

Rise of Domestic Banks in EME Cross-border Credit Intermediation

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Abstract

While the volume of cross-border capital inflow to emerging market economies (EMEs) has been increasing since 1970s, the last three decades have witnessed a more pronounced change in the structure of these cross-border capital flows. In this paper, we document the rise of domestic global banks in EMEs and the growingly important role they have played in channeling cross-border capital since the 1990s. We further provide evidence that this structural change in the cross-border capital flow to EMEs is likely to be driven by the transformation of the U.S. money market since the end of the 1980s. Using detailed documentation on cross-border loans, we demonstrate that foreign and domestic lenders have drastically different preferences on lending bases when extending credit to corporations in EMEs: foreign lenders exhibit a much higher reluctance to lend against hard assets as collateral. On the basis of differentiated lending technologies, we show that the rise of domestic global banks in channeling cross-border capital to EMEs has had a profound impact on i) who receives the capital and ii) how the capital is received. Inspired by these micro-level findings, we conduct a cross-country analysis and find that the rise of domestic global banks in transmitting cross-border capital to EMEs can have a far-reaching impact on these economies at the aggregate level. In particular, we find that the rise of domestic global banks in EMEs can greatly i) reshape the industry structure of these economies and ii) increase the economies' susceptibility to global financing cycles.

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1. Introduction

Cross-border capital has played an important role in boosting and sustaining the growth of emerging market economies (EMEs). Since the 1970s, most EMEs across the world have liberalized capital accounts to allow for international capital inflow. Following capital account liberalization, there was a steady growth in the volume of cross-border capital that flowed into EMEs from developed economies during the last two decades of the 20th century. Near the end of the century, the volume of foreign credit received by many emerging market countries rose above 30% of their GDP level.

While an extensive literature has documented the growing importance over the last half century of cross-border capital to EMEs, a more recent and equally striking transformation that has taken place in EMEs has received little attention.¹ During the past three decades, the volume of foreign capital received by EMEs scaled by their GDP has not increased much, but its structure has changed dramatically.² Before the 1990s, more than 90% of the cross-border capital that moved to the EME's corporate sector was channeled directly by foreign banks from developed markets; by 2010, an average of more than 50% of cross-border credit was being channeled by domestic banks in EMEs.

What caused this structural change in how cross-border capital flows to EMEs? More importantly, would such a change in capital flow structure materialize into real changes that have a non-trivial economic significance? This paper addresses these questions.

The structural change in how credit from developed markets is channeled to emerging markets is marked by the rise of domestic global banks in EMEs, which can raise money from the global funding market and then lend it to their domestic corporations. We find that the rise of these domestic global banks in EMEs and the growing importance of the role they play in channeling cross-border capital coincides with drastic changes in the structure of money markets in developed economies.

The U.S. money market, which is a major source of the cross-border capital that flows to EMEs around the world, experienced significant changes towards the end of the 1980s. Although the first appearance of the money market mutual fund can be dated back to 1971, the market share in the U.S. capital market taken by these institutions did not rise to a non-trivial figure until the late 1980s. Since the 1988-1989 savings and loans crisis in the US, the share of S&L institutions in U.S. capital market has greatly shrunk. At its 1988 peak, S&L

¹See, for instance, [Kose et al. \(2009\)](#) for a comprehensive survey of the literature that documents the increasing degree of financial globalization since the 1970s. In this literature, most of the research has focused on the volume of cross-border capital that flows to emerging market economies.

²Throughout this paper, the dimension of the structure of cross-border credit that is of interest is how it flows into EMEs. Of special interest is the question of who channels these cross-border credits to borrowers from EMEs.

institutions took up nearly a third of the US capital market; by the mid 1990s, this number had fallen below 10%. Much of the market share that S&L institutions lost was gained by money market mutual funds (MMMF).³ Unlike S&L institutions, whose investment choices are bounded by strict regulatory constraints, MMMFs are given much larger flexibility to place the money they raise. In particular, MMMFs will (and can) deploy a non-trivial part of the money they gain from S&L institutions to pursue profitable overseas investment opportunities, which is what traditional banks have been doing since the 1970s. Empirically, we find that US mutual funds' foreign asset holdings (as shares of total asset) increased from less than 1% in 1986 to more than 12% in 1996.

Yet money market mutual funds and traditional commercial banks from developed markets show drastic differences in how they transmit credit to emerging markets. Since commercial banks from the developed market began lending to EMEs, a predominant fraction of this cross-border capital has been directly received by non-financial corporations in EMEs. This is not surprising: these foreign commercial banks know very well how to deal with (screen and monitor) corporate borrowers. There is thus no reason to add an extra layer to the splitting of the pie.

On the contrary, shadow banking institutions like MMMFs generally are not equipped with the screening or monitoring technologies that are necessary for financing corporate firms. Lacking such direct financing techniques, these non-bank lenders from the developed market have to rely on an extra layer to transmit capital to emerging market borrowers. Indeed, we show that over 80% of U.S. mutual funds' long-term foreign lending is received by the financial sector of credit-receiving EMEs, which then allocates this capital to the corporate sector. By comparison, nearly two thirds of the credit channeled by U.S. commercial banks to EMEs is directly received by the corporate sector.

A natural question arises: If the manner in which cross-border capital is transmitted to EMEs were to change, would this make an economically non-trivial difference? Our paper suggests that it would: such a change would induce significant changes in who receives these credits and in how these credits are received. We now elaborate.

The point made in this paper hinges on the following fact: when they extend credit to firms in EMEs, foreign lenders and domestic lenders employ significantly different lending technologies. The origins of the differences between the lending technologies of domestic and foreign lenders when facing borrowers in EMEs lie in the constitution of corporate firms' borrowing capacity. The debt capacity of any corporate firm can be broadly categorized into two exclusive sources: those that are tangibility-based and those that are transparency-based. The most common form of tangibility-based lending is the secured

³Some recent studies have attributed the quick rise of MMMF around early 1990s to the demographic change in US during that period. See for instance [Ordoez and Piguillem \(2018\)](#).

loan backed by hard assets as collateral, the value of which is usually insensitive to a firm's own performance.⁴ Examples of transparency-based lending include unsecured loans and loans secured by the cash flow of borrowing firms, which often involve the inclusion of EBITDA-related covenants in the credit agreements.

The value that lenders can recover from the collateral assets, be it hard assets or borrower's cash flow, determines a firm's debt capacity. Consequently, a firm's debt capacity is likely to be lender-specific. In emerging markets, the liquidation of defaulting borrowers' hard assets often features prolonged liquidation process and a low net recovery rate due to a relatively weak legal protection of creditor rights. Thus, a lender's ability to conveniently conduct a timely monitoring of the pledged collateral could be crucial in weak legal environments. In this paper, we show that although no significant differences can be discerned between foreign and domestic banks in lending on the basis of borrower transparency, this lender identity difference becomes noticeable in the case of hard-asset-based lending.

Empirically, we find that among the loans extended to borrowers from emerging markets, over 60% of those extended by domestic banks are backed by fixed assets as collateral, while only 20% of foreign bank extended loans are tangibility-based. Furthermore, we find that this distinction is much more pronounced for emerging market countries that have relatively high insolvency resolution costs. While foreign lenders on average are 16.3% less likely than domestic lenders to lend against fixed assets in extending credits to EME borrowers, the difference widens by another 5.3% every one more year it takes to resolve insolvency in the borrowers economy. In contrast, we observe no significant differences in lending base preferences between foreign and domestic lenders when credit is extended to borrowers from developed markets.

To strengthen our identification of the causal relationship between a lenders' identity and its lending base preference in extending credit to borrowers from EMEs, we conduct a with-in firm (and loan package) analysis.⁵ Specifically, through a examination of tranche-level credit agreements data that contains detailed information about collateral structure and lender composition, we exploit the variation across different tranches of credit agreements within the *same* loan package. In this way, We identify a significant difference in lending base preference between foreign and domestic lenders when they extend credit to borrowers from EMEs. Empirically, we find that a 15% increase in the foreign banks share in the

⁴Hard assets that are often pledged as collateral in corporate loans include land, real estate properties, machines and equipment, inventories, etc. It often requires frequent and timely monitoring and checking to guarantee the efficacy of these hard assets as collateral.

⁵The main endogeneity issue that we need to deal with when establishing the causal relationship is selection biases on both the lenders' side and the borrowers' side. For instance, the fact two firms borrow from foreign and domestic banks against different lending bases could be driven by different asset structures or the business nature of these two firms rather than by differences in lending base preferences on the lender side. We discuss these potential selection issues and how they might affect our causal identifications in Section 4.3.

total tranche amount is on average associated with a 36% decrease in the likelihood that a loan deal tranche is contracted on fixed assets as collateral. Relatedly, we estimate a 28.1% increase in the likelihood of covenant inclusion after a 15% increase in foreign banks share in the tranches' total amount.

Having documented this important difference between the lending technologies of domestic and foreign lenders, we show that domestic and foreign banks produce different "outputs" in the cross-border credit market. Specifically, we examine our deal-level observations of foreign credit agreements established in various emerging markets and show that differences in the lender composition would lead to differences in 1) who are more likely to be the receiver of the credit; and 2) the credit volume received by a given borrower.

Running a multinomial logit estimation, we find that a 10% percent increase in domestic bank share in a deal package leads to a 31.2% increase in the probability that the credit will go to a firm in tangible industries and a 21.5% increase in the likelihood that the credit will be received by an unlisted firm. These results are consistent with those obtained for foreign credit volume. Conditional on the credit receiving firm being from a high-tangibility industry (or being a privately traded firm), a 20% increase in the domestic bank share is associated with a 3.7% (or a 3.5%) increase in the deal volume. In contrast, no significant relationship is observed between the lender identity and the volume of a deal package when loans are conditional on borrowers being from lower-tangibility industries or publicly traded borrowers.

These findings at the disaggregate level naturally lead us to answer the question raised at the beginning: What real economic impact can be generated by the rise of domestic banks in transmitting cross-border credit to EMEs? During the era before the rise of the domestic global banks, cross-border capital was predominantly channeled directly and, thus, it was allocated by foreign banks. Consistent with our finding about the lending base preference of foreign banks in extending credit to EME borrowers, the cross-border capital channeled to EMEs during this period are primarily in the form of unsecured loans or loans secured by borrowers' cash flow or account receivables. Accordingly, we find that the receivers of cross-border credit during such episodes are mostly highly-rated and publicly listed firms, and EBITDA-related covenants are often seen in these foreign currency denominated credit agreements, guaranteeing the required transparency. From 1986 to 1990, only 5.6% of the USD denominated cross border credit was allocated to private firms in EME and less than 4.8% of the USD denominated loans flew to firms in high-tangibility industries.

The structural changes in the money market of developed economies since the early 1990s have given domestic banks from EMEs better access to the global capital market. Now able to borrow foreign credit from institutional lenders in developed economies, these EME banks can compete with their foreign counterparts in transmitting cross-border capital to EMEs. At individual firm level, we show that many firms that formerly relied on foreign

banks for cross-border credit switched to domestic banks when the latter gained accesses to the global capital market. These newly risen domestic global banks in EMEs are able to attract firms that originally borrow from foreign lenders because of their “superior” lending technology. The ability to lend against hard assets allows these domestic global banks to offer credit contracts that feature larger loan sizes and fewer restrictive covenants than those offered by foreign lenders, which must rely on the inclusion of covenant to conduct transparency-based lending.

Consistent with this intuition, we find a clear reduction in covenant inclusion in credit agreements associated with borrowers that switch from foreign lenders to domestic lenders. The allocation of cross-border credit at the aggregate level has changed dramatically. Until 2011-2015, 37.6% of the total value of USD denominated cross-border credit was received by the private firms and more than 20% of the cross-border USD denominated credit was allocated to firms in the high-tangibility sectors in EMEs.

While in this paper we do not take a stance on the pros and cons of the rise of domestic global banks in EMEs, we show that the rise of domestic banks in transmitting cross-border capital to EMEs can greatly reshape the industry and capital market structure in EMEs, and it can increase the susceptibility of these economies to changes in global financial market conditions. Specifically, we find that the average long-term debt (scaled by lagged total assets) of tangible industries increased by 16.2% during the period 1995-2010, compared with its level before 1995; the corporate annual investment rate of tangible industry firms (measured by capital expenditures scaled by lagged total assets) increased by 5.2%. In contrast, no comparable changes are seen in intangible industries. Not surprisingly, we find an overall higher tangible industry share of total GDP in emerging markets around the world. During this period, the average tangible sectors’ output value added as a share of GDP of emerging market economies increased from 15.13% to 24.33%, while average employment in tangible industries increased from 14.67% to 23.12%.⁶ Similarly, we find that globalization of banking sector in EMEs also brings additionally faster asset growth and leverage buildup for private and unlisted firms.

In addition to a reshaped industry structure, the sensitivity of real economic outcomes in emerging markets to global financial conditions seems to have increased, accompanying banking globalization in these economies. Comparing the coefficient estimates (before and after 1995) of regressions at the country-year level, we found that before 1995, a 0.5 increase (decrease) in the NFCI index (about half of its standard deviation) is associated with an average of 13 basis point decrease (increase) in real GDP growth rate.⁷ After 1995, a same

⁶The share of tangible industry in total GDP is measured as the manufacturing sector’s value added as a percentage of GDP; the share of employment in tangible industries is measured as total share of employment in a country’s construction, mining, and manufacturing sectors.

⁷“NFCI” stands for the Chicago Fed National Financial Condition Index, which is measure of the global

magnitude change in NFCI is associated with an average 85 basis point change in real GDP growth rates in emerging markets around the world.

In addition to these time trend patterns, we exploit cross-country variation for establishing a causal relationship. In other words, given that the replacement of foreign banks by domestic banks in channeling cross-border credit can occur to different degrees in different countries, we examine whether variations in this dimension will result in different real outcomes. Our estimation results suggest affirmative answers. In particular, comparing post-1995 levels of real economic variables to their pre-1995 levels, we find that a 10% higher de facto cross-border credit channeled by domestic banks is associated with a 2.13% higher tangible industrial sector value added to GDP, a 2.98% higher employment of those employed in tangible industrial sector and a 5.62% higher average annual investment rate in the tangible sector. Similarly, we show that economies in which domestic banks play a larger role in channeling cross-border capital also exhibit higher real economic outcome susceptibility during the global financial cycles.

To further strengthen this causal relationship, we employ and examine several instrumental variable to extract exogenous variations in the cross-country heterogeneity in the share of domestic bank-channeled foreign credit. One variable we consider is the level of financial literacy of emerging markets. We find that countries that have a higher level of financial literacy feature a larger degree of replacement between foreign and domestic lenders after the capital supply shock—i.e., the structural change in money markets in developed economies. In addition, no significant correlation is found between the volume of foreign capital inflow and the financial literacy of the credit receiving country.

Another instrumental variable we utilize is the pre-1990 degree of the exposure of the domestic banking sector to the global funding market for each emerging market. That is, prior to the structural change in the US money market that occurred during the early 1990s, how much connection had an EME's banking sector built with the global capital market? For those with a higher level of endowed connection to the global funding market, we should expect a greater replacement of foreign banks by domestic banks after the rise of MMMFs in the US money market. Regressions based on these instrumental variables confirms that the rise of domestic banks in transmitting cross-border capital to EMEs can significantly reshape the industry structure of these economies and increase their sensitivity to global finance cycles.

Related literature Our paper is closely related to two main strands in the literature. The first includes a growing body of literature that emphasizes the phenomenon of the global financing cycle and the transmission of center economy financial condition changes to emerging

financial conditions for emerging markets.

market economies. Recent research in this area has investigated the increasing co-movement of capital flows, financial flows, and asset prices in global economies: [Rey \(2015\)](#), [Miranda-Agrippino and Rey \(2015\)](#), [Jiang et al. \(2018\)](#), [Gabaix and Maggiori \(2015\)](#), [Obstfeld and Taylor \(2017\)](#), and [Han and Wei \(2016\)](#). Previous research studied how EME companies react to switches in global financial conditions in a globalized financial market setting: [Kalemli-Ozcan et al. \(2018\)](#), [Diamond et al. \(2017\)](#), [Bruno and Shin \(2017\)](#), [Alfaro et al. \(2019\)](#). Researchers have also documented how global banks are impacted by center economy conditions and how they intermediate credit from center economy to the EME firms: [Avdjiev and Hale \(2019\)](#), [Brauning and Ivashina \(2019\)](#), [Cetorelli and Goldberg \(2012\)](#), [Dages et al. \(2000\)](#), [Ivashina et al. \(2015\)](#), [Giannetti and Laeven \(2012\)](#), and [Demirg-Kunt et al. \(2017\)](#). Our paper contributes to this strand in the literature by documenting a novel trend wherein the domestic banks that replace foreign banks in the cross-border market can generate new channels of global financing cycle transmission. We also are the first to highlight that when domestic and foreign banks intermediate cross-border credit, they show fundamental differences in leading technologies.

Second, our work is related to the literature that examines how financial development and financial intermediation affect real economic outcomes. The recent representative works in this strand include: [Khwaja and Mian \(2008\)](#), [Mian et al. \(2013\)](#), [Schnabl \(2012\)](#), [Calomiris et al. \(2017\)](#), [Caballero and Krishnamurthy \(2001\)](#), and [Caballero and Krishnamurthy \(2003\)](#). We contribute to this strand by showing, first, that the global financial market transformation in the 1990s, or more precisely, the emergence of institutional investors in U.S., greatly reshaped the way credit flows from the center economy to the emerging market economy, and, second, that this pure financial market transformation has led to a reshaped industrial structure and real growth susceptibility towards global financial condition switches in EME.

The rest of the paper is organized as follows. Section 2 describes the data source and the sample construction for the empirical exercise that this paper conducts. In section 3, we document a recent trend in banking globalization that takes place in many EMEs around the world, and we show its relationship to structural changes in the money markets of developed economies. Section 4 examines how domestic banks, which play an increasingly important role in the channeling of foreign capital to EMEs, behave differently from foreign banks when they extend credit to corporations in EMEs. Section 5 then investigates the impact of the rise of domestic global banks in EMEs on the allocation and reception of cross-border capital and on its real impact on economies at aggregate levels. Section 6 concludes the paper.

2. Data Description

We obtain our data from three categories of data sources. The first is detailed documents of loans issued by domestic and foreign lenders to the emerging market corporate sectors; the second is balance sheet information about firms and banks; and the third is the macroeconomic condition variables. We describe the three categories in more detail.

2.1. *Loan details and collateral Information*

We obtain detailed information about the loans from Thomson Reuters' LoanConnector and LPC Dealscan. These two databases share the same underlying data source, which is syndicated bank loans issued by corporate sectors around the world. The former database focuses on loan characteristic details while the latter focuses on lender composition and borrower information.

We record transaction-level information about syndicated loans to emerging market non-financial corporations. Drawing on documents extracted from the web-version of LoanConnector, that information includes the loans' borrower, starting date, maturity date, pricing, currency, lender composition (including each banks' contribution), and the details of assets that serve as the loans' collateral. using the documents extracted from the web-version of LoanConnector. Our data's uniqueness lies in the detailed information it provides about loan collateral.

For at least three reasons, syndicated loans function well for the investigation of transmission of U.S. monetary policy towards emerging markets' corporate sector for at least three reasons. First, syndicated loans constitute more than 50% of the increases in cross-border bank lending and more than thirty percent of on-balance sheet bank claims in the cross-border positions (Cerutti et al. (2015)).⁸ ⁹ Second, given that USD is the dominant currency in international finance and trade (Gopinath and Stein (2018), Brauning and Ivashina (2019)), syndicated lending captures more than 95% of all bank lending transactions denominated in USD by both domestic and global banks. This high coverage allows us to develop a full screen-shot image of dollar-funding cost condition changes. Third, syndicated loans to EME non-financial corporate sector serve the goal of capturing the bank lending in domestic currency. Domestic currency syndicated loans in EME averaged 47.8% of total syndicated loan amount, and on the firm side, the recipient firms cover both publicly-traded firms and

⁸According to the aggregation calculation that uses Dealscan, the foreign-currency syndicated loan amount averages about 25.8% of GDP, which is close to the average external debt non-financial sector debt as a percent of GDP (37.8%).

⁹For the reason mentioned, syndicated loans have been found to be ideal for studying international transmissions of monetary policies in a number of previous works including Giannettiv and Laeven (2012), Haas and Horen (2012), Demirg-Kunt et al. (2017).

private firms.¹⁰

In this paper, we record detailed information about 5019 loan packages (11788 tranches) received by 4490 firms, and we maintain a focus on the assets that serve as collateral from 34 emerging market economies during the period 1992-2018.^{11 12} Two samples of the digitized version of the documents are provided in the appendix. For each digitized record, we document the borrowers and lenders of the syndicated loans, the pricing, maturity, currency, whether there are domestic lenders in the top-tier arrangers (lead banks), the contributions of foreign and domestic lenders in each tranche, and importantly, the assets that serve as collateral. In the second sample, Mandarin Bali Oriental Bali borrowed 108 million USD, and the company pledged one of its properties, "Mandarin Oriental Bali Resorts," as collateral. The category of this collateral is "Real Estate." For all 11788 tranches, we have concrete information about the categories of collateral used, although for some of them we do not have information about the exact assets or goods pledged. The constructed data from all loans that provide concrete details and that are of the collateral type covers 65.8% of the total amount of secured loans to the 34 emerging market economies in the database.

2.2. *Corporate and bank information*

We get the corporate and bank information from Worldscope, BvD ORBIS, Compustat International and Datastream. 2872 of the 4490 firms are public firms, and for more than 80% of the private data/de-listed we obtain balance sheet information from Datastream and the firms' annual report. Further, we take down information about whether the firm is a multinational entrepreneur, whether the firm is a joint venture or whether it has foreign ownership. We rely on the same databases to get information about the lending banks' ultimate parent countries and whether the lending banks' ultimate parent country is the same as the borrowing firm.

¹⁰Bond financing, an alternative source of financing, grew quickly in emerging market economies after the Great Recession, but bank loans have remained the major source of financing for most firms in emerging markets. According to documentation by [Jiang and Sedik \(2019\)](#), non-financial corporate bond in Asia peaked at 2200 billion USD in 2015, and the issuers were concentrated in about 200 large firms, while syndicated loans totaled 4000 billion with a total of more than 4000 firms. The pattern is also reflected in [Brauning and Ivashina \(2019\)](#).

¹¹We exclude borrowings from government and special public projects financed by international organizations, such as IFC, Worldbank, ADB.

¹²The economies covered include Argentina, Brazil, Bulgaria, China, Chile, Colombia, Czech Republic, Egypt, India, Indonesia, Iran, Israel, Hungary, Korea, Kuwait, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Qatar, South Africa, Saudi Arabia, Romania, South Korea, Russian Federation, Taiwan, Thailand, Turkey, UAE, Ukraine, Vietnam, and Venezuela.

2.3. *Cross-country aggregate variables*

We get aggregate variables from Worldbank, IMF IFS, and CEIC. The macroeconomic variables involved in the regression analysis include GDP growth, inflation, domestic credit to GDP ratio, the deposit rate of domestic banks and VIX. Specifically, the external debt of an economy is available in either WorldBank or the country's bureau of statistics website.

3. **Cross-border Capital Flow to EMEs**

In this section, we examine the structure of the cross-border capital that flows to EMEs and how this foreign capital is channeled to EMEs. We document a drastic structural change in the way in which cross-bordered capital has been transmitted to EMEs since the 1990s. We provide evidence that such a structural change in cross-border capital flow to EMEs can (at least partly) be explained by significant changes in the structure of the US money market during the late 1980s.

3.1. *A Structural Change in how Foreign Capital Flowing to EMEs*

Over the past several decades, many emerging market economies (EMEs) around the world have experienced unprecedented economic growth. A common factor is often seen behind the fast growth in these EMEs: the flow of cross-border capital to these economies.¹³ Starting in the 1970s, emerging market economies around the world began to liberalize their capital accounts, allowing more financial inflows from lenders in the developed world.¹⁴ Since then, the volume of cross-border capital received by corporations in EMEs has been steadily rising. As shown in Figure A1, prior to the mid-1990s, the average private sector external debt in fifty major EMEs as a share of their GDP rose to around 30%. In the most recent two decades, this ratio of foreign currency debt to GDP in EMEs around the world seems to have reached its steady state level and has not increased much further.

While the change in the volume of cross-border capital flow to EMEs has become minimal since the late 1990s, since then a drastic compositional change has taken place. Prior to 1990, the cross-border capital flow to EMEs was predominantly channeled directly by foreign banks from developed economies. In constructing measure of cross-border capital, we classify a sum of credit to be foreign credit if the currency of the denomination of the loan is different from the borrowers' home country currency.¹⁵ As shown by the red line in Figure

¹³See [Wei \(2018\)](#), [Kose et al. \(2009\)](#)

¹⁴See [Kose et al. \(2009\)](#)

¹⁵This measurement of foreign capital inflow is constructed on the basis of loan-level observations assembled from LPC DealScan, which covers over 95% of the US dollar denominated loans (in terms of face value) that

A1, almost all of the foreign currency-denominated credit received by corporations in EMEs during this period was issued by foreign global banks.

We show that beginning in the 1990s, domestic banks in emerging markets started to play a nontrivial role in bringing in foreign credit. When constructing measures of the cross-border capital that is channeled by domestic banks in EMEs, we classify a bank as a domestic bank if the nationality of its parent economy is the domestic emerging market economy that it provides credit to; otherwise it is classified as a foreign bank. For example, when extending credit to a corporation in South Korea, Citibank as well as its branches in South Korea are categorized as a foreign bank, while Woori Bank, a bank headquartered in Seoul, is a domestic bank for South Korea. Based on this categorization, for each emerging market we calculate the fraction of foreign credit received by its corporations that is channeled by its own domestic banks.

