The Rise of Regional Financial Cycle and Domestic Credit Markets in Asia

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Abstract

This paper documents the emergence of a regional financial cycle in Asia, evidenced by commonality in regional bank flows, and its impact on domestic credit. Using a dataset of 24,169 non-financial Indian firms for the period 2001-2019, we establish that the regional financial cycle has a positive and significant impact on domestic corporate debt, as opposed to an insignificant effect on foreign currency debt, after controlling for the global financial cycle. We find that both interbank markets and monetary policy in the region act as transmission channels for this effect. Amongst the regional lenders, we show that Japanese financing conditions play a leading role in the dynamics of the regional financial cycle. We also show that the regional cycle is channeled not only by affiliates of foreign banks, but also by domestic banks. Finally, regulators can manage this exposure through macroprudential policy, selective capital controls and floating currency regimes.

JEL Classification codes: E44; F34; F40; G15; G30

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1. Introduction

Global credit dynamics have experienced substantial structural changes over the last few decades, with the retrenchment of global banks, especially European ones, and the emergence of regional as well as emerging market lenders (Cerutti and Zhou 2017; Cerutti, Koch, and Pradhan 2018; McCauley et al. 2019; Claessens and Van Horen 2015). A large literature has documented the extent to which global factors drive capital flows starting from the seminal work on push factors by Calvo, Leiderman, and Reinhart (1993, 1996).[1] Most recently, a new strand of the literature starting with Rey (2013) focuses on the commonality in global financial conditions (also referred as the global financial cycle). Conversely, the implications of the emergence of regional lenders as key financing providers for domestic credit markets have received relatively less attention. We fill this gap and address this issue by focusing on Asia as there is compelling evidence of the emergence of significant regional lenders in this region that has been traditionally considered less financially integrated than others (Koch and Remolona 2018; Eichengreen and Park 2005). In this paper, we investigate whether the emergence of a regional financial cycle in Asia reflects increasing regional financial integration and thus, affects domestic credit markets by focusing on firm-level evidence from India. Differently than previous studies on financial cycles that focus on their relevance for capital flows per se (Cerutti, Claessens, and Rose 2019; Adarov 2020; Aldasoro et al. 2020; Eller, Huber, and Schuberth 2020), to the best of our knowledge, this is the first paper studying the impact of regional financial cycle on domestic credit markets.

Employing a detailed firm-level dataset of 24,169 non-financial Indian firms for the period 2001-2019, we analyze whether domestic credit markets are affected by the regional financial cycle, after controlling for the global financial cycle. India provides a representative case for the analysis of regional lending in Asia for three main reasons. First, international lending is an important source of financing for Indian firms. Cross-border bank flows are a major component of net capital inflows to India (Figure 1).[2] As a group, regional banks[3] accounted for around 30% of

[1] See Koepke (2019) for a review of this vast literature.

[2] It is important to stress that these values are likely to underestimate foreign lending, because both balance sheet data and the BIS data rely on the residency principle, thus not capturing borrowing abroad by Indian nationals via off-shore affiliates. And this is substantial as shown by Coppola et al. (2021).

[3] In this context, regional banks are banks in the region reporting to the BIS Locational Banking Statistics (LBS). These countries include Japan, Hong Kong SAR, South Korea, Taiwan, Australia, the Philippines, and Macao SAR. Although a major lender in the region, Singapore is not included in the statistics because it does not report bilateral positions, but it is included in the empirical analysis.

the bank flows to India in 2020, thus representing an important source of external financing for the Indian domestic economy. As shown in Figure 2, at the end of our sample period in 2020, Japanese banks were the largest foreign bank lender, accounting for 14% of total cross-border bank flows to India. Hong Kong was the third largest lender with 9%, and Australia, Taiwan, and South Korea provided between 2 and 3% of cross-border bank credit, each.[4] In terms of magnitude, according to Bank for International Settlements (BIS) data, the role of external financing to Indian domestic sectors is sizeable. By the end of 2020, direct cross-border bank credit to Indian corporations amounts to USD 57bn. But, as banks are the largest source of domestic credit, providing around USD 1.53tn to Indian corporations, it is important to note that the external liabilities of Indian domestic banks were also at over USD 250bn by the end of 2020.[5] This highlights the important role that the domestic banking sector plays in channeling external funding and potential external shocks to domestic credit markets. India's interconnection to global financial markets is also reflected by the particularly large capital outflows and currency depreciation during the 2013 taper tantrum episode (Azis and Shin 2015; Banti and Bose 2021). Second, there are several similarities in the structure of the Indian economy with other economies in the region – such as the degree of underdevelopment of corporate bond and foreign exchange (FX) hedging markets, the presence of domestic credit market frictions and the dual structure of formal-informal finance (Allen et al. 2012; Banerjee and Mohanty 2021). And third, India is one of the largest and fastest growing economies in the world,[6] with important global and regional economic linkages. Hence, India provides a comprehensive case to study cross-border transmissions via regional and global financial channels for other economies in the region.

Our findings document the emergence of a regional financial cycle in Asia that is consequential for domestic credit markets. Our database is especially well-suited to track the effect of the cycle on the different segments of the domestic credit market, differentiating between loans denominated in domestic currency, or domestic debt, and loans denominated in foreign currency

[4] Data on cross-border bank flows include all banks with claims on all sectors in India reporting to the BIS Locational Banking Statistics (LBS). Singapore is not included because it does not report bilateral positions to the LBS, but it is a major lender in the region as well.

[5] Relying on the same BIS data, Avdjiev, McGuire, and von Peter (2020) estimate externally funded debt for a series of emerging markets including India, and show that net cross-border bank credit (that is, the domestic credit that domestic banks fund externally) is the largest share of externally funded debt in India.

[6] India is the sixth largest economy in the world by GDP (current US dollars in 2020, World Bank).

(FX), or FX debt.[7] In their "double-decker" model of global banking, Bruno and Shin (2015b) highlight the special role of USD credit in international lending, intermediated through regional banks. Empirically, there is substantial evidence in the literature of the exposure of FX debt to global factors (Chung et al. 2015; McCauley, McGuire, and Sushko 2015; Alter and Elekdag 2020; Arregui et al. 2018). The currency of denomination determines the exposure of bank flows towards external shocks such as the US monetary policy (Takáts and Temesvary 2020; Avdjiev and Takáts 2019). But less is known about the exposure of domestic debt. Interestingly, focusing on loan-level data for Turkey, Di Giovanni et al. (2022) show that Turkish banks lend more in domestic currency than in FX when risk in global markets is high. They argue that this change in the composition of bank lending originates from the failure of the uncovered interest parity (UIP) that makes domestic lending relatively cheaper than FX lending. Our dataset allows us to shed light on the exposure of the different segments of the credit markets to a regional financial cycle. Interestingly, we show that domestic credit increases with the regional financial cycle, but not with the global financial cycle. Differently from domestic debt, we find that FX corporate debt is only affected by the global financial cycle. We thus suggest that the regional and global cycles behave differently, affect different segments of credit markets and expose countries to different types of shocks. Identifying a meaningful regional financial cycle, we also provide indirect evidence of consequential financial integration in Asia. Indeed, our findings may be interpreted as a consequence of diversification and reduced reliance on global banks in favor of regional and domestic actors. This has important implications for financial stability and policy. For instance, given the currency component, FX risk is not likely to arise from the exposure to regional factors.

Building on the growing importance of Japanese and Chinese banks as key lenders in the region after the 2007-09 Global Financial Crisis (GFC) (International Monetary Fund 2015; Koch and Remolona 2018), we study their influence on these regional dynamics. We show that Japanese financing conditions play a leading role in channeling the regional financial cycle, while the relevance of Chinese factors is also emerging. In addition to Japanese interbank funding markets and monetary policy, we show that the divergence between Japanese and US monetary policy reduces the exposure to the regional cycle.

[7] Throughout the paper we refer to the internal credit market in domestic currency as the domestic credit and the external credit market in foreign currency as the foreign or FX credit.

Global credit shocks may reach local economies via a direct channel of cross-border lending by a foreign bank or local credit provision by a foreign bank affiliate, or an indirect channel that runs via the interbank market and domestic banks (Cetorelli and Goldberg 2011; Claessens and Van Horen 2015). Differentiating between lending from domestic and foreign banks, we show that domestic credit provided by both domestic banks and affiliates of foreign banks exposes firms to the regional financial cycle. We focus on bank lending as Asian firms mostly rely on bank loans as opposed to bonds for their external financing (Duffee and Hördahl 2021). But, aside from bank lending, external factors can also affect corporate debt via the domestic monetary policy responses. To reduce pressure on the exchange rate, central banks may alter domestic interest rates and cost of financing for corporations, in turn.[8] Further, as Asia is characterized by strong regional economic integration and strong trade linkages (Hirata, Kose, and Otrok 2013), the economic performance of the major countries in the region may also influence corporate debt via the demand for exports. We include domestic interest rates and economic performance in all our specifications to control for these factors.

Turning to policy measures to manage the exposure to the regional cycle, we show that macroprudential policies (MPs) help mitigate the exposure of domestic credit markets to liquidity shifts that originate regionally. This is especially interesting given the main use of bank-based MPs in India as opposed to FX-based MPs that appears to be appropriate given the domestic currency dimension of the exposure to the regional financial cycle that we document. Moreover, and possibly due to this domestic currency dimension, we provide some support for currency regime effectiveness in the context of regional financial cycle and show how targeted capital account controls and FX management can reduce the exposure of domestic credit markets to the regional cycle. This contrasts with the traditional Rey (2013)'s view of currency regime's ineffectiveness in the context of the global financial cycle.

This paper contributes to three different literatures. First, we document the existence of a regional financial cycle in Asia that is relevant for domestic credit markets and is driven by funding conditions in interbank markets and monetary policy in regional lender countries. The literature on capital flows focuses mainly on global dynamics such as the global financial cycle and global

[8] Easing financing conditions in global markets may trigger portfolio rebalancing by asset managers in search for yields towards high-yield issuances by emerging market corporations (Avdjiev, Chui, and Shin 2014; McCauley, McGuire, and Sushko 2015; Caballero, Panizza, and Powell 2016; Lo Duca, Nicoletti, and Vidal Martínez 2016).

liquidity, and generally documents a significant impact of global factors on firms' foreign debt and leverage (Chung et al. 2015; McCauley, McGuire, and Sushko 2015; Alter and Elekdag 2020; Arregui et al. 2018), but the regional dynamics have received relatively less attention (Aldasoro et al. 2020; Adarov 2020; Eller, Huber, and Schuberth 2020). Our findings also speak to the literature on international financial integration that has generally documented limited regional financial integration contrasted with strong global linkages (Kubelec and Sá 2012). Although large shares of Asian bonds and syndicated bank loans are held by Asian investors (McCauley, Fung, and Gadanecz 2002), gravity models including cross-border bank flows show how Asia is relatively less financially integrated than other regions (Eichengreen and Park 2005; Kim, Lee, and Shin 2008). The emergence of a regional financial cycle reveals Asian countries' growing financial integration.[9]

Our second contribution relates to the literature investigating domestic and international financial markets as substitutes or complements and argues that financial frictions can lead to market segmentation, preventing some firms and investors from participating in international financial markets (Bekaert et al. 2011; Abraham, Cortina, and Schmukler 2021). Thus, even in an increasingly globalized world in which financial transactions can take place anywhere, domestic intermediaries still play a meaningful role for emerging market firms. The literature on credit provision by foreign banks documents that foreign banks lend more to local borrowers that require less soft information due to relatively stronger information asymmetries (Berger et al. 2008; Gormley 2010; Mian 2006). Contributing to this literature on foreign bank lending behavior, our findings suggest that both domestic banks and local affiliates of foreign banks act as transmission channels for the regional financial cycle.

The third contribution of this paper is towards the literature on the effectiveness of policy measures to manage external factors (Banti and Phylaktis 2019; Eller et al. 2021; Bruno, Shim, and Shin 2017; Frost, Ito, and van Stralen 2020). While the literature has studied the effectiveness of countries' policy responses to shifts in global financing conditions (Ostry et al. 2011; Forbes, Fratzscher, and Straub 2015; Bhattarai, Chatterjee, and Park 2020; Jordà et al. 2019), little is

[9] Regional financial integration is a goal of policy in the region. Countries have adopted various initiatives to foster regional financial integration including the Chiang Mai multilateral currency swap initiative and the Asian Bond Markets Initiative (ABMI). Regional multilateral cooperation extends to knowledge and information exchange about capital flows within the SEACEN centre that is a regional research and learning hub for central banks in the Asia-Pacific region.

known about their effectiveness to tackle countries' exposure to regional factors. We contribute to this literature by documenting a relatively stronger effectiveness of these policy tools to tackle regional financial cycles.

The rest of the paper is organized as follows. We report data and summary statistics in Section 2. Section 3 presents the empirical analysis and Section 4 provides additional tests on the strengthening of the regional cycle in the post-GFC and its real effects. Robustness tests are reported in Section 5. Finally, Section 6 concludes.

