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Abstract

An important channel through which capital flows may lead to financial vulnerabilities is by fuelling domestic credit booms, the so-called "capital flows-credit growth nexus". This paper makes two important contributions to the study of this nexus (i) it adopts a sectoral approach to the relationship between cross-border capital flows and domestic credit growth and (ii) it studies how different macroprudential and financial policies affect that relationship. Using novel datasets on both sectoral flows and policy measures for 36 emerging economies for the 2000-2018 period, the results not only underscore the importance of a granular sectoral approach to identify the full range of connections between capital flows and credit growth, but also regarding the appropriate policy response. While, in general, macroprudential policies and foreign currency-based measures are more suited to mitigate the impact of banking sector flows, capital controls may be effective in the presence of non-financial corporates (NFC) and other financial corporates flows. Breaking by borrowing sectors, within macroprudential measures, lending standards and measures targeted at household credit weaken the impact of inflows on household credit and measures aimed at household credit actually strengthen the relationship between NFC flows and NFC credit suggesting a potential shift in composition.

Keywords: capital flows, domestic credit, sectors

JEL Classification: E51, F32, G15

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1 Introduction

The benefits that financial integration entails for both creditor and debtor economies have for long been established. Cross-border investment offers the possibility of income risk sharing, reducing the volatility of consumption growth, and shielding it from domestic business cycles (Fratzscher and Imbs, 2009; Kalemli-Ozcan et al., 2003). Financial integration may bring about other advantages for the recipient country, which are especially relevant to emerging and developing economies (EMEs). For instance, foreign direct investment (FDI) may be a source of employment, as well as technological transfer and managerial know-how, contributing to higher productivity levels (Kalemli-Ozcan et al., 2014). Moreover, access to international financial markets may increase the depth and liquidity of domestic markets and contribute to higher levels of investment and productivity, be it banking flows (Blanchard et al., 2015; Cingano and Hassan, 2020), equity flows (Calomiris et al., 2019) or portfolio debt flows (Williams, 2018; Larrain and Stumpner, 2017).

Notwithstanding the benefits, cross-border capital flows also bring about relevant challenges. An important channel through which capital inflows may lead to financial vulnerabilities is by fueling domestic credit booms, the so-called "capital flows-credit growth nexus". In fact, credit booms may be destabilizing, and have been found to be a prime predictor of financial crises (Reinhart and Reinhart, 2008; Schularick and Taylor, 2012; Mendoza and Terrones, 2012). The capital flows and domestic credit growth nexus is particularly relevant to policymakers in emerging economies, as large capital inflows or surges are tied to the global financial cycle, triggered by policy actions in large advanced economies (Rey, 2015).

In broad terms, crossborder capital flows may affect domestic credit simply to the extent that they are an additional source of funds available to the resident sectors, either in the form of cross-border credit to end-user sectors or as funding to the domestic financial sector, that can then be channeled to domestic credit provision. This is a direct channel which works via the credit supply. However, capital flows may also indirectly spur domestic credit demand as they lead to higher asset prices and an appreciation of the country's currency (Kohler, 2021). In turn, the latter may stimulate credit demand due to (i) increased consumption on account of wealth effects (Aizenman and Jinjarak, 2009; Sá and Wieladek, 2010; Tillmann, 2013); and (ii) improved corporate and household balance sheets, thus boosting collateral values.

This paper aims to revisit the capital flows-credit growth nexus from a sectoral perspective, and assess the impact of different financial policy measures used to address capital inflows and excessive credit growth. In doing so, this study introduces two main innovations to the literature that has focused

on the relationship between cross-border finance and domestic credit provision. First, it uses a sectoral approach on both sides of the relationship, with a more detailed sectoral classification of cross-border capital flows than previous studies, namely the split between flows into banks (BKs), other financial corporates (OFCs)[1] and non-financial corporations (NFCs). Second, it analyses the implications of the use of capital controls (CC), FX measures (FX-M), and macroprudential policy measures (MPM) on the interconnections between cross-border capital flows and domestic credit growth.

