII.1 A Novel Loan-Level Dataset, 1970-89

VII.2 Additional Details on Data Construction

VII.2.1 Bank Branches (in London) and Joint Ventures with Oil Producers

Our measure of banks' exposure to the Eurodollar market is geographical in nature. In particular, we exploit that in the 1970s borrowing in foreign currency outside of the United States was highly localized in London. Given that we do not have granular data telling us how much each bank was borrowing through its London branches, we instead rely on a simple indicator variable for whether a bank had a London presence.

We consulted several historical print publications for constructing these data. The principal one is the *The Bankers' Almanac and Yearbook*, which contains an address list of banks in each country, including in the United Kingdom. Given the large volume of the branch networks reported there (spanning hundreds of pages), we focused on a single reference year (1967). The choice of year was dictated by the fact that the Eurodollar market was still developing at the time, and many banks only entered London afterwards. As such, our conjecture is that "early adopters" were more exposed to the inflow of petrodollars into London. Digitizing these data allows us to create an indicator *London branch*, which is equal to 1 for banks with a presence there in 1967, and 0 otherwise. From the same directory, we can also compute the number of countries a bank has a branch in.

As alternative metric, we also consulted a 1978 edition of *The Banker*, in which the magazine published a list of foreign banks in London. This list includes foreign banks' founding date in London and their current number of employees. With these data, we construct alternative measures of whether a bank had a London branch (*London branch, 1969* and *London branch, 1972*). Importantly, because the table from *The Banker* only includes non-UK institutions, we also add the ten largest UK banks to the list of exposed banks, where we determine the top ten banks by their overall loan volume issued over the entirety of our loan-level data. We also use the data on foreign banks in London to construct statistics on the increasing importance of London as a hub for globally active banks.

The same *The Banker* edition also includes a table with detailed information on banking joint ventures, which became substantially more popular during the 1970s, and their founding dates. In fact, according to data published in Table 3.2 in (Devlin, 1989, p. 93), such joint ventures (or consortia) were among the most important lenders in the

run-up to the LDC crisis. Importantly for our purposes, the data include not only information on the members of each joint venture but also their headquarter country, which allows us to manually identify banks with a clear link to a major oil-producing country (most of them states in the Middle East).

VII.2.2 US Bank Data

We use data on bank balance sheets and income statements for the United States from the *Consolidated Report of Condition and Income* ("Call Reports") published by Federal Financial Institutions Examination Council (FFIEC).

Data sources The Call Reports have been published in their current form since 1976 and can be downloaded directly from the FFIEC. However, constructing consistent time series based on these data (which are collected for regulatory purposes) is challenging for a number of reasons. First, the dataset contains many thousands of variables of varying availability. As such, the sheer size of the dataset can be difficult to handle. Second, there are numerous changes in the definition and coverage of key variables over time.

Given these difficulties, our starting point is a relatively consistent set of time series constructed by Drechsler et al. (2017) and publicly available on Philipp Schnabl's website. Their SAS code downloads the raw Call Reports data through WRDS and then combines and cleans some of the most important variables to form consistent time series.

Because the data they make available does not include all variables we need for our analysis, we also use another pre-packaged source: the "complete files" made available by the Federal Reserve Bank of Chicago. We then clean their 1976-2000 dataset, also in SAS format, in line with the guidelines from the Chicago Fed and Drechsler et al. (2017) for the remaining variables.

Finally, we are also interested in the period before 1976, which means we need to tap into yet another data source. The digitized Call Reports indeed go back further than 1976, and we obtained a version (delivered on CD-ROM!) starting in 1960 through a FOIA request with the Federal Deposit Insurance Corporation (FDIC). We use these data to add a few additional observations that allow us to evaluate differences in trends between banks depending on their Eurodollar exposure.

One downside of the Call Report data is that the time series on foreign deposits (i.e. Eurodollar deposits) are only reported from 1976 onwards. To validate our London branch measure, we thus also draw on data on publicly-listed banks from Compustat Global, which contains a variable on foreign deposits starting in 1970.

Aggregation to Bank Holding Companies Because our loan-level data usually only indicates a bank name, rather than the exact subsidiary, we aggregate the Call Report data to the level of the Bank Holding Company (BHC), which may include several individual banks. We use the FFIEC's *Relationships* table for this mapping.