2. Data and summary statistics

2.1 Firm-level dataset

We employ a dataset covering profit and loss and balance sheet data assembled by Centre for Monitoring Indian Economy (CMIE) in their Prowess database. The Prowess database covers Indian companies comprising of different sizes, ownership groups, and operating in a wide variety of sectors, such as manufacturing, utilities, resources, and services.[10] Following standard selection criteria, observations in the 1% from upper and lower tails of the distribution of the firm-level financial variables are winsorised to control for outliers. Finally, the panel has an unbalanced structure of 24,169 non-financial Indian firms for the period of 2001-2019.

Our database is especially well-suited to address our research questions because it differentiates between loans denominated in domestic and foreign currencies (Di Giovanni et al. 2022). At the firm level, we can trace the impact of regional and global factors on the total credit of firms, allowing for the possibility that firms may switch between different types of credit when facing external shocks (Morais et al. 2019). We consider the availability of two types of credit to corporations – domestic bank loans denominated in domestic currency (*domestic debt*), and the proceeds from foreign currency borrowings in million INR (*FX debt*).[11]

[10] See www.cmie.com for more information on the Prowess database, which has been widely used in several studies (Acharya and Vij 2020; Banti and Bose 2021; Gormley 2010; Allen et al. 2012).

[11] Since the internal corporate bond market in India is small, we study domestic credit markets focusing on bank borrowings in domestic currency (Allen et al. 2012). Bank borrowings in domestic currency is the outstanding value of funds raised by a company through banks, either secured or unsecured. Foreign currency borrowing (reported in INR million) is defined in the Prowess database as any loan taken by the company in a currency other than Indian rupees. Examples of such loans are commercial bank loans, Floating Rate Notes, etc. They also include credit from official export credit agencies and commercial borrowing from the private sector window of multilateral financial institutions such as IBRD, World Bank and Asian Development Bank. Suppliers' credit is not included here.

We include several firm-level controls in line with Banti and Bose (2021). Firms that are larger in size are able to cope well with financial constraints and have greater access to external finance (Bose, MacDonald, and Tsoukas 2019). Thus, we control for *firm size*, measured as the log of real total assets, and we expect size to be positively associated with access to domestic and foreign currency borrowings. *Liquidity* is measured by the quick ratio calculated as the ratio of quick assets to quick liabilities. Firms with higher liquidity tend to have lower levels of leverage (Muñoz 2013), implying a negative relationship between liquidity and external finance. *Tangibility* is defined as the ratio of net fixed assets to total real assets. Firms with higher tangibility have higher ability to borrow from external financial markets. Finally, *export firm* is a dummy that takes the value of one if a firm has positive export sales, and zero otherwise. Beck, Demirgüç-Kunt, and Maksimovic (2008) highlight that exporting firms use more external finance compared to non-exporting firms. We expect a positive relationship between firms' borrowings and their liquidity, tangibility and exporting status.

2.2 Regional financial cycle in Asia

In the spirit of Cerutti, Claessens, and Rose (2019) and Miranda-Agrippino and Rey (2020), we build a measure of regional financial cycle by estimating a dynamic factor model and extracting a common factor from bank flows to the countries in the region, orthogonal to a global factor common to all countries in our global database.[12] The *regional financial cycle* captures the commonality of the financing conditions in the countries that arises specifically within the region. We follow the methodology in Miranda-Agrippino and Rey (2020) and model the series of bank flows as a function of a global common factor to capture the systematic variation, a regional common factor for regional-specific aggregated dynamics, and an idiosyncratic factor that is country-specific. We model the factors to follow an AR(1) process.[13] We study bank flows specifically because our interest is on the dynamics of domestic credit markets, as opposed to other financial markets, and bank lending is by far the largest source of financing for Asian firms (Duffee and Hördahl 2021). Moreover, we consider bank flows to all sectors, as we want to capture external bank credit flowing to corporates not only indirectly via the domestic banking sector, but also

[12] In unreported results we also estimate a "gross" regional financial cycle by only including the countries in the region and omitting the global factor (Adarov 2020). Our empirical results are qualitatively similar with this alternative measure of regional financial cycle. We do not report the results for brevity, but they are available upon request.

[13] We cast our model in state-space form and estimate the unobserved factors via Kalman smoother and the model via maximum likelihood (Adarov 2020; Miranda-Agrippino and Rey 2020).

directly via cross-border lending.[14] Our regional sample includes China, Hong Kong SAR, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam.[15] We exclude India from the regional sample to make sure that our cycle measure is exogenous.[16] We obtain the series of FX and break adjusted changes to cross-border claims for all reporting banks from the BIS Locational Banking Statistics (LBS), and we scale bank flows by GDP from the IMF IFS database.[17] To estimate the *global financial cycle*, our global sample includes 56 countries corresponding to the countries included by Miranda-Agrippino and Rey (2020) plus additional Asian countries relevant to our study.

We plot the regional financial cycle in Figure 3. The regional financial cycle follows a relatively upward volatile trajectory in the first half of the sample, reflecting a recovery from the 1997-1998 Asian crisis. This upward trend halts with the marked downswings during episodes of market turbulences such as the GFC in 2008-2009, and the economic slowdown in China in 2015 and 2018. Interestingly, the global financial cycle appears less volatile, in comparison, but with similar sharp downward moves at the time of the GFC and the 2015 Chinese economic slowdown.

2.3 Regional variables

As regional drivers of bank flows commonality, we focus on a series of supply-side factors originating from the main lenders in the region. In line with Koch and Remolona (2018), we consider the following countries as key lenders – Australia, Hong Kong SAR, Japan, South Korea, Taiwan, and Singapore. Due to the limited literature on regional factors, we adopt the literature on global factors to identify the corresponding regional measures. We build the series of regional factors by taking the average among the lender countries for each measure.

The literature has documented extensively the role of banks as transmission channels of funding conditions and monetary policy from global financial centers to domestic economies

[14] We test the robustness of our results to the estimation of the regional and global financial cycle using bank-to-bank cross-border flows and we report this analysis in Section 5.1.
[15] We select the Asian countries by considering all countries included in the World Bank regional group for East Asia and Pacific, and then restrict our sample to the countries with higher GDP.
[16] Our results are also robust to the inclusion of India in the sample of countries when estimating the regional financial cycle. These results are available upon request.
[17] As standard in the capital flow literature, we study bank flows by residence of the reporting bank (Bruno and Shin 2015b; Correa et al. 2021). These BIS LBS series have the advantage of being adjusted for breaks in the series and for exchange-rate fluctuations, include intra-group transactions, and have a greater coverage than the BIS consolidated banking statistics (CBS).

(Cerutti, Claessens, and Ratnovski 2017; Giannetti and Laeven 2012; Bruno and Shin 2015b). To capture the role of regional financing conditions, we employ the *interbank rate* as a measure of wholesale funding constraints in the regional banking sectors. In order to assess the role of regional monetary policy, we take the official *policy rates* of the main lenders in the region as indicator for the regional monetary policy stance.[18] The money market interbank rates for the key lenders are from the OECD database, and the policy rates are from the IMF International Financial Statistics (IFS) database. If regional funding conditions and monetary policy drive the regional financial cycle, we expect a stronger impact of the regional financial cycle when interbank rates decline and monetary policy loosens in the region, as easier funding leads to an expansion in the domestic supply of credit.

2.4 Japan

Next, we investigate the special role of Japan as the main lender in the region. The cross-border lending by Japanese banks in the region is not new (Koch and Remolona 2018). In fact, Japan was the largest international creditor to Asian countries in the run-up to the 1997-98 Asian crisis.[19] Following the crisis, as Japanese banks reduced their operations abroad, European banks, including from the UK, became the largest lenders in the region. Then again, after the 2007-09 GFC and the subsequent 2010 European sovereign debt crisis, European banks retreated from the region. Relatively less exposed to the two recent crises, Japanese banks maintain a steady presence in the region. Although other regional banks have expanded their regional cross-border lending in the aftermath of the GFC (Cerutti and Zhou 2017), Japanese banks are currently the largest source of international credit for Asian borrowers (Figure 2).

To capture the impact of external factors originating in Japan, we cannot rely on the standard measures presented in the previous section. Policy rates in Japan have hovered around zero during our sample period. Well before other central banks, the Bank of Japan (BoJ) adopted unconventional monetary policy and started quantitative easing in 2001 (Claus, Claus, and Krippner 2016). Thus, following Buch et al. (2019), we measure monetary policy during the zero-

[18] For robustness we take the yield spread as an alternative measure of monetary policy. We find qualitatively similar results that we do not report for brevity, but they are available upon request.

[19] Although our focus is Asia, Japanese banks' operation abroad go further than the region. For instance, Peek and Rosengren (1997) document the transmission of Japanese domestic shocks to US credit markets via affiliates of Japanese banks in the US in the 1980s.

lower-bound period with the first difference of *shadow rate* developed by Krippner (2016),[20] and the size of the *BoJ balance sheet*, as the ratio of central bank's assets to GDP, available from the World Bank. We expect the growing importance of Japan as main lender in the region to be reflected in a significant impact of the stance of its monetary policy on the regional financial cycle. Moreover, the financing of Japanese banks is based not only on yen-denominated deposits, but also on currency swaps, especially to fund banks' lending abroad (Lam 2013). Thus, we employ an additional measure of financing constraints in FX for Japanese banks based on the *dollar yen cross-currency basis* (Avdjiev et al. 2019; International Monetary Fund 2019; Ivashina, Scharfstein, and Stein 2015). As a declining currency basis signals a relative shortage of USD in funding markets, we expect the regional financial cycle to increase with the dollar yen cross-currency basis.

Finally, the taper tantrum episode of May 2013 marked the divergence of monetary policy between the US and other advanced economies reducing the sensitivities of bank flows and corporate debt to global liquidity (Banti and Bose 2021; Avdjiev et al. 2020). Following Avdjiev et al. (2020), we measure the *monetary policy divergence* between the main lender Japan and the US with the difference between the 3-month euroyen and eurodollar futures, available from Datastream. In line with the literature on global factors, we expect the divergence to lower the effects of the regional financial cycle.

2.5 China

China is emerging as an important regional lender. Evidence suggests that Chinese banks are expanding abroad at a sustained pace (Lane and Milesi-Ferretti 2018; Horn, Reinhart, and Trebesch 2021) and they have expanded following the retrenchment of European banks in the post-GFC period alongside banks from advanced economies including Japan (International Monetary Fund 2015; McCauley et al. 2019).[21] This has led to greater banking integration in Asian countries (International Monetary Fund 2015) and China, together with Japan, is now a key node for the intermediation of US credit in Asia (Committee on the Global Financial System 2020). Moreover,

[20] Buch et al. (2019) argue that the correlation between the first difference of the various measures for shadow rates is relatively high. They then rely on the first difference of the measure developed by Krippner (2016).

[21] Data from the BIS Locational Banking Statistics suggests that Chinese banks' foreign claims versus the rest of the world amount to USD 2.4 trillion at the end of 2020, from USD 1.4 trillion at the end of 2015 when its reporting started. Koch and Remolona (2018) mention that China is now the third largest provider of US dollar credit to the international banking system.

given the magnitude of the Chinese economy and its economic linkages with other countries in the region and all over the world, spillovers from China also arise due to its economic performance (International Monetary Fund 2016). Indeed, recent shocks to capital flows from emerging markets have originated in China: capital flows in EMs have been especially volatile following the economic slowdown in China during 2015 and the escalated trade tensions between China and the US in 2018 (Bank for International Settlements 2015; 2018). This is also evident in Figure 1 that shows a decline in the regional financial cycle in Asia during these periods.

China adopts a number of instruments to conduct its monetary policy. Evaluating different measures employed by the Chinese monetary authority, Kim and Chen (2022) document the relatively stronger effectiveness of the short term interest rate target. Accordingly, and in line with the measures for other regional lenders, we measure financing conditions in China by focusing on the interbank rate. In particular, we rely on the 7-day pledged repo rate in the interbank market, available since 2006 from the People's Bank of China website. The starting date for the analysis on China is 2006, corresponding with the period since the adoption of a managed exchange rate regime by the country in 2005. If China exerts significant influence on the dynamics of capital flows in the region, which may as well originate from the magnitude of its regional economic ties, we expect the impact of the regional financial cycle to be related to Chinese financing conditions.

2.6 Policy measures to manage the regional financial cycle

Borrowing from the literature on countries' exposure to global liquidity and capital flows, we study a series of measures that countries can adopt to shield their economies from regional shocks. The effectiveness of these measures depends on their ability to influence the transmission channels of the regional financial cycle in domestic credit markets.