In figure A1, the red curve displays the worldwide average of the fraction in foreign credit (in terms of face value) that is received by 50 major EMEs and channeled by their own domestic banks. Although this ratio remained at a minuscule level throughout 1980s, it started an ascending trend in the 1990s. Until 2007, the year prior to the global financial crises, domestic banks foreign-currency credit had reached an amount comparable to that extended by foreign banks. Figure A3 uses an alternative measure in which the fraction of domestic-banks-channeled foreign credit is constructed on the basis of whether or not the loan has domestic bank participation; it shows a similar ascending trend with a comparable scale over the last 3 decades.¹⁶ Furthermore, we show that this ascent in the fraction of domestic-lender-channeled foreign credit is a general trend observed in most EMEs across the world; it is not driven by a few large EMEs. In Figure A2, we conduct the same calculations with EMEs grouped in different continents. A common pattern can be seen in all four panels: the volume of the cross-border capital inflow started to increase long before the 1990s, while domestic banks have started to play a role in transmitting foreign capital since then. In Figure D1, we show that this temporal trend in the role that domestic banks play in channeling foreign credit is consistently observed at the country level.

3.2. *What causes this change?*

Having documented changes in the way that cross-border capital is channeled to EMEs, we turn our attention to how these changes occur. Specifically, what factors are likely to have caused these changes? Did they occur because these emerging markets saw an inter-

have occurred across the world. Our measurement does not capture the portion of credit that originates in foreign countries but is loaned by domestic banks in domestic currencies.

¹⁶Figure A4 displays the same contents as Figure A3 using the actual amount channeled by domestic banks rather than the face value of loans with at least some domestic banks participated.

nal demand for globalizing their banking sector and, thus, liberalized their domestic banks access to the global funding market? Or did something happen on the credit supply side that made it easier for domestic banks in EMEs to raise funding from the global market? In this section, we investigate the causes of this structural change in cross-border capital flow to EMEs.

A. Demand Side Factors

The increase in the share of cross-border capital that is channeled by domestic banks could be driven by changes on the credit demand side. Imagine an emerging economy that experiences fast growth in its housing industry and imagine that only domestic banks can finance the housing industry. In this circumstance, we would expect internal demand to globalize this country's banking sector.

However, three lines of evidence in our empirical investigation suggest that changes on the credit demand side are unlikely to cause the increase. First, if internal demand drives banks in EMEs to gain more access to the global funding market, then we would expect that some countries would have developed this demand during the 1980s. But our finding that the foreign capital received by almost all EMEs was predominantly channeled by foreign rather than domestic banks during the 1980s clearly suggests otherwise.

Second, our cross-country evidence suggests that demand side factors cannot be the whole story. In Figure A2, we conduct at the continent level the same calculation carried out in Figure A1. A notable similarity is readily seen: on all four continents, the average ratio of foreign credit channeled by domestic banks started to take off during the mid-1990s. In a more detailed country-level calculation, and as displayed in Figure D1, we see that this ascending trend in the importance of the domestic-bank transmission of foreign credit is consistently seen in almost all countries. After all, if an analyst were to insist that the structural changes in cross-border capital flow are all driven by internal demand from the credit-receiving EMEs, how would she explain why this internal demand arose everywhere in the world shortly after 1990?

Furthermore, we specifically examine an important alternative – the housing demand in the emerging market world. If the real estate sector can only be financed by domestic lenders (which, in section 4, we show is generally true in the case of EMEs), then such a global structural change in foreign credit flow can only be explained if there is an increased demand for housing everywhere in the world.¹⁷

¹⁷However, the domestic bank-channeled foreign credit both started during the same period and grew at a similar pace in Emerging Asia and in emerging Europe and emerging Africa. Emerging Asia saw the fastest middle-class population growth during the past two decades, while middle-class population growth stagnated in emerging Europe and emerging Africa Kharas (2011). Given the fact that residential real-estate is the most important durable goods demanded by middle-class population in an economy, these pieces of evidence suggest that housing demand could not be the sole explanation for the rise of domestic banks in the international

B. Supply Side Story: Changes in the U.S. Money Market

If demand side factors cannot be the main driving force, then it is natural to expect that something happened on the credit supply side that might have contributed to this structural change in credit flow to EMEs. In this subsection, we argue that the rise of domestic banks in channeling foreign credit to emerging market economies is driven by structural changes in the U.S. money market. Translated into structural change in the global funding market, these changes lead domestic banks in the emerging market to increase their direct participation in the transmission of foreign credit.

i) Structural changes in the U.S. money market around 1990

Throughout the 1980s, the U.S.'s financial market went through an important evolution. Deregulation in the banking sector and other deposit-taking institutions facilitated the rapid growth of savings and loans institutions and stimulated their investment in a broader set of non-homeowner related loans.¹⁸ As shown in Figure A5 panel (a), the asset size of S&L institutions had reached more than half of that owned by commercial banks by the end of the decade. Meanwhile, the share taken by mutual funds in the U.S. money market during the 1980s stayed at a negligible level, although the birth of the first mutual fund can be dated back to 1924.

While many S&L institutions took advantage of the loose regulation and made many speculative real estate investment, the end of the 1980s' witnessed a nationwide crisis, during which many of these S&L institutions went bankrupt.¹⁹ Since then the market share of S&L institutions in the U.S. money market had greatly shrunk. Interestingly, the biggest beneficiary of the fall of S&L institutions had been mutual funds and market market funds. In 1985, the share of assets owned by these "shadow bank" institutions was below 5%. By 1995, this number had exceeded 30%. Before the end of the century, these non-bank institutions had gained a comparable share of the U.S. money market as commercial banks. This rise of mutual funds and money market funds in the U.S. deposit market is also documented by a number of institutional studies (Swamy et al. (1996), Gup (1998), Dow and Elmendorf (1998), Kennickell et al. (1997)).²⁰

A recent literature has documented and attributed the rapid growth of mutual funds during this episode to the demographic change in the U.S. economy. As documented by

financing market.

¹⁸Before the deregulation, S&L's by law could only lend up to 20% of their assets for commercial loans, and only half of that could be used for small business loans. Moreover, in the case of Federal Home Loan Bank borrowing approvals, an S&L had to show that 65% of its assets were invested in residential mortgages and other consumer-related assets. Commercial banks not subject to these types of limitations.

¹⁹According to the Savings and Loans Institution Databook published by FDIC, about 4600 savings and loans institutions operated in 1980; in 1990, less than 2000 survived.

²⁰For example, between 1950 and 1993, U.S. financial assets held by commercial banks fell from 50% to 25%, while the financial assets held by MMFs simultaneously grew from 1% to 10%.

Ordoez and Piguillem (2018), the remarkable increase in population expectancy in the U.S. (and also other developed economies) translated into a large increase in demand for savings and investment. According to the Mutual Fund Fact Book (1998), during the fifteen-year span from 1984 to 1998, the percent of U.S. households that owned mutual funds rose from 11.2% to 44.0%. Typical investors in mutual funds are middle class, and more than 80% of households with mutual fund holdings are headed by individuals in their primary (25-64) income-earning years, with the heaviest concentration in the 35-44 bracket. The quantitative increase in the savings demand does not necessarily mean that the increased demand is going into the shadow banking system. Workers with low income growth and low financial literacy would simply put their wage bills into their local commercial banks. In fact, statistics prepared by the Consumer Finance Survey reveal that the households that are contributing to the increased holdings in the shadow banking system are exactly those that have higher financial literacy and whose household income exhibited faster growth.²¹ All of the demographic changes explain the fundamental source on the supply side that led to the emergence of shadow banks or investment companies in the U.S. during the 1990s.

ii) Differences in the foreign investment behavior of the U.S. financial institutions

To understand how such a structural change in the U.S. money market would impact the rest of the world, we need to know if these players in the U.S. money markets behave any differently in their choice of assets and investments. In this part, we provide evidence that these distinct types of intermediaries indeed do drastic differences in choosing their asset portfolio, particularly whether or not they make oversea investments and if they do, how they make these investments.

Stringent legal restrictions constrain savings and loans institutions when they choose investment categories. To comply with these legal restrictions, S&L institutions must refrain from investing abroad. Shadow banking institutions, which have largely gained the market share that S&L institutions lost in the U.S. money market, do not face such restrictions in their asset choices. Having a large volume of money to deploy, mutual funds in the U.S. started to expand their investment spectrum to pursue the most profitable projects, sometimes in foreign lands. This fact is reflected in the bottom panel of Figure A5. Starting at the end of the 1980s, the international asset holdings of U.S. funds started to increase dramatically. At the end of 1986, the international asset holdings of U.S. funds represented less than

²¹In 1998, the median before-tax household income of households whose household head had at least some college education was \$53,000 and the median household income of households that owned mutual funds in 1998 was \$55,000. The income of households whose head had a college degree increased by more than 24% from 1992 to 2001, while the growth rate of income in households whose heads had a high school degree or less was less than 7%. The median household financial assets of households whose head had a college degree was close to \$109,000, while the median household financial assets reported by the Mutual Fund Fact Book (1998) was close to \$88,000.

1% of their total holdings. By 1996, that number had risen to more than 12% and exceeded 495 billions.

The differences between U.S. shadow banking institutions and commercial banks in their foreign investments are somewhat more subtle. Commercial banks, too, do not face the investing abroad constraints imposed on S&L institutions. In fact, as reported in the bottom panel of Figure A6, throughout the 1980s, cross-border lending accounted for a non-trivial portion of U.S. commercial banks lending. Although both types of intermediaries shared a willingness and eligibility to invest abroad, how they did so differed drastically.

To examine the foreign asset portfolio structures of these intermediary types in developed economies we explore transaction-level data on U.S. dollar-denominated cross-border loans. Figure A6 visualizes the portfolio difference between U.S. shadow banking institutions (MMF and mutual funds) and U.S. commercial banks in the international syndicated loan market.²² The figure delivers two pieces of messages. First, starting about 1990, investors in shadow banking institutions sharply increased their investment portfolio share in the international market; in contrast, no such changes are observed in commercial banks. Second, commercial banks focused on making loans directly to emerging market non-financial corporations; these loans accounted for more than 70% of their cross-border syndicated loan portfolio. In contrast, MMFs and mutual funds allocate more than 80% of their cross-border syndicated loan portfolio towards banks and other financial intermediaries in foreign countries.

Figure A7 shows the composition of capital credit flows towards emerging market economies. Across all regions of the emerging market world, net bank and trade-related lending started to grow during the 1980s and then stabilized during the 1990s. In contrast, the net flow of portfolio bonds did not start to increase until the 1990s, while at the same time the shadow banking system in U.S. began to grow drastically. The aggregate volume of net bond flows to Latin American economies and Asia Pacific emerging market economies grew almost ten-fold. Coevally, the net bond flow in European emerging market economies grew five fold, and even in African emerging market economies, where in the 1990s net banking and trade flows were negative, bond issuance grew quickly. Taking another look at issuance level data from the emerging market economies' side, which is shown in Figure A8, we decompose the receivers of the bond flows by financial sector and non-financial corporate sector. Consistent with World Bank country-level aggregate data, the total bond issuance volume did not

²²For two reasons, the syndicated loan market provides a lens that can be used to determine how MMFs and mutual fund investors distribute their portfolios. First, during early 1990s, financial innovation facilitated the active participation of institutional lenders (Nandy and Shao (2007) Nini (2013)), including, especially, the participation of lending banks in the international arena. Second, the data on syndicated loans provide information about lending and borrowing institutions. This information includes accurate identifications of investors asset allocations. In the case of other asset types, such as bonds and equity, the data are not consistently available and, thus, are hard to track.

start to increase until the 1990s, and, importantly, approximately 75% of the bonds flowed to financial sectors in the emerging market world. Our findings are also consistent with [Kaminsky et al. \(2001\)](#).

These differences between how U.S. shadow banking institutions and commercial banks made loans in the emerging market is not difficult to understand. Having developed the skills (screening and monitoring, etc.) needed to finance the operations of non-financial firms in their own countries, commercial banks in developed economies directly extended credit to real sectors in emerging markets. Shadow banking lenders, however, did not possess such skills. Instead, the MMF and mutual funds in the developed world that wished to invest in profitable projects in EMEs had to develop an additional institutional arrangement: the use of domestic financial institutions from credit-receiving countries, which borrowed from non-bank lenders in the developed world and transmitted the credit to their domestic real sectors.

3.3. *Rise of Domestic Global Banks in EMEs*

The structural change in the financial market of the U.S. translated into a structural change in the global funding market because the U.S. is the center economy of international finance. Prior to this transformation, the predominant player that channeled credit from the developed world to the emerging market economies had long been commercial banks in developed markets. The on-going expansion of shadow banking institutions in the U.S. money market gave rise to the emergence of a group of new players that brought credit to emerging economies: *globally funded domestic banks* in emerging markets.

In this subsection, we examine foreign-currency debt issuance behavior on the credit-receiving side. Consistent with the credit supply-side changes documented above, we find that commercial banks in the rest of the world started to borrow more and more frequently from the global funding market during the early 1990s. In the upper panel of [Figure A9](#), we plot the time-variation of non-U.S. banks' USD wholesale liability as a share of their total wholesale liability. Prior to 1990, this ratio for non-U.S. banks from developed market economies (primarily European banks) stayed below 10%, while the ratio for non-U.S. banks from emerging market economies essentially stayed close to zero. Coinciding with the structural change in the U.S. money market, both series started to take off around 1990. By 2005, the U.S. dollar liability reliance of emerging market economies' banks had reached 25%, and in European banks it exceeded 30%.²³

Moreover, we find that as the U.S. shadow banking institutions expanded their interna-

²³The wholesale funding activities of global banks and their reliance on MMFs is also documented in [Ivashina et al. \(2015\)](#), [Baba et al. \(2009\)](#).

tional investment, banks from emerging market economies became more responsive to U.S. monetary policy changes. Figure A9 displays how EME banks' USD liability issuance responded to U.S. financial condition indices over time. The U.S. financial condition indices are NFCI (Chicago Fed National Financial Conditions Index) and IMF-index for the United States (2017 GFSR Chapter 3 Annex 3.1). The Figure 10(a) and 10(c) estimate:

$$\frac{\text{USD liability issuance}}{\text{Total issuance}}_{b,t,r} = \alpha_b + \mu_r + \sum_{r=76-80}^{r=06-10, r \neq 85-90} \beta_r D[t \in r] \times F_t^{U.S.} + \theta \mathbf{X} + \epsilon_{b,t,r}$$

while Figure 10(b) and 10(d) estimate:

$$1[\text{USD liability issuance}]_{b,t,r} = \alpha_b + \mu_r + \sum_{r=76-80}^{r=06-10, r \neq 85-90} \beta_r D[t \in r] \times F_t^{U.S.} + \theta \mathbf{X} + \epsilon_{b,t,r}$$

where b refers to bank, t refers to year, r refers to the year range, and \mathbf{X} is a vector of country-level control variables, including GDP growth rate, net export/GDP, FDI/GDP, the domestic deposit rate, REER, and the inflation rate. All four regressions transpire at the bank-year level and include 956 banks from 35 emerging market economies. Each bank in the regression has at least three times of issuance. All regressions in the figures include bank fixed effect, year range fixed effect. Standard errors are heteroskedastically robust and clustered at year level. In Figure 10(a) and 10(c), the LHS is the liability issuance denominated in USD (bond and loan) divided by the total liability issuance of a bank in a given year. In Figure 10(b) and 10(d), the LHS is a dummy variable that equals 1 if a bank issued USD liabilities in a given year.

As Figure A9 clearly indicate, prior to 1990, banks from EMEs essentially did not respond to changes in U.S. financial and monetary conditions. From early 1990s, when U.S. shadow banking institutions began to dabble in the international markets, accommodative financial and monetary conditions in United states (lower NFCI and IMF-index) start to generate substantial spillover to the EME banks: EME banks started to issue significant amount of USD liability in response to easing financial conditions in the U.S..

These EME banks did not issue USD liabilities in order to let them to sit idle. Instead, access to global funding markets allowed banks in EMEs to conduct more foreign credit lending. We run a bank-year level regression to examine the correlation between the USD lending and the USD liability issuance of EME banks. As shown in Table D3, changes in a EME bank's USD liability issuance are followed by responses in its USD lending, the size of which is both statistically and economically significant. As such, the newly-gained access to the global funding market allowed EME banks to compete with and, thus, replace their developed economy counterparts, which, prior to these structural changes in the U.S. money

market, had dominated the transmission of cross-border capital to EMEs.

As a summary of the findings we document above, the burgeoning of shadow banking institutions in the U.S. money market during the last decade of the 20th century gave banks in emerging markets more convenient access to the global financing market. In this way, changes in the money market of the center economy translated into changes in *how* cross-border capital was channeled to borrowers in emerging markets. Access to the global funding market enabled domestic banks in emerging markets to compete with and gradually replace foreign counterparts that previously had dominated the channeling of cross-border credit to firms in EMEs.

4. Preferences of Lending Bases: Foreign Banks v.s. Domestic Banks

In section 3, we have documented a global trend in the transmission of credit ow to emerging markets, wherein domestic banks from EMEs gradually took over the role of channeling cross-border credit, which originally had been played by foreign banks. A natural question arises: Do these two distinct groups of lenders allocate cross-border credit differently? In this section, we examine these differences.

We begin by identifying two types of corporate firm borrowing bases: those that are transparency-based and those that are tangibility-based. We find that the two groups of lenders differ drastically in their lending bases preferences. Specifically, foreign banks are considerably more reluctant to conduct collateralized lending against fixed assets. Exploiting cross-country variations, we provide evidence that this difference can be explained by the difficulty that foreign lenders face when monitoring and seizing physical collateral; among domestic lenders, these tasks are less difficult. We then focus our attention on corporate lending in emerging markets; monitoring and seizing physical collateral in these markets is more costly. We also exploit within-firm variation to determine how the lending technologies of foreign and domestic lenders differ from one another.

4.1. Constituents of Firm Debt Capacity: Transparency and Tangibility

A borrower cannot borrow from a rational creditor an amount that exceeds what he can commit to pay back. Corporate debt capacity, a key concept in any corporate finance textbook, plays a pivotal role in the transmission of cross-border capital flow to emerging markets.

In the literature of corporate finance theory, non-financial firms have access to two major

sources of debt capacity that they can rely on for borrowing. The first is the transparency (or pledgeability) of firms' cash flows and earnings (e.g. [Stiglitz and Weiss \(1981\)](#), [Holmstrom and Tirole \(1997\)](#)). The second is the tangibility (or redeployability) of firms' assets (e.g., Hart and Moore, 1994; Kiyotaki and Moore, 1997; Bernanke, Gertler, and Gilchrist, 1999.) Figure [B2](#) illustrates these two major constituents of corporate firms' debt capacity and the relevant lending bases for each type of debt capacity source.

Transparency-based lending includes arms-length debt, unsecured bank loans, and bank loans backed by assets whose value is sensitive to the earning and cash flow of borrowing firms. As shown in Figure [B2](#), the income and cash flows of firms such as Formosa Plastics Corp. and Tencent Holdings (paralleling Ineos in the U.K. and Apple Inc. in the U.S.) are highly transparent and trustworthy in their reporting. These qualities allows these firms to issue large sums of bonds and unsecured loans. Normally, a reputation-related lending base is not written into credit agreement documents. A second tier of borrowers explicitly pledges their future earnings and receivables to creditors in loan documents. The most common of these pledged lending bases are "Securities", "Agency Guarantees", "Account Receivables", and "Reserve and Inventories". Often such earning/cash flow-based lending is accompanied by EBITDA-related financial covenants.

In contrast, tangibility-based lending often is based on assets that have a value that is independent of a firm's operating conditions. This type of lending is exclusively carried out by commercial banks in the form of collateralized loans secured by physical fixed assets. Should borrowers fail to make the promised payment, the creditors are granted the right to seize the collateralized fixed assets and sell those assets at market prices. Examples of fixed assets in collateralized lending include aircraft, vehicles and vessels, commercial lands, properties, machines, and real estate.

Which lending base a credit agreement would rely upon is obviously determined (at least in part) by the borrowers' characteristics. As documented in a large literature, only borrowers that have a strong reputation and financial sophistication can base their borrowing on transparency (e.g. [Diamond \(1991\)](#)). Other borrowers, such as newly established corporations, usually have to rely on their tangible assets for borrowing before they become ready and qualified for transparency-based borrowing. In table [B4](#), we report the frequency of corporate lending base reliance in both developed markets (DME) and emerging markets (EME).²⁴ In emerging market economies, which often feature a large fraction of newly established and less financially sophisticated firms, lending is often based on fixed value assets.

²⁴The calculation is based on loans recorded in Dealscan, LoanConnector and Datastream.

4.2. *Lender Identity and Insolvency Resolving Easiness*

In addition to its obvious contingency on borrower-side characteristics, the debt capacity of a corporate firm is also determined by who is conducting the lending. In this part, we show that a particular dimension of lender identity— whether the lender is domestic or foreign— affects corporate lending bases. Specifically, we provide evidence that foreign banks behave very differently from domestic ones when, under certain circumstances, they choose their lending base.

A well-documented feature of emerging market economies is their relatively weak protection of creditor control rights when the debtor encounters insolvency conditions. According to the World Bank Doing Business, the average period of time needed to deal with insolvency in our sample’s 62 emerging market economies is greater than 3 years, and the average cost as a share of the borrowers fixed assets is about 20%.²⁵ In the developed market group, in contrast, the average length of time spent dealing with insolvency is 1.7 years and the average cost as a share of the borrowers fixed assets is 9.3%.

In economies that provide weak general creditor protection and debt enforcement, lenders must conduct more frequent and timely monitoring and be skillful at dealing with a variety of insolvency-related situations. The following cases of “ghost collateral” in China vividly illustrate how domestic and foreign lenders approach the problem of dealing with misbehaving borrowers differently. Hanning Iron and Steel Co. and Decheng Mining Ltd. are Chinese companies in similar industries. Both companies have proposed fraudulent collateral when they have reached for loans; the former, for example, pledged the same pile of 291-ton steel to multiple lenders, while the latter faked warehouse receivables. In the Hanning case, the lender was CITIC, and its inspector, assigned to a local branch in Shanghai, discovered the fraud unexpectedly during a regular inspection. Eventually CITIC won the court order and recovered a significant part of its losses. But in the Decheng Minings case, the main lenders are Standard Chartered and HSBC, both of which are foreign banks. The banks failed to uncover the fraud carried out by the company, and eventually they faced a potential loss of several billion dollars.²⁶

Indeed, the extra difficulty that foreign lenders face when they conduct a close monitoring of the physical assets being pledged as collateral prevents them from extending credit on the basis of tangibility. Figure B4 compares the lending bases of foreign and domestic banks that extend loans to borrowers in the two economies. In both panels, the orange-shaded bars represent the dollar amount proportion of loans that were based on fixed-value assets

²⁵Detailed information can be found at: <https://www.doingbusiness.org/en/data/exploretopics/resolving-insolvency>

²⁶The link to the relevant case: <https://www.reuters.com/investigates/special-report/china-collateral-fake/>.

extended by either domestic or foreign banks.²⁷ The left part of panel (a) reports the lending base compositions of loans extended to emerging market borrowers. A drastic difference can be seen: over 60% of the loans extended by domestic banks are backed by fixed-value assets as collateral, but only 20% of foreign bank extended loans are tangibility-based. Yet when we examine the loans received by borrowers from developed markets, we see no such distinctions, as is illustrated in the right part of panel (a).

We propose, then, that the different lending base preferences of domestic and foreign banks are driven by the relatively higher costs associated with insolvency resolution in emerging markets. To justify this, we direct our attention to emerging markets and sort them according to their debt enforcement conditions.²⁸ As shown in the Panel (b) of Figure B4, the difference between the lending base preferences of domestic and foreign lenders is much more pronounced in emerging market countries that have relatively high insolvency resolution costs.

To formally test the relations illustrated in Figure B4, we run a panel regression with the deal-level data that contains detailed information on the lender-borrower pair and lending bases. Specifically, for each deal we regress the lending base on a set of proxies for the ease with which to liquidate fixed assets in the borrower's country and whether the lender is a foreign lender or domestic lender:

$$1[\text{Fixed assets}]_{b,c,t} = \alpha_{b,t} + \beta I_{\text{Liquidation cost}}^c + 1[\text{Foreign bank}] + 1[\text{Foreign bank}] \times I_{\text{Liquidation cost}}^c + \gamma X + \epsilon_{b,t}$$

where b indexes bank, c indexes the borrower's country, and t indexes year, $1[\text{Foreign bank}]$ is a dummy variable that equals to 1 if the lending bank is a foreign bank relative to the borrower's home country, and $I_{\text{Liquidation cost}}^c$ is the measure of the ease with which fixed assets in the borrower's home country c can be liquidated. We use four measures to capture this liquidation cost. The first is Year resolve, which is the average number of years it takes to resolve insolvency in the borrower's country; the second is the average cost of resolving an insolvency (in percentage of the borrowing firm's fixed assets); the third is the number of days it takes to register property; and the fourth is the number of steps it takes to register property in the borrower's country.²⁹ All four measures are intended to measure difficulty or relatively higher cost for foreign lenders of dealing with fixed-asset-based lending, either at the contracting stage or when a borrowing firm in EME runs into insolvency conditions.

²⁷Foreign bank participation is defined as the loans with at least one foreign bank in the syndication.

²⁸The classification of higher and lower debt enforcement strength are based on the World Banks Doing Business Debt Enforcement Index overall score. Details about each country are provided in the appendix.

²⁹The four variables in the regression come from World Bank Doing Business's "Resolving Insolvency" series and "Registering Property" series.

Table D1 reports the results of the above regression. In column (1), we find that the longer it takes in the borrower country's to resolve insolvency, the less likely it is that any bank will lend on the basis of fixed value assets to firms in that country. While foreign lenders on average are 16.3% less likely than domestic lenders to lend on the basis of fixed assets, the difference will widen by another 5.3% if in the borrower's economy it takes 1 more year to resolve insolvency. The longer it takes on average to resolve insolvency, the more costly it is for lenders to make sure that the collateral's value is preserved; to do this lenders must periodically be able to monitor and evaluate the value of the collateral— a process that is generally more costly for foreign lenders than domestic banks.