Data cleaning After aggregating the data to the BHC level, we apply several cleaning steps closely following the discussion in den Haan, Sumner, and Yamashiro (2007):

- We only keep banks located in the 50 states and DC ($0 <$ rssd9210 < 57)
- We only keep insured banks (rssd9424 $= 1, 2,$ or 6)
- We only keep institutions chartered as commercial banks (rssd9048 $= 200$)
- We only keep observations with positive assets (rcfd2170 > 0
- We set the value of a variable to missing if it lies more than 5 standard deviations above or below a variable's mean in that quarter

There is an additional issue with the reporting of a few variables in 1983, an issue also noted by den Haan et al. (2007). For our purposes, this is only relevant for the variable on foreign deposits. In particular, the 1983 values are around 80% lower than in the years before and after, which is implausible. We thus replace the 1983 values of foreign deposits for each bank with the average of 1982 and 1984 (i.e., we use a linear interpolation to impute them).

In addition to these cleaning steps, we also winsorize all variables at the 1st and 99th percentile when running regressions to limit the influence of outliers.

Variable construction **??** reports the precise variable definitions we use for constructing bank-level measures from the Call Reports. Two things are worth noting.

First, we construct an annual bank-year dataset from the underlying quarterly data. For balance sheet variables, we compute annual averages. For variables based on banks' income statement, we first annualize them (by multiplying them by 4), and then take their average. This is to avoid cases where a bank may only report its income, for example, in a single quarter, which would introduce noise when simply taking the sum of income statement measures in a year.

Second, the variable for total deposits we take from the Call Reports posted by Drechsler et al. (2017) notably *excludes* foreign deposits, being defined as `deposits=rcon2200` in their SAS code (line 138). This is because the *rcon* series in the Call Reports only include numbers from domestic, but not foreign branches of US banks. When calculating

the share of foreign deposits (defined as `foreigndep=rcfn2200`), we thus add foreign deposits to the denominator.

VII.2.3 Historical Non-US Bank Data

To get a sense of how the balance sheets and income statements of banks outside of the United States developed over the course of the 1970s and 80s, we turn to historical print editions of *The Banker*, a leading industry magazine. Importantly for our purposes, *The Banker* published rankings on the world's top banks (initially on the "Top 300", later the "Top 500"), and these rankings include some data on banks' assets, equity capital, and profitability.

Clearly, relying on a ranking to obtain such data could be problematic because, by definition, banks experiencing substantial growth or contraction may enter or drop from the ranking. That is why we focus on our empirical analysis on *changes* in bank outcomes. This is akin to looking at a balanced sample of large institutions (that remain among the world's top banks), and thus sidesteps the potential sample selection issue inherent in using data from a ranking table.

Figure A.2 shows an excerpt from the ranking for 1975, around the starting period of the most pronounced part of the lending boom to LDCs. We also obtained the rankings for 1980 and 1988, which roughly correspond to the height of the 1970s credit expansion and the end of the ensuing bust, respectively.

VII.2.4 Merging Data Sources

With the exception of the U.S. Call Reports, all micro datasets used in this study were created from scratch. This meant there are no existing concordance tables that would allow us to merge, for example, the data on banks' London branches to their newly issued loans. We thus created manual linking tables for each dataset.

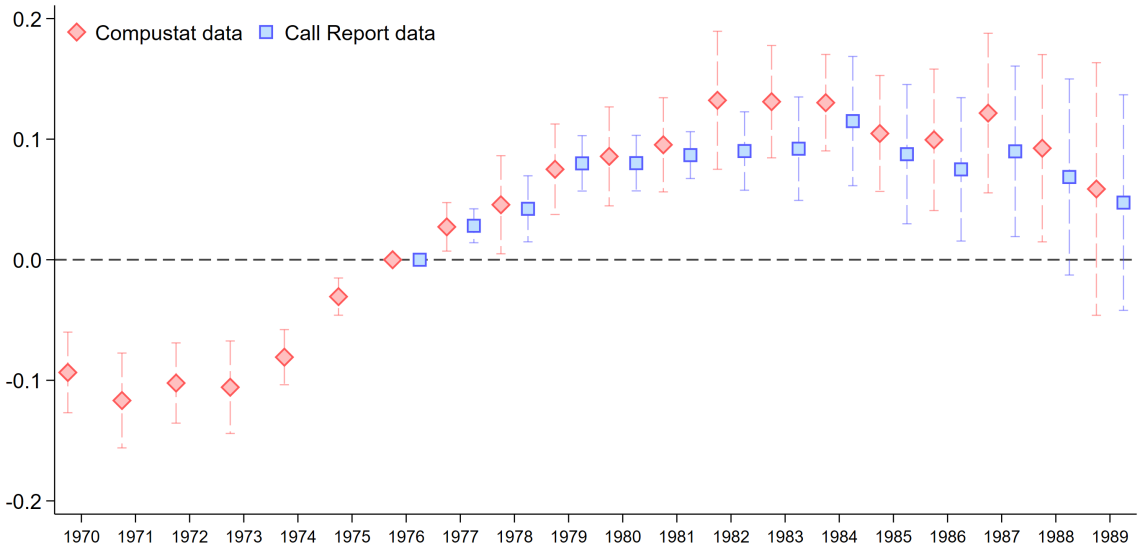
To make sure the linking of the data is as accurately as possible, we used a combination of approaches. First, we used fuzzy matching algorithms to create a set of candidate matches between any two datasets. Second, these potential matches were then verified manually and with the use of ChatGPT independently by at least two research assistants, as well as at least one of the coauthors. Third, we always checked for the plausibility of the resulting matches by consulting the list of the largest institutions to make sure none of them were incorrectly missing from a linking table.