MPs comprise of prudential measures other than monetary policy designed at safeguarding and promoting financial stability at both institutional and systemic level (International Monetary Fund 2017). These measures have attracted renewed interest from policymakers and academia in advanced economies especially in the aftermath of the GFC, although they were already in use across several EMs (Galati and Moessner 2013). If the source of the shocks is external to the domestic financial system, then the imposition of capital controls or FX-based MPs can help to manage the exposure of domestic credit markets. While capital controls are targeted specifically at foreign investors, FX-based MPs target the FX operations of domestic banks. Hence, these

measures potentially restrict domestic banks' borrowings as well as their lending activity in FX. While FX-based MPs would not be directly related to domestic corporate debt, capital controls are directly related to the exposure of domestic banks to the regional financial cycle via the interbank market. Aimed at strengthening the domestic banking sector and curbing domestic credit growth, non-FX MPs can also help in mitigating the exposure of domestic credit markets to regional shocks. For instance, limiting domestic bank lending activity and borrowers' access to credit, MPs can curb the exposure of corporate borrowings. Making the domestic banking sector more resilient also helps to reduce their exposure to external sources of funding. However, these policy actions can also have unintended consequences. Imposing limits on domestic banks' lending activity can encourage affiliates of foreign banks to step in (Cerutti and Zhou 2018). Hence, MPs can shift the source of transmission channel to different actors in the banking sector rather than manage the exposure of domestic credit (Ahnert et al. 2021). Following the literature, we expect the impact of regional financial cycle on domestic credit markets to decline with the implementation of MPs. We employ the aggregated *macroprudential policy* measure from the IMF's integrated Macroprudential Policy (iMaPP) database, originally constructed by Alam et al. (2019). We take the sum of all policy actions in a year, measured as +1 for each tightening and -1 for each loosening policy action. Hence, the indicator measures the strength of the MP stance in each year. Looking at the disaggregated data, the most common actions adopted in India are bank reserve requirements and capital requirements. There is little evidence of the use of FX-based MP, with the exception of four policy actions in 18 years on limits to open FX positions, exposure and funding, including limits on FX mismatches. Hence, we expect the role of FX-based MP measures to be limited in the context of our study.

In addition to MPs, we also consider capital account controls. The common indicators adopted in the literature such as the Ito-Chinn index and the Fernández et al. (2015) index do not vary over time for India. Hence, we employ the degree of *sectoral openness* in the economy by identifying the sectors that are precluded or restricted to foreign investors. We use the information provided by the World Bank on the ease of starting a foreign investment in various sectors. The sectors with higher restrictions for foreign investments in India are related to agriculture and

forestry, media, telecommunication, and transportation. If capital controls are effective, we expect the impact of the regional financial cycle to be stronger for less restricted sectors of the economy.[22]

Finally, countries may rely on their currency regime to shield domestic monetary policy from external shocks, allowing their currency to freely float (Jordà et al. 2019). However, Rey (2013) questions whether countries' growing exposure to the global financial cycle has reduced the ability of currency regimes to effectively mitigate these exposures to global shocks. We consider the impact of FX policy by classifying periods of FX interventions in the Indian rupee according to the methodology developed by Shambaugh (2004). Using FX market data from Datastream, we construct a measure of *exchange rate regime* by considering the currency pegged in a particular year if the exchange rate of the Indian rupee versus the US dollar has fluctuated in a tight band of +/-2% in that year. As evidence of an effective currency regime, we expect a weaker impact of the regional financial cycle with a managed currency regime.

2.7 Other macro controls

In our specifications, we also control for other domestic determinants of bank credit. In particular, we include the domestic real *GDP growth* to measure the economic performance of the Indian economy.[23] We collect this data from the IMF WEO. We consider the *stock returns* as an indicator for asset market performance. We measure stock returns as the annual log return of the stock market index from Datastream. Finally, we control for the Indian *interbank rate* to isolate the impact of regional and global factors on domestic borrowings from the impact on domestic bank funding conditions.[24] We collect this data from the OECD database.

2.8 Summary statistics

Table 1 reports the descriptive statistics for the variables used in our analysis. Looking at the firm-level debt variables, we find that the level of FX debt is significantly higher than domestic debt, on average. The median domestic debt is INR 107mn, while FX debt is INR 529mn for the median

[22] As a robustness test, we use a high-frequency measure of capital controls developed by Pasricha et al. (2018) based on the weighted sum of policy actions taken with respect to different types of capital transactions, and we find qualitatively similar results. These results are unreported for brevity but are available from the authors upon request.
[23] Our results hold when we employ the HP-filtered GDP as an alternative measure for the domestic business cycle. Results are unreported for brevity, but are available upon request.
[24] Exchange rates may be a channel through which external factors affect domestic credit market conditions. In unreported results, we find that our results are unchanged with the inclusion of exchange rate return. However, as this variable is highly correlated with other macro controls, we do not include it in our main specifications.

firm-year. There is a wide variation in both the domestic and the FX debt levels with standard deviations scaled by the relative means of 3 and 2.4, respectively.[25]

Turning to the regional factors, interbank rates in the region are 1.91% on average, whereas regional policy rates are generally higher at 2.16% on average. As Japanese policy rates are close to the lower bound in our sample period, we focus on shadow rates that are around -1.82% on average in our sample period. The size of the BoJ balance sheet is around 34.50% of GDP. The cross-currency basis is negative on average, at around -5.28 bps, indicating the presence of periods of significant deviations from the CIP and stress in USD funding markets. The monetary policy divergence between Japan and the US presents a strong variation, signaling a certain degree of independence in the monetary policy of the two countries.

Looking at Indian MPs, we see that Indian authorities have adopted an annual average of 1.62 policy actions. There is some evidence of capital controls, with an average share of permitted foreign ownership across the sectors of the Indian economy of 92.76%. Finally, while the Indian rupee (INR) is generally freely floating, there is evidence of periods of FX management, as the average value of the exchange rate regime measure is 0.40, where 0 indicates a freely floating currency and 1 a pegged currency.

3. Empirical model and findings

3.1 **Regional financial cycle and domestic credit markets**

In this section, we study the impact of the regional financial cycle on corporate debt in India. Given the well-known impact of global factors on corporate, and especially FX debt, we control for the global financial cycle in our specifications and estimate the following models:

$$log\ (Domestic\ debt) = a_0 + a_1 RFCy_{t-1} + a_2 GFCy_{t-1} + a_3 FF_{it-1} + a_4 DF_{t-1} + f_i + \varepsilon_{i,t} \quad (1)$$

$$log\ (FX\ debt) = b_0 + b_1 RFCy_{t-1} + b_2 GFCy_{t-1} + b_3 FF_{it-1} + b_4 DF_{t-1} + f_i + \varepsilon_{i,t} \quad (2)$$

where $i = 1, 2, \ldots, N$ refers to the cross-section of units (firms in this case) at time t. The dependent variables are the log of domestic and FX debt, respectively. The main variable of interest in these

[25] In unreported statistics, we find that firms with FX debt tend to be larger and are more likely to be exporters than the average firm.

models is the regional financial cycle (*RFCy*). $GFCy$ denotes the global financial cycle.[26] FF is a vector of firm-specific characteristics such as *size, liquidity, tangibility,* and *export firm* status, and DF is a vector of domestic factors to account for demand-side considerations of credit such as *GDP growth, stock returns,* and *interbank rate*. All explanatory variables are lagged by one period to reduce possible simultaneity problems. We include firm-level (f_i) fixed effects to control for unobserved firm heterogeneity. Finally, we cluster standard errors at firm level.

Table 2 reports the results of the baseline models provided in equations (1) and (2). We find a positive and significant effect of the regional financial cycle on domestic corporate debt (column 1), even after controlling for the global financial cycle (column 2).[27] Interestingly, there is no significant impact of the global financial cycle on domestic corporate debt. Turning to the results of FX debt reported in column (4), we find a positive and significant effect of the global financial cycle on FX debt. The significance of the regional financial cycle weakens when the global financial cycle is included in the model, indicating the dominance of global factors. These findings show evidence of considerable regional financial integration in credit markets. They also indicate that the exposure to global and regional financial cycles is associated with different sectors of the financial system, stressing the importance of studying disaggregated data for corporate borrowings as opposed to aggregated corporate debt or leverage. In particular, we show that regional but not global dynamics are relevant for domestic credit markets in India. On the other hand, FX debt, which includes foreign bank lending and international bond issuances, is mostly related to global financing conditions.

3.2 Focus on the regional drivers of the financial cycle

In this section, we turn the attention to supply-side drivers of the regional financial cycle by analyzing the role of regional financial cycle as a transmission channel for regional bank funding conditions and monetary policy to domestic credit markets in India. Specifically, we re-estimate equations (1) and (2) by including an interaction term between the regional financial cycle (*RFCy*) and the regional drivers, controlling for the global financial cycle ($GFCy$), as follows:

[26] In unreported robustness checks, we confirm the positive and significant role of the RFCy when controlling for the VIX and Fed Funds rate, two well-known drivers of the GFCy (Miranda-Agrippino and Rey 2020). The results are unreported for brevity, but they are available from the authors upon request.

[27] We also confirm our main findings by removing the GFC period from our sample. These results are not reported in the paper for brevity, but are available upon request from the authors.

$$log\ (Domestic\ debt) = a_0 + a_1 RFCy_{t-1} * Driver_{t-1} + a_2 RFCy_{t-1} + a_3 Driver_{t-1} + a_4 GFCy_{t-1} + a_5 FF_{it-1} + a_6 DF_{t-1} + f_i + \varepsilon_{i,t} \quad (3)$$

$$log\ (FX\ debt) = b_0 + b_1 RFCy_{t-1} * Driver_{t-1} + b_2 RFCy_{t-1} + b_3 Driver_{t-1} + b_4 GFCy_{t-1} + b_5 FF_{it-1} + b_6 DF_{t-1} + f_i + \varepsilon_{i,t} \quad (4)$$

where *Drivers* are those factors which potentially influence the regional financial cycle, measured by the first differences of *regional interbank rates* and the *regional policy rates* as described in Section 2.3. All other control variables are same as in equations (1) and (2). The coefficients of interest are a_1 and b_1 that measure the marginal effects of *RFCy* associated with each driver, in turn, and a_3 and b_3 that measure the direct association of the drivers with domestic and FX corporate debts, respectively.

Table 3 focuses on the conditions of the banking sector and the monetary policy of key lenders in the region. We confirm the positive impact of the regional financial cycle on domestic corporate debt, and we show that this impact increases when financing conditions loosen, as indicated by the negative and significant coefficients on the interaction term between the regional financial cycle and regional drivers (columns 1-2). Focusing on the coefficients of the drivers, we find an increase in domestic debt when the interbank rates and the policy rates in the region decline.[28] The impact of these regional drivers is not only statistically, but also economically significant, as one standard deviation decline in regional interbank rates and policy rates results in an increase in the sensitivity of domestic credit to the regional cycle by 13.6% and 25.6%, respectively.[29] Turning to the FX debt in columns (3)-(4), in line with our main findings above, FX debt is only affected by the global financial cycle, and we do not find any evidence for a role of the regional financial cycle and its drivers. Overall, our findings suggest that the regional financial cycle channels financing conditions in the region affecting the domestic credit markets.

[28] The result of domestic debt declining when monetary policy tightens is in line with the literature on the bank lending channel of the international transmission of monetary policy (Bruno and Shin 2015a). In unreported additional tests, we further explore whether we can offer support for the international portfolio rebalancing channel by looking for a composition effect (Correa et al. 2021). In these unreported tests, we interact the RFCy with indicators for the quality of borrowers (such as size, audit, and collateral), but we do not find any evidence of a significantly different exposure of debt to the RFCy depending on the creditworthiness of the borrowers.

[29] For instance, the one standard deviation (0.57) increase in the percentage change in regional interbank rate changes the sensitivity of domestic credit to RFCy by -0.238*0.57.

3.3 Japan as a major lender in the region

In this section, we focus on the drivers of financing conditions of the main lender Japan using the measures based on *JP shadow rate* (as first differences), the size of the *BoJ's balance sheet* (as first differences), the *dollar yen cross-currency basis*, and the *monetary policy divergence* between Japan and the US. These *drivers* are introduced separately in equations (1) and (2) as an interaction term with the regional financial cycle (*RFCy*), and these results are reported in Table 4. Focusing on the coefficients of interaction terms in columns (1)-(3), we find that the impact of the regional financial cycle on domestic corporate debt increases with the easing of financing conditions in Japan, as measured by declining shadow rate, expanding BoJ's balance sheet and increasing dollar yen cross-currency basis. Also, the sensitivity of domestic debt to regional financial cycle on reduces with monetary policy divergence (in column 4). In terms of economic magnitudes, we find that a one standard deviation decrease in shadow rate, an increase in BoJ's balance sheet and dollar yen cross-currency basis, and a decline in monetary policy divergence results in a reduction of the sensitivity of domestic credit to the regional cycle by 4.5%, 7.2%, 6.3% and 2.8%, respectively. Focusing on the coefficients of the drivers in columns (1)-(2), we find that domestic corporate debt increases when Japanese financing conditions ease, as indicated by declining shadow rates and expanding BoJ's balance sheet. Domestic corporate debt also increases with the dollar yen cross-currency basis in column (3), indicating the positive effects on domestic corporate debt of USD availability in funding markets. Finally, turning to the monetary policy divergence in column (4), domestic corporate debt in India increases as this divergence widens.