Similarly, in column (2) we interact the foreign bank dummy with the average cost of resolving insolvency as a percentage of the borrower's fixed assets. The pattern is similar to that seen in column (1): A 10% higher cost associated with resolving insolvency in terms of seizing borrower's fixed assets is associated with 5.8% increase in the difference between foreign banks and domestic banks in the likelihood that they will accept fixed assets as lending bases. In column (3) and (4) of Table D1, we conduct the same set of investigations, but here we interact the foreign bank dummy with the number of years and procedures it takes to register property in the borrower's country. The longer the time it takes and the more complex it is to register property, the more costly it is and the more uncertain it becomes for foreign banks (relative to domestic banks) to ensure that the value of the borrowers fixed assets can be maintained and, thus, the less likely it is that foreign banks will accept the borrowers fixed assets as a lending base. For every additional year that it takes to register property, the likelihood that a foreign bank will accept the borrowers fixed assets as a lending base decreases by 3.3%—relative to the likelihood that a domestic bank from the borrowers country will accept the same terms. For every 2 additional steps that it takes to register property, the likelihood that a foreign bank will loan funds decreases by 5%— relative to the likelihood that a domestic bank from the borrowers country will do so.

4.3. *With-in Firm Analysis: Lending Base Differences between Foreign and Domestic Lenders*

Based on the categorizations of the lending bases and having documented the source of the differences in domestic and foreign banks, we now examine how these two distinct types of lenders behave differently when they extend credits to EME borrowers. Our goal is to conduct a with-in firm analysis based on our loan-level data in order to establish causal inferences about how the underwriting of credit agreements is affected by foreign bank participation. Specifically, we examine how collateral usage and covenant inclusion in foreign-currency dominated loans are affected by the degree of foreign lender participation. We start

by specifying the empirical framework and sample construction for our tests.

Empirical Specifications

A major issue with simply running a cross-sectional analysis is that selection biases could potentially happen on both the lender's or the borrower's side. On the lenders' side, banks could choose to enter into certain loan contracts for reasons other than how much friction they expect to encounter when they need to liquidate or monitor. For example, foreign banks might be systemically more familiar than domestic banks in EMEs with lending to technology or communication industries. But firms in these industries intrinsically feature an intangible asset structure and, thus, they are unlikely to borrow against physical assets. In this case the fact that foreign banks conduct less tangibility-based lending should not be attributed to their distinctive preference on lending base from domestic banks.

Similarly, on the borrower's side, even within a single firm, the availability of fixed assets and the prosperity of future earnings might differ at different points in time. Simply controlling for firm fixed effects and time fixed effects does not solve the problem. It could be possible that in one year, a firm issues a loan with domestic lenders in order to buy some physical inputs (e.g., commercial land) and pledges the purchased assets as collateral. In a different year, this same firm issues another loan with foreign banks to finance its exporting, in which case the firm pledges its export receivable to the creditors. In this scenario, domestic and foreign lenders finance this same firm against different lending bases because the specific purposes of the loans differ at different points in time in the firm's operation. In other words, such differences do not always reflect differences in the capacity to lend against tangible assets as collateral.

To establish a causal correlation, we restrict our sample to firms that have issued at least one multi-tranche deal, with each tranche having different lender compositions (in terms of foreign bank participation). This allows us to investigate *within-firm* (and at the *same point* in time) whether two tranches of the same loan package that have different foreign bank participation rates will produce differences in the structure of lending bases.

Our tests examine two main aspects of the underwriting of corporate debt contracts. First, we study how the usage of fixed assets as collateral in loan contracting is affected by the participation of foreign lenders, as shown in the following equations:

$$1[\text{Fixed assets collateral}]_{i,d,tr} = \alpha_i + \mu_d + \beta(\text{Foreign bank share/participation}) + \gamma\mathbf{X} + FE's \quad (1)$$

$$[\%\text{Face value fixed assets}]_{i,d,tr} = \alpha_i + \mu_d + \beta(\text{Foreign bank share/participation}) + \gamma\mathbf{X} + FE's \quad (2)$$

where i stands for the firm i , d stands for deal, and tr stands for tranche of the deal. The physical collateral usage in each deal tranche is proxied by two measures: a dummy variable

that equals to 1 if any fixed asset is being pledged as collateral; and the fraction (in terms of face value) of the tranche that is backed by physical collateral. Analogously, we apply two similar measures to proxy our main regressor, which is foreign lender participation in each loan tranche. The first of these is a dummy variable that equals 1 if the tranche involves the participation of at least one foreign bank (1[Foreign bank participation]); the other is the share of the foreign banks in the total dollar amount of the tranche expressed in percentage terms (Foreign bank share %).

In parallel, we conduct the same set of analyses on the covenant inclusion in loan contracting. Specifically, we run the following tranche-level regression

$$1[\text{Covenant}]_{i,d,tr} = \alpha_i + \mu_d + \beta(\text{Foreign bank share/participation}) + \gamma\mathbf{X} + \epsilon_{i,d,tr} \quad (3)$$

where i indexes borrowing firms, d indexes deal, and t indexes the deal's tranche. Firm and deal fixed effects are captured by α_i and μ_d respectively. Foreign lender participation in each deal tranche is measured as described above, while covenant inclusion is measured by a dummy variable that equals 1 if the deal tranche includes covenants.

Baseline Results

In Table B4 to Table B7, we display our identification results, which reveal how foreign bank participation affects the physical collateral usage in the contracting of cross-border credit. In Table B4 and Table B5, the LHS variable is a dummy variable that equals 1 if and only if the tranche is secured by some fixed assets. We find that the degree of foreign bank participation has a significant impact on lending bases outcomes. As presented in column (1) of Table B4, foreign bank participation is associated with a 19.2% decrease in the probability that a tranche in a given deal is contracted based on fixed assets for any given firm. This effect remains stable after accounting for the time and industry-time fixed-effects, as shown in column (2). Similarly, in column (1) and (2) of Table B5, we see that a 15% increase in the share of foreign banks in the total tranche amount is associated with a 36% decrease in the likelihood that a firm's tranche in a deal is contracted on the basis of fixed value assets.

To account for the effect of tranche-specific characteristics on lending base outcomes, we add control variables that reflect tranche-specific properties. These variables include the natural log of the tranche's amount, the tranche's maturity, the tranche's purpose dummies, and tranche-type dummies. Results that combine tranche-level controls as well as all the fixed effects are reported in column (3).³⁰ In column (4), we report results after controlling for a variable called Debt Enforcement. This variable captures how efficient it is on average for an insolvency case to be resolved in the borrower's country. The higher the score, the more

³⁰There are three main categories of purposes, M& A, trade-related, and general purposes.

efficient the procedures are that resolve insolvency issues in the borrowing firms' country. Notice that including this variable also absorbs the country fixed effects, which are country-specific variables.

We further take into consideration the possibility that macroeconomic conditions in borrowers' countries may distort the effect of foreign bank participation on lending base outcomes. For instance, macroeconomic conditions in the borrower country could potentially affect the favorability of specific types of lending bases, or it could induce foreign banks to extend corporate lending to certain types of firms. In both cases, the regression results are likely to be tilted. To deal with this concern, we add three key borrower-country macroeconomic control variables: GDP growth, REER, and Domestic Credit/GDP. As can be seen in column (5) in both Table B4 and Table B5, adding these macro-level control variables barely changes the main coefficient of interest.

Finally, in column (6) and column (7), we further add dummy variable controls that reflect whether a borrowing firm is a multinational entrepreneur and whether it is jointly owned by foreign investors. Both MNE and firms with foreign ownership structures have a much higher probability than general firms in the domestic market of having non-domestic fixed assets. Controlling for these firm types ensures that the results are not affected by the presence of special ownership structures on the firms' side.

In Table B6 and Table B7, we run the same set of regressions that we run in Table B4 and Table B5. The difference here is that we focus on a sub-sample of tranches and deals that contain detailed information about the percentage of the tranche's face value that is secured by domestic fixed assets. This allows us to construct a measure of the degree of foreign lender participation in each deal tranche that is more refined than the dummy variable, which indicates whether domestic fixed assets are used in the lending base formation. After this restriction, our sample shrinks to a total of 5062 tranches in 2104 deals undertaken by 1762 firms. Consistent with the results in Table B4 and Table B5, foreign bank participation decreases by 18.8% the likelihood that domestic fixed assets will show up in lending bases, while a 15% increase in foreign bank share in the tranche value will result in a 33.5% decrease in the percentage of a loans' face value that is written against fixed assets. These results stay robust after adding industry-time, and time fixed effects do not alter the results, nor does adding country-level legal enforcement quality, country-level macroeconomic controls, and firm ownership characteristics.

The second part of our tests in this subsection examines the effect of foreign bank participation on the likelihood of covenant inclusion in debt contracts. In accordance with Table B4 to Table B7, we run the same set of regressions with main regressors being dummy variables that indicate whether there is foreign bank presence and the total share of the face value that is lent by foreign banks. Table B2 and Table B3 display the results for this part of test, which

is based on equation (3). We find that foreign bank participation on average increases the likelihood of covenant inclusion in the contract, underwriting cross-border credit by 12.4%. A 15% increase in a foreign bank's share in the tranche total amount increases by 28.1% the likelihood of covenant inclusion. These results remain statistically significant and quantitatively similar after we add on industry-time and time fixed effects, as well as country-level debt enforcement strength, country-level macroeconomic controls, and firm ownership characteristics.

To summarize, by examining tranche-level observations in foreign-currency-denominated credit agreements in EMEs, we find that foreign and domestic banks differ drastically in their lending base preferences. Specifically, when they extend credit to borrowers from emerging markets, foreign banks show a significantly greater reluctance than domestic banks to conduct collateralized lending against fixed assets. Instead, cross-border credit extended by foreign banks is more likely to be transparency-based, an arrangement that often relies on the inclusion of covenants in credit agreements.

5. The Real Impact of the Rise of Domestic Global Banks

In Section 3 we document an ongoing change in how cross-border capital is channeled to emerging markets: globally-funded domestic banks in EMEs are replacing foreign banks as the primary source of foreign credit extended to firms in emerging markets. Section 4 further examines how the behavior of domestic banks would differ from that of foreign banks if they chose their lending base from emerging markets. In this section, we investigate the real impact that this rise in domestic global banks has on emerging markets around the world.

5.1. *Allocation of Cross-border Credit: Foreign Banks v.s. Domestic Banks*

In Section 4 we have shown that foreign banks and domestic banks employ different lending technologies when they evaluate whether to accept lending bases. In this subsection, we show that due to these differences in lending technologies, domestic and foreign banks produce different "outputs" in the cross-border credit market. Specifically, we are interested to study how differences in the lender composition would lead to differences in (1) who is more likely to receive the credit; and (2) the credit volume that a given borrower receives.

Because the differences in the lending technologies of the two groups hinge on their ability to seize fixed assets and their relative preference for transparent cash flows, we consider two particular aspects of firm characteristics: tangibility and transparency. Throughout the analysis that follows, we focus on characterizing whether or not credit is more likely

to be allocated to firms in tangible/intangible industries (tangibility) or to firms that are listed/unlisted firms (transparency). To study the matching patterns of cross-border lending in EMEs, we examine our deal-level observations of foreign credit agreements established in various emerging markets.

To study matching patterns between distinct lenders and credit receiving firms, we run the following multinomial logit model based on deal-level data in Dealscan. Each deal can be viewed as a matched pair of borrowers and lenders:

$$\text{Ln}\left(\frac{P(\text{High-tang/Low-trans})}{1 - P(\text{High-tang/Low-trans})}\right)_{i,c,t} = \alpha_i + \mu_{c,t} + \beta(\text{Domestic bank share}(\%)) + \gamma X + \epsilon_{i,c,t} \quad (4)$$

where i indexes the firm, c indexes the country and t indexes the year. The main explanatory variable is the total face value share owned by domestic banks in the deal package. A borrower is from a high-tangibility industry if the average tangibility (defined by PPE/total assets) of the borrower's two-digit SIC industry is above the 75th percentile of all two-digit industries in its economy. A borrower is classified as a low-transparency firm if it is a private firm. α_i is the firm-level fixed effects and $\mu_{c,t}$ is the borrower country-time fixed effects. X is a vector of control variables that includes the maturity of the loan deal, the total number of banks in the deal package and the dummy variables that control for the purpose of the loan.

Table C1 shows the results of the regression in equation 4. As reported by column (1) of the table, a 10% percent increase in the domestic bank share in a deal package leads to a 31.2% increase in the probability that the credit will go to a firm in tangible industries.³¹ Similarly, column (2) of the table shows that a 10% percent increase in the domestic bank share in a deal package is associated with a 21.5% increase in the likelihood that the credit is received by an unlisted firm.

The matching between a deal's lender composition and the characteristics of the credit receiving firm could be thought of as measuring the allocation of cross-border credit on the extensive margin. For a more refined measurement of cross-border credit allocation, we take an additional step to investigate the intensive margin of the credit allocation. We ask, in other words, do certain types of firms tend to receive a larger credit volume from domestic banks than from foreign banks, and, if so, do they receive larger volume of credit from domestic banks especially when they contract on the basis of their tangible assets? To this end, we focus on a sub-sample of firms for which there are at least two foreign currency

³¹The borrower's industry tangibility is constructed using the corporate balance sheet data from Worldscope. Tangibility is defined as industry's average PPE/Assets over 1995-2015.

loan issuance observations, and we estimate the following two equations:

$$\begin{aligned} \ln(\text{Amount})_{i,c,t} = & \alpha_i + \theta_{c,t} + \beta_1(\text{Domestic bank share}\%) \\ & + \beta_2(\text{Domestic bank share}\%) \times 1[\text{High tang/Low trans}] + \gamma X + \epsilon_{i,c,t} \end{aligned} \quad (5)$$

$$\begin{aligned} \ln(\text{Amount})_{i,c,t} = & \alpha_i + \mu_{c,t} + \beta_1(\text{Domestic bank share}\%) \\ & + \beta_2(\text{Domestic bank share}\%) \times 1[\text{High tang/Low trans}] \\ & + \beta_3(\text{Domestic bank share}\%) \times 1[\text{High tang/Low trans}] \times 1[\text{Fixed-assets}] + \gamma X + \epsilon_{i,c,t} \end{aligned} \quad (6)$$

The results of these two regression equations are reported in Table C2 and Table C3. Columns (1)-(3) of Table C2 show that the domestic bank share in lender composition is not on average significantly correlated with the foreign credit package amount on average, but if the credit-receiving firm is privately traded, a 20% increase in the domestic bank share will be associated with a 3.5% increase in the total foreign credit volume. This result stays statistically and economically robust after we add deal-level control variables and cluster the standard errors at the year level. Similarly, and as shown in column (4)-(6), the domestic bank share in the package does not significantly predict the average foreign credit deal size, but conditional on the receiver being a firm from a high-tangibility industry, a 20% increase in the domestic bank share is associated with a 3.7% increase in the deal volume.

We take one more step to figure how and why firms that have high tangibility or low cash flow transparency receive more cross-border credit from domestic banks. In Table C3, we interact $(\text{Domestic bank share}\%) \times 1[\text{High tang/Low trans}]$ with the dummy variable to indicate whether the deal has fixed assets pledged as collateral. In columns (1) and (3) of Table C3, we find that this newly introduced term absorbs a large fraction of the coefficient on $(\text{Domestic bank share}\%) \times 1[\text{High tang/Low trans}]$. This fact implies that borrowers in high-tangibility industries or that have low cash flow transparency receive higher foreign credit from domestic lenders because they pledge their tangible assets as collateral.

A measure of cross-border capital allocation that is perhaps more direct is the fraction per unit of credit that a lender would allocate to certain categories of borrowers. In Figure C4 and Figure C5, we show the credit allocation from the banks' point of view. We calculate the average share of USD-denominated credit allocated to EME firms in different industries and to private firms by foreign banks and domestic banks, respectively. Our calculation is based on 50 major global banks and all of the domestic banks that have at least 5 consecutive years of lending in the Dealscan.

In Figure C4, panel 5(a) and 5(b) display foreign banks' average share of lending volume to the eight major industries categorized by the 2-digit SIC code. Industries are sorted

from left to right according to their tangibility. Specifically, panel 5(a) displays foreign banks credit allocation profiles during normal times, while panel 5(b) shows the allocation profile during periods when the U.S. financial condition is accommodative. Similarly, panel 5(c) and 5(d) display domestic banks' USD portfolio across industries during normal and expansion periods, respectively.

Two pieces of messages can be easily read from Figure C4. First, the distribution of the domestic banks' USD loan portfolio is much more left-tailed than that of foreign banks. In other words, for each unit of cross-border credit channeled by domestic banks, the fraction being allocated towards tangible industries is much larger than that channeled by a foreign bank. Indeed, as can be seen in panel 5(a), the amount of credit that foreign banks extend to tangible sectors such as agriculture, mining and construction, is very limited. Second, when U.S. financial conditions ease, the USD loan portfolios of domestic banks tend to shift leftwards and evenly toward the high-tangibility industries. By comparison, the distribution of foreign banks' loan portfolios across industries does not respond significantly to these credit supply side changes. Similarly, in Figure C5, we examine how the cross-border loan portfolios of foreign and domestic banks differ with regards to borrower transparency. Specifically, we calculate the average fraction of USD loans (in terms of face value) extended to private firms in EMEs by foreign banks and domestic banks. Consistent with the regression results of equations (5) and (6), in transmitting cross-border capital to emerging market borrowers, domestic banks allocate a much larger portion to private firms than foreign banks do. Furthermore, during the expansion period of global financing cycles, domestic banks respond by allocating an even larger portion of cross-border credit to unlisted firms, while foreign banks barely change their credit allocation in this dimension.

The above micro-level evidence, revealed by either the scope of cross-border deals or the credit allocation profiles of banks, suggests that the replacement of foreign banks by domestic banks in the cross-border loan market in EMEs can have potentially important real outcomes. In particular, as domestic banks become more accessible to the global funding market and begin to penetrate into the cross-border loan market, firms in the high-tangibility sector or that are less transparent are likely to get the opportunity to receive foreign credit more often than before. Additionally, during the expansion phase of the global financing cycle, when domestic banks start to play a nontrivial role in cross-border credit transmissions, these borrowers can get an even larger share in the allocation of cross-border capital.

5.2. *Real impact at the aggregate level: Time-trend analysis*

In this part, we conduct a time-trend analysis to examine the aggregate real impact on emerging markets of the rise of domestic global banks in these economies. In particular, we

investigate both 1) the long-run effect, or how the industry structure in EMEs is reshaped, and 2) the short/medium-run effect, or how EMEs susceptibility to global financing cycle is affected.

A. Reshaped industry structure

As documented above, when foreign banks channel cross-border credit to emerging market borrowers, their allocation of credit differs drastically from that of domestic banks. Specifically, once they gain access to the global financing market, domestic banks in EMEs generally allocate a much larger fraction of the cross-border credit they bring to firms in tangible industries than foreign banks do. Thus, it is natural to expect that the rise of globally funded domestic banks in emerging markets will have important real impacts on the industry structure of these economies.

In panel 2(a) of Figure C1, we display the time trend of the share of the total face value of USD-denominated loans received by high-tangibility sectors to the total face value of USD denominated loans made to EMEs. Specifically, we calculate the average share for two five-year brackets—1986-1990 and 2011-2015—using data assembled from Dealscan. During the 1986-1990 period, less than 4.8% of the USD denominated loans flew to firms in high-tangibility industries. Since the 1991-1995 period, when domestic bank in EMEs started to access the global funding market, the share of USD-denominated credit allocated to high-tangibility industries has steadily grown. Prior to the 2011-2015 bracket, more than 20% of the cross-border USD-denominated credit was allocated to firms in the high-tangibility sector. In Appendix B Figure D2, we document the pattern at an annual frequency.

In a similar calculation shown in panel 2(b) of Figure C1, during the 1986-1990 period, only 5.6% of the USD-denominated cross-border credit was allocated to private firms in EMEs. By the 2011-2015 period, 37.6% of total value of USD-denominated cross-border credit was channeled to private firms. In Figure D2, we show the year-by-year distribution of the share of USD-denominated credit channeled to private firms in 65 EMEs. The steepest increase in the reallocation happened during the 1990-1995 period, which coincided with the fast growth of institutional lenders in the developed economies and the burgeoning of globally-funded domestic banks in EMEs.

Starting in the early 1990s, then, the manner in which foreign credit was channeled from the global funding market to emerging market economies changed. Similarly, during the 10 years after 1995, the industrial structure of emerging markets was greatly reshaped. For example, in the tangible sector, the average output value added as a share of GDP (measured by the construction, mining, and manufacturing sectors' value added as a percentage of GDP) in emerging market economies increased from 15.13% to 24.33%. Also during the same period and thereafter, average employment in tangible industries (measured by the total

share of employment in a countrys construction, agricultural, and manufacturing sectors etc) increased from 14.67% to 23.12%. Moreover, an analysis of data for listed firms in emerging market economies suggests that, compared to the average level of long-term debt before 1995, the average long-term debt (scaled by lagged total assets) of tangible industries during the 1995-2010 period increased by 16.2%. During the same period, the corporate annual investment rate (measured by capital expenditures scaled by lagged total assets) increased by 5.2%.

B. Increased susceptibility to global financing cycle

Another important difference between domestic and foreign banks in their allocation of cross-border capital lies in their distinct responses to global financing cycle. In contrast to foreign banks, which barely respond in their credit allocation to changes in global financing conditions, domestic banks exhibit a high sensitivity to global funding fluctuations in their allocation of cross-border capital. Given this difference, it is likely that the replacement of foreign banks by domestic banks in the cross-border loan market made these economies more susceptible to global financial conditions.

To investigate the time variation in emerging markets' susceptibility to global financial conditions, we consider the following regression specification and run the regression estimation for the pre-1995 period and the post-1995 period separately.

$$Y_{i,t} = \alpha_i + \theta F_t^{U.S.} + \phi X_{i,t} + \epsilon_{i,t} \quad (7)$$

where $Y_{i,t}$ is the outcome variable of interest for economy i in year t . We focus on three outcome variable, the annual Real GDP growth rate, and the annual Domestic credit growth rate and the annual tangible sector value-added growth rate. $F_t^{U.S.}$ stands for U.S. financial market conditions, for which we consider two measures. The first is "NFCI" (Chicago Fed National Financial Condition Index) and the second is "IMF-index", which is similar to the index constructed by IMF's GFSR -2017. Parameter α_i is the economy-level fixed effect that captures all time-invariant economy-specific characteristics that could affect differences in the level of outcome variables. $X_{i,t}$ is a set of economy-specific time-varying control variables that capture time-varying economy-specific trending factors which not directly related to the main regressor that could result in differences in the responses of outcome variables. We include two major sets of control variables in $X_{i,t}$. The first set includes economy i 's Net export/GDP, FDI/GDP, and REER, which reflect the economy's demand from overseas; the second set includes inflation, unemployment rate and the domestic deposit rate, which reflect the economy's internal demand conditions. The sample in the regression spans 1975 to 2015.

The coefficient of interest is θ , which captures the average degree of susceptibility of real

economic outcomes in EMEs to U.S. financial market conditions. We separately estimate θ for both the pre-1995 period ($\theta_{\text{before1995}}$) and the post-1995 period ($\theta_{\text{after1995}}$) for the three outcome variables and the two measures of U.S. financial conditions. Table C5 through Table D5 report the results of the regression in Equation 7. In columns (1) and (2) of Table C5, we find that before 1995, a 0.5 increase (decrease) in the NFCI index (about half of its standard deviation) was associated with an average of 13 basis point decrease (increase) in real GDP growth rate. After 1995, a same magnitude change in NCI was associated with an average 85 basis point change in the real GDP growth rate. The difference between $\theta_{\text{after1995}}$ and $\theta_{\text{before1995}}$ is statistically significant. This result remains robust after including control variables on time-varying factors and demand-side factors, as shown in column (3) to column (8).

In Table C4, we run the same set of regressions from column (1) to column (8) to estimate the susceptibility of the EME's domestic credit growth to the global financing cycle. The domestic credit of an EME is measured by the total currency-denominated credit to the private sector extended by domestic banks. We find that before 1995, a 0.5 increase (decrease) in NFCI was associated with only a 13 basis points decrease (increase) in domestic credit growth, whereas after 1995, the effect increased to over 50 basis points. Finally, we investigate how EMEs tangible sector value-added growth co-moves with U.S. financial market conditions over time. As shown in Table C6, before 1995, a 0.5 unit decrease (increase) in the NFCI was only associated with an average 6 basis point increase (decrease) in the tangible sector's growth in the EME, whereas after 1995, this susceptibility increased to 1.6%. In Table D2 to Table D5, we run the same set of analysis but instead replacing $F_t^{U.S.}$ with the IMF-index. The results remain statistically robust.

5.3. *Real impact at aggregate level: Cross-country analysis*

Despite the statistically and economically significant results documented above, it is difficult to claim that these real changes in emerging markets were driven by the rise of domestic global banks in these economies. In this subsection, we take an additional step that further exploits cross-country variation in the causal relationship. Given that the degree to which foreign banks are replaced by domestic banks can differ across countries, we ask whether such variations can result in differences in real outcomes. In what follows, we display the results of the baseline cross-country regression and turn to an IV analysis for identification.

A. Baseline Results

In emerging markets around the world, domestic banks are replacing foreign banks in cross-border capital transmissions, and the degree to which this replacement is occurring varies significantly across countries. To measure the country-specific degree of replacement,

which can be thought of as the country's exposure to the global money market transformation since the early 1990s, we construct the following measure D_i :

$$D_i = \frac{\sum_b \sum_{t>1995} C_{b,t}^{USD} \times 1[\text{Domestic bank}_b]}{\sum_b \sum_{t>1995} C_{b,t}^{USD}}$$

where i indexes the economy, b indexes a bank, t indexes the year and $C_{b,t}^{USD}$ represents the amount of USD-denominated cross-border loans issued by bank b in year t that showed up in Dealscan. $1[\text{Domestic bank}_b]$ is a dummy variable that equals 1 if bank b is a domestic bank. D_i is thus a de facto measure of the actual percentage of foreign credit that is channeled by domestic banks into country i after the global funding market transformation that happened in the beginning of 1990s. The higher the D_i , the higher the exposure of the economy to the global money market transformation, and in turn, the higher the share of domestic-channeled foreign credit in the upcoming years.

i) Reshaped industry structure

In section 5.2, we found that coincides with the rise of domestic global banks in emerging markets around the world, since early 1990s, tangible industries in these economies have undergone accelerated growth. Moving a step further, we exploit cross-country variation in the degree to which domestic banks replace foreign banks. Specifically, we test whether in countries that experience a relatively higher degree of replacement, industry structure, too, is reshaped.