On the importance of the sectoral approach, it is crucial to split cross-border inflows between BKs, OFCs, and NFCs for two main reasons. The first is the rapid rise of shadow banking and market-based finance through OFCs. In fact, prior to the global financial crisis (GFC), global banks were highly active in raising US funding and channeling it to regional and domestic banks (Cetorelli and Goldberg, 2011, 2012). In doing so, they were instrumental in transmitting financial and monetary conditions across the globe, as argued by Rey (2015), Bruno and Shin (2015b,a) and Miranda-Agrippino and Rey (2020). Since the GFC, however, there has been a considerable retrenchment in cross-border banking while market-based finance expanded considerably, a development which Shin (2013) dubbed the second phase of global liquidity.[2] Two broad sets of explanations have been put forward for the emergence of market-based finance. On the one hand, regulatory measures put in place in the post-GFC period may have induced a shift of some banking services to OFCs (Claessens et al., 2021). On the other hand, the low interest rate environment and the deployment of asset purchases by several central banks, have also contributed to a decline in the costs of market-based finance. For instance, McCauley et al. (2015) argue that the compression in yields achieved by the Fed's asset purchases generated spillovers to other markets and led to an increased appetite of global investors for US dollar-denominated bonds issued by non-US entities.

The second reason that warrants a sectoral approach to cross-border capital flows is that, in the case of EMEs, several studies have illustrated the relevance of NFCs as financial intermediaries in the post-crisis period, a role at least in part spurred by regulatory measures. In particular, the concerns that accommodative monetary policy in advanced economies might trigger carry-trade strategies and capital flow surges, conducive to credit booms and local currency appreciation, has prompted authorities to tighten regulation. According to McCauley et al. (2013), this has opened the possibility of regulatory arbitrage involving NFCs. In fact, NFCs may carry out offshore bond issuance and channel these funds onshore from the financial centres where they were raised via an inter-company loan, which is considered

[1] Henceforth, we use other financial corporates to refer to non-bank financial institutions.
[2] See also Adrian and Shin (2010), Pozsar and Singh (2011), Antill et al. (2014) and Sunderam (2015).

as FDI. Bruno and Shin (2017) corroborate this conjecture, showing that emerging market NFCs are more likely to issue US dollar-denominated bonds in periods when the dollar carry trade is more favourable. The latter also applies to those firms that already possess large cash holdings and rules out precautionary borrowing as a motivation. Moreover, in their study of a panel of several hundred NFCs of 18 EMEs, Caballero et al. (2016) conclude that these corporations are more likely to hold the resources obtained from foreign currency bond issuances in liquid assets not only in the presence of high potential returns from carry trade, but also when capital account restrictions on inflows are in place. Consequently, the sectoral composition of capital inflows, particularly to EMEs, provides a better understanding of the causes and consequences of cross-border financial flows, as opposed to aggregate cross-border flows.

To better capture the relationship between sectoral cross-border capital flows and domestic credit, we also explore a sectoral breakdown on the domestic credit side: credit provided by all lending sectors (including the external sector) to, separately, NFCs and households (HHs). In addition to obtaining insights on intermediation patterns and chains, studying NFC and HH credit separately is also a relevant economic policy and financial stability concern. While NFC credit tends to be associated with productive investment and higher GDP growth, HH credit is not since it is typically geared towards real estate and consumption – see Beck et al. (2012), Bezemer et al. (2016), Mller and Verner (2021).[3] Additionally, higher levels of HH credit tend to co-exist alongside larger external imbalances Büyükkarabacak and Krause (2009) and an increased probability of crisis, followed by deeper and more prolonged recessions Büyükkarabacak and Valev (2010); Claessens et al. (2010); Cecchetti et al. (2011); Lane and Milesi-Ferretti (2011).

Turning to the role of financial policy measures, we assess whether the deployment of CCs, FX-M, and MPMs affect the relationship between cross-border capital flows and domestic credit. The post-GFC period saw the emergence of three major financial policy trends, as pointed out in Lepers and Mehigan (2019). First, a global consensus emerged on the need to move from a micro to a macro-prudential approach of financial regulation and tools, leading to the setting of clear macroprudential mandates and authorities across the world; and a wide expansion of the macro-prudential policy toolkit. Second, FX-M that apply a less favourable treatment to foreign currency operations relative to local currency ones have proliferated as a way to reduce dollarization, currency mismatches, and/or address capital inflow surges - see Crescenzio et al. (2015, 2017, 2021); Ahnert et al. (2020); Frost et al. (2020). Third, there is a renewed debate on the desirability of CCs and their use as prudential tools as EMEs were flooded with capital in