Turning to the FX debt in columns (5)-(8), we do not find any significant impact of the regional financial cycle on FX debt with the easing of Japanese financing conditions. However, we confirm the exposure of FX debt to global financial cycle as opposed to the regional one, and the insignificant role of Japanese monetary policy in driving FX debt (columns 5 and 6). We note, however, that measures that take into account the conditions of financing in Japan relative to those of the US do exert a significant effect on FX debt. In particular, FX debt increases with the dollar yen cross-currency basis (column 7), indicating that the relative availability of USD funding affects not only domestic but also FX debt. This is not unexpected, as most of FX lending is denominated in USD, even when intermediated by non-US banks. And this is not specific to India, as a growing literature has documented the presence and implications of USD intermediation outside the US (Avdjiev and Takáts 2019; Takáts and Temesvary 2020; International Monetary

Fund 2019). Moreover, we find that the monetary policy divergence between Japan and the US reduces the exposure of the regional financial cycle on FX debt (column 8). Thus, in line with prior evidence of a relative decline in the exposure of international credit to US monetary policy in the period post-2013 of monetary policy divergence (Avdjiev et al. 2020; Banti and Bose 2021), we show that a similar effect related to regional factors is felt across both domestic and FX debt.

Overall, these results suggest an important role of Japanese factors in driving domestic credit markets' exposure to the regional financial cycle. As a major lender in the region, we find evidence for significant spillovers from Japanese domestic monetary policy to the international lending in the region. Importantly, these Japanese spillovers arise especially in the domestic credit markets, as opposed to the FX one. This is notable, since Japanese lending abroad is largely denominated in USD (International Monetary Fund 2019). We next turn the attention to another important actor in the region, China.

3.4 China as an emerging lender

We report the results for the role of Chinese factors since 2006 in Table 5. Overall, we show that Chinese financing costs are negatively associated with both domestic and FX corporate debt in India, in all specifications. For both domestic and FX debt, we find that the regional financial cycle is amplified by increasing financing costs in China as shown by the interaction term of *'regional financial cycle*CHN interbank rate'*. The effect of the Chinese factor is so strong that the introduction of its interaction in the model weakens the effect of the global financial cycle itself (columns 3-4).

The positive sign of the interactions is worth examining more closely. As interest rates in China increase, the impact of the financial cycle strengthens. We interpret this as evidence for the role of the dynamics of the Chinese economy on the region. As the main exporter in the region, we cannot exclude that the linkages from China arise from economic as opposed to financial factors. And, interest rates in China are related to the economic performance of its economy. Tightening when the economy heats up, higher rates are likely to signal strong economic performance. Nonetheless, irrespective of the channel, it is important to note that China has become an important factor driving the exposure of domestic credit markets to external factors in the region.

3.5 Transmission channel of foreign vs domestic banks

So far, we have documented a significant impact of the regional financial cycle on domestic credit markets. We have also shown that regional financial conditions play a key role in the transmission of this effect, together with the Japanese specific factors. In this section, we study the role of foreign and domestic banking relationships. Understanding this transmission channel is especially relevant for the policy implications. If foreign banking relationships are more likely to channel foreign shocks, countries may rely on capital controls or FX-based MP measures to manage their exposure. Otherwise, if it is the domestic banking relationship that channels regional factors in domestic credit markets, MP measures targeting the banking sector may be more appropriate.

The Indian banking sector comprises of domestic state-owned and private banks, and offices of foreign banks operating as branches (Allen, Babus, and Carletti 2012; Berger et al. 2008; Gormley 2010).[30] According to the Reserve Bank of India (RBI), there are 44 foreign banks operating over 250 branches as of 2020. Recently, foreign banks have been issued licenses to operate as subsidiaries, and in 2020 there are 2 foreign subsidiaries from Singapore and Mauritius that commenced operations in December 2018 and March 2019, respectively. We classify firms in two groups, domestic and foreign banking, depending on the nationality of their bank relationships. A firm is classified in the group of *foreign banking* if it has at least one banking relationship with a foreign bank (Giannetti and Ongena 2012), while other firms with domestic banking relationships are considered in the group of *domestic banking*.[31] We then re-estimate equations (1) and (2) for these two groups separately. We consider an additional sub-group of the foreign bank group. Although we do not have loan-level data that allows us to identify the currency of denomination of loans, we can identify those firms that are borrowing from foreign banks but do not have FX debt. This sub-group allows us to test whether the effects channeled by the foreign banks are related to the currency of denomination.

The results are reported in Table 6. We find a positive and significant effect of the regional financial cycle on firms' domestic debt for all firms irrespective of the nationality of their bankers

[30] Looking at the banking structure in our sample, we do not find evidence for one or few common lenders dominating the banking sector. Moreover, we have separated the sample of firms based on private and state ownership and we do not find qualitatively different results between the two groups, indicating no particular role of state ownership in the credit market exposure to the regional financial cycle.

[31] We obtain data for the bank–firm pair in a year from the Prowess database that provides information about the banking relationships of a firm per year. Many papers on the Indian setting rely on this database (Gopalan, Nanda, and Seru 2007).

(columns 1-2). The coefficients of the RFCy for the foreign and domestic banking groups are qualitatively similar and not statistically different. Turning to the global financial cycle, we find significant effects of the global financial cycle on corporate debt for firms with foreign banks but not for firms with domestic banks. Turning the FX debt (columns 3-4), we find that FX debt is exposed to the global financial cycle irrespective of the nationality of the bankers of the firms. As documented previously, FX debt is unrelated to the effects of regional financial cycle.

Analyzing this evidence in the light of the literature, our results suggest that domestic debt exposes firms to the regional financial cycle irrespective of the nationality of their bank, indicating that the regional financial cycle is likely to operate via both the interbank market and direct foreign bank lending to firms.

3.6 Regional financial cycle and policy responses

In this section, we study the effectiveness of various macroeconomic policies to manage the exposure of credit markets to the regional financial cycle. Specifically, we augment our baseline model provided in equation (1) by interacting the regional financial cycle (*RFCy*) with various policy indicators to account for MPs, capital controls and FX regime. In details, we estimate the following equation:

$$log\ (Domestic\ debt) = a_0 + a_1 RFCy_{t-1} * Policy_{t-1} + a_2 RFCy_{t-1} + a_3 Policy_{t-1} + a_4 GFCy + a_5 FF_{it-1} + a_6 DF_{t-1} + f_i + \varepsilon_{i,t} \quad (5)$$

where *policy* indicates *macroprudential policy, sectoral openness*, and *exchange rate regime* as described in section 2.6. All other variables are the same as in equation (1). We estimate the equation with each policy measure separately.

We report these results in Table 7. In column (1), we start with the *macroprudential policy* and find significant evidence of its effectiveness to tackle credit market exposure to the regional financial cycle. In particular, we find that although domestic corporate debt increases with the regional financial cycle, the effect is reduced by MP actions. Turning to the measure of capital controls (*sectoral openness*) in column (2), we find that the effect of regional financial cycle on domestic corporate debt is especially strong in those sectors of the economy that are open to foreign investors. This implies that capital controls are effective as a means to manage domestic credit markets exposure to regional financing conditions. Finally, we document the impact of *exchange*

rate regime in column (3) and find that when authorities manage their currency, that is when *exchange rate regime* increases, the impact of regional financial cycle on domestic corporate debt reduces. Hence, we document the effectiveness of exchange rate regimes in helping countries manage their exposure to the regional financial cycle.

In conclusion, we document that countries can manage their exposure to the regional financial cycle, to a certain extent. The adoption of MP policies reduces countries' exposure to the regional financial cycle. This is largely in line with what the literature has shown with respect to countries' exposure to the global shocks (Banti and Phylaktis 2019; Eller et al. 2021; Bruno, Shim, and Shin 2017; Epure et al. 2018). Although the evidence on the effectiveness of capital controls in the literature is mixed (Frost, Ito, and van Stralen 2020; Forbes, Fratzscher, and Straub 2015; Gelos et al. 2019), we show that countries may manage their exposure to regional financial cycle by imposing selective capital controls. Rey (2013) argues that the pervasiveness of the global cycle is such that countries cannot rely on their currency regime to shield them from its impact. In fact, we show that the regional financial cycle appears to be relatively more manageable.

4. Additional analysis

4.1 The regional financial cycle in post-GFC period

In the aftermath of the GFC, regional banks have increased their operations in the region, filling the gap left by the retrenchment of global banks mainly from Europe (International Monetary Fund 2015; Koch and Remolona 2018). Thus, we expect the regional financial cycle to be especially relevant for domestic credit market dynamics in the period post-GFC. In this section, we test this prediction by estimating our baseline model in equation (1) with the inclusion of an interaction term between the RFCy and a dummy variable *'Post 2010'* taking the value of 1 for the period post-2010, and 0 otherwise.

The results are reported in Table 8. In column (1), we find a positive and significant impact of the interaction term between RFCy and Post-2010 indicating that the effects of the regional financial cycle on domestic corporate debt have increased in the post-GFC period. This is consistent with, and provides further support to the evidence of the growing importance of regional banks in the provision of cross-border credit in Asia. In turn, this points towards an increasing financial integration in the region. Importantly, this integration is reflected in the dynamics of the domestic debt, as opposed to the FX debt (column 2). Further, we confirm the positive effect of

the regional financial cycle on domestic debt. We also show that there has been a decline on domestic debt on average in the post-2010 period, as indicated by negative and significiant coefficient of the post-2010 dummy.

4.2 The real effects of the regional financial cycle

Next, we investigate whether the exposure of domestic credit to regional financial cycle is consequential for firms' real activity (Banti and Bose 2021; Bräuning and Ivashina 2020). To test this, we construct a dependent variable for firms' *investments* calculated as the natural logairthm of total net fixed assets of firms and re-run the same specification used in equation (1). These results are reported in column (3) of Table 8 which provide support for the relevance of the regional financial cycle for the real activity as firm investments increase with the RFCy.

4.3 Exporting vs non-exporting firms

Finally, we conduct an additional test to confirm that our findings are not driven by exporting firms. In Table 8, columns (4)-(5), we use a sub-sample of non-exporting firms and confirm that our results are not driven by exporting fims, as we show that our main findings apply to the subset of firms that do not export as well.

5. Robustness checks

5.1 Bank-to-bank flows

In this section, we test the robustness of our results to an alternative measure for the RFCy. In the main analysis, we construct our measure of RFCy focusing on bank flows to all sectors of the economy in order to capture bank flows not only towards the domestic banking sector, but also directly to corporates. In this section, we test the robustness of our results to an alternative measure of RFCy based on bank-to-bank flows (% of GDP). This measure focuses on the role of the banking sector in channeling regional credit towards domestic corporates.

We report these results in Table 9 and confirm our main results with this alternative measure of RFCy. In column (1), we find that the impact of regional financial cycle on domestic debt is positive and significant with similar magnitudes as in the main specifications (Table 2), while the global financial cycle does not have any significant effect on domestic debt. Turning to FX debt in column (2), we confirm that FX debt increases with the global financial cycle. Although

the impact of global financial cycle is stronger, we find that FX debt also increases marginally with the rise in regional financial cycle.

5.2 Endogeneity concerns

We use instrumental variable estimations such as two-stage least squares (2SLS) to tackle endogeneity problems in our main estimations. The motivation behind this model is to control for unobserved firm-specific characteristics that might be correlated with the firm's balance sheet conditions and financing structure, especially firms' ability or willingness to hold domestic and foreign debt. We already use lagged independent variables to reduce simultaneity bias in our main specifications. To solve any further concerns of endogeneity, we require observed instruments that are strongly correlated with the firm-level variables but uncorrelated with the error term. Hence, we instrument these variables using their own values lagged twice. It is generally agreed that lagged variables (referred as the 'internal' instruments) are distributed independently of the error process and that they are sufficiently correlated with the included endogenous regressors. Hence, they are frequently used as instruments in the literature (Bose et el., 2019; Banti and Bose, 2021). The validity and relevance of the instruments are verified using a number of diagnostic tests. The under-identification test is distributed as chi-square under the null of under-identification. The Hansen J statistic is a test of the over-identifying restrictions, distributed as chi-square under the null of instrument validity.

The results of 2SLS are provided in Table 10 and confirm the results from our main estimations. We continue to find a positive and significant effect of the regional financial cycle on firms' domestic debt, and a significant effect of the global financial cycle on FX debt with no significant impact of the regional financial cycle.

6. Conclusion

In this paper, we extend previous work on financial cycles and document the emergence of a regional financial cycle in Asia. Asian banks have grown to be important providers of credit in the region, and beyond. While there is evidence in the literature of emergence of key lenders from Japan and China, the rise of a regional financial cycle and its implications on the dynamics of domestic credit markets in the region has been relatively less studied. By exploiting a detailed firm-level dataset of domestic and FX corporate debt for 24,169 non-financial Indian firms over

the period 2001-2019, we provide significant evidence of the exposure of domestic credit markets to a regional financial cycle in Asia, comparing it with the exposure to the global financial cycle. We find that disentangling the effect of external financing conditions on domestic and FX corporate debt at firm level allows for a more precise identification of the influence of external factors on domestic credit markets. Focusing on the drivers for the regional financial cycle, we show that both interbank funding markets and monetary policy in the region act as transmission channels. Consistently with the documented increasing relevance of Japanese banks in cross-border bank flows around the world, we find that Japanese factors have a significant influence on domestic credit. In the case of China, we also find evidence of an emerging effect still relatively related to its economic dimension as opposed to financial spillovers. Further, we show that both domestic banks and domestic offices of regional banks act as transmission channels for the regional cycle.