Clearly, matching banks across several datasets (some of which contain dozens of spellings for the same institution) is bound to have resulted in errors. We have tried our best to resolve mistakes to the best of our abilities. That said, we take comfort in

the fact that any incorrect matches are likely to bias our results towards zero, given that they should only introduce random noise.

VII.3 Additional Results

FIGURE A.1: London Branches and Eurodollars – Compustat vs. Call Reports



Notes: This figure plots the regression estimates β_t of a bank-level event study specification as in **??**. We estimate this event study using two datasets: data from Compustat Bank as in Figure 6, and data from the Call Reports, which only report data on foreign deposits from 1976 onwards. Note that, different from Figure 6, we use 1976 as the excluded period to make the estimates from the two data sources comparable, which mechanically introduces a "pre-trend" in the Compustat data. We plot 95% confidence intervals based on standard errors clustered by banks.

Sources: The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). We use data from Compustat Bank and the FFIEC's *Consolidated Report of Condition and Income* ("Call Reports"). See Section VII.2.2 for details on data cleaning and variable construction.

TABLE A.1: Bank Characteristics by London Branch

	No London branch (1)	Has London branch (2)	Diff. (2) - (1)	Diff. t-stat.
Panel A: All US Banks ($N = 10,950$)				
Total assets$_{73}$	51.31	10193.12	10141.81	74.05
Book leverage$_{73}$	0.91	0.94	0.03	2.27
Return on equity$_{73}$	0.52	0.48	-0.05	0.75
Loans$_{73}$	28.82	6437.65	6408.83	75.29
Foreign deposit share$_{76}$	0.00	0.29	0.29	94.52
Foreign government deposit share$_{78}$	0.00	0.05	0.05	42.28
Non-core liability share$_{73}$	0.02	0.26	0.24	32.01
Panel B: US Banks Active in International Loan Market ($N = 25$)				
Total assets$_{73}$	5747.61	10618.99	4871.38	1.43
Book leverage$_{73}$	0.94	0.94	0.00	0.28
Return on equity$_{73}$	0.55	0.48	-0.07	1.23
Loans$_{73}$	3489.60	6717.17	3227.57	1.40
Foreign deposit share$_{76}$	0.10	0.30	0.20	2.76
Foreign government deposit share$_{78}$	0.01	0.05	0.04	2.63
Non-core liability share$_{73}$	0.18	0.26	0.08	1.43
Panel C: Largest global banks ($N = 300$)				
Total assets$_{75}$	5229.74	14662.20	9432.46	9.30
Book leverage$_{75}$	0.95	0.96	0.01	2.59
Non-core liability share$_{75}$	0.15	0.13	-0.02	1.04

Notes: This table reports differences in bank characteristics depending on whether a bank had a London branch in 1967.The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1). Panel A focuses on US banks, where the data are taken from the Call Reports (see Section VII.2.2 for details on data cleaning and variable construction). Note that data on foreign deposits and foreign governments' deposits only becomes available in 1976 and 1978, respectively. Panel B looks at US banks active in the international loan market, defined as those serving as lead arranger in at least five contracts in our loan-level dataset. Panel C looks at a sample of the largest global banks taken from *The Banker* (see Section VII.2.3). We only have information on a few characteristics for international banks. The (absolute value of the) t-statistic reported is for the difference of means between banks with and without a London branch.