[3]For a more general discussion on the relationship between finance and economic growth see King and Levine (1993), Arcand et al. (2015), Beck et al. (2014), Beck et al. (2014), Cecchetti and Kharroubi (2012) and Levine et al. (2000).

the post-GFC years, on the back of accommodative monetary policy in advanced economies Erten et al. (2019); Rebucci and Ma (2019). Some economies used CCs to stem the wave of inflows, and the IMF, through its "Institutional View", changed its policy stance on CCs as it now supports the use of capital flow management measures in limited cases. More recently, the IMF developed an "integrated policy framework" that examines which of MPMs, CCs, monetary policy, and FX-M, or their combinations is optimal under different circumstances. The focus of that work is on small open economies, typically EMEs, that must cope with spillovers of international financial conditions described in Rey (2015). To date, there is, however, scarcity of work on the relative effectiveness of these financial policies in mitigating the link between capital flows and domestic credit growth, as most of the literature looks separately at the impact of capital controls on capital flows, and macroprudential policy on domestic credit growth. Accordingly, this paper tries to fill this gap.

As a result, this paper provides a comprehensive mapping of sectoral transmission channels between capital flows and credit growth, and of the implications of MPMs and other financial policies in mitigating or amplifying specific sectoral linkages. Figure 1 provides a schematic diagram illustrating these channels between sectoral capital inflows, sectoral credit, and financial policy measures. The end-sectors of interest, from a domestic credit perspective, are HHs and NFCs, which can receive funding from domestic BKs and domestic OFCs. These domestic financial institutions can themselves get funding domestically or cross-border from foreign BKs and foreign OFCs. In addition, large NFCs may directly receive funding cross-border through loans by global banks or by issuing bonds on international capital markets, a channel which is not available to HHs and is unlikely for SMEs. In terms of financial policy measures, macroprudential policy generally applies to the banking sector.[4] It may act on the liability side of banks, e.g. reserve requirements on short-term liabilities, or on the asset side, e.g. credit growth limits, loan-to-value caps etc. The liability measures will impact BKs' funding, including from abroad and may thus have effects on the capital inflows to resident banks. The asset-side measures will generally impact credit growth to domestic HH and NFCs. MPMs should thus be a prime candidate to mitigate the link between capital flows and domestic credit growth insofar as the role of the banking sector is central to this transmission. Similarly, FX-differentiated macroprudential policy measures, e.g. reserve requirements on FX liabilities, should act in the same way except that they will discourage FX assets and liabilities of banks relative to local currency ones. Insofar as cross-border capital transactions in EMEs are typically denominated in foreign currency, this should have a stronger impact on capital flows. Finally, CCs, i.e.

[4] Macroprudential policy beyond banking is the subject of important debates nowadays, in particular the insurance sector and the investment fund sector Board (2016); FSB (2020)

measures based on the residency of counterparties (foreign vs. domestic) will impact only the cross-border dimension, not operations involving only residents, and should impact cross-border funding of resident BKs and OFCs. Figure 1 also illustrates possibilities of circumvention of domestic policies.

To address the questions in this paper, we proceed as follows. We use the Lepers and Mercado (2021) sectoral capital flows dataset and construct a sectoral credit growth dataset to capture the capital flows-credit nexus from a sectoral perspective, for 36 emerging economies, from 2000 to 2018. Next, we extend the analysis by using the Lepers and Mehigan (2019) dataset on financial policy measures, examining whether the use of financial policy measures decreases credit growth to NFCs and HHs or the capital flows-credit nexus previously identified. We conduct several empirical analyses, including 1) differentiating between different types of financial policy measures; 2) focusing on the share of NFC credit in total private non-financial credit; 3) differentiating between NFC loans and bonds; and 4) differentiating between exchange rate regimes.

Several new findings are raised. Starting with the relationship between cross-border capital flows and credit growth, in addition to the expected links between banking flows and domestic credit, we uncover new evidence that debt inflows to NFCs and OFCs in EMEs also increase both NFC and HH credit growth. On the role of financial policy measures, we show that, in addition to the direct impact of financial policy measures on domestic credit growth, the indirect stabilizing effect of these policies through the reduction of the sensitivity of credit to inflows - hence taming the flows-credit nexus - is of important consideration.