Finally, we build on the evidence related to global factors in the literature and study the policy actions that countries can adopt to manage their exposure to the regional financial cycle. We document that MPs are indeed relatively successful at mitigating the exposure of domestic credit markets to the regional financial cycle. Moreover, we find that the implementation of selective capital controls and FX management may limit the impact of regional financial cycle on domestic corporate debt. These results underline the importance for policy makers to be vigilant of regional financial shocks, thus pointing towards a need for carefully designed policy actions. The evidence we provide on the exposure to regional factors is key in this respect, given the profound differences with respect to EMs exposure to global factors. Thus, our policy implications offer a clear course of action for EMs to manage these exposures.

References

Abraham, Facundo, Juan J. Cortina, and Sergio L. Schmukler. 2021. 'The Rise of Domestic Capital Markets for Corporate Financing: Lessons from East Asia'. *Journal of Banking and Finance* 122.

Acharya, Viral V., and Siddharth Vij. 2020. 'Foreign Currency Borrowing of Corporations as Carry Trades: Evidence from India'. *NBER Working Papers* 28096.

Adarov, Amat. 2020. 'Financial Cycles around the World'. *International Journal of Finance and Economics*, 1–39.

Ahnert, Toni, Kristin Forbes, Christian Friedrich, and Dennis Reinhardt. 2021. 'Macroprudential FX Regulations: Shifting the Snowbanks of FX Vulnerability?' *Journal of Financial Economics* 140 (1): 145–74.

Alam, Zohair, Adrian Alter, Jesse Eiseman, R. Gelos, Heedon Kang, Machiko Narita, Erlend Nier, and Naixi Wang. 2019. 'Digging Deeper--Evidence on the Effects of Macroprudential Policies from a New Database'. *IMF Working Papers* 66.

Aldasoro, Iñaki, Stefan Avdjiev, Claudio Borio, and Piti Disyatat. 2020. 'Global and Domestic Financial Cycles: Variations on a Theme'. *BIS Working Papers* 864.

Allen, Franklin, Ana Babus, and Elena Carletti. 2012. 'Asset Commonality, Debt Maturity and Systemic Risk'. *Journal of Financial Economics* 104 (3): 519–34.

Allen, Franklin, Rajesh Chakrabarti, Sankar De, Jun Q.J. Qian, and Meijun Qian. 2012. 'Financing Firms in India'. *Journal of Financial Intermediation* 21 (3): 409–45.

Alter, Adrian, and Selim Elekdag. 2020. 'Emerging Market Corporate Leverage and Global Financial Conditions'. *Journal of Corporate Finance* 62.

Arregui, Nicolas, Selim Elekdag, Gaston Gelos, Romain Lafarguette, and Dulani Seneviratne. 2018. 'Can Countries Manage Their Financial Conditions Amid Globalization?' *IMF Working Papers* 15.

Avdjiev, Stefan, Michael Chui, and Hyun Song Shin. 2014. 'Non-Financial Corporations from Emerging Market Economies and Capital Flows'. *BIS Quarterly Review*, December: 67–77.

Avdjiev, Stefan, Wenxin Du, Cathérine Koch, and Hyun Song Shin. 2019. 'The Dollar, Bank Leverage, and Deviations from Covered Interest Parity'. *American Economic Review: Insights* 1 (2): 193–208.

Avdjiev, Stefan, Leonardo Gambacorta, Linda S Goldberg, and Stefano Schiaffi. 2020. 'The Shifting Drivers of Global Liquidity'. *Journal of International Economics* 125: 1–17.

Avdjiev, Stefan, Patrick McGuire, and Goetz von Peter. 2020. 'International Dimensions of EME Corporate Debt'. *BIS Quarterly Review*, June.

Avdjiev, Stefan, and Elod Takáts. 2019. 'Monetary Policy Spillovers and Currency Networks in Cross-Border Bank Lending: Lessons from the 2013 Fed Taper Tantrum'. *Review of Finance* 23 (5): 993–1029.

Azis, Iwan J., and Hyun Song Shin. 2015. *Managing Elevated Risk: Global Liquidity, Capital Flows, and Macroprudential Policy—an Asian Perspective*.

Banerjee, Shesadri, and Madhusudan Mohanty. 2021. 'US Monetary Policy and the Financial Channel of the Exchange Rate: Evidence from India'. *BIS Working Papers* 945.

Bank for International Settlements. 2015. 'Uneasy Calm Awaiting Lift-Off'. *BIS Quarterly Review*, December.

———. 2018. 'Divergences Widen in Markets'. *BIS Quarterly Review*, September.

Banti, Chiara, and Udichibarna Bose. 2021. 'Shifts in Global Credit and Corporate Access to Finance'. *Journal of Financial Stability*, forthcoming.

Banti, Chiara, and Kate Phylaktis. 2019. 'Global Liquidity, House Prices and Policy Responses'. *Journal of Financial Stability* 43: 79–96.

Beck, Thorsten, Asli Demirgüç-Kunt, and V Maksimovic. 2008. 'Financing Patterns Around the World: Are Small Firms Different?' *Journal of Financial Economics* 89: 467–87.

Bekaert, Geert, Campbell R. Harvey, Christian T. Lundblad, and Stephan Siegel. 2011. 'What Segments Equity Markets?' *Review of Financial Studies* 24 (12): 3841–90.

Berger, Allen N., Leora F. Klapper, Maria Soledad Martinez Peria, and Rida Zaidi. 2008. 'Bank Ownership Type and Banking Relationships'. *Journal of Financial Intermediation* 17 (1): 37–62.

Bhattarai, Saroj, Arpita Chatterjee, and Woong Yong Park. 2020. 'Global Spillover Effects of US Uncertainty'. *Journal of Monetary Economics* 114: 71–89.

Bose, Udichibarna, Ronald MacDonald, and Serafeim Tsoukas. 2019. 'Policy Initiatives and Firms' Access to External Finance: Evidence from a Panel of Emerging Asian Economies'. *Journal of Corporate Finance* 59: 162–84.

Bräuning, Falk, and Victoria Ivashina. 2020. 'U.S. Monetary Policy and Emerging Market Credit Cycles'. *Journal of Monetary Economics* 112: 57–76.

Bruno, Valentina, Ilhyock Shim, and Hyun Song Shin. 2017. 'Comparative Assessment of Macroprudential Policies'. *Journal of Financial Stability* 28: 183–202.

Bruno, Valentina, and Hyun Song Shin. 2015a. 'Capital Flows and the Risk-Taking Channel of Monetary Policy'. *Journal of Monetary Economics* 71: 119–32.

———. 2015b. 'Cross-Border Banking and Global Liquidity'. *Review of Economic Studies* 82 (2): 535–64.

Buch, Claudia M., Matthieu Bussière, Linda S. Goldberg, and Robert Hills. 2019. 'The International Transmission of Monetary Policy'. *Journal of International Money and Finance* 91: 29–48.

Caballero, Julian, Ugo Panizza, and Andrew Powell. 2016. 'The Second Wave of Global Liquidity: Why Are Firms Acting Like Financial Intermediaries?' *Inter-American Development Bank Working Paper Series* 641 (April).

Calvo, Guillermo A., Leonardo Leiderman, and Carmen M. Reinhart. 1993. 'Capital Inflows and Real Exchange Rate Appreciation in Latin America: The Role of External Factors'. *IMF Staff Papers* 40 (1): 108–51.

———. 1996. 'Inflows of Capital to Developing Countries in the 1990s'. *Journal of Economic Perspectives* 10 (2): 123–39.

Cerutti, Eugenio, Stijn Claessens, and Lev Ratnovski. 2017. 'Global Liquidity and Drivers of Cross-Border Bank Flows'. *Economic Policy* 32 (89): 81–125.

Cerutti, Eugenio, Stijn Claessens, and Andrew K. Rose. 2019. 'How Important Is the Global Financial Cycle? Evidence from Capital Flows'. *IMF Economic Review* 67 (1): 24–60.

Cerutti, Eugenio, Catherine Koch, and Swapan-Kumar Pradhan. 2018. 'The Growing Footprint of EME Banks in the International Banking System'. *BIS Quarterly Review*, December.

Cerutti, Eugenio, and Haonan Zhou. 2017. 'The Global Banking Network in the Aftermath of the Crisis: Is There Evidence of De-Globalization?' *IMF Working Papers* 232.

———. 2018. 'Cross-Border Banking and the Circumvention of Macroprudential and Capital Control Measures'. *IMF Working Papers* 217.

Cetorelli, Nicola, and Linda S. Goldberg. 2011. 'Global Banks and International Shock Transmission: Evidence from the Crisis'. *IMF Economic Review* 59 (1): 41–76.

Chung, Kyuil, Jong-Eun Lee, Elena Loukoianova, Hail Park, and Hyun Song Shin. 2015. 'Global Liquidity through the Lens of Monetary Aggregates'. *Economic Policy* 30 (82): 231–90.

Claessens, Stijn, and Neeltje Van Horen. 2015. 'The Impact of the Global Financial Crisis on Banking Globalization'. *IMF Economic Review* 63 (4): 868–918.

Claus, Edda, Iris Claus, and Leo Krippner. 2016. 'Monetary Policy Spillovers across the Pacific When Interest Rates Are at the Zero Lower Bound'. *Asian Economic Papers* 15 (3): 1–27.

Committee on the Global Financial System. 2020. 'US Dollar Funding: An International Perspective'. *CGFS Papers* 65.

Coppola, Antonio, Matteo Maggiori, Brent Neiman, and Jesse Schreger. 2021. 'Redrawing the Map of Global Capital Flows: The Role of Cross-Border Financing and Tax Havens'. *Quarterly Journal of Economics* 136 (3): 1499–1556.

Correa, Ricardo, Teodora Paligorova, Horacio Sapriza, and Andrei Zlate. 2021. 'Cross-Border Bank Flows and Monetary Policy'. *The Review of Financial Studies*, forthcoming.

Di Giovanni, Julian, Sebnem Kalemli-Özcan, Mehmet Fatih Ulu, and Yusuf Soner Baskaya. 2022. 'International Spillovers and Local Credit Cycles'. *Review of Economic Studies* 89 (2): 733–73.

Duffee, Gregory R, and Peter Hördahl. 2021. 'Debt Specialisation and Diversification: International Evidence'. *BIS Working Papers* 928.

Eichengreen, Barry, and Yung Chul Park. 2005. 'Why Has There Been Less Financial Integration in Asia than in Europe?' In *A New Financial Market Structure for East Asia*, edited by Yung Chul Park, Ito Takatoshi, and Yunjong Wang, 84–103. UK: Edward Edgar.

Eller, Markus, Niko Hauzenberger, Florian Huber, Helene Schuberth, and Lukas Vashold. 2021. 'The Impact of Macroprudential Policies on Capital Flows in CESEE'. *Journal of International Money and Finance*, forthcoming.

Eller, Markus, Florian Huber, and Helene Schuberth. 2020. 'How Important Are Global Factors for Understanding the Dynamics of International Capital Flows?' *Journal of International Money and Finance* 109.

Epure, Mircea, Irina Mihai, Camelia Minoiu, and Jose-Luis Peydro. 2018. 'Household Credit, Global Financial Cycle, and Macroprudential Policies: Credit Register Evidence from an Emerging Country'. *IMF Working Papers* 13.

Fernández, Andrés, Michael W Klein, Alessandro Rebucci, Martin Schindler, and Martín Uribe. 2015. 'Capital Control Measures: A New Dataset'. *IMF Working Papers* 80.

Forbes, K., M. Fratzscher, and R. Straub. 2015. 'Capital Controls and Macroprudential Measures: What Are They Good For?' *Journal of International Economics* 96 (S1): 76–97.

Frost, Jon, Hiro Ito, and René van Stralen. 2020. 'The Effectiveness of Macroprudential Policies and Capital Controls Against Volatile Capital Inflows'. *BIS Working Papers* 867.

Galati, Gabriele, and Richhild Moessner. 2013. 'Macroprudential Policy - a Literature Review'. *Journal of Economic Surveys* 27 (5): 846–78.

Gelos, Gaston, Lucyna Gornicka, Robin Koepke, Ratna Sahay, and Silvia Sgherri. 2019. 'Capital Flows at Risk: Taming the Ebbs and Flows'. *IMF Working Papers* 279.

Giannetti, Mariassunta, and Luc Laeven. 2012. 'Flight Home, Flight Abroad, and International Credit Cycles'. *American Economic Review* 102 (3): 219–24.

Giannetti, Mariassunta, and Steven Ongena. 2012. '"Lending by Example": Direct and Indirect Effects of Foreign Banks in Emerging Markets'. *Journal of International Economics* 86 (1): 167–80.

Gopalan, Radhakrishnan, Vikram Nanda, and Amit Seru. 2007. 'Affiliated Firms and Financial Support: Evidence from Indian Business Groups'. *Journal of Financial Economics* 86: 759–95.