TABLE A.2: Largest borrowers by region

(A) Part A

	1973-81				1982-89			
	Total Loan Amount (1)	Gov Share (2)	Spread (3)	Maturity (4)	Total Loan Amount (5)	Gov Share (6)	Spread (7)	Maturity (8)
Panel A: Asia Pacific								
South Korea	12.54	0.024	0.915	91.87	21.09	0.014	0.528	69.11
Philippines	8.548	0.029	1.163	101.4	2.948	0.005	0.776	106.6
Indonesia	7.041	0.507	1.235	99.81	15.73	0.782	0.590	100.5
Australia	6.849	0.070	1.158	152.2	86.20	0.129	0.347	64.66
Hong Kong	5.123	0.013	1.084	109.1	22.17	0.000	0.592	73.95
Average	60.33	0.170	0.970	99.89	272.8	0.126	0.518	75.80
Panel B: Europe								
Italy	26.85	0.010	0.651	90.31	67.69	0.007	0.328	73.31
United Kingdom	21.80	0.311	0.756	99.93	290.0	0.011	0.454	66.37
Spain	21.67	0.097	0.882	92.60	32.41	0.144	0.436	97.46
France	16.82	0.089	0.590	100.4	86.46	0.091	0.276	86.58
Sweden	9.895	0.599	0.596	91.54	41.38	0.494	0.291	79.06
Average	171.3	0.197	0.774	92.65	723.1	0.101	0.428	73.57
Panel C: North America								
United States	76.80	0.001	0.540	81.87	528.8	0.010	0.667	62.55
Canada	18.95	0.634	0.548	106.1	80.33	0.398	0.480	85.93
Average	95.76	0.126	0.542	86.74	609.3	0.062	0.644	65.63
Panel D: Latin America								
Mexico	39.93	0.179	0.897	87.45	29.98	0.256	1.251	55.43
Brazil	29.99	0.182	1.492	104.1	22.80	0.143	1.627	96.55
Venezuela	16.12	0.431	0.715	65.91	7.727	0.294	0.758	50.61
Argentina	11.34	0.125	1.017	93.74	4.380	0.007	1.522	48.22
Chile	5.203	0.000	1.082	89.65	2.071	0.038	0.975	112.8
Average	121.6	0.247	1.088	89.49	82.62	0.239	1.192	70.78

(B) Part B

	1973-81				1982-89			
	Total Loan Amount (1)	Gov Share (2)	Spread (3)	Maturity (4)	Total Loan Amount (5)	Gov Share (6)	Spread (7)	Maturity (8)
Panel E: Middle East North Africa								
Algeria	6.875	0.000	1.231	101.7	6.741	0.000	0.491	98.66
Iran	4.849	0.204	1.003	91.72	0.041	0.000	6	
Morocco	3.689	0.527	1.166	89.11	1.201	0.053	0.729	43.84
UAE	2.879	0.627	1.311	70.79	2.129	0.225	0.611	81.54
Saudi Arabia	1.850	0.008	1.138	53.94	4.386	0.000	0.696	59.29
Average	26.70	0.242	1.130	86.16	27.87	0.183	0.623	79.43
Panel F: South Asia								
India	0.989	0.000	0.602	110.3	9.495	0.015	0.413	116.4
Pakistan	0.575	0.608	1.244	38.82	2.325	0.715	0.818	46.97
Sri Lanka	0.277	0.450	0.747	90.65	0.376	0.733	0.621	105.9
Average	1.889	0.264	0.821	84.89	12.28	0.173	0.526	103.1
Panel G: Sub-Saharan Africa								
Nigeria	6.738	0.929	0.966	93.66	1.756	0.881	0.866	99.62
South Africa	3.321	0.331	1.184	77.81	0.847	0.221	0.760	70.97
Ivory Coast	1.636	0.648	1.530	104.1	0.689	0.502	1.309	82.79
Gabon	0.539	0.898	1.658	94.16	0.073	0.993	0.953	96
Zambia	0.534	0.280	1.490	57.66	0.472	0.000	1.476	57.09
Average	15.53	0.693	1.197	88.40	7.782	0.443	1.070	73.26

Notes: This table presents data on the largest international borrowers by region for two time periods: 1973-81 and 1982-89. It provides variables over the two periods: total loan amount (in billion USD), government loan share, spreads (in percentage points), and maturity (in months). The government loan share, spread, and maturity are weighted by the loan amount.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details.