Furthermore, different sectoral capital flows, as well as end-user NFC or HH sector may call for using different financial policy measures. Specifically 1) MPMs are effective in taming the nexus between banking flows and credit – an intuitive result given that they are mostly aimed at the banking activity – and they are also effective in the interaction between OFC inflows and HH credit; 2) FX-M are also effective with banking flows, as well as with NFC inflows and HH credit; 3) in turn, CCs mitigate the impact of NFC and OFC inflows on NFC credit growth and OFC inflows on HH credit growth; in contrast, they have no impact on the BK inflow nexus; 4) within MPMs, lending standards and MPMs specifically aimed at HH credit are the measures that weaken the impact of inflows on HH credit; in turn, MPMs aimed at HH credit actually strengthen the relationship between NFC flows and NFC credit. In summary, these results reveal and highlight sectoral heterogeneities in assessing the impact of capital inflow on credit growth, as well as in the effectiveness of financial policy measures.

The rest of the paper is organized as follows: Section 2 reviews related literature; Section 3 discusses the data sources and stylized facts; Section 4 presents the empirical approach and results; Section 5

provides extensions to the baseline results; finally, Section 6 concludes.

2 Literature review

This section provides a review of the literature, firstly, on the interaction between cross-border capital flows and domestic credit dynamics and, secondly, on the impact of macroprudential and capital control policies on credit provision.

2.1 Cross-border capital flows and domestic credit

Seminal contributions associate large international capital flows with periods of rapid credit growth – see Calvo (1998), Calvo et al. (2004, 2008), Mendoza and Terrones (2008, 2012) and Calderon and Kubota (2012). Others, such as Reinhart and Reinhart (2008), Caballero (2012), Amri et al. (2016) and Mercado (2018) determine the likelihood of the emergence of crisis episodes following capital flow bonanzas. Assessing the role of exchange rate regimes, Magud et al. (2014) show that, in EMEs with relatively inflexible regimes, domestic credit is larger during capital inflow bonanzas and its composition tends to shift towards foreign currency. Their findings suggest that economies with less flexible regimes are more vulnerable to sudden stops.

As the literature developed, a second wave of papers sought to provide more granular analysis on the link between capital flows and credit. On the one hand, Lane and McQuade (2014) split flows into equity and debt and found that only debt flows significantly co-move with domestic credit, in a sample including mostly European countries and in the run-up to the GFC. They also concluded that these findings hold in a larger sample of 54 advanced economies and emerging markets. Subsequently, Carvalho (2019) analysed the relationship of cross-border flows with both credit and broad money, also in the pre-crisis period, and for a sample or roughly 50 countries, encompassing OECD members, as well as other Latin American and Asian EMEs. For that purpose, in addition to the equity/debt characterisation employed by Lane and McQuade (2014), he further split flows by recipient sector, into the money-issuing (central bank and banks) and money-holding sectors (general government and remaining non-monetary private sectors). Importantly, in both papers the credit measure used is bank credit provided to the aggregate private non-financial sectors. On the other hand, and in contrast, Igan and Tan (2017) consider the interaction between cross-border flows and credit provided by all lenders to NFCs and HHs separately (in a somewhat smaller sample of both advanced economies and emerging markets); however, the authors use aggregate measures of capital flows by the main instrument classes (foreign direct investment, portfolio investment

and other investment).

To our knowledge, there are only two studies that simultaneously explored a more granular breakdown of both capital flow and credit measures using either specific or broader sectoral groups. The first, Samarina and Bezemer (2016), show that cross-border flows to the non-bank sectors are associated with a higher proportion of credit to HHs; the same mechanism is not associated to capital flows into the domestic banking sector. Furthermore, the change in the composition of bank balance sheets is higher in countries with fewer investment opportunities. In the second, Carvalho (2021) finds several differences, not only depending on which credit measures are considered and which instrument and recipient sector of flows, but also across advanced economies and emerging markets. Notwithstanding, in both cases the sectoral composition of cross-border flows is restricted to the four main classifications. One important limitation of that is the overly broad category of "other sectors", which includes not only OFCs, but also NFCs and HHs.

A final strand of this literature has, more recently, explored these questions at the micro level. Dinger and te Kaat (2020) and te Kaat (2020) conclude that banks, especially those less capitalised, provide more credit and of lower quality in response to higher cross-border flows. In turn, Bednarek et al. (2020) show that bank inflows during retrenchment episodes increase lending to firms with more collateral. Baskaya et al. (2017) focus on banks operating in Turkey and find that higher capital inflows induce the larger, better capitalised and with higher non-core liabilities banks to increase credit provision. They also find that this effect is stronger for domestic than foreign banks. Finally, Li and Su (2019) bring the maturity structure of loans to the discussion. They document that capital inflows tend to concentrate in shorter maturities, leading to a maturity-shortening effect, relatively cheaper short-term borrowing and larger term spread.