Under our empirical setting, we examine how the share of domestic banks that channeled foreign credit D_i for country i affected the country's tangible sector growth conditions in the during the 15-year period since 1995. To formalize the analysis, we write down the following specification:

$$\Delta Y_{1996-2010,i} = \alpha + \beta D_i + \phi \mathbf{X} + \epsilon_i \quad (8)$$

where i indexes country. $\Delta Y_{1996-2010,c}$ is change in the (average) outcome real economic variables of interest of country i during 1996-2010 period compared to the outcome variable prior to 1995. In this specification, the variable of interest could be the tangible sectors' share of output value added in GDP, the annual growth of tangible sector's output value added, the share of employment in tangible sector, or the average investment rate of tangible sector firms.

The results of the baseline OLS regressions are reported in Table C7. Panel (A) reports the regressions without country-level control variables and panel, while panel (B) presents the

table with control variables included. Column (1) shows that a 10% higher de facto cross-border credit lent directly by domestic banks is associated with 2.13% higher tangible sector value added to GDP compared to the pre-1995 period, a 3.7% higher average annual tangible sector growth compared to the pre-1995 period, a 2.98% higher employment employed in tangible industrial sector compared to the pre-1995 period, and a 5.62% higher average annual investment rate of tangible sector compared to the pre-1995 period. The pattern is robust after we include in the regression the control variables reported in panel (B).

ii) Increased susceptibility to global financing cycle

Analogously, exploiting national variation, we conduct a cross-sectional analysis to determine how the rise of domestic global banks in EMEs affect economies susceptibility to changes in the global financial market. The baseline regression equation is specified as follows:

$$Y_{i,t} = \alpha + \beta_1 1[\text{Post 1995}] + \beta_2 F_t^{U.S.} + \gamma D_i \times 1[\text{Post 1995}] \times F_t^{U.S.} + \phi \mathbf{X} + \epsilon_{i,t} \quad (9)$$

$Y_{i,t}$'s are the economy-year level outcome variables of interest, including the real GDP growth rate, the domestic credit growth rate, and the growth rate of tangible sector value added. The global financial condition measurement variables $F_t^{U.S.}$ are as defined in equation (7). To account for other important factors that could have an impact on the dependent variables, we include in control variable \mathbf{X} the unemployment rate, Net export/GDP, and inflation. To tease out the effects that external shocks have on a country's susceptibility to shocks that are driven simply by the volume of external credit we control for the ratio of external debt to GDP for each country. The sample in the regression spans 1975 to 2015 and covers 65 emerging market economies.

The coefficient of interest is γ . The goal of our test is to see if including this interaction term in the regression equation would be able to absorb a non-trivial portion of the coefficient on the term $F_t^{U.S.}$ itself. As reported in Table C4 through Table D2, negative and statistically significant coefficient estimates of γ imply that the structure of cross-border credit received by a country explains its susceptibility to global financial shocks. More specifically, economies in which domestic banks play a larger role in channeling cross-border capital also exhibit a higher real economic outcome susceptibility to the global financial cycle.

B. IV Analysis for Identification

As in most causal identification exercises, the channeled cross-border credit share of a country's domestic bank does not emerge exogenously. Instead, for any country i , the fraction of the cross-border capital that is channeled by its domestic banks D_i is likely to be affected by internal characteristics of country i that may also have an impact on the country's

industry structure and how susceptible the country will be to external shocks. To identify the real impact that is driven only by the rise of domestic global banks in emerging markets, we conduct an IV analysis so as to distill the exogenous part of variation in D_i 's across countries.

We consider two sets of instrumental variables. First is the domestic banking sector concentration, measured by the asset share of the five biggest banks (*Fivebank*) and the asset share of the three biggest banks (*Threebank*), respectively. The starting year of both measures is 1996. The second set of instruments measure the workforce education level. As documented by Philippon and Reshef (2013) and Philippon and Reshef (2012), employees working in the financial sector on average have a higher skill bias, and demand for skilled labor tends to grow faster when there is a transformation in the financial market. Since the worker education level is a relatively slow-moving variable, when the global financial market transformation occurred in the early 1990s, economies that had a relatively more educated workforce tended to evolve a more absorbed domestic banking sector in response. We utilize two measures along this line of reasoning: *Secondary_24*, which is the Barro-Lee average years of secondary education of workers age 20-24; and *Tertiary_25*, which is the Barro-Lee average years of tertiary education of workers of age 25+. ³²

First stage:

$$D_i = \mu + \beta_1 Z_i + \beta_2 \bar{X}_{i,1990-1995} + \epsilon_i \quad (10)$$

Second stage:

$$Y_{i,t} = \alpha + \beta_1 1[\text{Post 1995}] + \beta_2 F_t^{U.S.} + \gamma \widehat{D}_i \times 1[\text{Post 1995}] \times F_t^{U.S.} + \phi \mathbf{X} + \epsilon_{i,t}$$

where Z is the instrumental variable discussed in the paragraph above and \widehat{D}_i is the fitted value from the first-stage regression.

Table C9 shows the results of the first-stage regressions when the two sets of instrumental variables are used. The control variable vector \mathbf{X} is the averages of the unemployment rate, inflation, and Net export/GDP during the 1990-1995 period. As can be seen from the column (1) and column (2) of Table C9, in an emerging market economy, a 10% increase in the asset shares of the three largest banks is associated during the 1991-1995 period with a 1.2% lower incremental in the share of domestic bank-channeled foreign credit. Similarly, in an emerging market economy, a 10% increase in the asset shares of the five largest banks is associated during the 1991-1995 period with a 1.5% lower incremental in the share of domestic bank-channeled foreign credit. In columns (3) and (4), every 1 additional year of average

³²Both the Barro-Lee *Tertiary_25* and *Secondary_24* start from the year of 1990 and are estimated every five years. We use as our instrumental variable construction the average of the 1990 and 1995 measures of the two variables.

secondary school education in the workforce aged 20-24 is associated with a 2.7% increase in the incremental of domestic bank-channeled foreign credit. Also during the 1991-1995 period, every 1 additional year of average tertiary school education in the workforce aged 25+ is associated with a 3.3% increase in the incremental of domestic bank-channeled foreign credit.

Table C10 to Table C12 demonstrate the equation 9 and the equation 10. Column (1) of Table C10 through Table C12 report the OLS regression equation 9, while column (2) to column (5) report the 2SLS regression using the four instrumental variables from the two categories. The negative and statistically significant coefficient indicates a higher susceptibility to real outcome variables in U.S. financial conditions if, after the transformation of the global funding market during the early 1990s, the economy's domestic banks were engaged more actively in cross-border credit channeling. On the basis of column (1)'s in Table C10 and C11 and C12, we estimate that the post-1995 real GDP susceptibility towards a 0.5-unit U.S. financial condition change (measured by NFCI) to be 39.3 basis points higher; and domestic credit growth susceptibility towards a 0.5-unit U.S. financial condition change to be 16.5 basis point higher if the incremental of domestic bank channeled foreign credit goes up by 6.5%; and the domestic tangible sector growth susceptibility towards a 0.5-unit U.S. financial condition change to be 65 basis point higher if the incremental of domestic bank channeled foreign credit goes up by 6.5% (about one standard deviation across the distribution of D_i of the 65 economies). The results remain quantitatively robust if we turn to 2SLS estimations and remain qualitatively unchanged if we switch to the IMF-index as shown in Table D6, D7 and D8.

6. Conclusions

Over the last several decades, while the volume of cross-border credit flows relative to their economic size has not changed much, the manner in which foreign capital has been channeled to emerging markets has changed drastically. We document an ever-growing share of cross-border credit channeled by domestic banks from EMEs since the early 1990s. This trend—the rise in the importance of the role played by domestic banks in cross-border capital transmission is commonly observed in most EMEs around the world. We argue and provide evidence that this structural change in how capital from developed market is transmitted to developing economies is unlikely to be driven by credit demand-side factors. Instead, we find consistent evidence that the transformations taking place in the emerging market world can (at least partly) be explained by the compositional change in the U.S. money market. As the market share owned by shadow banking institutions has increased, especially since the fall of S&L institutions around 1990, the non-bank intermediaries have

tapped into businesses outside the country. That U.S. non-bank intermediaries generally do not know how to deal with corporate firms in foreign countries gives banks from emerging markets a new source of access to the global funding market. Thanks to their newly gained access to the global funding market, domestic banks are thus able to compete with and gradually replace their foreign counterparts in the cross-border loan market.

The change in how cross-border credit is channeled to EMEs could make a difference, if there exists certain important distinctions between foreign banks and those that are replacing them— the domestic banks in EMEs. Indeed, we find that in extending credit to firms in emerging markets, foreign banks and domestic banks have drastically different preferences on lending base. In particular, foreign banks are much more reluctant to extend credit against fixed assets as collateral than domestic lenders, especially in economies where the insolvency resolution process is costly and lengthy. Using tranche-level data on cross-border loans in EMEs, we find that higher foreign bank participation in a tranche deal is associated with a significantly lower use of physical collateral and a higher rate of covenant inclusion.

Just as the lending technologies that foreign banks and domestic banks employ to extend credit to firms in EMEs differ, so do the “products” that they produce also differ. Specifically, examining micro-level data on cross-border loan deals, we find that domestic banks tend to allocate a much higher portion of cross-border capital to tangible sector firms and unlisted firms than foreign banks. Furthermore, we find that domestic banks respond more in the credit allocation to changes in the global financial market condition than foreign banks. During the easing phase of the global financing cycle, the share of cross-border capital that domestic banks allocate toward tangible industries significantly increases, while the credit allocation of foreign banks barely changes.

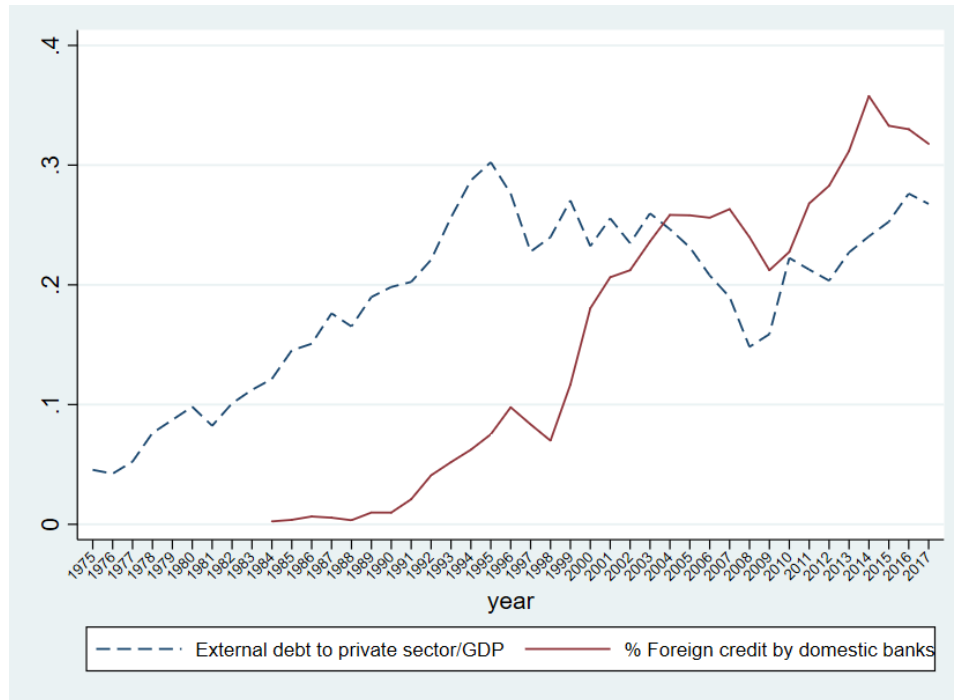
Having documented the micro-level differences between foreign and domestic banks’ behavior in lending to EME borrowers, we then investigate the aggregate-level impact of the rise of domestic global banks in EMEs. In a time trend analysis, we find that along with upward trend in the share of domestic bank-channeled cross-border credit, emerging markets around the world become 1) more tilted toward tangible industries and 2) more susceptible to external shocks in the global financial market. The reshaped industry structure and increased sensitivity to the global financing cycle are consistently observed in many emerging markets around the world.

Finally, in a cross-country analysis we exploit country-wise heterogeneity in the share of cross-border capital channeled by domestic banks. Using measures of a country’s financial literacy as an IV to construct the exogenous components in country-wise variation, we find that the above aggregate real impacts are more pronounced if a larger fraction of cross-border credit is channeled by domestic banks. Our analysis suggests that the ongoing replacement of foreign lenders by domestic lenders in the cross-border loan market can have

a profound impact on emerging market economies.

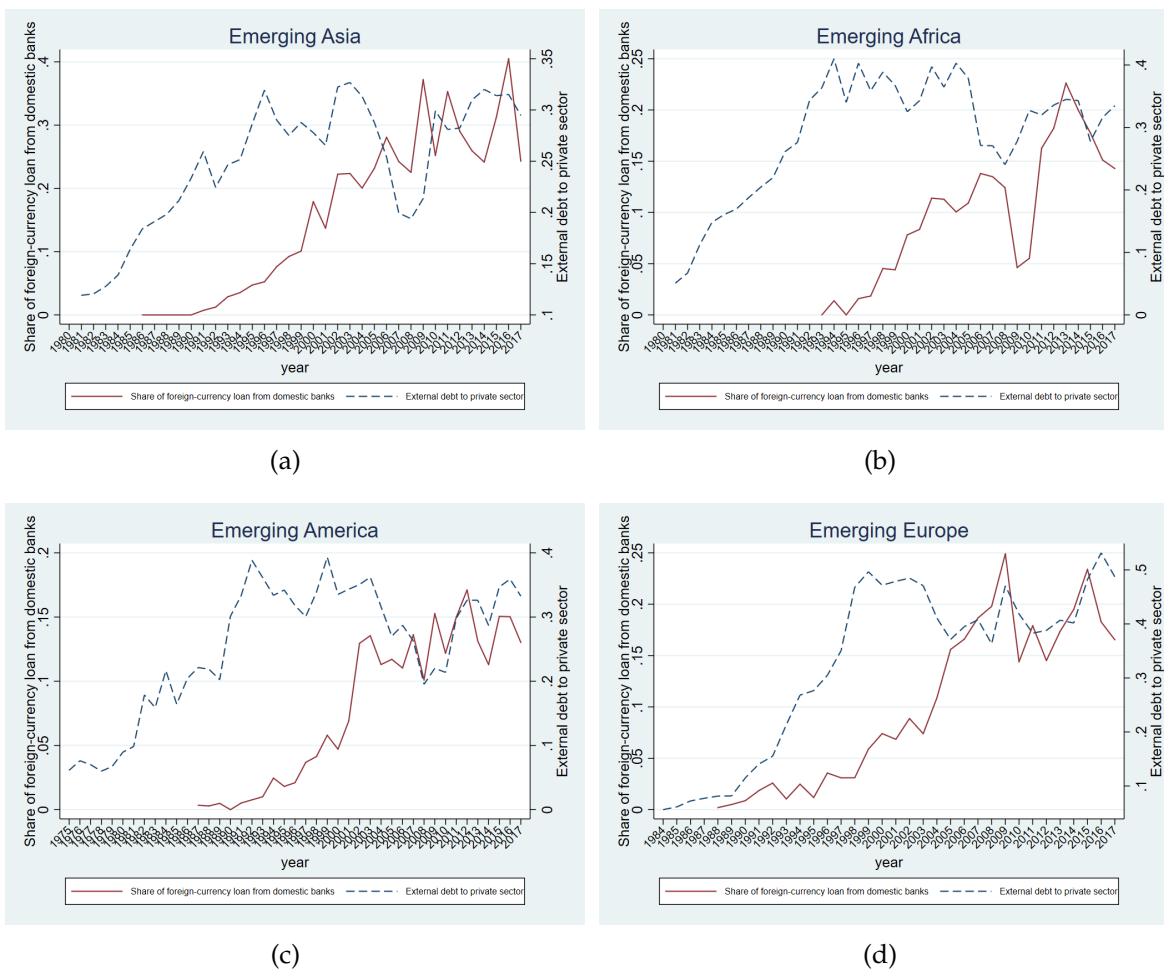
Appendix A. Rise of Domestic Banks in EME Cross-border Credit Market

Figure A1: EME External Debt and FX Credit Intermediated by Domestic Banks



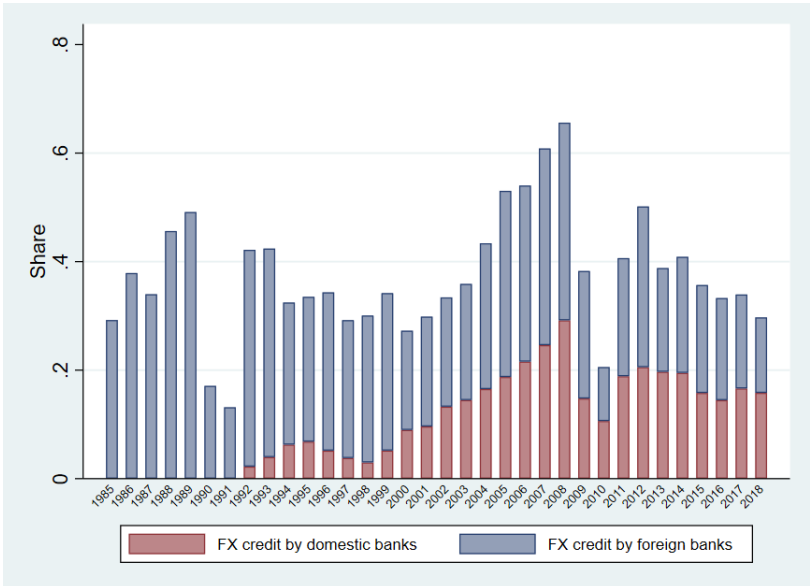
Source: IMF IFS and LPC Dealscan. The navy dashed line plots the external debt to non-financial sector as a proportion of GDP during 1975-2017. The red solid line plots the dollar amount of foreign currency bank credit that are lent by domestic global banks as a proportion of total amount of foreign credit over the span of years during 1990-2017. The compilation is the average of 50 emerging market economies.

Figure A2: Rise of Domestic banks in cross-border lending all over the world



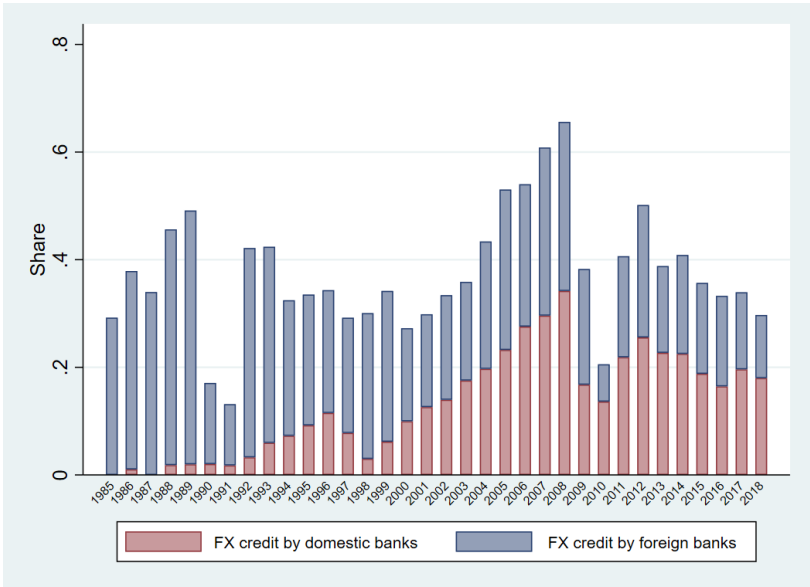
Source: IMF IFS and LPC Dealscan. For regional figure, the navy dashed line plots the external debt to non-financial sector as a proportion of GDP during 1975-2017. The red solid line plots the dollar amount of foreign currency bank credit that are lent by domestic global banks as a proportion of total amount of foreign credit over the span of years during 1990-2017. The compilation is the average of 50 emerging market economies.

Figure A3: Domestic bank participated foreign-currency cross-border loans and foreign-bank only cross-border loans



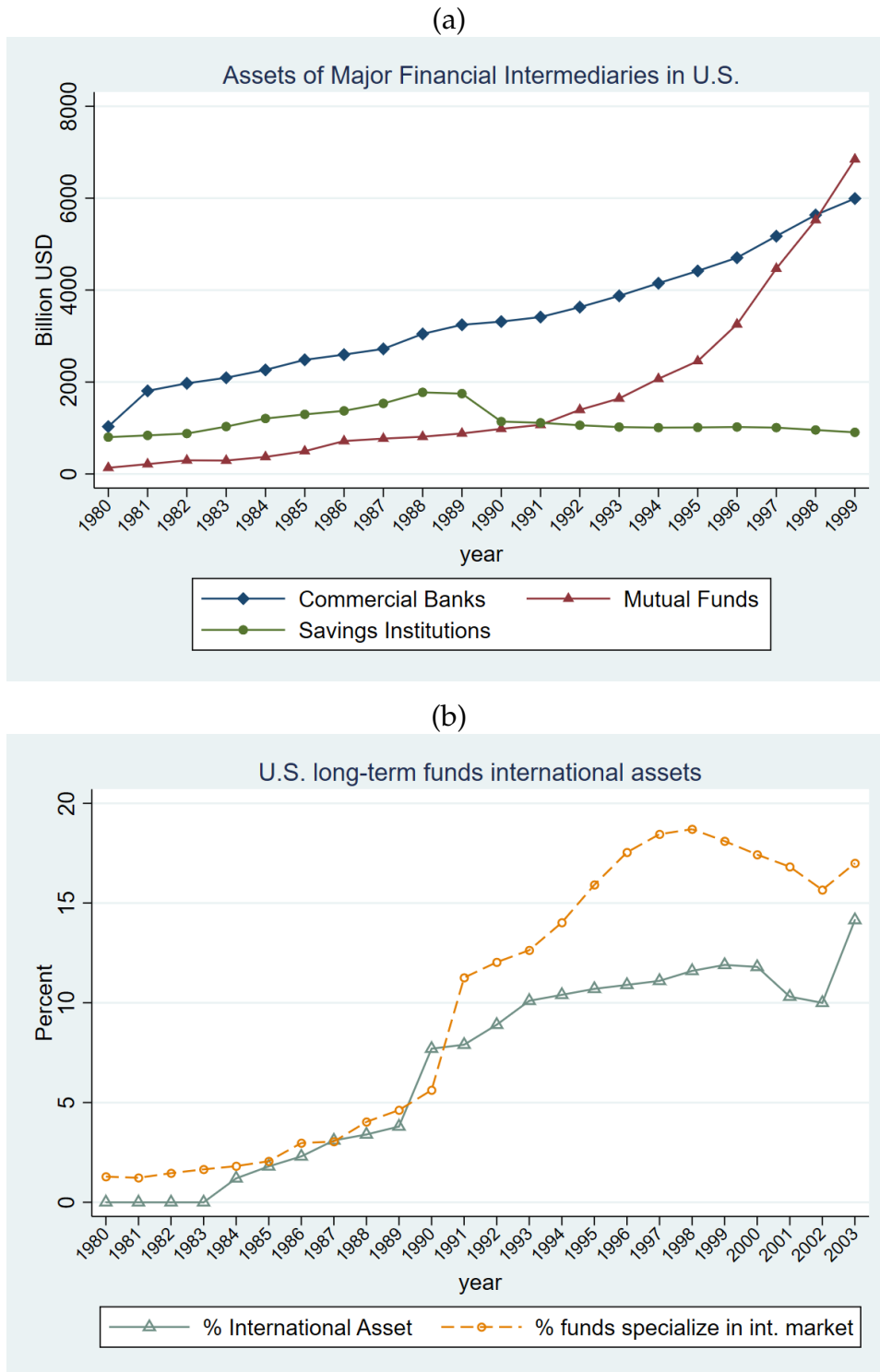
Source: LPC Dealscan. Figure shows the dollar amount of foreign-currency denominated loans to emerging market economies' non-financial corporate sector that are issued by domestic bank participated tranches and by foreign-bank-only tranches respectively. The share is calculated as the sum of loans in respective definitions scaled by total volume of loans to EME in a given year. The calculation is based on 50 major emerging market economies.