TABLE A.3: Largest Borrowers by Group (Advanced vs. Emerging)

	1973-81				1982-89			
	Total Loan Amount (1)	Gov Share (2)	Spread (3)	Maturity (4)	Total Loan Amount (5)	Gov Share (6)	Spread (7)	Maturity (8)
Panel A: Advanced Economies								
United States	76.80	0.001	0.540	81.87	528.8	0.010	0.667	62.55
Italy	26.85	0.010	0.651	90.31	67.69	0.007	0.328	73.31
United Kingdom	21.80	0.311	0.756	99.93	290.0	0.011	0.454	66.37
Canada	18.95	0.634	0.548	106.1	80.33	0.398	0.480	85.93
France	16.82	0.089	0.590	100.4	86.46	0.091	0.276	86.58
Sweden	9.895	0.599	0.596	91.54	41.38	0.494	0.291	79.06
Denmark	9.519	0.783	0.750	91.69	17.69	0.434	0.278	83.45
Norway	7.307	0.004	0.909	96.97	17.78	0.004	0.524	75.44
Australia	6.849	0.070	1.158	152.2	86.20	0.129	0.347	64.66
Finland	4.141	0.004	0.718	93.83	14.77	0.343	0.163	72.52
Mean	219.2	0.196	0.635	92.30	1381.	0.080	0.509	67.62
Panel B: Emerging Markets								
Mexico	39.93	0.179	0.897	87.45	29.98	0.256	1.251	55.43
Brazil	29.99	0.182	1.492	104.1	22.80	0.143	1.627	96.55
Spain	21.67	0.097	0.882	92.60	32.41	0.144	0.436	97.46
Venezuela	16.12	0.431	0.715	65.91	7.727	0.294	0.758	50.61
South Korea	12.54	0.024	0.915	91.87	21.09	0.014	0.528	69.11
Argentina	11.34	0.125	1.017	93.74	4.380	0.007	1.522	48.22
Philippines	8.548	0.029	1.163	101.4	2.948	0.005	0.776	106.6
Soviet Union	7.171	0.000	0.988	78.56	20.44	0.000	0.390	83.98
Indonesia	7.041	0.507	1.235	99.81	15.73	0.782	0.590	100.5
Algeria	6.875	0.000	1.231	101.7	6.741	0.000	0.491	98.66
Mean	274.0	0.223	1.038	90.20	354.7	0.185	0.755	84.41

Notes: This table reports the list of the largest borrowers among advanced and emerging market economies for two time periods: 1973-81 and 1982-89. It provides variables over the two periods: total loan amount (in billion USD), government loan share, spreads (in percentage points), and maturity (in months). The government loan share, spread, and maturity are weighted by the loan amount.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. Country classifications are based on the World Bank's *World Development Report* (1980 edition).

TABLE A.4: Overseas Branches of US Commercial Banks

	1950	1960	1970	1979
Number of banks with overseas branches	7	8	79	139
Number of overseas branches	95	124	536	796

Notes: This table reports the number of US commercial banks with overseas branches as well as the total number of branches.

Sources: Devlin (1989, Table 2.6)

TABLE A.5: Major US Lenders to Latin America

Bank	Mexico (1)	Brazil (2)	Argentina (3)	Venezuela (4)	Share Total Assets (5)
Bank of America	2741	2484	300	1614	5.9
Bankers Trust	1286	743	230	436	6.7
Chase Manhattan	1553	2560	775	1226	7.5
Chemical New York	1414	1276	370	776	7.5
Citicorp	2900	4700	1090	1500	7.6
Continental Illinois	699	476	383	436	4.7
First Chicago	870	689	NA	NA	4.3
JP Morgan	1174	1785	741	464	7.2
Manufacturers Hanover	1915	2130	1321	1084	10
Wells Fargo	655	568	100	279	5.9

Notes: This table reports the top US Lenders to Latin America. as well as their total loan exposure to the top 4 borrowers in Latin America. Reported are outstanding loans on December 31, 1983, in million USD, as well as the share of total assets these loans constitute.