2.2 Financial policy measures and their impact on domestic credit

In recent years, a solid body of evidence has testified to the effectiveness of macroprudential policy in diminishing credit growth, particularly borrower-based policies like caps on loan-to-value (LTV) and debt service-to-income (DSTI) ratios (Cerutti et al., 2017; Akinci and Olmstead-Rumsey, 2018), but has not found these measures to be effective in limiting house price growth (Kuttner and Shim, 2017). Schularick and Shim (2017) find that reserve requirements reduce credit growth over one to four years, while borrower-based tools are effective only on credit in a timespan of one to two years. Testing the impact of macroprudential policy on capital inflows has seen relatively little empirical efforts, as their impact would, in theory, be secondary rather than primary. A few studies have demonstrated the impact

of FX-M on flows, as a large share of cross-border transactions are denominated in foreign currency (Ahnert et al., 2020; Crescenzio et al., 2021). In a recent study, Eller et al. (2019) find that traditional MPMs reduce the volume of gross capital inflows in a majority of Central, East, and South East European economies but not their volatility.

Theoretical contributions have been made calling for optimally adjusting CCs along the domestic credit cycle for prudential purposes (Korinek and Sandri, 2016). There is, however, limited evidence in practice of a countercyclical prudential role for CCs. Fernández et al. (2015) find that CCs are remarkably a-cyclical, including during the GFC. Pandey et al. (2015) consider the case of India, and conclude that CCs were used primarily in response to exchange rate movements, and that macroprudential concerns do not seem to be a factor shaping their use. More recently, Pasricha (2017) demonstrates that adjustments of controls on flows in EMEs responded systematically to both mercantilist and macroprudential concerns. Specifically, EMEs have been using both controls on inflows and outflows for mercantilist motives, while only using controls on inflows for macroprudential purposes. Overall, the use of CCs has been found to be "sticky", not adjusted frequently and remaining in place for a long time when introduced (Acosta-Henao et al., 2020).

Testing the comparative effectiveness of CCs, FX-M and MPM on both domestic credit growth and capital flows, Lepers and Mehigan (2019) note several findings. First, episodic CCs on bonds and credit seem to reduce capital inflows but not credit growth. Second, traditional MPM reduce credit growth but do not seem to alter capital inflows. Third, reserve requirement on FX liabilities and other measures on FX assets have a negative impact on both inflows and credit growth. In a similar exercise, Frost et al. (2020) find that capital inflow volumes are lower where FX-M macroprudential tools have been activated, while they find no effect from the imposition of CCs. However, these studies do not account for the role of capital flows as determinants of credit growth, and have thus not tested the role of different policies in mitigating or amplifying this relationship.

To the extent that the role of capital flows in fueling domestic credit bubbles is a core concern of policymakers from a financial stability point of view, empirical evidence appears missing regarding the effectiveness of policies in controlling or taming this channel. This paper fills this gap by studying the impact of financial policy measures on this transmission channel but from a sectoral perspective.

3 Data Sources and Stylized Facts

3.1 Sectoral Capital Inflows

The data on sectoral capital inflows to BKs, OFCs, and NFCs are sourced from the Lepers and Mercado (2021) sectoral capital flows dataset.[5] This dataset uses the IMF's Balance of Payments Statistics (BoP) as its primary data source as it provides sectoral breakdown for portfolio and other investment resident (asset) and non-resident (liability) flows. The reported sectoral flows follow the residency principle such that sectoral capital inflows refer to the resident investee or recipient sectors of non-resident flows, which reflect a net incurrence of liabilities to non-residents. In line with the growing number of studies that have stressed the importance of gross flows, we focus our attention on gross liability inflows see Milesi-Ferretti and Tille (2011), Forbes and Warnock (2012), Broner et al. (2013), Bluedorn et al. (2013) and Borio and Disyatat (2010, 2015).