Figure A4: Domestic bank foreign-currency cross-border loans volume and foreign-bank lent cross-border loans volume



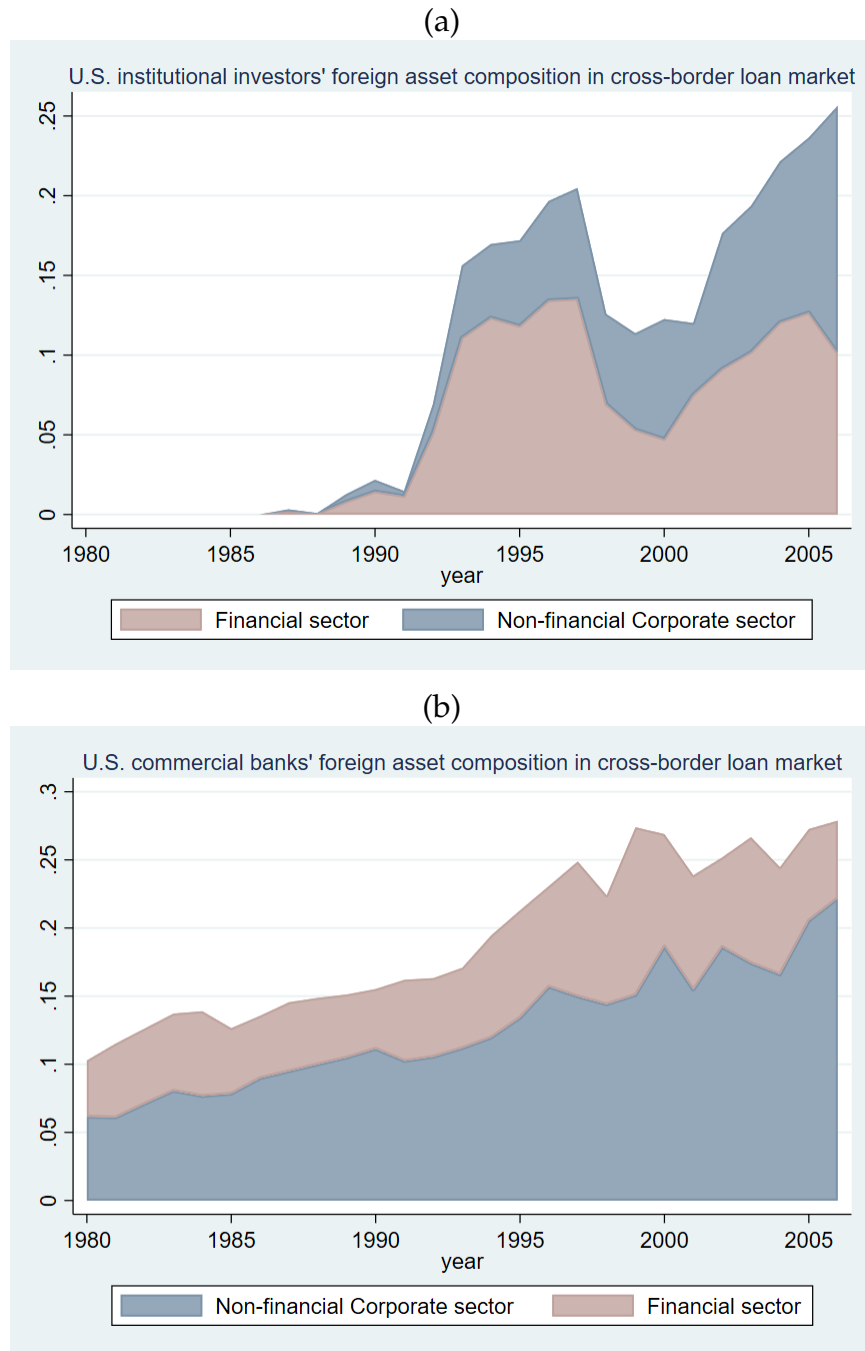
Source: LPC Dealscan. Figure shows the dollar amount of foreign currency denominated loans to emerging market economies' non-financial corporate sector that are lent directly by domestic bank-participated tranches and by only by foreign banks respectively. The share is calculated as the sum of loans in respective definitions scaled by total volume of loans to EME in a given year. The calculation is based on 50 major emerging market economies.

Figure A5: Expansion of Mutual funds in the U.S. Financial Market and in international market



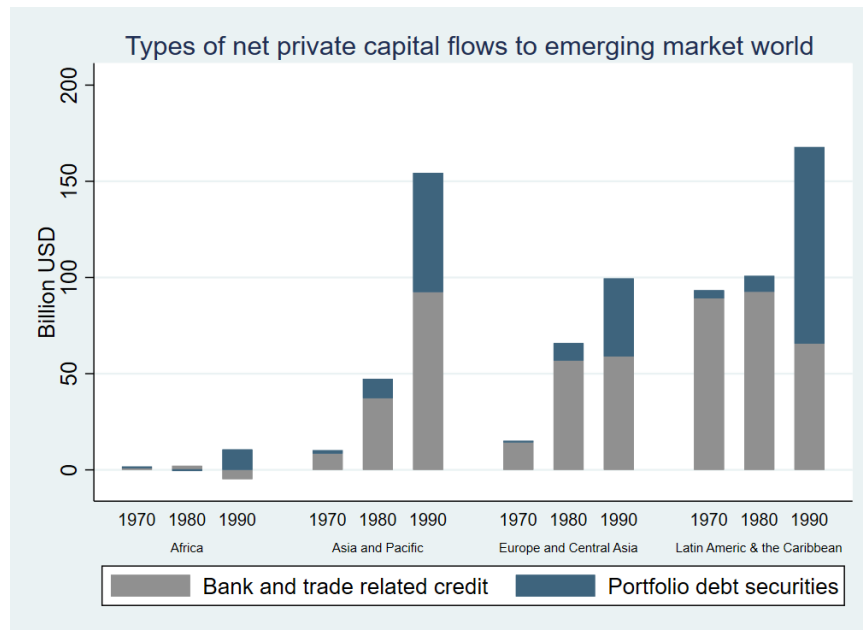
Notes: The source of the data in the above figure comes from *Mutual Fund Fact Book (1980-2000)*. In panel (a) "Savings Institutions" include all the mutual savings banks and savings & loans associations. Mutual funds include money market funds and bond funds. Panel (b) plots the share of total net assets that are classified as investment in the international market, the funds in this figure includes money market funds and bond funds.

Figure A6: Mutual funds and commercial banks different investment strategy in international market



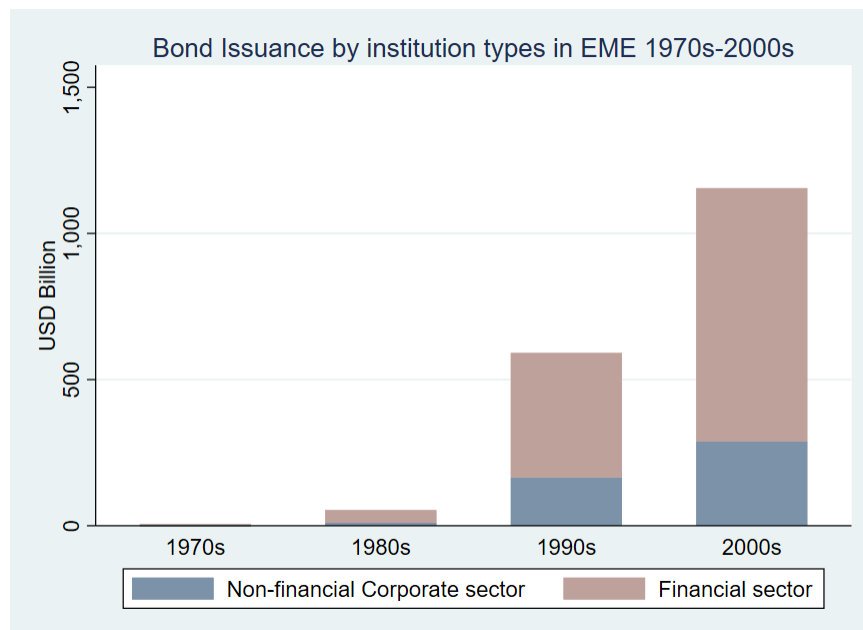
Source: Dealscan. The sum of blue and red area shows the proportion of total lending of U.S. non-bank financial institutions (panel (a))/commercial banks (panel (b)) total lending to foreign entities as of total lending; the blue area shows the proportion of lending to foreign borrowers of total lending amount in a given year, the red boundary shows the proportion of total lending to foreign banks, both are aggregate proportions. Mathematically, $\text{Blue+Red} = \frac{\sum_l \text{Loan amount}_l \times 1[\text{EME borrower}]_l}{\sum_l \text{Loan amount}_l}$, $\text{Blue} = \frac{\sum_l \text{Loan amount}_l \times 1[\text{EME borrower}]_l \times 1[\text{Non-financial}]_l}{\sum_l \text{Loan amount}_l}$, $\text{Red} = \frac{\sum_l \text{Loan amount}_l \times 1[\text{EME borrower}]_l \times 1[\text{Financial}]_l}{\sum_l \text{Loan amount}_l}$.

Figure A7: Types of net private debt flows to emerging market economies



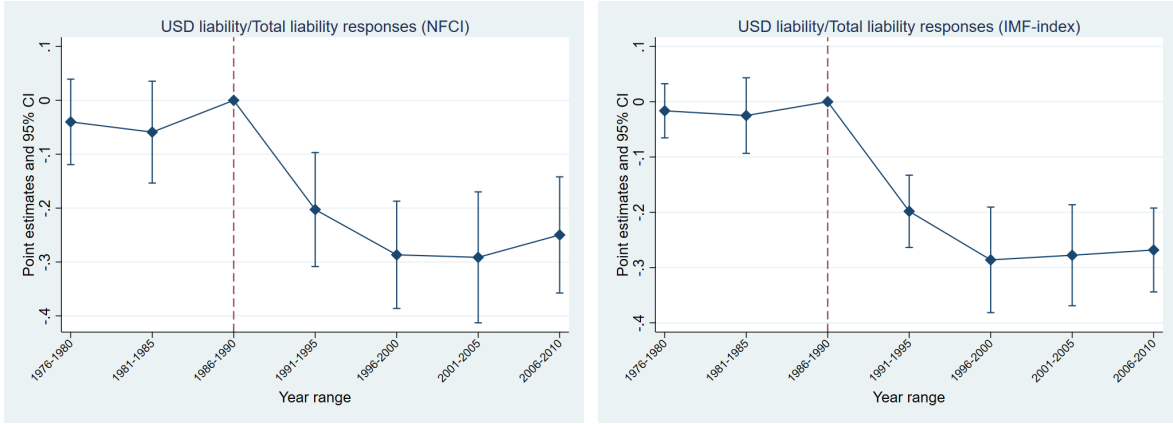
Source: Worldbank. The figure displays types of cross-border net debt flows to private sector of EMEs. Bank and trade related refers to bank debt, portfolio debt securities refers to portfolio bonds.

Figure A8: Bond issuance by sector in EME



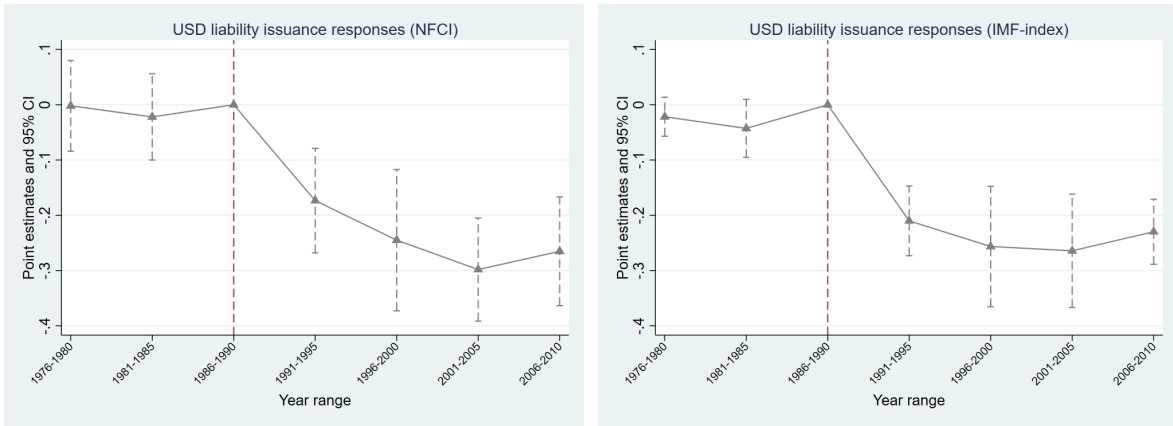
Source: Thomson One Banker. The figure displays the bond issuance volume by EME non-financial corporations and financial sector. From 1970s to 2000s.

Figure A9: EME banks' dynamic responses to U.S. financial condition indices



(a) Share of USD liability issuance to NFCI

(b) USD issuance to NFCI



(c) Share of USD liability issuance to IMF-index

(d) USD issuance to IMF-index

Figure A9 illustrates EME banks' USD funding issuance in response to U.S. financial condition indices over time. The U.S. financial condition indices are NFCI (Chicago Fed National Financial Conditions Index) and IMF-index for the United States (2017 GFSR Chapter 3 Annex 3.1). The Figure 10(a) and 10(c) estimate:

$$\frac{\text{USD liability issuance}}{\text{Total issuance}}_{b,t,r} = \alpha_b + \mu_r + \sum_{r=06-10, r \neq 85-90}^{r=76-80} \beta_r D[t \in r] \times F_t^{U.S.} + \theta \mathbf{X} + \epsilon_{b,t,r}$$

while Figure 10(b) and 10(d) estimate:

$$1[\text{USD liability issuance}]_{b,t,r} = \alpha_b + \mu_r + \sum_{r=76-80}^{r=06-10, r \neq 85-90} \beta_r D[t \in r] \times F_t^{U.S.} + \theta \mathbf{X} + \epsilon_{b,t,r}$$

where b refers to bank, t refers to year and r refers to the year range, \mathbf{X} is a vector of country-level control variables including GDP growth rate, net export/GDP, FDI/GDP, deposit rate, REER, and inflation rate. All four regressions are at bank-year level, and include 956 banks from 35 emerging market economies, each bank in the regression has at least three times of issuance. All regressions in the figures include bank fixed effect, year range fixed effect, standard errors are heteroskedastically robust and clustered at year level. In Figure 10(a) and 10(c), the LHS is the liability issuance denominated in USD (bond and loan) divided by total liability issuance of a bank in a given year; in Figure 10(b) and 10(d), the LHS is dummy variable that equals to 1 if a bank issued USD liabilities in a given year.

Appendix B. Differences between foreign and domestic banks in collateral specialization

Figure B1: Data Sources Demonstration

(a)

Borrower: Adlink Technology (China) Co Ltd (39090)		Tranche 1 of 2 Term Loan		
Perm ID	N/A	Tranche Id	97215	
Deal Active Date	02-Mar-2010	Tranche Amount (m)	USD 1.5m	
Deal Id	41479	Tranche Active	No	
Deal Amount (m)	US\$ 6.334102m (USD 6.334102m)	Tranche Active Date	02-Mar-2010	
Website	http://www.adlink.com.tw/	League Table Credit	Yes	
Region	Asia Pacific	League Table Tranche Date	02-Mar-2010	
Location	China	Amend & Extend Flag	No	
Parent	Adlink Technology Inc	Tranche Amended	No	
Ultimate Parent	Adlink Technology Inc	Secured	Yes	
Broad Industry Group	Corporates	Collateral/Security Type	Real Estate	
Major Industry Group	Technology	Sponsored	No	
SIC	5945: Computers, peripherals & software	Multi-Currency Tranche	No	
Deal Phase	Closed	Market of Syndication	Asia Pacific	
Active	No	Country of Syndication	China	
Deal Purpose	General Purpose	Primary Purpose	General Purpose	
Refinancing	No	Guarantor	Adlink Technology Inc	
Deal Input Date	04-Aug-2009	Tranche Maturity Date	02-Mar-2013	
Tiered Upfront Fee	Yes	Tenor/Maturity	36 months	
Tranche 1	USD 1.5m Term Loan 02-Mar-2010 ~ 02-Mar-2013 AIS: 150 bps	Average Life	2.125 years	
Tranche 2	CNY 33m (USD 4.834102m) Term Loan	Availability	1 year from first drawdown	
Basis Point Issue	840-6	Grace Period	15 months	
Financial Covenants	Net Worth	30000000	Security	secured by land and 3 buildings
	Max. Debt to Tangible Net Worth Ratio	3:1	Seniority Type	Senior
General Covenants	Financial Ratios	On the borrower: Financial debt-to-net worth ratio maximum 3 times; net worth minimum Rmb30m. On the guarantor: Current ratio minimum 1.5 times; financial debt-to-net worth ratio maximum 1.5 times; interest coverage ratio minimum 2 times.	Distribution Method	Syndication
	Prepayment	Material	No	
Institution Type	Corporation			

(b)

Borrower: Mandarin Oriental Bali (96352)		Tranche 1 of 2 Other Loan	
Perm ID	500934442	Tranche Id	204717
Deal Active Date	23-Feb-2008	Tranche Amount (m)	USD 79m
Deal Id	161627	Tranche Active	No
Deal Amount (m)	USD 108m	Tranche Active Date	23-Feb-2008
Additional Borrowers	Club International Bali	League Table Credit	No
Region	Asia Pacific	League Table Tranche Date	23-Feb-2008
Location	Indonesia	New Money	USD 79m
Ultimate Parent	Mandarin Oriental Bali	Amend & Extend Flag	No
Broad Industry Group	Corporates	Tranche Amended	No
Major Industry Group	Hotel & Gaming	Secured	Yes
SIC	7011: Hotels and motels	Collateral/Security Type	Real Estate
NAIC	72111: Hotels (exc Casino Hotels) & Motels	Sponsored	No
Deal Phase	Pre-Mandate	Multi-Currency Tranche	No
Active	No	Market of Syndication	Asia Pacific
Deal Purpose	Real estate loan	Country of Syndication	Indonesia
Refinancing	No	Primary Purpose	Real estate loan
Deal Input Date	29-Feb-2008	Sponsor Comment	The sponsor for both projects is Yanuar Arsad, which has over US\$40.2m of cash equity behind the financing.
Tiered Upfront Fee	No	Tenor/Maturity	36 months
Tranche 1	USD 79m Other Loan	Security	The facility will be secured by Mandarin Oriental Bali Resort
Tranche 2	USD 33m Other Loan	Seniority Type	Senior
Basis Point Issue	769-6	Distribution Method	Syndication
General Covenants	Prepayment	Material	No
	Restriction	No	
Institution Type	Corporation		

Notes: The above figure shows the original record used to construct the data on basic characteristics and the lending bases of cross-border loans. Both (a) and (b) are the digitized example of the original record in the LoanConnector terminal. The orange dashed line area in (a) shows the standard appearance location of the basic information of the loans, the name of the borrowing firm, the deal and tranche ID, the industry sector of the borrowing firm, volume, pricing, maturity of the loan etc. The cells highlighted in yellow in (b) shows the standard appearance of the lending base of the tranche.

Table B1: Loan Characteristics

Panel A: Summary Statistics (Tranche-level, Overall sample)						
Tranche Information	N	Mean	Sd.	p(25)	p(50)	p(75)
Maturity(years)	11788	5.8	3.9	3.0	5.0	7.0
All In Spread Drawn (bps)	11788	190.2	197.0	90.0	140.0	240.0
Loan amount (m)(USD)	11788	102.7	482.6	24.6	60.2	167.6
1[Foreign banks participation]	11788	0.54	0.29	0	1	1
Foreign banks share	11788	0.45	0.36	0.08	0.41	0.77
Total number of lenders	11788	7.84	8.61	3	5	9
1[Term loan]	11788	0.65	0.33	0	1	1
1[Lead bank domestic bank]	11788	0.42	0.47	0	0	1
1[Multinational firm]	11788	0.29	0.45	0	0	1
1[Foreign ownership/Joint venture]	11788	0.12	0.28	0	0	1
<hr/>						
Deal's Currency	No.	%				
Domestic currency	8851	49.9				
Euro	940	5.3				
USD	7893	44.5				
Yen	54	0.3				
<hr/>						
Loan Purpose	No.	%				
General corporate purpose	10479	88.9				
M&A	306	2.6				
Trade and export	1001	8.5				
<hr/>						
# Firms	4490					

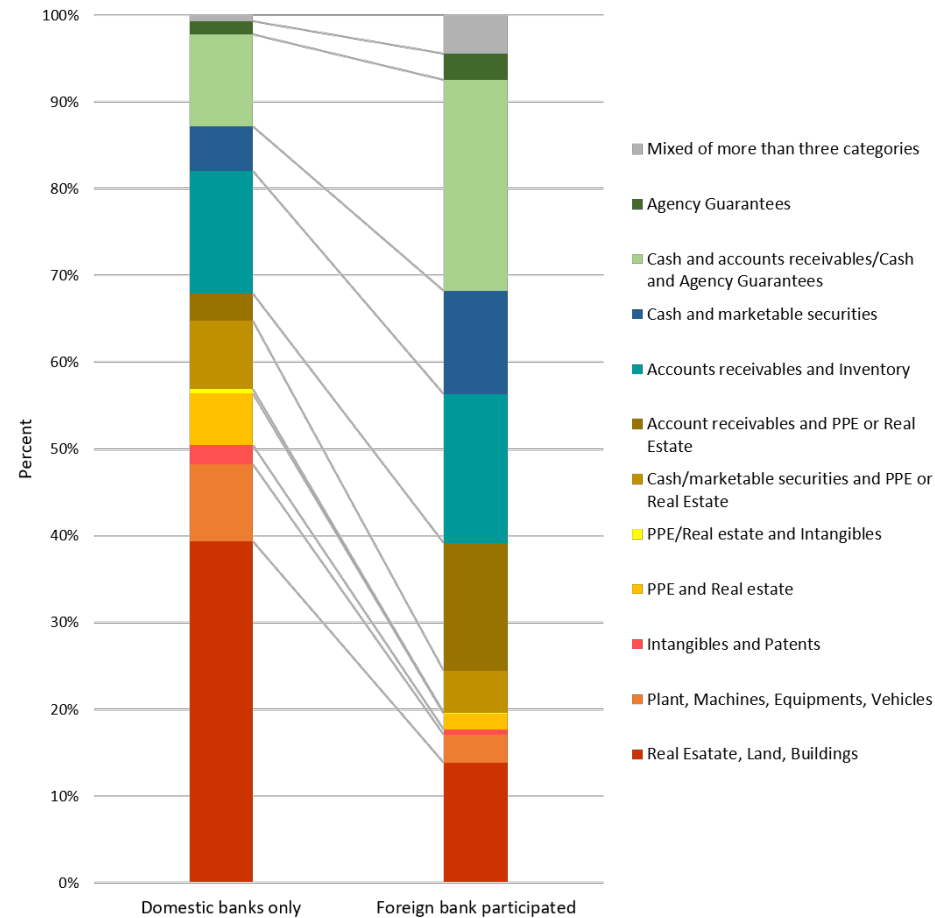
Notes: The above table presents the summary statistics of the sample of observations that serve as our baseline regression sample as shown in equation 1. 1[Foreign banks participation] is a dummy variable that equals 1 if the tranche has at least one foreign bank participated, foreign bank share is the total contribution of foreign banks in the tranche's face value scaled by the total amount of the tranche value, Total number of lenders is the total number of all lenders in a tranche. 1[Term loan] is a dummy variable that equals 1 if the loan is a term loan with bullet type of repayment. 1[lead bank domestic bank] is a dummy variable that equals 1 if the lead arranger is a domestic bank with the same parent country as the borrower, 1[multinational firm] is a dummy variable that equals 1 if the firm is a multinational firm, 1[foreign ownership/ joint venture] is a dummy variable that equals 1 if the firm has foreign ownership.

Figure B2: Categorization of lending bases

Debt capacity						
Transparency					Tangibility	
Earnings/cash flow based					Fixed-value assets	
	Securities	Agency guarantee	Account receivables	Reserves & Inventories	Internationall y-deployable	Domestic-based
<i>Tencent, Formosa Plastic, Butik Asam, Philp Morris, etc</i>	<i>"Stock shares of a listed subsidiary in XX"</i>	<i>"Standby L/C"</i>	<i>"Assignments of leasing income"</i>	<i>"Oil inventories"</i>	<i>"Boeing 777 aircraft"</i>	<i>"Plant and equipment of a subsidiary XXX"</i>
	<i>"Floating charge over securities"</i>	<i>"Promissory notes specifying XXX from parent company XXX"</i>	<i>"Toll income of Express No.XX"</i>	<i>"Sellables in XXXX-quarters."</i>	<i>"Vessel XXX"</i>	<i>"Mortgage over land and properties"</i>
					<i>"Ship XXX"</i>	<i>"Mortgage over new extension of shopping mall"</i>
Unsecured	Secured					

Notes: The above table provides an exhaustive categorization of all types of assets that firms the database have borrowed against as lending bases. We also demonstrate here how different types of assets are related to firms’ debt capacity. In general, firms have two sources of debt capacity: first is transparent cash flows or earnings (“Transparency”), and the second is through offering tangible assets up-front to lenders (“Tangibility”). Similar categorizations of debt capacity is also demonstrated by [Lian and Ma \(2018\)](#).

Figure B3: Detailed types of lending bases in documentation



Notes: The above figure shows the full spectrum of the categories of lending bases of domestic-bank-only loans and foreign-bank participated loans that have shown up in the sample. The height of each colored block represents the total amount of loans based on a specific category of assets as a share of total secured loan amount.

Table B2: Covenant inclusion and foreign bank participation

	1[Covenant Inclusion]						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1[Foreign bank participation]	0.124** (0.0456)	0.113** (0.0355)	0.135*** (0.0342)	0.185*** (0.0552)	0.136** (0.0565)	0.118** (0.0377)	0.122*** (0.0267)
Ln[Loan amount]			0.287* (0.155)	0.284** (0.0944)	0.309** (0.101)	0.288* (0.122)	0.312** (0.103)
Maturity			-0.0166 (0.0155)	-0.0188 (0.0172)	-0.0201 (0.0198)	-0.0101 (0.0133)	-0.0122 (0.0145)
1[LBO]			-0.255 (0.262)	-0.225 (0.272)	-0.282 (0.266)	-0.265 (0.253)	-0.248 (0.269)
1[Trade finance]			0.0201* (0.00982)	0.0121 (0.0179)	0.0113 (0.0165)	0.0103* (0.00522)	0.0141 (0.126)
1[Term loan]			-0.0187 (0.0232)	-0.0192 (0.0212)	-0.0179 (0.0203)	-0.0222 (0.0232)	-0.0252 (0.0268)
Resolving Insolvency Score				0.0309** (0.0102)			
GDP growth					3.118 (2.334)		
REER					0.0655 (0.0448)		
Domestic credit/GDP					2.332 (1.176)		
1[Multinational Entrepreneur]						0.0912* (0.0365)	
1[Foreign ownership/J.V.]							0.119** (0.0395)
Observations	22782	22782	22782	18762	18762	18762	18762
Adjusted R ²	0.233	0.276	0.443	0.482	0.498	0.452	0.466
Lead bank country FE	Y	Y	Y	Y	Y	Y	Y
Industry-Year FE	N	Y	Y	Y	Y	Y	Y
Deal FE	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents results on the baseline regression equation:

$$1[\text{covenant inclusion}]_{i,d,tr} = \alpha_i + \mu_d + \beta(1[\text{Foreignbankparticipation}]) + \gamma\mathbf{X} + \text{FE}'s$$

Ln(loan amount) is the log of tranche amount, maturity is maturity in years, 1[LBO], 1[Trade finance] are indicator variables that equal to 1 if the loan is for M&A purpose or trade financing respectively. Resolving insolvency score is the borrower country's overall score of resolving insolvency defined by WorldBank Doing Business. GDP growth is the real GDP growth of the borrower's economy in year t , REER is real effective exchange rate, Domestic credit/GDP is the total credit to private sector lent by domestic financial intermediaries. 1[Multinational Entrepreneur] and 1[Foreign ownership/J.V.] are indicator variables that equals 1 if the firm is an MNE or J.V.