Gormley, Todd A. 2010. 'The Impact of Foreign Bank Entry in Emerging Markets: Evidence from India'. *Journal of Financial Intermediation* 19 (1): 26–51.

Hirata, Hideaki, M. Ayhan Kose, and Christopher Otrok. 2013. 'Regionalization versus Globalization'. In *Global Interdependence, Decoupling, and Recoupling*, 87–130. MIT Press.

Horn, Sebastian, Carmen M. Reinhart, and Christoph Trebesch. 2021. 'China's Overseas Lending'. *Journal of International Economics* 133.

International Monetary Fund. 2015. 'International Banking After the Crisis: Increasingly Local and Safer?' *Global Financial Stability Report* April (Chapter 2).

———. 2016. 'The Growing Importance of Financial Spillovers from Emerging Market Economies'. *Global Financial Stability Report* April (Chapter 2).

———. 2017. 'Increasing Resilience to Large and Volatile Capital Flows—The Role of Macroprudential Policies'. *IMF Policy Papers*.

———. 2019. 'Banks' Dollar Funding: A Source of Financial Vulnerability'. *Global Financial Stability Report* October (Chapter 5).

Ivashina, Victoria, David S. Scharfstein, and Jeremy C. Stein. 2015. 'Dollar Funding and the Lending Behavior of Global Banks'. *The Quarterly Journal of Economics* 130 (3): 1241–81.

Jordà, Òscar, Moritz Schularick, Alan M. Taylor, and Felix Ward. 2019. 'Global Financial Cycles and Risk Premiums'. *IMF Economic Review* 67 (1): 109–50.

Kim, Soyoung, and Hongyi Chen. 2022. 'From a Quantity to an Interest Rate-Based Framework: Multiple Monetary Policy Instruments and Their Effects in China'. *Journal of Money, Credit and Banking* 54 (7): 2103–23.

Kim, Soyoung, Jong Wha Lee, and Kwanho Shin. 2008. 'Regional and Global Financial Integration in East Asia'. In *China, Asia, and the New World Economy*, edited by Barry Eichengreen, Charles Wyplosz, and Yung Chul Park, 1–43. London: Oxford University Press.

Koch, Cathérine, and Eli Remolona. 2018. 'Common Lenders in Emerging Asia: Their Changing Roles in Three Crises'. *BIS Quarterly Review*, March.

Koepke, Robin. 2019. 'What Drives Capital Flows to Emerging Markets? A Survey of the Empirical Literature'. *Journal of Economic Surveys* 33 (2): 516–40.

Krippner, Leo. 2016. 'Documentation for Measures of Monetary Policy'. *Reserve Bank of New Zealand*.

Kubelec, Chris, and Filipa Sá. 2012. 'The Geographical Composition of National External Balance Sheets: 1980-2005'. *International Journal of Central Banking* 8 (2): 143–89.

Lam, W. Raphael. 2013. 'Cross-Border Activity of Japanese Banks'. *IMF Working Paper Series* 235.

Lane, Philip R., and Gian Maria Milesi-Ferretti. 2018. 'The External Wealth of Nations Revisited: International Financial Integration in the Aftermath of the Global Financial Crisis'. *IMF Economic Review* 66 (1): 189–222.

Lo Duca, Marco, Giulio Nicoletti, and Ariadna Vidal Martínez. 2016. 'Global Corporate Bond Issuance: What Role for US Quantitative Easing?' *Journal of International Money and Finance* 60: 114–50.

McCauley, Robert N., Agustín S. Bénétrix, Patrick M. McGuire, and Goetz von Peter. 2019. 'Financial Deglobalisation in Banking?' *Journal of International Money and Finance* 94: 116–31.

McCauley, Robert N., San-Sau Fung, and Blaise Gadanecz. 2002. 'Integrating the Finances of East Asia'. *BIS Quarterly Review*, December.

McCauley, Robert N., Patrick McGuire, and Vladyslav Sushko. 2015. 'Global Dollar Credit: Links to US Monetary Policy and Leverage'. *Economic Policy* 30 (82): 187–229.

Mian, Atif. 2006. 'Distance Constraints: The Limits of Foreign Lending in Poor Economies'. *Journal of Finance* 61 (3): 1465–1505.

Miranda-Agrippino, Silvia, and Hélène Rey. 2020. 'US Monetary Policy and the Global Financial Cycle'. *Review of Economic Studies* 87 (6): 2754–76.

Morais, Bernardo, Jose Luis Peydro, Jessica Roldan-Pena, and Claudia Ruiz-Ortega. 2019. 'The International Bank Lending Channel of Monetary Policy Rates and QE: Credit Supply, Reach-for-Yield, and Real Effects'. *Journal of Finance* 74 (1): 55–90.

Ostry, Jonathan D., Atish R. Ghosh, Marcos Chamon, and Mahvash S. Qureshi. 2011. 'Capital Controls: When and Why'. *IMF Economic Review* 59 (3): 562–80.

Ozkan, A. 2001. 'Determinants of Capital Structure and Adjustment to Long Run Target: Evidence from UK Company Panel Data'. *Journal of Business Finance & Accounting* 28: 175–98.

Pasricha, Gurnain Kaur, Matteo Falagiarda, Martin Bijsterbosch, and Joshua Aizenman. 2018. 'Domestic and Multilateral Effects of Capital Controls in Emerging Markets'. *Journal of International Economics* 115 (November): 48–58.

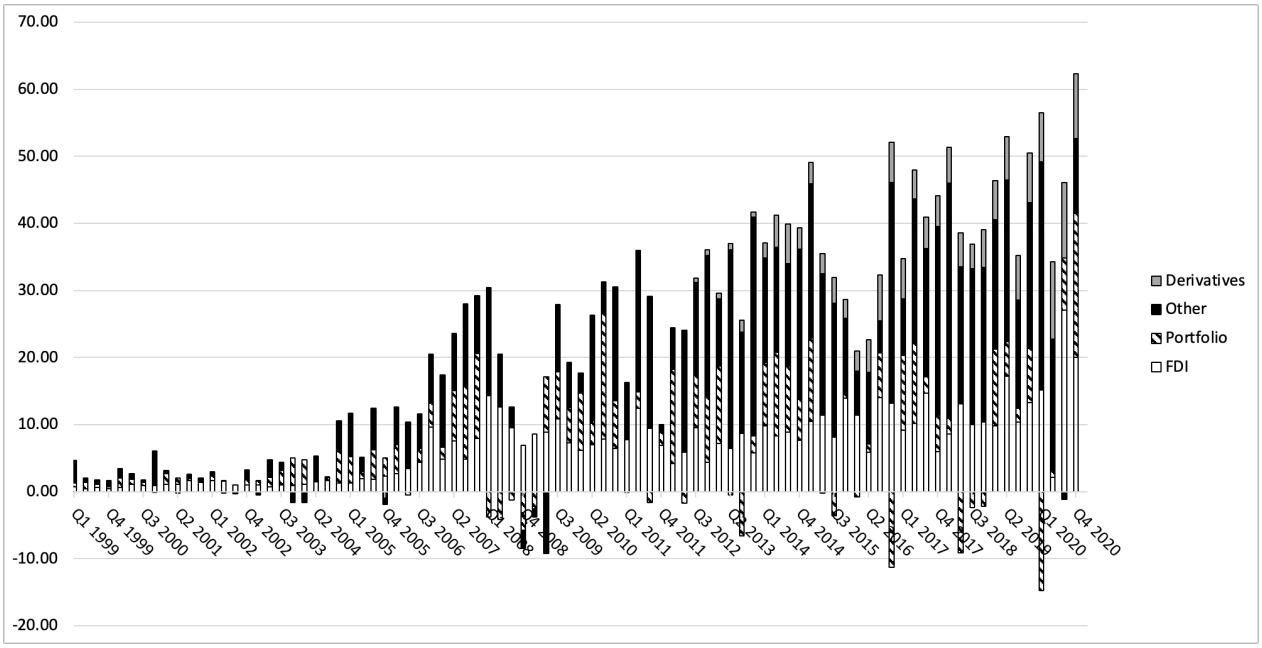
Peek, Joe, and Eric S. Rosengren. 1997. 'The International Transmission of Financial Shocks: The Case of Japan'. *American Economic Review* 87 (4): 495–505.

Rey, Hélène. 2013. 'Dilemma Not Trilemma: The Global Financial Cycle and Monetary Policy Independence'. Edited by Federal Reserve of Kansas City Economic Symposium. *Economic Policy Symposium - Jackson Hole*.

Shambaugh, Jay C. 2004. 'The Effect of Fixed Exchange Rates on Monetary Policy'. *Quarterly Journal of Economics* 119 (February): 300–352.

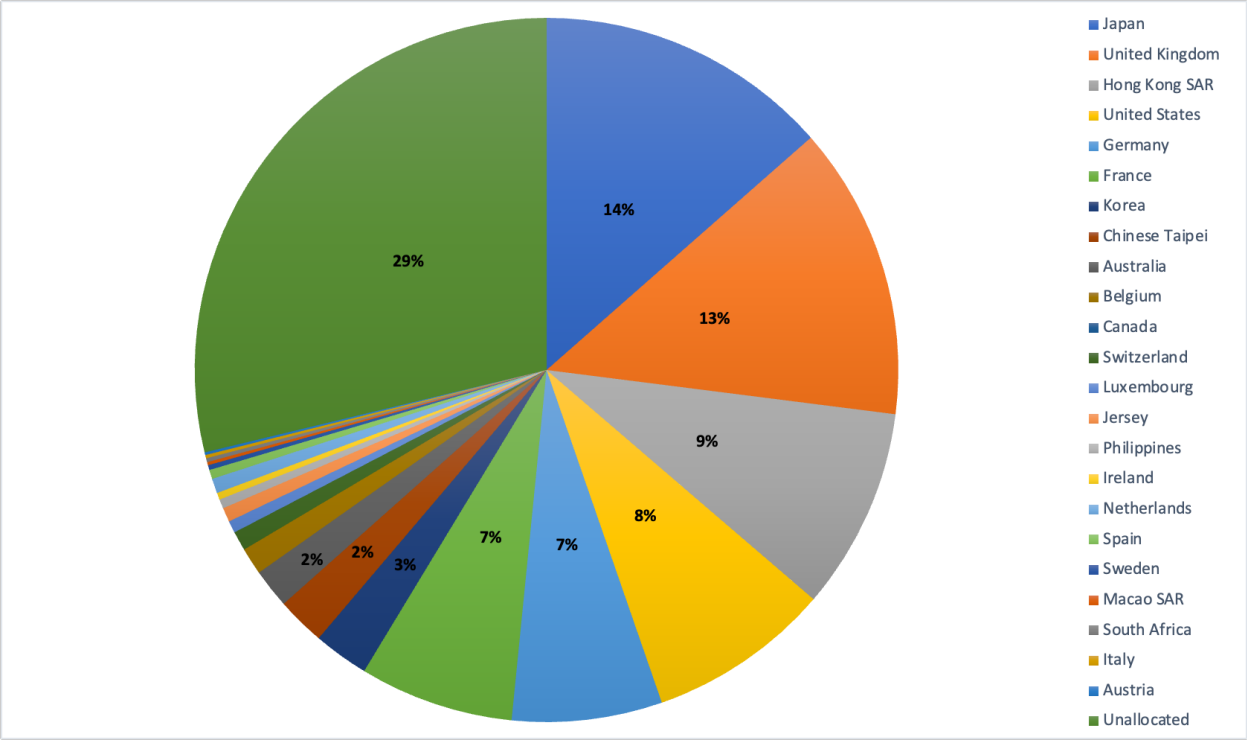
Takáts, Előd, and Judit Temesvary. 2020. 'The Currency Dimension of the Bank Lending Channel in International Monetary Transmission'. *Journal of International Economics* 125.