As the IMF's BoP Statistics report the sectoral breakdown for portfolio and other investment flows, the largest share of Lepers and Mercado (2021) sectoral flows data are reported values. Some economies, however, do not report a detailed breakdown of Other Sector flows into NFC and OFC flows for some or all years; while there are years when some countries do not report specific sectoral flows for central bank (CB), general government (GG), and/or banks (BKs). In these cases, the authors filled in missing values or approximate sectoral values based on weights from available stock data – please refer to Appendix A.1 for a detailed description of how missing values are computed.

Figure 2 presents sectoral capital inflows to emerging economies.[6] It highlights that the largest recipient of non-resident capital inflows were NFCs, followed by the banking sector. Non-resident capital inflows to the GG sector grew since the 2008-09 global financial crisis. In fact, for some years, they were larger than banking sector inflows. Figure 3 shows the breakdown of sectoral debt inflows, which includes portfolio debt and loans, for EMEs. The figure reveals that the largest debt inflows were channeled to the GG sector in the post-GFC period, followed by NFCs and BKs. Sectoral debt inflows were also highly volatile over the sample period. Comparing Figures 2 and 3 implies that the bulk of capital inflows to EMEs were equity-type flows, specifically, FDI and portfolio equity, and NFCs were the main recipients. Figure 4 validates that the largest share of sectoral equity inflows to EMEs is that of the NFCs, although this trend has been declining since 2013.

[5] The Lepers and Mercado (2021) dataset also provides sectoral capital flows breakdown for general government (GG) and central bank/monetary authority (CBs).

[6] Refer to Appendix A.2 for the list of emerging economies in the sample.

3.2 Sectoral Credit Growth

Data on NFCs and HH credit separetely is collected making use of several different sources. Our primary data source is the Mbaye et al. (2018) Global Debt Database, the secondary source are the BIS Credit Statistics;[7] and finally, the last source are the Sectoral Financial Accounts – obtained from the OECD, Eurostat, and national sources – where credit data is derived from the liability side of NFC and HH sectors balance sheets. As the Mbaye et al. (2018) Global Debt Dataset and BIS Credit Statistics do not provide an instrument breakdown of debt, we use Sectoral Financial Accounts data to split NFC and HH credit into loans and bonds for the selected emerging economies sample. The above mentioned data sources define credit as encompassing the sum of loans and bonds (debt securities), and have no information on the lending sector, i.e., they capture credit provided by all sectors, including BKs, OFCs, NFCs, and non-residents.

All credit data are converted to US dollar values, using average period exchange rate. We collect data from 1999 to 2018 for a sample of EMEs. Credit growth is computed as the log difference between present and past year credit data.

Figures 5, and 6 present stylized facts on private credit to NFCs and HHs; and loans and bonds credit to NFCs and HHs. Data refer to the annual median values of credit to GDP data across emerging economies sample. Several observations are noted. First, across private borrower sectors, NFCs received most credit, while HH credit had been stable over the past decade. Second, most NFC and HH credits are in the form of loans. Nonetheless, the share of credit in the form of bonds had increased for NFCs and remained stable since 2012, in line with Shin (2013).

3.3 Macroprudential policy, FX measures, and capital controls

This paper focuses on three types of financial policies, namely MPMs, FX-M, and CCs. While we note that these categories have been increasingly blurred and subject to debate, we follow Lepers and Mehigan (2019) in adopting an objective classification of measures based on the type of discrimination in the regulation rather than the intent of the measures or their impact, which may be multiple and difficult to capture.[8] Thus, FX-M are measures that discriminate on the basis of the currency of an operation, such as differentiated reserve requirements, LTVs on foreign currency lending, taxes on foreign currency liabilities. CCs discriminate based on the residency of the transactions' counterparties, imposing a stricter treatment on operations between non-residents and residents than purely resident transactions,

[7] See Dembiermont et al. (2013) for further details.

[8] CC may be prudential in nature, while FX-M may have capital flow management rather than domestic prudential intent.

such as taxes on portfolio inflows, prohibition of foreign investment in specific sectors, or authorisation requirements for the acquisition by foreigners of real estate. MPM refer to traditional macroprudential tools, that do not discriminate neither by residency, nor by currency.

The data on CCs are from the OECD and were presented in Lepers and Mehigan (2019), which provides, to date, the most comprehensive data on capital control adjustments. It includes over 2,300 adjustments for a set of 51 economies since 1999 and provides a split by controls on inward and outward transactions, as well as by asset classes (FDI, bond, money markets, equity, derivatives, credit, real estate, personal transactions). Consistent with the channels to be tested, we only use in the empirical analysis CCs on inflows. The adjustments in inflow CCs on every asset classes are summed for each year to create our CC index.