Table B3: Covenant inclusion and foreign bank participation

	1[Covenant Inclusion]						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Foreign bank share (%)	1.872** (0.587)	1.763*** (0.502)	1.902*** (0.543)	1.776*** (0.489)	1.553** (0.515)	1.287*** (0.349)	1.366*** (0.355)
Ln[Loan amount]			0.166** (0.0546)	0.124** (0.0418)	0.177** (0.0581)	0.165** (0.0576)	0.182** (0.0583)
Maturity			-0.0233 (0.0176)	-0.0302* (0.0147)	-0.0334 (0.0203)	-0.0298* (0.0143)	-0.0276* (0.0135)
1[LBO]			-0.0872 (0.0622)	-0.0762 (0.0679)	-0.0988 (0.0853)	-0.0923 (0.0872)	-0.121 (0.0877)
1[Trade finance]			0.0337* (0.0166)	0.0421* (0.0203)	0.0403 (0.0282)	0.0377* (0.0172)	0.0382* (0.0167)
1[Term loan]			-0.0423 (0.0366)	-0.0394 (0.0309)	-0.0388 (0.0315)	-0.0323 (0.0432)	-0.0562* (0.0244)
Resolving Insolvency Score				0.0203* (0.00663)			
GDP growth					2.772 (1.993)		
REER					0.0452* (0.0203)		
Domestic credit/GDP					3.109 (2.093)		
1[Multinational Entrepreneur]						0.0766** (0.0365)	
1[Foreign ownership/J.V.]							0.123** (0.0257)
Observations	22782	22782	22782	18762	18762	18762	18762
Adjusted R ²	0.209	0.302	0.339	0.402	0.488	0.426	0.438
Lead bank country FE	Y	Y	Y	Y	Y	Y	Y
Industry-Year FE	N	Y	Y	Y	Y	Y	Y
Deal FE	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents results on the baseline regression equation:

$$1[\text{covenant inclusion}]_{i,d,tr} = \alpha_i + \mu_d + \beta(\text{Foreign bank share}\%) + \gamma\mathbf{X} + FE's$$

Ln(loan amount) is the log of tranche amount, maturity is maturity in years, 1[LBO], 1[Trade finance] are indicator variables that equal to 1 if the loan is for M&A purpose or trade financing respectively. Resolving insolvency score is the borrower country's overall score of resolving insolvency defined by WorldBank Doing Business. GDP growth is the real GDP growth of the borrower's economy in year t , REER is real effective exchange rate, Domestic credit/GDP is the total credit to private sector lent by domestic financial intermediaries. 1[Multinational Entrepreneur] and 1[Foreign ownership/J.V.] are indicator variables that equals 1 if the firm is an MNE or J.V.

Table B4: Baseline results: I

	1[Fixed assets collateral]						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1[Foreign bank participation]	-0.192** (0.0655)	-0.194** (0.0642)	-0.195*** (0.0551)	-0.225*** (0.0642)	-0.236** (0.0775)	-0.228** (0.0756)	-0.213*** (0.0602)
Ln[Loan amount]			0.104* (0.0501)	0.115* (0.0506)	0.109* (0.0509)	0.108* (0.0511)	0.112* (0.0509)
Maturity			-0.0163 (0.0174)	-0.0173 (0.0204)	-0.0164 (0.0329)	-0.0222 (0.0180)	-0.0203 (0.0176)
1[LBO]			-0.255 (0.262)	-0.225 (0.272)	-0.282 (0.266)	-0.265 (0.253)	-0.248 (0.269)
1[Trade finance]			0.0137 (0.146)	-0.0142 (0.149)	-0.0167 (0.152)	-0.0143 (0.143)	-0.0139 (0.126)
1[Term loan]			0.109 (0.112)	0.116 (0.117)	0.122 (0.179)	0.121 (0.132)	0.135 (0.128)
Resolving Insolvency Score				0.0480* (0.0241)			
GDP growth					-7.092 (4.181)		
REER					-0.0443 (0.0319)		
Domestic credit/GDP					9.332 (5.176)		
1[Multinational Entrepreneur]						0.175 (0.148)	
1[Foreign ownership/J.V.]							0.261* (0.122)
Observations	11788	11788	11788	10652	10652	10652	10652
Adjusted R ²	0.329	0.477	0.534	0.542	0.404	0.539	0.541
Lead bank country FE	Y	Y	Y	Y	Y	Y	Y
Industry-Year FE	N	Y	Y	Y	Y	Y	Y
Deal FE	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents results on the baseline regression equation:

$$1[\text{Fixed-assets collateral}]_{i,d,tr} = \alpha_i + \mu_d + \beta 1[\text{Foreign bank participation}] + \gamma \mathbf{X} + FE's$$

Ln(loan amount) is the log of tranche amount, maturity is maturity in years, 1[LBO], 1[Trade finance] are indicator variables that equal to 1 if the loan is for M&A purpose or trade financing respectively. Resolving insolvency score is the borrower country's overall score of resolving insolvency defined by WorldBank Doing Business. GDP growth is the real GDP growth of the borrower's economy in year t , REER is real effective exchange rate, Domestic credit/GDP is the total credit to private sector lent by domestic financial intermediaries. 1[Multinational Entrepreneur] and 1[Foreign ownership/J.V.] are indicator variables that equals 1 if the firm is an MNE or J.V.

Table B5: Baseline Results: II

	1[Fixed assets collateral]						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Foreign bank share (%)	-2.413*** (0.501)	-2.443*** (0.516)	-2.793*** (0.503)	-2.744*** (0.527)	-2.685*** (0.412)	-2.527*** (0.488)	-2.811*** (0.407)
Ln[Loan amount]			0.122* (0.0501)	0.132* (0.0487)	0.131* (0.0628)	0.119* (0.0500)	0.123* (0.0503)
Maturity			-0.0211 (0.0172)	-0.0231 (0.0192)	-0.0281 (0.0540)	-0.0259 (0.0176)	-0.0241 (0.0182)
1[LBO]			-0.264 (0.266)	-0.253 (0.276)	-0.262 (0.281)	-0.278 (0.265)	-0.282 (0.268)
1[Trade finance]			-0.0376 (0.162)	-0.0386 (0.144)	-0.0424 (0.157)	-0.0597 (0.145)	-0.0386 (0.156)
1[Term loan]			0.0831 (0.114)	0.0923 (0.135)	-0.0799 (0.153)	0.0675 (0.124)	0.0752 (0.122)
Resolving Insolvency Score				0.127** (0.453)			
GDP growth					-7.311 (4.223)		
REER					-0.0493 (0.0350)		
Domestic credit/GDP					9.697 (5.322)		
1[Multinational Entrepreneur]						0.168 (0.145)	
1[Foreign ownership/J.V.]							0.421** (0.142)
Observations	11788	11788	11788	10652	10652	10652	10652
Adjusted R ²	0.337	0.485	0.541	0.524	0.408	0.547	0.542
Lead bank country FE	Y	Y	Y	Y	Y	Y	Y
Industry-Year FE	N	Y	Y	Y	Y	Y	Y
Deal FE	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents results on the baseline regression equation:

$$1[\text{Fixed-assets collateral}]_{i,d,tr} = \alpha_i + \mu_d + \beta(\text{Foreign bank share}\%) + \gamma\mathbf{X} + FE's$$

Ln(loan amount) is the log of tranche amount, maturity is maturity in years, 1[LBO], 1[Trade finance] are indicator variables that equal to 1 if the loan is for M&A purpose or trade financing respectively. Resolving insolvency score is the borrower country's overall score of resolving insolvency defined by WorldBank Doing Business. GDP growth is the real GDP growth of the borrower's economy in year t , REER is real effective exchange rate, Domestic credit/GDP is the total credit to private sector lent by domestic financial intermediaries. 1[Multinational Entrepreneur] and 1[Foreign ownership/J.V.] are indicator variables that equals 1 if the firm is an MNE or J.V.

Table B6: Baseline Results III

	% of loan value secured fixed assets						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1[Foreign bank participatoin]	-0.188*** (0.0403)	-0.196** (0.0355)	-0.201** (0.0422)	-0.179*** (0.0389)	-0.192*** (0.0401)	-0.203*** (0.0378)	-0.186** (0.0398)
Ln[Loan amount]			0.0163 (0.0145)	0.0172 (0.0198)	0.0219 (0.0181)	0.0129 (0.0199)	0.0212 (0.0211)
Maturity			-0.00403 (0.00492)	-0.00455 (0.00474)	-0.00488 (0.00419)	-0.00804 (0.00652)	-0.00507 (0.00679)
1[LBO]			-0.0809 (0.112)	-0.0942 (0.114)	-0.0913 (0.123)	-0.0925 (0.132)	-0.0933 (0.127)
1[Trade finance]			-0.0205* (0.0102)	-0.0299* (0.0144)	-0.0298* (0.0127)	-0.0276* (0.0139)	-0.0293* (0.0133)
1[Term loan]			0.0286 (0.0477)	0.0289 (0.0469)	0.0321 (0.114)	0.0203 (0.0453)	0.0299 (0.0333)
Resolving Insolvency Score				0.0332** (0.0113)			
GDP growth					1.344 (1.762)		
REER					-0.00879 (0.0166)		
Domestic credit/GDP					1.106 (1.503)		
1[Multinational Entrepreneur]						0.152* (0.0624)	
1[Foreign ownership/J.V.]							0.477** (0.145)
Observations	5062	5062	5062	4496	4219	5062	5062
R ²	0.499	0.553	0.617	0.688	0.692	0.703	0.711
Lead bank country FE	Y	Y	Y	Y	Y	Y	Y
Industry-Year FE	N	Y	Y	Y	Y	Y	Y
Deal FE	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: The table shows the results The table presents results on the baseline regression equation:

$$1[\% \text{ face value secured by fixed assets}]_{i,d,tr} = \alpha_i + \mu_d + \beta(1[\text{Foreign bank participation}]) + \gamma\mathbf{X} + FE's$$

Ln(loan amount) is the log of tranche amount, maturity is maturity in years, 1[LBO], 1[Trade finance] are indicator variables that equal to 1 if the loan is for M&A purpose or trade financing respectively. Resolving insolvency score is the borrower country's overall score of resolving insolvency defined by WorldBank Doing Business. GDP growth is the real GDP growth of the borrower's economy in year t , REER is real effective exchange rate, Domestic credit/GDP is the total credit to private sector lent by domestic financial intermediaries. 1[Multinational Entrepreneur] and 1[Foreign ownership/J.V.] are indicator variables that equals 1 if the firm is an MNE or J.V.

Table B7: Baseline Results IV

	% of loan value secured fixed assets						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Foreign bank share (%)	-2.223*** (0.427)	-1.924** (0.392)	-2.303** (0.401)	-2.335*** (0.361)	-2.209*** (0.353)	-2.229*** (0.363)	-2.453** (0.327)
Ln[Loan amount]			0.0152 (0.0220)	0.0152 (0.0220)	0.0349 (0.0671)	0.0134 (0.0215)	0.0152 (0.0220)
Maturity			-0.00487 (0.00754)	-0.00487 (0.00754)	0.0157 (0.0216)	-0.00804 (0.00759)	-0.00487 (0.00754)
1[LBO]			-0.0930 (0.117)	-0.0930 (0.117)	-0.0908 (0.125)	-0.0983 (0.114)	-0.0930 (0.117)
1[Trade finance]			-0.00255 (0.0632)	-0.00255 (0.0632)	-0.227 (0.223)	-0.0165 (0.0623)	-0.00255 (0.0632)
1[Term loan]			0.0279 (0.0498)	0.0279 (0.0498)	0.0370 (0.117)	0.0177 (0.0490)	0.0279 (0.0498)
Resolving Insolvency Score				0.0307** (0.0102)			
GDP growth					-1.278 (1.690)		
REER					-0.00757 (0.0140)		
Domestic credit/GDP					1.106 (2.130)		
1[Multinational Entrepreneur]						0.111** (0.0324)	
1[Foreign ownership/J.V.]							0.536* (0.224)
Observations	5062	5062	5062	4496	4219	5062	5062
R ²	0.529	0.654	0.708	0.702	0.810	0.726	0.705
Lead bank country FE	Y	Y	Y	Y	Y	Y	Y
Industry-Year FE	N	Y	Y	Y	Y	Y	Y
Deal FE	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses

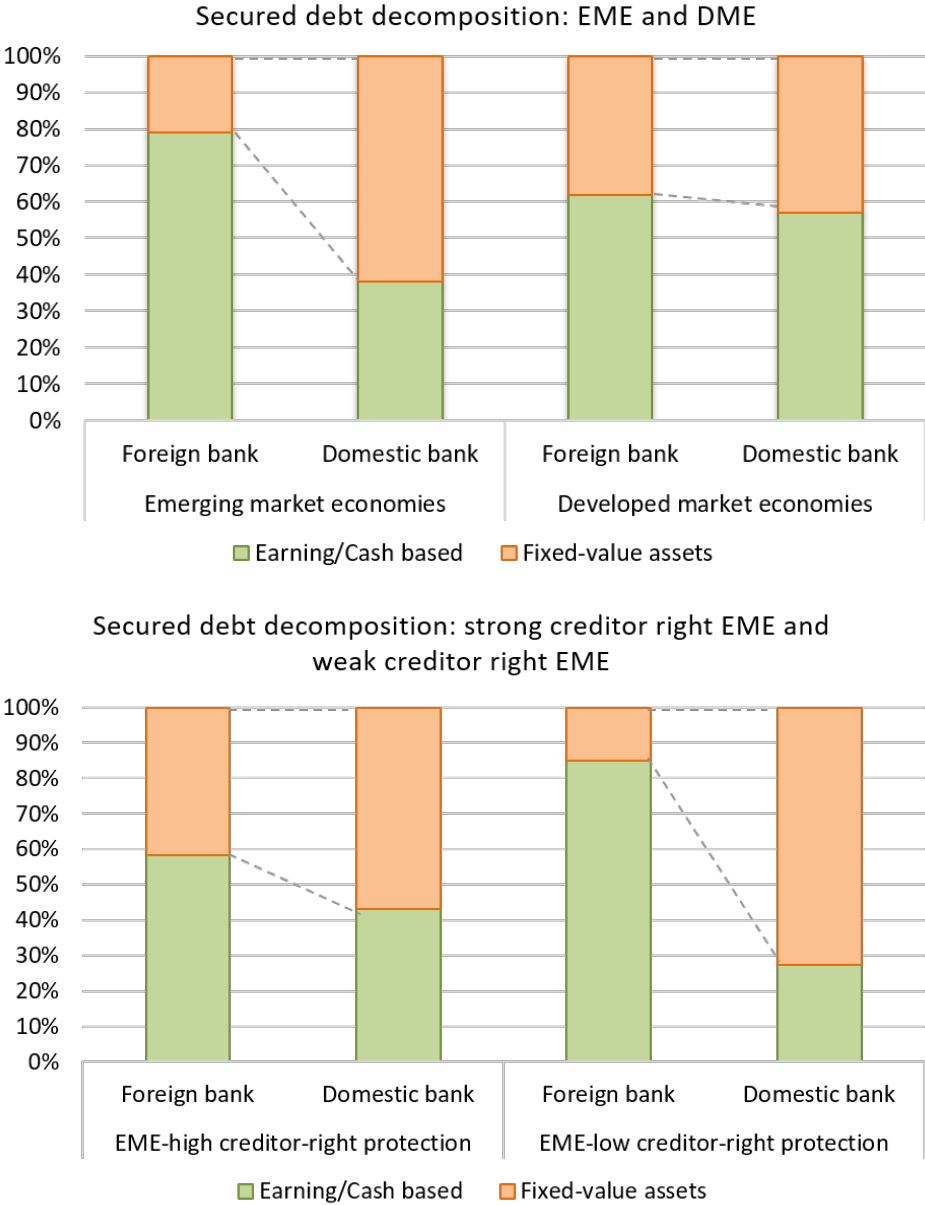
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: The table shows the results The table presents results on the baseline regression equation:

$$1[\% \text{ face value secured by fixed assets}]_{i,d,tr} = \alpha_i + \mu_d + \beta(\text{Foreign bank share}\%) + \gamma\mathbf{X} + FE's$$

Ln(loan amount) is the log of tranche amount, maturity is maturity in years, 1[LBO], 1[Trade finance] are indicator variables that equal to 1 if the loan is for M&A purpose or trade financing respectively. Resolving insolvency score is the borrower country's overall score of resolving insolvency defined by WorldBank Doing Business. GDP growth is the real GDP growth of the borrower's economy in year t , REER is real effective exchange rate, Domestic credit/GDP is the total credit to private sector lent by domestic financial intermediaries. 1[Multinational Entrepreneur] and 1[Foreign ownership/J.V.] are indicator variables that equals 1 if the firm is an MNE or J.V.

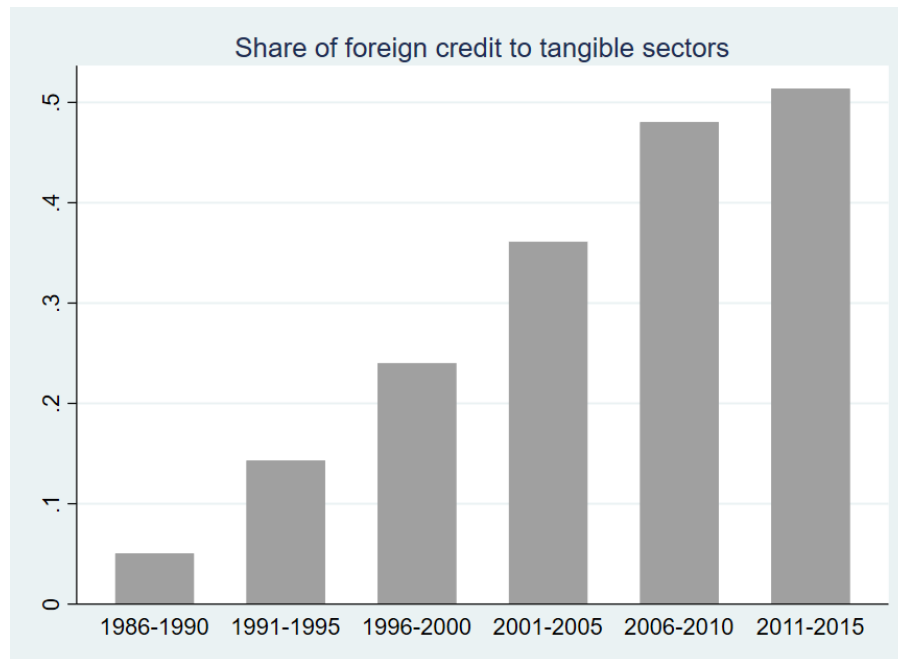
Figure B4: Foreign and domestic bank participation in Developed market and Emerging market



Notes: The above figure shows the differences between domestic banks and foreign banks in lending base choices in developed countries and emerging markets and in emerging market with high resolving insolvency score. Developed Market Economies include United States, United Kingdom, Canada, Germany, Netherlands and Switzerland. Authors’ calculation based on Datastream, Thomson One Banker and Loanconnector. The shaded bars represent the proportion of dollar amount of secured loans using different categories of lending bases. High resolving insolvency score EME’s include South Africa, Malaysia and Czech Republic, and Low credit score EME’s include Peru, Colombia and Mexico.

Appendix C. Real Outcomes: Re-shaping EME Industrial Structure and Increased Susceptibility

Figure C1: Over-time trend: Foreign currency cross-border credit to High-tangibility industries and to unlisted firms

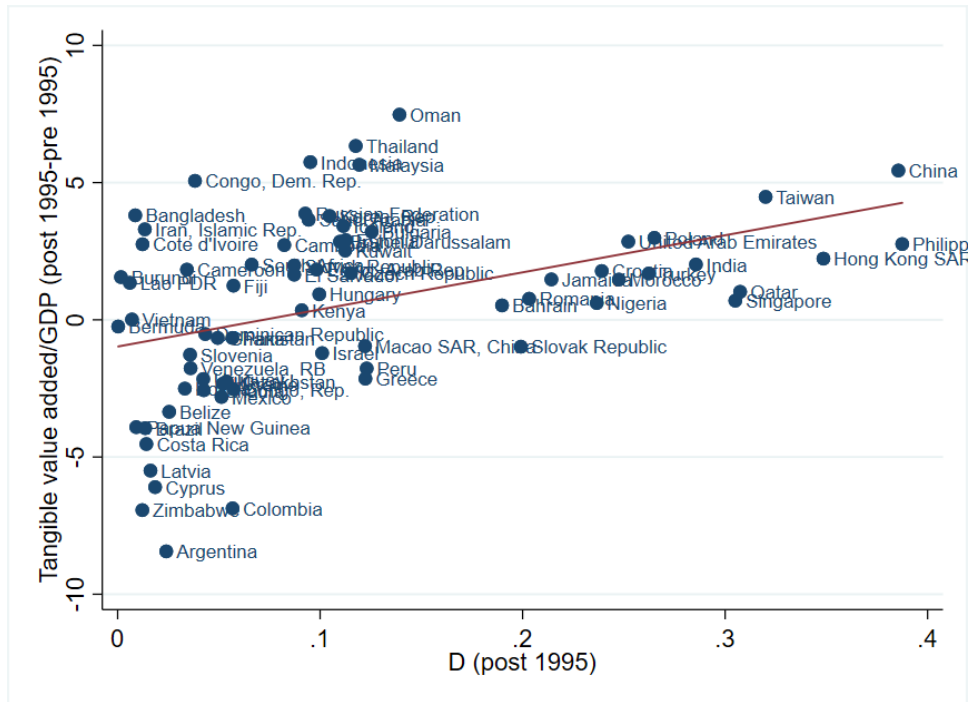


(a) Share of USD cross-border credit to tangible sectors



(b) Share of USD cross-border credit to private firms

Figure C2: Reshaping of Industrial Structure: Cross-sectional Evidence



The figure shows the cross-sectional correlation between changes in EME's tangible sector value-added/GDP (post 1995-pre 1995) and the proportion of cross-border credit that was channeled by domestic banks post 1995. $D(\text{post } 1995)$ is defined as $\frac{\sum_b \sum_{t>1995} C_{b,t}^{USD} \times 1[\text{Domestic bank}_b]}{\sum_b \sum_{t>1995} C_{b,t}^{USD}}$, where $C_{b,t}^{USD}$ is the amount of a USD cross-border loan by bank b .

Table C1: Matching between banks and firms

	High-tangibility	Low-transparency
	(1)	(2)
% Domestic bank share	3.127*** (0.0211)	2.153*** (0.0342)
Maturity	1.003*** (0.000232)	1.005*** (0.000238)
1[Secured]	1.179*** (0.0378)	1.354*** (0.0438)
1[Takeover]	0.991 (0.0616)	1.258*** (0.0798)
1[Trade finance]	0.959 (0.0469)	2.204*** (0.111)
No. of lenders	0.988*** (0.00179)	0.985*** (0.00204)
Observations	77596	77596
Firm FE	Yes	Yes
Country-time FE	Yes	Yes

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table estimates the following regression equation:

$$\text{Ln}\left(\frac{P(\text{High tangibility}/\text{Low-transparency})}{1 - P(\text{High tangibility}/\text{Low-transparency})}\right)_{i,c,t} = \alpha_i + \theta_{c,t} + \beta(\text{Domestic bank share}(\%)) + \gamma X + \epsilon_{i,c,t}$$

A borrower is from a high-tangibility industry if the average tangibility (defined by PPE/total assets) of borrower's two-digit SIC industry is above the 75th percentile of all the two-digit industries in its economy. A borrower is classified as low-transparency firm if it is a private firm. A 10% percent increase in domestic bank share leads to increase in the probability of the credit going to high-tangibility firm/ low-transparency firm by around 30%/20%.

Table C2: Lender types and firm characteristics

	Ln[Loan amount]					
	(1)	(2)	(3)	(4)	(5)	(6)
% Domestic bank share	-0.157*	-0.111	-0.111	-0.179*	-0.114*	-0.114
	(0.0616)	(0.0652)	(0.0684)	(0.0890)	(0.0544)	(0.0591)
% Domestic bank share × 1[Low-transparency]	0.175***	0.116***	0.116***			
	(0.0261)	(0.0256)	(0.0314)			
% Domestic bank share × 1[High-tangibility]				0.186***	0.120***	0.120***
				(0.0285)	(0.0279)	(0.0267)
Maturity		0.00204***	0.00204***		0.00204***	0.00204***
		(0.000144)	(0.000296)		(0.000152)	(0.000292)
1[Secured]		-0.0210	-0.0210		-0.0214	-0.0214
		(0.0209)	(0.0257)		(0.0209)	(0.0260)
No. of lenders		0.0322***	0.0322***		0.0322***	0.0322***
		(0.000961)	(0.00168)		(0.000961)	(0.00170)
1[Takeover]		0.609***	0.609***		0.609***	0.609***
		(0.0406)	(0.0684)		(0.0406)	(0.0681)
1[Trade finance]		-0.0566	-0.0566		-0.0567	-0.0567
		(0.0311)	(0.0495)		(0.0311)	(0.0493)
Observations	41684	41684	41684	41684	41684	41684
Adjusted R ²	0.590	0.607	0.607	0.590	0.607	0.607
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Deal FE	Yes	Yes	Yes	Yes	Yes	Yes
Clusters (year)			34			34

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents the following regression equation:

$Ln(Amount)_{i,c,t} = \alpha_i + \theta_{c,t} + \beta_1(\text{Domestic bank share}\%) + \beta_2(\text{Domestic bank share}\%) \times 1[\text{High tangibility/Low transparency}] + \gamma X + \epsilon_{i,c,t}$
 No. of lender is the total number of lending banks in a tranche, 1[Takeover] is a dummy variable that equals 1 if the purpose of the deal is for merger and acquisition. 1[Trade finance] is a dummy variable that equals 1 if the purpose of the deal is trade finance. 1[secured] is a dummy variable that equals 1 if the tranche is secured. A firm is defined to be of high-tangibility if its industry's above the top 25-th percentile of tangibility measured by PPE/Total assets in its country. And a firm is low-transparency if it is unlisted.