Sources: Devlin (1989, Appendix Table 16)

TABLE A.6: Largest lenders with and without a London Branch

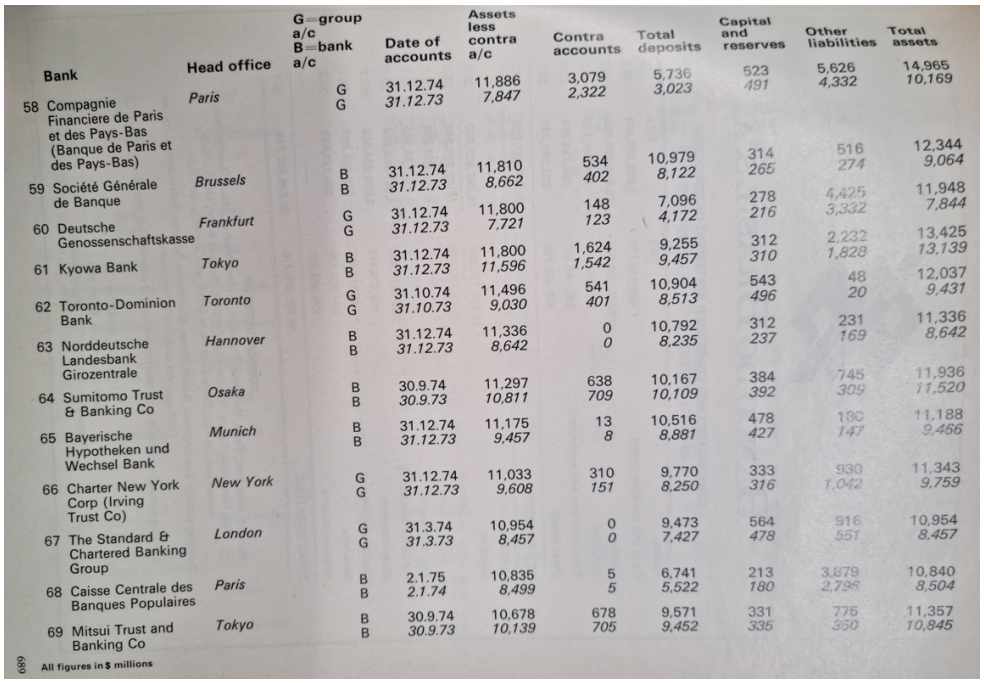
	1973-81					1982-89				
	Total Loan Amount (1)	Gov Share (2)	EMG Share (3)	Spread (4)	Maturity (5)	Total Loan Amount (6)	Gov Share (7)	EMG Share (8)	Spread (9)	Maturity (10)
Panel A: Banks Without a London Branch										
Algemene Bank Nederland	12	0.43	0.429	0.74	103	18	0.28	0.505	0.43	88
Arab Banking Corp	7	0.24	0.836	0.71	89	17	0.24	0.943	0.72	70
Westdeutsche Landesbk Girozentrale	5	0.19	0.781	1.05	97	1	0.35	0.749	0.59	96
Dresdner Bank Ag	5	0.26	0.924	1.08	82	4	0.17	0.560	0.73	89
Banque Nationale De Paris	5	0.16	0.775	0.93	93	17	0.04	0.203	0.41	104
Commerzbank Ag	5	0.71	0.238	0.83	96	1	0.30	0.300	0.44	59
Deutsche Bank Compagnie Financiere A Luxembourg	4	0.42	0.641	0.94	97	7	0.04	0.752	0.54	93
Amsterdam-Rotterdam Bank	4	0.23	0.543	0.96	89	7	0.26	0.159	0.33	89
Libra Bank Ltd	3	0.04	1	1.46	86	0	0.38	1	1.73	110
Wells Fargo Bank	3	0.18	0.919	1.10	76	1	0.00	0.641	0.93	51
Mean of Banks without a London branch	159	0.26	0.634	0.90	88	473	0.13	0.298	0.47	78
Panel B: Banks With a London Branch										
Chase Investment Bank	45	0.17	0.449	0.77	88	94	0.15	0.200	0.66	77
Bank Of America International	42	0.14	0.697	0.93	87	107	0.08	0.285	0.80	63
Citicorp Investment Bank	41	0.23	0.481	0.97	95	209	0.09	0.115	0.60	65
Morgan Guaranty	26	0.24	0.334	0.80	92	80	0.06	0.094	0.43	72
Bank Of Montreal	23	0.19	0.319	0.78	108	14	0.10	0.084	0.56	83
Bankers Trust International	14	0.06	0.474	0.76	80	73	0.00	0.074	1.13	61
Credit Lyonnais	13	0.08	0.354	0.70	105	22	0.00	0.057	0.26	67
Manufacturers Hanover	12	0.28	0.783	0.88	100	72	0.04	0.091	0.69	56
Bank Of Tokyo	9	0.20	0.757	0.72	92	27	0.47	0.564	0.29	112
Barclays	7	0.40	0.249	0.70	100	55	0.09	0.173	0.29	68
Mean of Banks with a London branch	336	0.19	0.519	0.85	93	1,208	0.08	0.169	0.60	69