Figure 1: Net private capital inflows to India (USD bn)



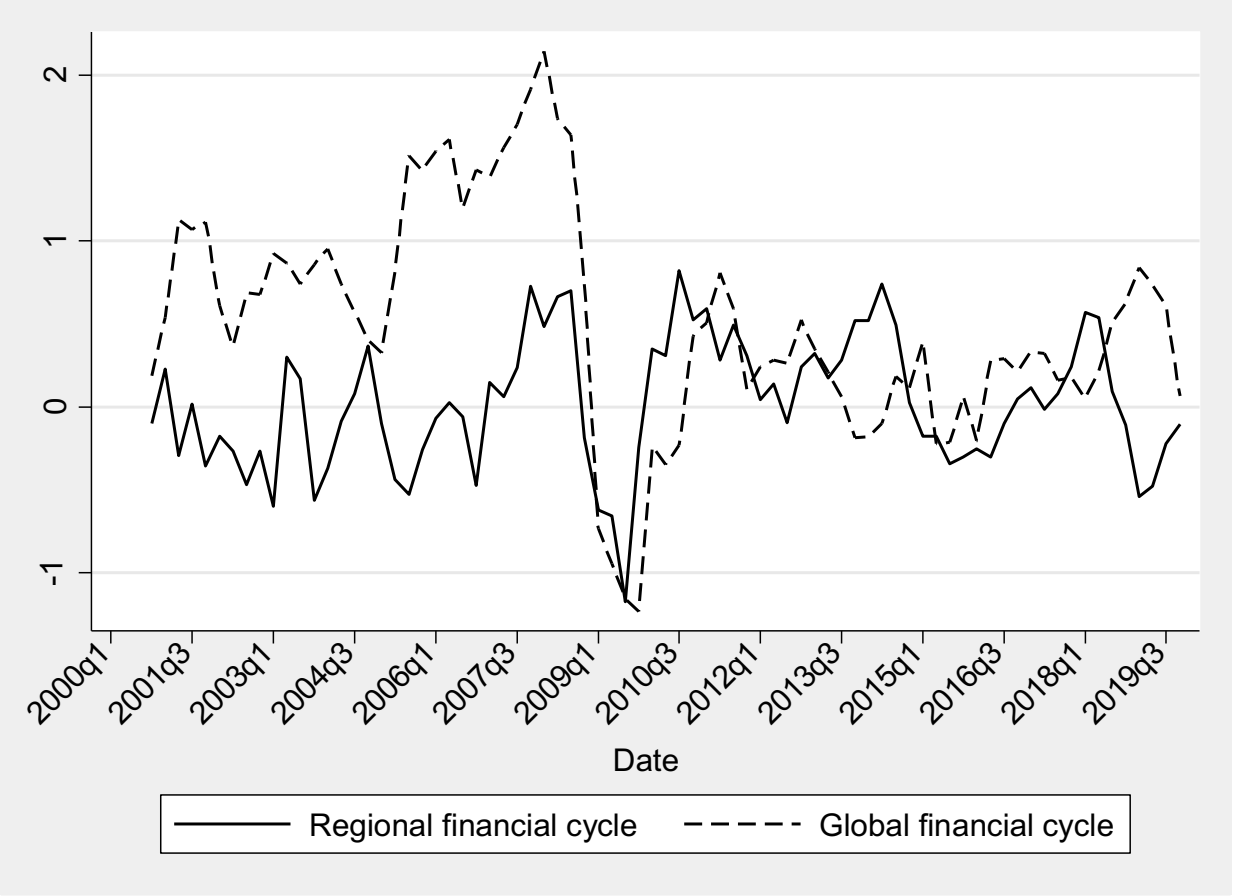
Notes: The figure shows the composition of quarterly net private capital inflows to India in USD billions. Net private capital inflows are annual net incurrence of liabilities by component (FDI, equity and debt portfolio, derivatives, and other including banks) from the financial account of the balance of payments. Data is from the IMF.

Figure 2: Cross-border bank credit to India by nationality of lender banks (end 2020)



Notes: The plot reports the relative share of cross-border bank credit to all sectors of the Indian economy by the nationality of the lender banks as of end 2020. The sample of lenders includes all banks reporting to the BIS Locational Banking Statistics (LBS).

Figure 3: Financial cycle in Asia



Notes: The figure reports the 4-quarter moving average of the regional financial cycle in Asian countries (solid line) and the global financial cycle (dotted line).

Table 1: Descriptive statistics

	(1) **Mean**	(2) **Median**	(3) **Standard Deviation**
Firm-level measures			
Domestic debt (in INR millions)	924.79	106.60	2836.50
FX debt (in INR millions)	3051.67	528.65	7454.71
Size	6.54	6.45	1.94
Liquidity	1.05	0.64	2.89
Tangibility	0.31	0.27	0.24
Export firm	0.37	0	0.48
Regional factors			
Regional financial cycle (bank to all sector flows % GDP)	-0.014	-0.10	0.34
Regional financial cycle (bank to bank flows % GDP)	0.13	-0.03	0.45
Regional interbank rates (%)	1.91	1.51	1.04
Regional policy rates (%)	2.16	1.61	1.13
JP shadow rates (%)	-1.82	-1.66	1.47
BoJ balance sheet (% GDP)	34.50	18.53	27.75
Dollar yen cross-currency basis (bps)	-5.28	-4.12	3.49
Monetary policy divergence	1.39	0.70	1.16
CHN interbank rate (%)	3.18	3.22	1.07
Global factors			
Global financial cycle (bank to all sector flows % GDP)	0.49	0.42	0.68
Global financial cycle (bank to bank flows % GDP)	0.21	0.13	0.64
Domestic factors			
GDP growth (%)	6.96	7.23	2.05
Stock returns (%)	0.13	0.12	0.20
Interbank rate (%)	6.72	6.13	1.13
Policy actions			
Macroprudential policy (MP)	1.62	2	2.53
Sectoral openness (%)	92.76	100	21.08
Exchange rate regime	0.40	0	0.49

Notes: The table reports the statistics of the main variables. *Domestic debt* are the proceeds from domestic currency bank borrowings. *FX debt* are the proceeds from foreign currency borrowings (in INR million). *Size* is the logarithm of total real assets. *Liquidity* is the ratio of quick assets to quick liabilities. *Tangibility* is the ratio of net fixed assets to total real assets. *Export firm* is a dummy for firms with positive exports, and zero otherwise. *Regional financial cycle* is the regional common factor in bank flows in the region, excluding India. *Regional interbank rates* are average money market interbank rates in the region. *Regional policy rates* are average policy rates in the region. *GDP growth* is the annual real GDP growth for India. *JP shadow rates* are the Japanese shadow short-term rates by Krippner (2016). *BoJ balance sheet* is the size of the Bank of Japan balance sheet as a share of GDP. The *dollar yen cross-currency basis* is the cross-currency basis between the dollar and the yen. Monetary policy divergence is calculated as the difference between the 3-month euroyen and eurodollar future prices. *CHN interbank rate* is the interbank 7-day pledged repo rate, available from 2006. *Global financial cycle* is the common factor in bank flows around the world. *Stock returns* are the log returns of the stock market index of the Indian stock exchange. *Interbank rate* is the money market interbank rate in India. *Macroprudential policy (MP)* is the aggregated MP index by (Alam et al. 2019) that is the annual sum of policy actions coded as dummies, +1 for tightening and -1 for loosening actions. *Sectoral openness* is the maximum share of foreign ownership allowed by regulation in the firms' sectors. *Exchange rate regime* is the (Shambaugh 2004) indicator that is a dummy taking the value of 1 for pegged regimes and 0 for floating regimes. The sample period is 2001-2019.

Table 2: Impact of the regional financial cycle on corporate debt

	(1)	(2)	(3)	(4)
Dependent variable=	**ln (Domestic debt)**		**ln (FX debt)**	
Regional financial cycle	0.046***	0.045***	0.113***	0.073
	(0.009)	(0.009)	(0.042)	(0.046)
Global financial cycle	-	0.006	-	0.080***
		(0.005)		(0.025)
Size	0.758***	0.759***	0.314***	0.327***
	(0.008)	(0.008)	(0.042)	(0.043)
Liquidity	-0.015***	-0.015***	0.013*	0.013*
	(0.002)	(0.002)	(0.007)	(0.007)
Tangibility	0.145***	0.145***	-0.047	-0.045
	(0.036)	(0.036)	(0.121)	(0.121)
Export firm	0.114***	0.114***	0.096*	0.097*
	(0.014)	(0.014)	(0.050)	(0.050)
GDP growth	0.011***	0.012***	-0.026***	-0.013
	(0.002)	(0.002)	(0.008)	(0.008)
Stock returns	0.059***	0.048**	0.025	-0.165*
	(0.020)	(0.019)	(0.099)	(0.093)
Interbank rate	0.014***	0.014***	0.035**	0.041***
	(0.004)	(0.003)	(0.014)	(0.014)
Constant	-0.562***	-0.577***	3.417***	3.150***
	(0.058)	(0.058)	(0.385)	(0.393)
Observations	170,356	170,356	6,496	6,496
R-squared	0.840	0.840	0.894	0.894
Number of firms	22,356	22,356	1,472	1,472

Notes: The table reports the results of the estimation of equations (1) and (2). *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings (in INR million). *Regional financial cycle* is the common factor in bank flows to countries in the region, excluding India. *Global financial cycle* is the common factor in bank flows to all countries. Firm-level controls are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, and *Export firm* is a dummy for firms with positive exports, and zero otherwise. Domestic controls are: *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period, and standard errors are provided in parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 3: Impact of regional factors on domestic credit market

Dependent variable=	(1)	(2)	(3)	(4)
	ln (Domestic debt)		**ln (FX debt)**	
Drivers =	*Regional interbank rates*	*Regional policy rates*	*Regional interbank rates*	*Regional policy rates*
Regional financial cycle*Driver	-0.238***	-0.419***	0.002	-0.101
	(0.037)	(0.042)	(0.185)	(0.239)
Driver	-0.122***	-0.183***	0.044	-0.015
	(0.014)	(0.015)	(0.064)	(0.074)
Regional financial cycle	0.063***	0.100***	0.071	0.083
	(0.009)	(0.011)	(0.045)	(0.053)
Global financial cycle	0.028***	-0.001	0.064*	0.073**
	(0.008)	(0.006)	(0.033)	(0.029)
Size	0.771***	0.770***	0.321***	0.328***
	(0.009)	(0.009)	(0.043)	(0.043)
Liquidity	-0.015***	-0.015***	0.013*	0.013*
	(0.002)	(0.002)	(0.007)	(0.007)
Tangibility	0.139***	0.149***	-0.046	-0.044
	(0.036)	(0.036)	(0.121)	(0.120)
Export firm	0.107***	0.103***	0.103**	0.097*
	(0.014)	(0.014)	(0.050)	(0.050)
GDP growth	0.016***	0.014***	-0.013	-0.013
	(0.002)	(0.002)	(0.008)	(0.008)
Stock returns	0.112***	0.211***	-0.228*	-0.162
	(0.026)	(0.028)	(0.119)	(0.127)
Interbank rate	0.006	-0.005	0.043**	0.037*
	(0.004)	(0.004)	(0.017)	(0.019)
Constant	-0.648***	-0.556***	3.206***	3.185***
	(0.061)	(0.061)	(0.387)	(0.387)
Observations	170,356	170,356	6,496	6,496
R-squared	0.840	0.841	0.894	0.894
Number of firms	22,356	1,472	22,356	1,472

Notes: The table reports the results of the estimation of equations (3) and (4). *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings (in INR million). *Driver* is the average interbank rate and policy rate of the main lender countries in the region, as indicated in the columns. *Regional financial cycle* is the common factor in bank flows to countries in the region, excluding India. *Global financial cycle* is the common factor in bank flows to all countries. Firm-level controls are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, and *Export firm* is a dummy for firms with positive exports, and zero otherwise. Domestic controls are: *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period, and standard errors are provided in parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 4: Japan as major lender in the region

Dependent variable=	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln (Domestic debt)				ln (FX debt)			
Drivers =	*JP shadow rates*	*BoJ balance sheet*	*Dollar yen cross-currency basis*	*Monetary policy divergence*	*JP shadow rates*	*BoJ balance sheet*	*Dollar yen cross-currency basis*	*Monetary policy divergence*
Regional financial cycle* Driver	-0.043***	0.014***	0.018***	-0.014***	-0.087	0.012	-0.015	-0.045**
	(0.014)	(0.002)	(0.003)	(0.004)	(0.065)	(0.009)	(0.017)	(0.019)
Driver	-0.017***	-0.016***	0.014***	0.033***	0.008	-0.002	0.019**	0.015
	(0.005)	(0.001)	(0.002)	(0.003)	(0.021)	(0.005)	(0.009)	(0.021)
Regional financial cycle	0.048***	0.009	0.133***	0.104***	0.100*	0.047	-0.024	0.181***
	(0.012)	(0.009)	(0.016)	(0.013)	(0.059)	(0.051)	(0.113)	(0.069)
Global financial cycle	0.001	-0.003	0.001	-0.047***	0.069**	0.086***	0.095***	0.074**
	(0.005)	(0.005)	(0.005)	(0.007)	(0.027)	(0.026)	(0.028)	(0.037)
Size	0.765***	0.772***	0.789***	0.764***	0.326***	0.334***	0.364***	0.333***
	(0.009)	(0.008)	(0.010)	(0.008)	(0.042)	(0.043)	(0.046)	(0.042)
Liquidity	-0.015***	-0.015***	-0.015***	-0.015***	0.013*	0.013*	0.012*	0.013*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.007)	(0.007)	(0.007)	(0.007)
Tangibility	0.142***	0.147***	0.127***	0.145***	-0.038	-0.040	-0.027	-0.038
	(0.036)	(0.036)	(0.036)	(0.036)	(0.120)	(0.121)	(0.121)	(0.121)
Export firm	0.110***	0.110***	0.096***	0.110***	0.098*	0.097*	0.072	0.096*
	(0.014)	(0.014)	(0.013)	(0.014)	(0.050)	(0.050)	(0.048)	(0.050)
GDP growth	0.003	0.038***	0.023***	0.018***	-0.013	-0.003	0.006	-0.001
	(0.003)	(0.003)	(0.002)	(0.002)	(0.012)	(0.013)	(0.012)	(0.010)
Stock returns	0.115***	-0.192***	-0.082***	0.058***	-0.220	-0.229*	-0.408**	-0.247**
	(0.039)	(0.025)	(0.025)	(0.021)	(0.169)	(0.120)	(0.161)	(0.102)
Interbank rate	0.004	0.060***	-0.005	0.028***	0.040**	0.048***	0.026	0.053***
	(0.004)	(0.004)	(0.005)	(0.003)	(0.018)	(0.016)	(0.018)	(0.014)
Constant	-0.490***	-1.059***	-0.594***	-0.776***	3.172***	2.996***	2.968***	2.922***
	(0.059)	(0.068)	(0.060)	(0.061)	(0.405)	(0.436)	(0.402)	(0.404)
Observations	170,356	170,356	170,356	170,356	6,496	6,496	6,496	6,496
R-squared	0.840	0.841	0.840	0.840	0.894	0.894	0.895	0.894
Number of firms	22,356	22,356	22,356	22,356	1,472	1,472	1,472	1,472