Table C3: Matching between banks and firms

	Ln[Loan amount]			
	(1)	(2)	(3)	(4)
% Domestic bank share	-0.110*	-0.108	-0.119*	-0.122
	(0.0511)	(0.0584)	(0.0489)	(0.0589)
% Domestic bank share × 1[Low-transparance]	0.0246***	0.0375***		
	(0.00444)	(0.00423)		
% Domestic bank share × 1[Low transparency × 1[Fixed-value asset]	0.156***	0.172***		
	(0.0358)	(0.0376)		
% Domestic bank share × 1[High-tangibility]			0.0368***	0.0354***
			(0.0109)	(0.0105)
% Domestic bank share × 1[High tangibility] × 1[Fixed-value asset]			0.116***	0.124***
			(0.0325)	(0.0331)
Maturity	0.00211***	0.00211***	0.00413***	0.00414***
	(0.000144)	(0.000304)	(0.000144)	(0.000303)
No. of lenders	0.0322***	0.0303***	0.0314***	0.0325***
	(0.000958)	(0.00166)	(0.000959)	(0.00167)
1[Takeover]	0.605***	0.612***	0.609***	0.614***
	(0.0406)	(0.0685)	(0.0406)	(0.0680)
1[Trade finance]	-0.0563	-0.0498	-0.0568	-0.0535
	(0.0311)	(0.0494)	(0.0311)	(0.0493)
Observations	31684	31684	31684	31684
Adjusted R ²	0.607	0.610	0.605	0.611
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Deal FE	Yes	Yes	Yes	Yes
Clusters (year)		34		34

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: The table shows the OLS The table presents the following regression equation:

$$\begin{aligned} \ln(\text{Amount})_{i,c,t} = & \alpha_i + \mu_{c,t} + \beta_1(\text{Domestic bank share}\%) \\ & + \beta_2(\text{Domestic bank share}\%) \times 1[\text{High tang/Low trans}] \\ & + \beta_3(\text{Domestic bank share}\%) \times 1[\text{High tang/Low trans}] \times 1[\text{Fixed-value}] + \gamma X + \epsilon_{i,c,t} \end{aligned}$$

No. of lender is the total number of lending banks in a tranche, 1[Takeover] is a dummy variable that equals 1 if the purpose of the deal is for merger and acquisition. 1[Trade finance] is a dummy variable that equals 1 if the purpose of the deal is trade finance. 1[secured] is a dummy variable that equals 1 if the tranche is secured. A firm is defined to be of high-tangibility if its industry's above the top 25-th percentile of tangibility measured by PPE/Total assets in its country. And a firm is low-transparency if it is unlisted.

Table C4: Overtime susceptibility to global financial condition: Real GDP

	GDP growth							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NFCI	-0.275 (0.162)	-1.693*** (0.260)	-0.490 (0.253)	-1.892*** (0.300)	-0.435 (0.482)	-1.741*** (0.374)	-0.452 (0.517)	-1.985*** (0.345)
REER			-0.00323* (0.00128)	-0.0126 (0.00683)			-0.0299 (0.0314)	-0.0119 (0.0133)
Net Export/GDP			0.0538 (0.0382)	0.0152 (0.0125)			0.0487 (0.0550)	0.0204 (0.0158)
FDI			0.142 (0.144)	0.0148 (0.0134)			0.0466 (0.0241)	0.0435 (0.0305)
Unemployment					-0.771** (0.251)	-0.160 (0.0815)	-0.803** (0.250)	-0.128 (0.0795)
Inflation					-0.000867 (0.000877)	-0.00787 (0.0255)	0.000624 (0.00329)	-0.0451 (0.0231)
Deposit rate					0.000261 (0.000898)	-0.117** (0.0386)	-0.000149 (0.00113)	-0.0781 (0.0437)
Observations	998	1203	353	707	262	584	195	424
R ²	0.031	0.035	0.055	0.066	0.088	0.089	0.260	0.156
Economy FE	✓	✓	✓	✓	✓	✓	✓	✓
Year range	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: The table shows the OLS regression of annual GDP growth rate of emerging market economies to NFCI, which is Chicago Fed's National Financial Conditions Index (NFCI) and also a set of economy-level control variables. The coefficient on the NFCI after 1995 is tested to be significantly more negative than before 1995.

Table C5: Overtime susceptibility to global financial condition: Domestic Credit Growth

	Domestic credit growth							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NFCI	-0.263 (0.166)	-1.002*** (0.187)	-0.278 (0.203)	-1.172*** (0.235)	-0.307 (0.262)	-1.062*** (0.263)	-0.421 (0.295)	-1.236*** (0.249)
REER			0.00401 (0.00491)	0.00579 (0.00531)			-0.0251 (0.0180)	-0.0885 (0.0967)
Net Export/GDP			0.0305* (0.0148)	0.0254* (0.00985)			0.0625 (0.0314)	0.0348** (0.0114)
FDI			0.162** (0.0557)	0.0214* (0.0104)			0.367** (0.138)	0.0573** (0.0220)
Unemployment					-0.511*** (0.140)	-0.126* (0.0592)	-0.569*** (0.149)	-0.0910 (0.0594)
Inflation					-0.00112 (0.00476)	0.00837 (0.0200)	0.00222 (0.00188)	-0.00836 (0.0186)
Deposit rate					0.00672 (0.00487)	-0.0701* (0.0289)	0.00129 (0.00648)	-0.0312 (0.0333)
Observations	800	1104	305	676	256	580	190	420
R ²	0.021	0.027	0.103	0.154	0.161	0.158	0.179	0.127
Economy FE	✓	✓	✓	✓	✓	✓	✓	✓
Year range	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: The table shows the OLS regression of annual domestic credit growth rate of emerging market economies to NFCI, which is Chicago Fed's National Financial Conditions Index (NFCI) and also a set of economy-level control variables. The coefficient on the NFCI after 1995 is tested to be significantly more negative than before 1995.

Table C6: Overtime susceptibility to global financial condition: Industrial Value Added Growth

	Industrial value-added growth							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NFCI	-0.135 (0.272)	-3.217*** (0.440)	0.103 (0.483)	-3.695*** (0.549)	-0.933 (0.680)	-4.031*** (0.602)	0.857 (0.909)	-3.856*** (0.635)
REER			-0.0117 (0.00979)	-0.0124 (0.0128)			-0.113 (0.0615)	-0.0275 (0.0258)
Net Export/GDP			0.0981 (0.0747)	0.0532* (0.0249)			-0.0223 (0.0908)	0.0664* (0.0323)
FDI			0.115 (0.367)	0.0301 (0.0245)			0.934* (0.410)	0.0670 (0.0563)
Unemployment					-0.381 (0.338)	-0.114 (0.132)	-0.0568 (0.425)	0.0769 (0.150)
Inflation					-0.00194 (0.00159)	-0.0346 (0.0451)	-0.0916 (0.0653)	-0.0769 (0.0472)
Deposit rate					0.00240 (0.00324)	-0.105 (0.0657)	0.0538 (0.0375)	-0.0395 (0.0861)
Observations	571	1023	227	641	226	531	172	391
R ²	0.023	0.052	0.029	0.081	0.075	0.109	0.240	0.142
Economy FE	✓	✓	✓	✓	✓	✓	✓	✓
Year range	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: The table shows the OLS regression of annual industrial sector's value added growth rate of emerging market economies to NFCI, which is Chicago Fed's National Financial Conditions Index (NFCI) and also a set of economy-level control variables. The coefficient on the NFCI after 1995 is tested to be significantly more negative than before 1995.

Table C7: Trend change in tangible sector growth in EME: OLS

Panel A: Baseline				
	Δ Tang. value added/GDP	Δ Tang. growth	Δ Tang. Emp	Δ Tang investment
	(1)	(2)	(3)	(4)
ΔD	0.213** (0.0738)	0.377** (0.133)	0.298* (0.116)	0.562** (0.179)
Observations	65	48	62	59
R^2	0.015	0.021	0.034	0.033
Panel B: With controls				
	Δ Tang. value added/GDP	Δ Tang. growth	Δ Tang. Emp	Δ Tang investment
	(1)	(2)	(3)	(4)
ΔD	0.199** (0.0598)	0.309** (0.109)	0.376** (0.127)	0.467** (0.167)
Observations	65	48	62	59
R^2	0.114	0.122	0.144	0.165

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents the results of the following regression:

$$\Delta Y_{1996-2010,i} = \alpha + \beta D_i + \phi \mathbf{X} + \epsilon_i$$

$\Delta Y_{1996-2010,c}$ is change in (average) outcome real economic variables of interest of country i during 1996-2010 compared with the (average) outcome variable before 1995. In this specification, it could be industrial sectors' share of output value added in GDP, the annual growth of industrial sector's output value added, the share of employment in industrial sector, and the average investment rate of tangible sector firms.

Table C8: Trend change in tangible sector growth in EME: 2SLS

Panel A: Baseline				
	Δ Tang. value added	Δ Tang. growth	Δ Tang. Emp	Δ Tang investment
	(1)	(2)	(3)	(4)
D	0.258** (0.0883)	0.407** (0.123)	0.392* (0.141)	0.702** (0.234)
Observations	65	48	62	59
R^2	0.017	0.013	0.025	0.022
Panel B: With controls				
	Δ Tang. value added	Δ Tang. growth	Δ Tang. Emp	Δ Tang investment
	(1)	(2)	(3)	(4)
D	0.201** (0.0652)	0.336** (0.113)	0.424** (0.136)	0.655** (0.223)
Observations	65	48	62	59
R^2	0.102	0.112	0.123	0.142

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents the results of 2SLS the following regression equations:

$$D_i = \mu + \beta_1 Z_i + \beta_2 \bar{X}_{i,1990-1995} + \epsilon_i$$

$$\Delta Y_{1996-2010,i} = \alpha + \beta \hat{D}_i + \phi \mathbf{X} + \epsilon_i$$

The instrumental variable is "Ave. secondary edu (20-24)". $\Delta Y_{1996-2010,c}$ is change in (average) outcome real economic variables of interest of country i during 1996-2010 compared with the (average) outcome variable before 1995. In this specification, it could be industrial sectors' share of output value added in GDP, the annual growth of industrial sector's output value added, the share of employment in industrial sector, and the average investment rate of tangible sector firms.

Table C9: First-stage regression

	IV-1		IV-2	
	(1)	(2)	(3)	(4)
Three-bank concentration	-0.121** (0.0326)			
Five-bank concentration		-0.152** (0.0501)		
Ave. secondary edu (20-24)			0.0276*** (0.00669)	
Ave. tertiary edu (25+)				0.0327*** (0.00625)
Unemployment	0.00360 (0.00266)	0.00381 (0.00263)	0.00278 (0.00263)	0.00346 (0.00272)
Net export/GDP	0.000837* (0.000349)	0.000908* (0.000363)	0.000388 (0.000318)	0.000779* (0.000348)
Inflation	-0.00112 (0.00160)	-0.00337 (0.00286)	-0.000393 (0.00137)	-0.00103 (0.00160)
Observations	65	65	65	65
R^2	0.256	0.249	0.238	0.245

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table shows the first-stage regression for the 2SLS analysis.

$$D_i = \mu + \beta_1 Z_i + \beta_2 \bar{X}_{i,1990-1995} + \epsilon_i$$

The left-hand side variable D_i is the fraction of cross-border foreign currency loan to economy i that's lent by domestic banks. Three-bank concentration and five-bank concentration are the market share of the biggest three banks or five banks of an economy i . *Secondary_24* is the Barro-Lee average years of secondary education of workers of age 20-24; and *Tertiary_25* the Barro-Lee average years of tertiary education of workers of age 25+.

Table C10: Second-stage regression: GDP-1

	OLS	IV			
	(1)	(2)	(3)	(4)	(5)
1[Post 1995]	-1.330*** (0.324)	-1.616*** (0.336)	-1.664*** (0.344)	-1.598*** (0.333)	-1.636*** (0.344)
NFCI	-0.454* (0.208)	-0.184 (0.229)	-0.172 (0.232)	-0.140 (0.230)	-0.210 (0.225)
1[Post 1995] × D × NFCI	-0.0887** (0.0303)				
1[Post 1995] × $\widehat{D}_{\text{Secondary } 24}$ × NFCI		-0.186*** (0.0381)			
1[Post 1995] × $\widehat{D}_{\text{Tertiary } 25}$ × NFCI			-0.191*** (0.0414)		
1[Post 1995] × $\widehat{D}_{3\text{-bank}}$ × NFCI				-0.218*** (0.0453)	
1[Post 1995] × $\widehat{D}_{5\text{-bank}}$ × NFCI					-0.193*** (0.0409)
D	7.114 (6.190)				
\widehat{D}		11.85 (8.268)	12.15 (7.206)	12.33 (9.395)	12.40 (9.511)
Net Export/GDP	0.00264 (0.00363)	0.00683 (0.00411)	0.00754 (0.00500)	0.00470 (0.00358)	-0.0105* (0.00471)
Inflation	-0.00240*** (0.000517)	-0.00260*** (0.000523)	-0.00257*** (0.000524)	-0.00254*** (0.000516)	-0.00247*** (0.000507)
Unemployment	-0.251*** (0.0279)	-0.235*** (0.0282)	-0.237*** (0.0282)	-0.240*** (0.0276)	-0.204*** (0.0283)
Observations	1107	1101	1101	1107	1029
R^2	0.130	0.126	0.123	0.130	0.147
Economy controls	✓	✓	✓	✓	✓

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents the OLS and 2SLS of the following regression:

$$D_i = \mu + \beta_1 Z_i + \beta_2 \bar{X}_{i,1990-1995} + \epsilon_i$$

$$Y_{i,t} = \alpha + \beta_1 1[\text{Post 1995}] + \beta_2 F_t^{U.S.} + \gamma \widehat{D}_i \times 1[\text{Post 1995}] \times F_t^{U.S.} + \phi \mathbf{X} + \epsilon_{i,t}$$

The left-hand side variable is GDP growth rate. NFCI is the National Financial Condition Index constructed by Chicago Fed. Control variables include net export/GDP, inflation rate and unemployment rate.

Table C11: Second-stage regression: Domestic Credit Growth-1

	OLS	IV			
	(1)	(2)	(3)	(4)	(5)
1[Post 1995]	-0.231 (0.265)	-0.378 (0.269)	-0.366 (0.271)	-0.420 (0.273)	-0.556* (0.265)
NFCI	-0.607*** (0.146)	-0.311 (0.159)	-0.362* (0.162)	-0.418* (0.163)	-0.422** (0.153)
1[Post 1995] × D × NFCI	-0.0502*** (0.0128)				
1[Post 1995] × $\widehat{D}_{\text{Secondary } 24}$ × NFCI		-0.129*** (0.0254)			
1[Post 1995] × $\widehat{D}_{\text{Tertiary } 25}$ × NFCI			-0.118*** (0.0277)		
1[Post 1995] × $\widehat{D}_{\text{3-bank}}$ × NFCI				-0.108*** (0.0308)	
1[Post 1995] × $\widehat{D}_{\text{5-bank}}$ × NFCI					-0.102*** (0.0268)
D	9.308 (8.218)				
\widehat{D}		12.98 (9.376)	13.32 (8.121)	12.67 (8.872)	12.15 (9.339)
Net Export/GDP	0.0246** (0.00806)	0.0200* (0.00822)	0.0201* (0.00826)	0.0251** (0.00804)	0.0263*** (0.00793)
Inflation	-0.000119 (0.000350)	-0.0000841 (0.000349)	-0.0000824 (0.000350)	-0.0000754 (0.000349)	-0.000106 (0.000331)
Unemployment	-0.246*** (0.0363)	-0.239*** (0.0359)	-0.239*** (0.0360)	-0.243*** (0.0360)	-0.217*** (0.0346)
Observations	1021	1001	1001	1009	931
R ²	0.118	0.129	0.131	0.133	0.135
Economy controls	✓	✓	✓	✓	✓

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents the OLS and 2SLS of the following regression:

$$D_i = \mu + \beta_1 Z_i + \beta_2 \bar{X}_{i,1990-1995} + \epsilon_i$$

$$Y_{i,t} = \alpha + \beta_1 1[\text{Post 1995}] + \beta_2 F_t^{U.S.} + \gamma \widehat{D}_i \times 1[\text{Post 1995}] \times F_t^{U.S.} + \phi X + \epsilon_{i,t}$$

The left-hand side variable is domestic credit growth rate. NFCI is the National Financial Condition Index constructed by Chicago Fed. Control variables include net export/GDP, inflation rate and unemployment rate.

Table C12: Second-stage regression: Industrial Growth

	OLS	IV			
	(1)	(2)	(3)	(4)	(5)
1[Post 1995]	-3.854*** (0.646)	-4.325*** (0.648)	-4.519*** (0.650)	-4.735*** (0.654)	-4.873*** (0.663)
NFCI	-0.874** (0.337)	-0.252 (0.367)	-0.127 (0.371)	-0.0995 (0.372)	-0.249 (0.368)
1[Post 1995] × D × NFCI	-0.200*** (0.0491)				
1[Post 1995] × $\widehat{D}_{\text{Secondary } 24}$ × NFCI		-0.340*** (0.0573)			
1[Post 1995] × $\widehat{D}_{\text{Tertiary } 25}$ × NFCI			-0.391*** (0.0619)		
1[Post 1995] × $\widehat{D}_{\text{3-bank}}$ × NFCI				-0.461*** (0.0694)	
1[Post 1995] × $\widehat{D}_{\text{5-bank}}$ × NFCI					-0.429*** (0.0633)
D	8.877 (7.677)				
\widehat{D}		10.89 (7.533)	11.99 (8.565)	12.37 (9.102)	11.78 (8.563)
Net Export/GDP	0.0165 (0.0202)	0.0204 (0.0204)	0.0199 (0.0204)	0.0188 (0.0197)	0.0139 (0.0207)
Inflation	-0.00210** (0.000777)	-0.00203** (0.000771)	-0.00200** (0.000769)	-0.00194* (0.000768)	-0.00202** (0.000768)
Unemployment	-0.199* (0.0811)	-0.175* (0.0784)	-0.176* (0.0782)	-0.173* (0.0785)	-0.173* (0.0791)
Observations	947	942	942	948	884
R ²	0.113	0.151	0.165	0.139	0.141
Economy controls	✓	✓	✓	✓	✓

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table presents the OLS and 2SLS of the following regression:

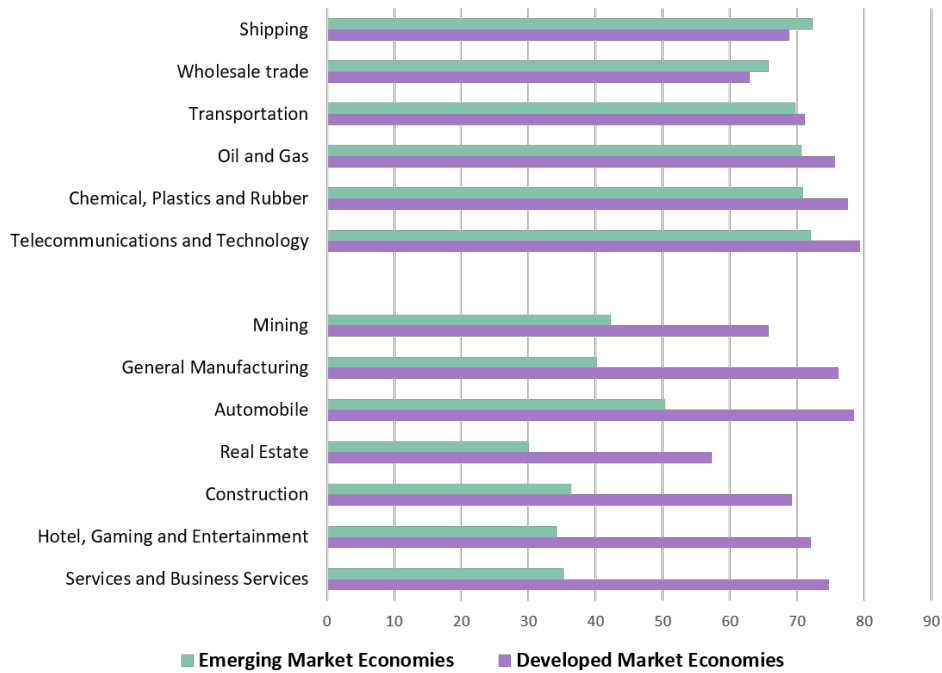
$$D_i = \mu + \beta_1 Z_i + \beta_2 \bar{X}_{i,1990-1995} + \epsilon_i$$

$$Y_{i,t} = \alpha + \beta_1 1[\text{Post 1995}] + \beta_2 F_t^{U.S.} + \gamma \widehat{D}_i \times 1[\text{Post 1995}] \times F_t^{U.S.} + \phi X + \epsilon_{i,t}$$

The left-hand side variable is industrial value added growth rate. NFCI is the National Financial Condition Index constructed by Chicago Fed. Control variables include net export/GDP, inflation rate and unemployment rate.

Figure C1: Foreign and Domestic Bank Participation Industry in EME and Developed Market Economies

Comparison of Foreign Bank Participation across Industries (1)



Comparison of Foreign Bank Participation across Industries (2)

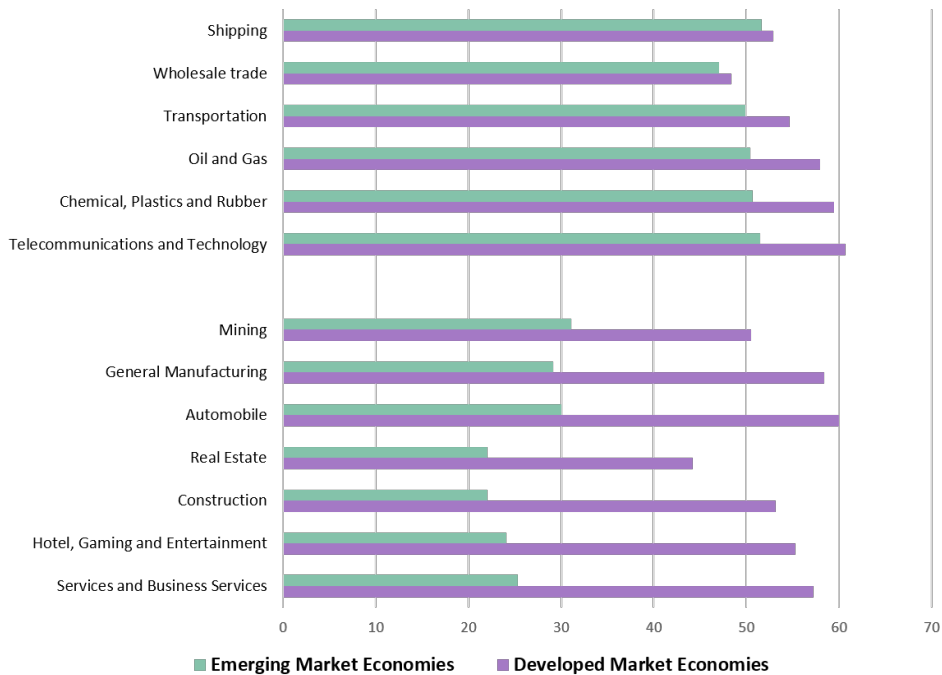


Figure C2: Foreign and Domestic Bank Lending Bases across Industry in EME and Developed Market Economies

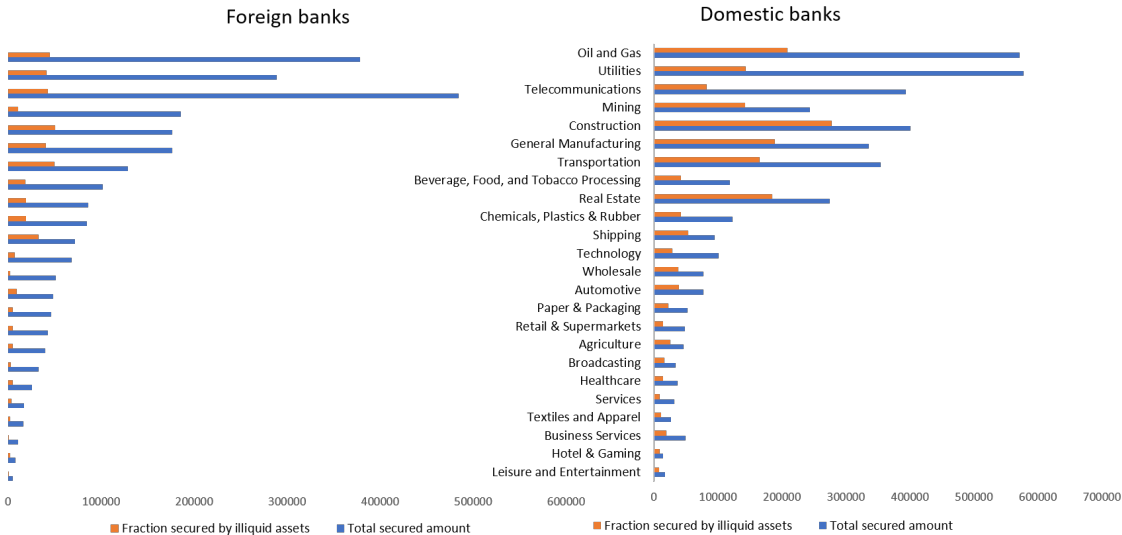


Figure C3: Foreign and Domestic Bank Lending Bases across Industry in EME and Developed Market Economies