Notes: This table reports loan characteristics for the largest 10 lenders with and without a branch in London in 1973-81. It reports these characteristics for two time periods: 1973-81 and 1982-89. The variables reported include: total loan amount (in billion USD), government & emerging market loan share, spreads (in percentage points), and maturity (in months). Loan shares, spread, and maturity are weighted by the loan amount.

Sources: Loan data digitized from the World Bank publication *Borrowing in International Capital Markets* (1973-80) and *Euromoney* magazine (1981-89). See Section II for details. The indicator *London branch* is constructed based on the full address directory of banks in London published in *The Bankers' Almanac and Yearbook 1967* (see Section VII.2.1).

VIII. FIGURES

FIGURE A.2: Example Image of the "Top 300" Bank Data



	Bank	Head office	G=group a/c B=bank a/c	Date of accounts	Assets less contra a/c	Contra accounts	Total deposits	Capital and reserves	Other liabilities	Total assets
58	Compagnie Financiere de Paris et des Pays-Bas (Banque de Paris et des Pays-Bas)	*Paris*	G	31.12.74	11,886	3,079	5,736	523	5,626	14,965
			G	*31.12.73*	*7,847*	*2,322*	*3,023*	*491*	*4,332*	*10,169*
59	Société Générale de Banque	*Brussels*	B	31.12.74	11,810	534	10,979	314	516	12,344
			B	*31.12.73*	*8,662*	*402*	*8,122*	*265*	*274*	*9,064*
60	Deutsche Genossenschaftskasse	*Frankfurt*	G	31.12.74	11,800	148	7,096	278	4,425	11,948
			G	*31.12.73*	*7,721*	*123*	*4,172*	*216*	*3,332*	*7,844*
61	Kyowa Bank	*Tokyo*	B	31.12.74	11,800	1,624	9,255	312	2,232	13,425
			B	*31.12.73*	*11,596*	*1,542*	*9,457*	*310*	*1,828*	*13,139*
62	Toronto-Dominion Bank	*Toronto*	G	31.10.74	11,496	541	10,904	543	48	12,037
			G	*31.10.73*	*9,030*	*401*	*8,513*	*496*	*20*	*9,431*
63	Norddeutsche Landesbank Girozentrale	*Hannover*	B	31.12.74	11,336	0	10,792	312	231	11,336
			B	*31.12.73*	*8,642*	*0*	*8,235*	*237*	*169*	*8,642*
64	Sumitomo Trust & Banking Co	*Osaka*	B	30.9.74	11,297	638	10,167	384	745	11,936
			B	*30.9.73*	*10,811*	*709*	*10,109*	*392*	*309*	*11,520*
65	Bayerische Hypotheken und Wechsel Bank	*Munich*	B	31.12.74	11,175	13	10,516	478	180	11,188
			B	*31.12.73*	*9,457*	*8*	*8,881*	*427*	*147*	*9,466*
66	Charter New York Corp (Irving Trust Co)	*New York*	G	31.12.74	11,033	310	9,770	333	930	11,343
			G	*31.12.73*	*9,608*	*151*	*8,250*	*316*	*1,042*	*9,759*
67	The Standard & Chartered Banking Group	*London*	G	31.3.74	10,954	0	9,473	564	916	10,954
			G	*31.3.73*	*8,457*	*0*	*7,427*	*478*	*551*	*8,457*
68	Caisse Centrale des Banques Populaires	*Paris*	B	2.1.75	10,835	5	6,741	213	3,879	10,840
			B	*2.1.74*	*8,499*	*5*	*5,522*	*180*	*2,796*	*8,504*
69	Mitsui Trust and Banking Co	*Tokyo*	B	30.9.74	10,678	678	9,571	331	775	11,357
			B	*30.9.73*	*10,139*	*705*	*9,452*	*335*	*350*	*10,845*

689 All figures in $ millions