Notes: The table reports the results of the estimation of equations (3) and (4) with Japanese factors. *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings (in INR million). *Driver* are Japanese factors as indicated at the top of the columns: the differenced Japanese shadow rates by Krippner (2016); changes in the size of the balance sheet of the Bank of Japan, as measured by the first difference of total assets over GDP; the dollar yen cross-currency basis; and monetary policy divergence, as the difference between the 3-month euroyen and eurodollar futures. *Regional financial cycle* is the common factor in bank flows to countries in the region, excluding India. *Global financial cycle* is the common factor in bank flows to all countries. Firm-level controls are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, and *Export firm* is a dummy for firms with positive exports, and zero otherwise. Domestic controls are: *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period, and standard errors are provided in parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 5: The emergence of China

	(1)	(2)	(3)	(4)
	ln (Domestic debt)		**ln (FX debt)**	
Regional financial cycle* CHN interbank rate	0.092***	-	0.197***	-
	(0.013)		(0.051)	
CHN interbank rate	-0.026***	-0.012***	-0.051***	-0.015
	(0.004)	(0.003)	(0.017)	(0.011)
Regional financial cycle	0.203***	0.119***	0.431***	0.217**
	(0.029)	(0.022)	(0.130)	(0.095)
Global financial cycle	-0.042***	-0.014**	-0.019	0.052*
	(0.009)	(0.007)	(0.038)	(0.029)
Size	0.627***	0.614***	0.329***	0.303***
	(0.011)	(0.011)	(0.049)	(0.048)
Liquidity	-0.013***	-0.013***	0.012*	0.012*
	(0.002)	(0.002)	(0.007)	(0.007)
Tangibility	0.001	0.005	-0.056	-0.072
	(0.036)	(0.036)	(0.113)	(0.112)
Export firm	0.063***	0.071***	0.104**	0.125**
	(0.014)	(0.014)	(0.050)	(0.051)
GDP growth	-0.001	0.005**	-0.025***	-0.015*
	(0.002)	(0.002)	(0.008)	(0.008)
Stock returns	-0.126***	0.000	-0.453***	-0.178*
	(0.036)	(0.027)	(0.135)	(0.100)
Interbank rate	0.019***	0.014***	0.048***	0.032**
	(0.003)	(0.003)	(0.014)	(0.013)
Constant	0.456***	0.547***	3.179***	3.466***
	(0.082)	(0.079)	(0.459)	(0.446)
Observations	131,031	131,031	5,851	5,851
R-squared	0.865	0.865	0.903	0.903
Number of firms	20,447	20,447	1,397	1,397

Notes: The table reports the results of the estimation of equations (3) and (4) with Chinese drivers. *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings (in INR million). *CHN interbank rate* is the interbank 7-day pledged repo rate, available from 2006. *Regional financial cycle* is the common factor in bank flows to countries in the region, excluding India. *Global financial cycle* is the common factor in bank flows to all countries. Firm-level controls are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, and *Export firm* is a dummy for firms with positive exports, and zero otherwise. Domestic controls are: *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period, and standard errors are provided in parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 6: Domestic vs foreign banking

	(1)	(2)	(3)	(4)
Dependent variable=	**ln (Domestic debt)**		**ln (FX debt)**	
	Foreign banking	*Domestic banking*	*Foreign banking*	*Domestic banking*
Regional financial cycle	0.044**	0.041***	0.061	0.085
	(0.021)	(0.010)	(0.060)	(0.072)
Global financial cycle	0.042***	-0.002	0.078**	0.086**
	(0.011)	(0.006)	(0.033)	(0.038)
Size	0.853***	0.730***	0.350***	0.298***
	(0.017)	(0.010)	(0.069)	(0.052)
Liquidity	-0.028***	-0.013***	0.029*	0.011
	(0.006)	(0.002)	(0.017)	(0.007)
Tangibility	0.598***	0.074**	-0.288	0.077
	(0.109)	(0.038)	(0.270)	(0.115)
Export firm	0.135***	0.113***	0.121	0.071
	(0.031)	(0.015)	(0.080)	(0.063)
GDP growth	0.013***	0.011***	-0.024**	0.002
	(0.004)	(0.002)	(0.011)	(0.011)
Stock returns	0.030	0.054**	-0.163	-0.139
	(0.045)	(0.021)	(0.158)	(0.102)
Interbank rate	-0.005	0.017***	0.054***	0.028
	(0.009)	(0.004)	(0.021)	(0.018)
Constant	-1.281***	-0.401***	3.283***	3.076***
	(0.137)	(0.065)	(0.665)	(0.469)
Observations	32,067	138,289	3,088	3,408
R-squared	0.816	0.840	0.851	0.917
Number of firms	3,109	19,247	601	871

Notes: The table reports the results of equations (5) and (6) for two groups of firms divided depending on the nationality of their bank relationships, foreign (*foreign banking*) or domestic (*domestic banking*). *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings (in INR million). *Regional financial cycle* is the common factor in bank flows to countries in the region, excluding India. *Global financial cycle* is the common factor in bank flows to all countries. Firm-level controls are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, and *Export firm* is a dummy for firms with positive exports, and zero otherwise. Domestic controls are: *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period, and standard errors are provided in parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 7: The regional financial cycle and policy responses

	(1)	(2)	(3)
Dependent variable=	**ln (Domestic debt)**		
Policy =	*Macroprudential policy*	*Sectoral openness*	*Exchange rate regime*
Regional financial cycle*Policy	-0.017***	0.001*	-0.122***
	(0.003)	(0.000)	(0.025)
Policy (See column)	-0.007***	-	-0.089***
	(0.002)		(0.007)
Regional financial cycle	0.104***	-0.024	0.029**
	(0.014)	(0.040)	(0.013)
Global financial cycle	0.009*	0.006	0.004
	(0.005)	(0.005)	(0.005)
Size	0.761***	0.759***	0.770***
	(0.009)	(0.008)	(0.009)
Liquidity	-0.015***	-0.015***	-0.015***
	(0.002)	(0.002)	(0.002)
Tangibility	0.145***	0.145***	0.146***
	(0.036)	(0.036)	(0.036)
Export firm	0.114***	0.114***	0.107***
	(0.014)	(0.014)	(0.014)
GDP growth	0.016***	0.012***	0.016***
	(0.002)	(0.002)	(0.002)
Stock returns	0.080***	0.048**	0.034*
	(0.029)	(0.019)	(0.019)
Interbank rate	0.005	0.014***	0.016***
	(0.004)	(0.003)	(0.004)
Constant	-0.554***	-0.577***	-0.653***
	(0.058)	(0.058)	(0.059)
Observations	170,356	170,356	170,356
R-squared	0.840	0.840	0.840
Number of firms	22,356	22,356	22,356

Notes: The table reports the results of equation (7). *Domestic debt* are the proceeds from domestic corporate debt. *Policy* indicates macroprudential policy actions, sectoral openness, and exchange rate regime, as indicated in the columns. *Macroprudential policy* is the annual aggregated MP index by Alam et al. (2019) that is the annual sum of policy actions coded as dummies, +1 for tightening and -1 for loosening actions. *Sectoral openness* is the maximum share of foreign ownership allowed by regulation in the firms' sectors. *Exchange rate regime* is the Shambaugh (2004) indicator that is a dummy taking the value of 1 for pegged regimes and 0 for floating regimes. *Regional financial cycle* is the common factor in bank flows to countries in the region, excluding India. *Global financial cycle* is the common factor in bank flows to all countries. Firm-level controls are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, and *Export firm* is a dummy for firms with positive exports, and zero otherwise. Domestic controls are: *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period, and standard errors are provided in parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 8: Post-GFC and real effects

	(1) ln (Domestic debt)	(2) ln (FX debt)	(3) Ln (Investments)	(4) ln (Domestic debt)	(5) ln (FX debt)
				Non-exporter firms	
Regional financial cycle*Post 2010	0.094***	0.119	-	-	-
	(0.019)	(0.100)			
Post 2010	-0.136***	-0.001	-	-	-
	(0.016)	(0.072)			
Regional financial cycle	0.068***	0.030	0.028***	0.031***	-0.003
	(0.010)	(0.064)	(0.005)	(0.012)	(0.098)
Global financial cycle	-0.003	0.088***	0.018***	-0.004	0.095**
	(0.005)	(0.027)	(0.003)	(0.007)	(0.046)
Size	0.790***	0.332***	0.778***	0.725***	0.251***
	(0.010)	(0.047)	(0.006)	(0.011)	(0.069)
Liquidity	-0.015***	0.013*	-0.004***	-0.009***	0.012
	(0.002)	(0.007)	(0.001)	(0.002)	(0.009)
Tangibility	0.126***	-0.043	2.836***	0.028	0.155
	(0.036)	(0.121)	(0.030)	(0.042)	(0.127)
Export firm	0.097***	0.098**	0.136***		
	(0.013)	(0.049)	(0.008)		
GDP growth	0.018***	-0.007	0.003***	0.015***	0.030**
	(0.002)	(0.009)	(0.001)	(0.003)	(0.013)
Stock returns	0.027	-0.166*	-0.035***	0.031	-0.261*
	(0.019)	(0.092)	(0.010)	(0.026)	(0.148)
Interbank rate	0.035***	0.043***	-0.001	0.021***	0.060***
	(0.003)	(0.013)	(0.002)	(0.004)	(0.023)
Constant	-0.863***	3.054***	-1.386***	-0.418***	3.323***
	(0.069)	(0.430)	(0.038)	(0.075)	(0.654)
Observations	170,356	6,496	255,185	106,843	2,266
R-squared	0.840	0.894	0.936	0.855	0.924
Number of firms	22,356	1,472	29,592	18,258	671

Notes: The table reports the results of the estimation of equations (1) and (2) augmented with a dummy for post-2010 period (columns 1 and 2), with real fixed assets as dependent variable (column 3), and for the subsample of non-exporters (column 4 and 5). *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings (in INR million). *Investments* are the real fixed assets as a proxy for real investments of the firm. *Regional financial cycle* is the common factor in bank flows to countries in the region, excluding India. *Post 2010* is a dummy taking the value of 1 for the period post-2010, and 0 otherwise. *Global financial cycle* is the common factor in bank flows to all countries. Firm-level controls are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, and *Export firm* is a dummy for firms with positive exports, and zero otherwise. Domestic controls are: *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period, and standard errors are provided in parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 9: Bank-to-bank flows

	(1)	(2)
Dependent variable=	**ln (Domestic debt)**	**ln (FX debt)**
Regional financial cycle	0.033***	0.070**
	(0.007)	(0.028)
Global financial cycle	0.009	0.105***
	(0.005)	(0.024)
Controls	Yes	Yes
Observations	170,356	6,496
R-squared	0.840	0.894
Number of firms	22,356	1,472

Notes: The table reports the results of equations (1) and (2) with bank-to-bank flows. *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings. *Regional and global financial cycles* are the common factor in bank-to-bank flows to the countries in the region, and to all countries, respectively. Controls included are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, *Export firm* is a dummy for firms with positive exports, and zero otherwise, *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 10: 2SLS regressions

Dependent variable=	(1) **ln (Domestic debt)**	(2) **ln (FX debt)**
Regional financial cycle	0.195***	-0.041
	(0.04)	(0.07)
Global financial cycle	0.009	0.079**
	(0.01)	(0.037)
Controls	Yes	Yes
Observations	144,425	5,903
Under-identification test	0.000	0.000
Hansen J statistics	0.165	0.158

Notes: The table reports the results of instrumental variable (2SLS) regressions. *Domestic debt* are the proceeds from domestic corporate debt. *FX debt* are the proceeds from foreign currency borrowings. *Regional and global financial cycles* are the common factor in bank-to-bank flows to the countries in the region, and to all countries, respectively. Controls included are: *Size* as log of total real assets, *Liquidity* as ratio of quick assets to quick liabilities, *Tangibility* as ratio of net fixed assets to total real assets, *Export firm* is a dummy for firms with positive exports, and zero otherwise, *GDP growth* as real GDP growth, *Stock returns* as returns of the stock market index, and *Interbank rate* as the money market interest rate. All equations include firm fixed effects, and the standard errors are clustered at firm-level. All control variables are lagged by one time period. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).