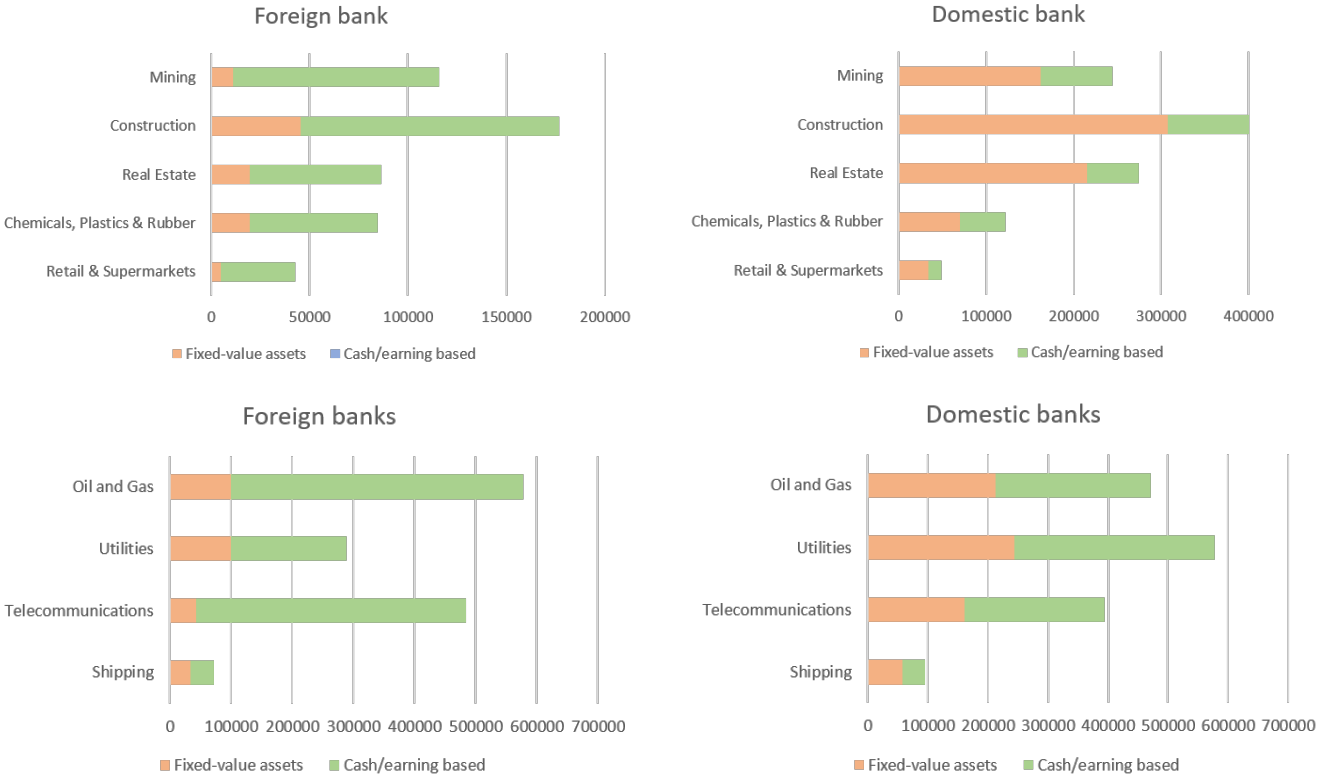
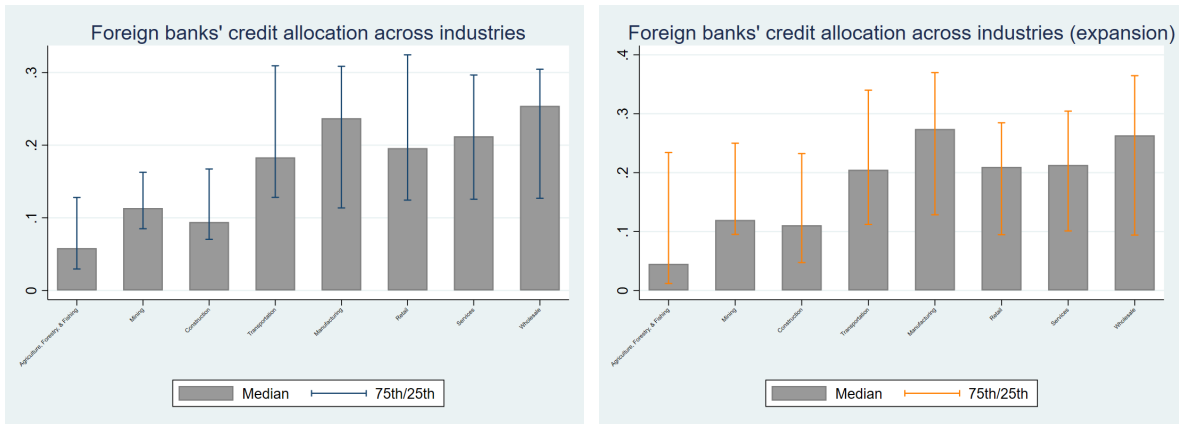
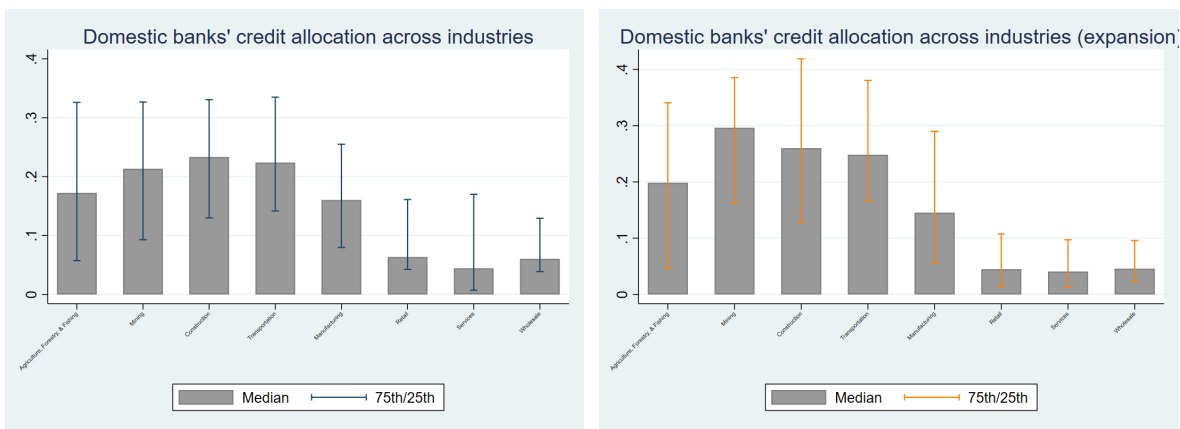


Figure C4: Foreign and domestic banks' USD credit portfolio and industry tangibility



(a) Foreign bank portfolio across industries

(b) Foreign bank portfolio

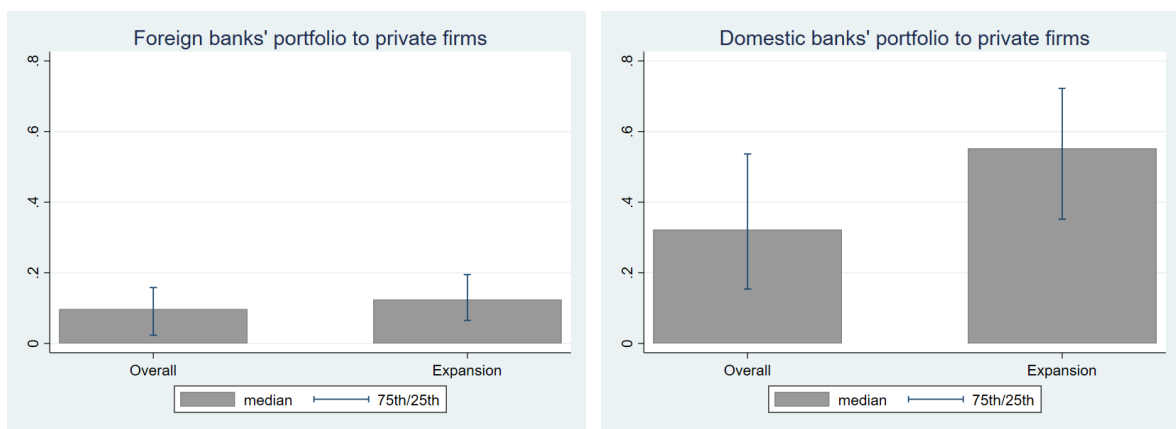


(c) Domestic bank portfolio across industries

(d) Domestic bank portfolio across industries

2-digit SIC	Industry	Tangibility
00-09	Agriculture, Forestry, & Fishing	0.468
10-14	Mining	0.425
15-17	Construction	0.405
40-49	Transportation & Public Utilities	0.357
20-39	Manufacturing	0.336
70-89	Services	0.263
52-59	Retail Trade	0.251
50-51	Wholesale Trade	0.198

Figure C5: Foreign and domestic banks' USD credit portfolio and firm transparency



(a) Foreign bank portfolio allocating to private firms (b) Domestic bank portfolio allocating to private firms

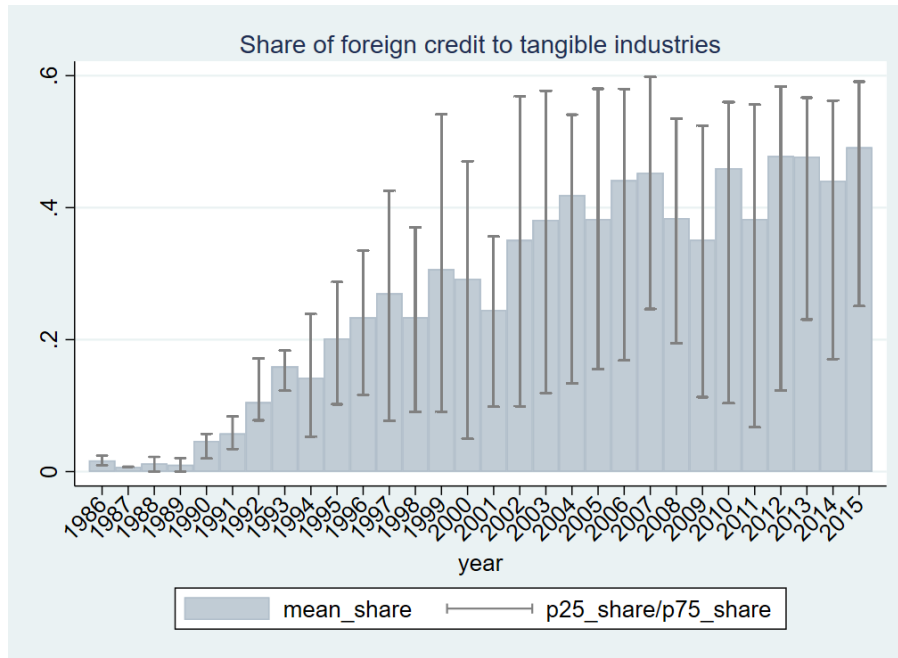
Appendix D. Additional Supplemental Figures and Tables

Figure D1: Snap-shot of domestic bank channeled foreign credit in cross-border market by selective countries

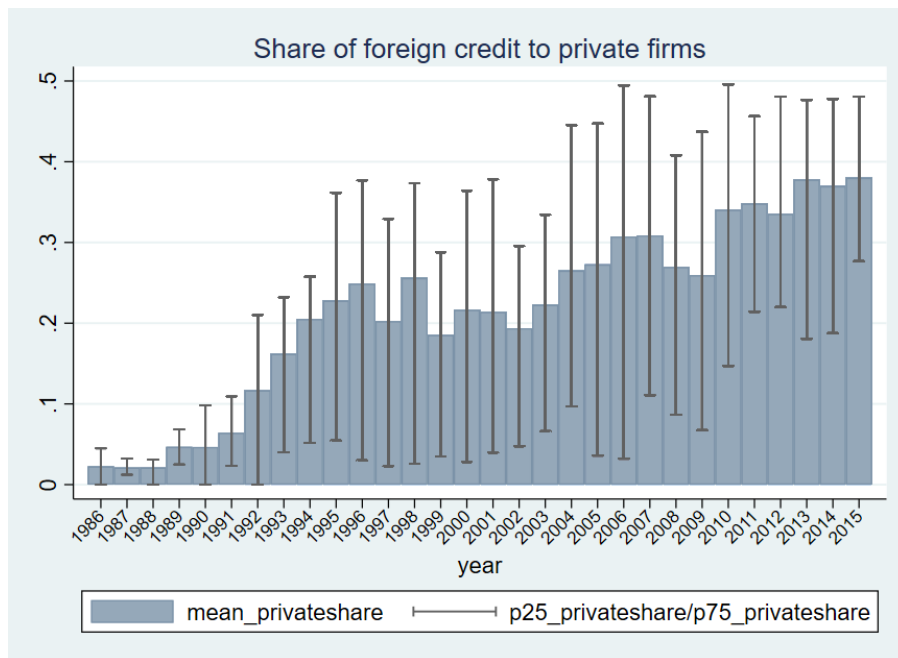


Source: LPC Dealscan. Figure shows the share of foreign currency denominated credit to emerging market economies' non-financial corporate sector that are lent directly by domestic banks, taken from three snapshot years.

Figure D2



(a) Share of USD cross-border credit to tangible sectors



(b) Share of USD cross-border credit to private firms

Table D1: Bank-level regression of lending bases choices

	1[Fixed value secured]			
	(1)	(2)	(3)	(4)
Year resolve	-0.0193*** (0.00455)			
1[Foreign Lender]× Year resolve	-0.0527*** (0.0121)			
Cost (% of estate)		-0.00290** (0.00103)		
1[Foreign bank]×Cost (% of estate)		-0.00578** (0.00167)		
Time register			-0.0140*** (0.00295)	
1[Foreign bank]×Time register			-0.0325*** (0.00391)	
Procedures				-0.0127*** (0.00321)
1[Foreign bank]× Procedure				-0.0252*** (0.00555)
1[Foreign bank]	-0.163*** (0.0330)	-0.155*** (0.0358)	-0.201*** (0.0432)	-0.204*** (0.0378)
Observations	249277	249277	250147	250147
Adjusted R ²	0.259	0.257	0.260	0.264
Bank FE	✓	✓	✓	✓
Bank role FE	✓	✓	✓	✓
Industry-year FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓
Bank country FE	✓	✓	✓	✓
Bank Type FE	✓	✓	✓	✓

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D2: Cross-country susceptibility to global cycle: Over time

	GDP growth							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IMF_index	-0.461 (0.585)	-0.729*** (0.135)	-0.482 (0.601)	-0.841*** (0.158)	-0.463 (0.564)	-0.855*** (0.195)	-0.447 (0.402)	-0.784** (0.184)
REER			0.0112 (0.0294)	-0.0133 (0.00736)			0.0359 (0.0632)	-0.0157 (0.0146)
Net Export/GDP			0.0308 (0.0964)	0.00490 (0.0139)			-0.0261 (0.0876)	0.0144 (0.0171)
FDI			-0.142 (0.176)	0.0178 (0.0149)			0.357 (0.238)	0.0500 (0.0333)
Unemployment					-1.408 (0.788)	-0.118 (0.0873)	-2.067* (0.747)	-0.0786 (0.0875)
Inflation					-0.0144 (0.0213)	-0.0145 (0.0264)	-0.0198 (0.0267)	-0.0503* (0.0245)
Deposit rate					0.00815 (0.0124)	-0.0932* (0.0406)	0.0114 (0.0153)	-0.0581 (0.0474)
Observations	745	1103	326	654	268	554	139	401
R ²	0.016	0.027	0.011	0.028	0.085	0.073	0.614	0.109
Coutry FE	✓	✓	✓	✓	✓	✓	✓	✓
year range	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D3: EME banks' USD borrowing and lending behavior

Panel A: USD Lending and Funding Comovement				
	Ln[USD lending]			
	(1)	(2)	(3)	(4)
Ln[USD liability]	0.189*** (0.0331)	0.188*** (0.0360)	0.189*** (0.0473)	0.188*** (0.0467)
U.S. Interest rate	0.723 (1.703)	0.720 (1.703)	0.723 (1.352)	0.720 (1.359)
Δ GDP	0.342 (1.134)	0.342 (1.134)	0.342 (0.302)	0.342 (0.302)
REER	-0.00551 (0.00405)	-0.00549 (0.00405)	-0.00551 (0.00421)	-0.00549 (0.00430)
Ln[USD liability] \times 1[US expansion]		0.0239*** (0.0275)		0.0239*** (0.0174)
Observations	3832	3832	3832	3832
Adjusted R^2	0.950	0.950	0.950	0.950
Bank FE	Yes	Yes	Yes	Yes
Cluster			21	21

Panel B: USD Funding and U.S. Monetary Condition				
	Ln[USD Liabilities]		%USD Liabilities	
	(1)	(2)	(3)	(4)
U.S. Interest rate	0.748*** (0.221)	0.747** (0.237)	0.0344** (0.0109)	0.0342** (0.0112)
Δ GDP	-0.382 (0.330)	-0.198 (0.183)	-0.0173 (0.0229)	-0.0231 (0.0113)
REER	-0.0763* (0.0346)	-0.00752 (0.0317)	-0.0117 (0.00842)	-0.00536 (0.00355)
VIX	-0.00135 (0.00100)	-0.00878 (0.00755)	-0.00545 (0.00880)	-0.00560* (0.00260)
Observations	65611	65611	65122	65122
Adjusted R^2	0.982	0.989	0.038	0.666
Bank FE	Yes	Yes	Yes	Yes
Clusters		21		21

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D4: Cross-country susceptibility to global cycle: Over time

	Domestic credit growth							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IMF_index	-0.247 (0.370)	-0.465*** (0.0963)	-0.130 (0.519)	-0.366** (0.123)	-0.222 (0.322)	-0.536*** (0.135)	-0.330 (0.325)	-0.524*** (0.131)
REER			0.00605 (0.0102)	0.00655 (0.00569)			-0.0249 (0.0660)	0.00773 (0.0104)
Net Export/GDP			0.00958 (0.0363)	0.0191 (0.0109)			0.0202 (0.0639)	0.0317** (0.0122)
FDI			-0.0297 (0.0599)	0.0207 (0.0115)			0.158 (0.194)	0.0611* (0.0237)
Unemployment					-0.658* (0.319)	-0.0919 (0.0626)	-0.910 (0.614)	-0.0578 (0.0646)
Inflation					-0.00877 (0.00913)	0.00186 (0.0204)	-0.0574 (0.0829)	-0.0140 (0.0195)
Deposit rate					0.00626 (0.00530)	-0.0470 (0.0301)	0.0340 (0.0474)	-0.00827 (0.0358)
Observations	799	1012	307	625	266	550	137	397
R ²	0.032	0.024	0.050	0.029	0.226	0.156	0.195	0.109
Economy FE	✓	✓	✓	✓	✓	✓	✓	✓
Year range	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D5: Cross-country susceptibility to global cycle: Over time

	Industrial sector growth							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IMF_index	-0.790 (0.731)	-1.159*** (0.237)	-0.0736 (1.096)	-1.241*** (0.289)	-0.0839* (1.108)	-1.450*** (0.338)	-0.0928 (1.682)	-1.344*** (0.353)
REER			0.00205 (0.0214)	-0.00923 (0.0200)			-0.0288 (0.0655)	-0.0474 (0.0347)
Net Export/GDP			0.0840 (0.0898)	0.0736* (0.0310)			0.0836 (0.117)	0.0743 (0.0381)
FDI			0.262 (0.296)	0.0203 (0.0260)			0.514 (0.382)	0.0765 (0.0607)
Unemployment					0.212 (0.326)	-0.0523 (0.179)	0.00814 (0.387)	0.184 (0.200)
Inflation					-0.0243 (0.0148)	-0.0243 (0.0938)	-0.0541* (0.0211)	-0.160 (0.0960)
Deposit rate					0.0167 (0.00893)	-0.189 (0.118)	0.0342** (0.0124)	-0.131 (0.188)
Observations	317	755	207	468	241	410	193	306
R ²	0.004	0.033	0.012	0.064	0.069	0.076	0.135	0.131
Economy FE	✓	✓	✓	✓	✓	✓	✓	✓
Year range	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995	before 1995	after 1995

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D6: Second-stage regression: GDP-2

	OLS	IV			
	(1)	(2)	(3)	(4)	(5)
after1995	-0.602 (0.359)	-0.437 (0.366)	-0.445 (0.366)	-0.449 (0.361)	-0.576 (0.367)
IMF_index	-0.315* (0.129)	-0.145 (0.145)	-0.143 (0.147)	-0.136 (0.147)	-0.135 (0.146)
1[Post 1995] × D × IMF_index	-0.0335*** (0.0102)				
1[Post 1995] × $\widehat{D}_{\text{Secondary } 24}$ × IMF_index		-0.0654** (0.0203)			
1[Post 1995] × $\widehat{D}_{\text{Tertiary } 25}$ × IMF_index			-0.0687** (0.0220)		
1[Post 1995] × $\widehat{\Delta D}_{3\text{-bank}}$ × IMF_index				-0.0776** (0.0243)	
1[Post 1995] × $\widehat{D}_{5\text{-bank}}$ × IMF_index					-0.0815*** (0.0222)
D	6.983 (6.544)				
\widehat{D}		10.31 (8.655)	12.88 (8.993)	13.14 (8.763)	12.65 (9.272)
Net Export/GDP	-0.0115 (0.0115)	-0.0157 (0.0117)	-0.0151 (0.0117)	-0.0164 (0.0114)	-0.0136 (0.0117)
Inflation	-0.00206*** (0.000520)	-0.00202*** (0.000525)	-0.00202*** (0.000526)	-0.00203*** (0.000518)	-0.00204*** (0.000517)
Unemployment	-0.286*** (0.0512)	-0.297*** (0.0506)	-0.292*** (0.0507)	-0.285*** (0.0501)	-0.275*** (0.0506)
Observations	1065	1061	1061	1066	993
R ²	0.119	0.133	0.131	0.142	0.149
Economy controls	✓	✓	✓	✓	✓

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D7: Second-stage regression: Domestic Credit Growth-2

	OLS	IV			
	(1)	(2)	(3)	(4)	(5)
1[Post 1995]	0.103 (0.265)	0.300 (0.269)	0.273 (0.270)	0.196 (0.269)	0.0876 (0.259)
IMF_index	-0.339*** (0.0926)	-0.143 (0.105)	-0.172 (0.107)	-0.211 (0.108)	-0.159 (0.101)
1[Post 1995]×D× IMF_index	-0.0760*** (0.0137)				
1[Post 1995]×D. $\widehat{\text{Secondary}}_{24}$ × IMF_index		-0.0477*** (0.0143)			
1[Post 1995]×D. $\widehat{\text{Tertiary}}_{25}$ × IMF_index			-0.0433** (0.0155)		
1[Post 1995]×D. $\widehat{\text{3-bank}}$ × IMF_index				-0.0396* (0.0174)	
1[Post 1995]×D. $\widehat{\text{5-bank}}$ × IMF_index					-0.0503*** (0.0150)
D	8.521 (6.533)				
\widehat{D}		11.32 (8.213)	11.93 (7.984)	12.59 (9.092)	13.14 (9.415)
Net Export/GDP	0.0206* (0.00839)	0.0147 (0.00859)	0.0156 (0.00859)	0.0195* (0.00839)	0.0227** (0.00820)
Inflation	-0.0000980 (0.000357)	-0.0000490 (0.000357)	-0.0000587 (0.000358)	-0.0000724 (0.000356)	-0.0000744 (0.000337)
Unemployment	-0.240*** (0.0377)	-0.234*** (0.0375)	-0.232*** (0.0376)	-0.234*** (0.0376)	-0.205*** (0.0360)
Observations	981	963	963	968	895
R ²	0.117	0.122	0.124	0.135	0.138
Economy FE	✓	✓	✓	✓	✓

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D8: Second-stage regression: Industrial Growth

	OLS	IV			
	(1)	(2)	(3)	(4)	(5)
1[Post 1995]	-3.063*** (0.652)	-2.835*** (0.656)	-2.796*** (0.655)	-2.712*** (0.657)	-2.770*** (0.658)
IMF_index	-0.483* (0.212)	-0.149 (0.239)	-0.0740 (0.243)	-0.0755 (0.247)	-0.0548 (0.242)
1[Post 1995] × D × IMF_index	-0.0540 (0.0276)				
1[Post 1995] × $\widehat{D}_{\text{Secondary } 24}$ × IMF_index		-0.123*** (0.0321)			
1[Post 1995] × $\widehat{D}_{\text{Tertiary } 25}$ × IMF_index			-0.146*** (0.0350)		
1[Post 1995] × $\widehat{D}_{\text{3-bank}}$ × IMF_index				-0.162*** (0.0395)	
1[Post 1995] × $\widehat{D}_{\text{5-bank}}$ × IMF_index					-0.180*** (0.0357)
D	10.092 (8.763)				
\widehat{D}		12.03 (9.662)	12.87 (9.792)	13.15 (9.033)	13.77 (9.236)
Net Export/GDP	0.00750 (0.0213)	0.00639 (0.0215)	0.00757 (0.0214)	0.00168 (0.0209)	0.00263 (0.0217)
Inflation	-0.00201* (0.000798)	-0.00194* (0.000793)	-0.00194* (0.000792)	-0.00195* (0.000793)	-0.00194* (0.000790)
Unemployment	-0.192* (0.0853)	-0.174* (0.0826)	-0.164* (0.0825)	-0.150 (0.0828)	-0.153 (0.0831)
Observations	908	905	905	910	850
R^2	0.123	0.137	0.136	0.128	0.129
Economy controls	✓	✓	✓	✓	✓

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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