The data on MPMs are from the IMF Integrated Macroprudential Policy (iMaPP), which also provides the most comprehensive macroprudential dataset available, coding all major types of macroprudential actions for a large set of countries since 1990 (Alam et al., 2019). Our MPM index is thus the sum of all non-discriminatory macroprudential adjustments each year, such as LTV caps, Debt Service to Income (DSTI) caps, capital buffers, liquidity ratios, among others. As these macroprudential tools are very diverse, adress different problems and have different effects, we create, for the sake of our empirical analysis, two further breakdown. Fist, capital based (CB) tools are those that adjust the level of capital required or the risk weights used in its calculation vs. lending standards (LS), which are those that have a direct impact on loan transactions, such as LTV caps. Second, we reclassify all MPM adjustments according to whether they are targeted at households specifically and MPM that are targeted at corporates, complementing the split provided by Alam et al. (2019) and, hence, matching our sectoral credit growth variables.

Finally, our FX-M index is the yearly sum of adjustments in the FX related tools coded in the IMF iMaPP dataset, cross-checked with the FX-M dataset of Crescenzio et al. (2015). They include regulations on FX liabilities, FX assets, FX liquidity ratios and reserve requirements.

Until recently, the literature mainly looked at the presence or absence of a measure rather than policy changes, which is problematic. Accordingly, our focus is not on the presence of these measures, but on their adjustments. For each policy type, the data is collected following the same consistent method that became standard in the literature on effectiveness, i.e. a removal or easing of a policy measure is coded as -1 and the introduction or tightening of a measure as +1. The policy data is then aggregated to annual frequency for the sake of the present paper by summing up the different policy actions made each year. As we are interested in the effectiveness of stricter regulations on credit growth, we only use the

tightening policy actions for our empirical analysis.

Figures 7 and 8 show, respectively, the yearly number of adjustments, and the cumulative number of adjustments of MPM, FX-M, and CC in our emerging country sample, with negative values representing the number of easing actions, and all values above 0 representing the number of tightening actions. They illustrate in particular the proliferation of macroprudential policy actions in the years following the GFC, with a temporary and unsurprising easing of macroprudential tools during the GFC. They also show a greater use of CCs on inflows and currency-based measures in the post crisis period. Nonetheless, the number of CC-easing is much higher than the tightening actions throughout the last 30 years, but particularly in the post-crisis period, reflecting the continued gradual capital account liberalisation in emerging markets. What is of interest is also that EMEs have been using macroprudential tools much earlier than advanced economies, and that the substantial number of MPM actions pre-crisis provides some perspective on the narrative showing that macroprudential policy as a purely post-2008 phenomenon.

4 Empirical approach and results

In this section, we start by exploring the relationship between sectoral capital inflows and domestic credit growth. We subsequently extend the analysis to consider the role of financial policy measures.

4.1 Cross-border capital inflows and sectoral credit growth

This section focuses on the link between cross-border sectoral capital inflows and credit growth. To the best of our knowledge, ours is the first study to explore, in a panel setting, the relationship between domestic credit developments and a sectoral breakdown of cross-border inflows including NFCs and OFCs. We use the following standard empirical approach:

$$\Delta ln(CRE^{s}_{i,t}) = \beta CF^{j,c}_{i,t-1} + \theta X_{i,t-1} + \varepsilon_{i,t} \tag{1}$$

where $ln(CRE^{s}_{i,t})$ is the log of credit to a given sector s, which is either NFC or HH; $CF^{j,c}_{i,t-1}$ are the capital flow variables, i.e., liability inflows, scaled by nominal GDP, of sector j including BKs, NFCs, OFCs and the GG sector, and where c stands for asset classes, either equity (E) or debt (D); $X_{i,t-1}$ is a set of standard control variables, which includes the lagged level of the credit measure in question to control for initial credit levels and financial development, as well as the log of GDP per capita, real GDP growth, interest rates and inflation.[9] Importantly, all explanatory variables are included with a 1-year

[9] See Data appendix A.3 for more details on the control variables.

lag, to alleviate the possibility of reverse causality and endogeneity. Moreover, country and time fixed effects are included. Finally, the standard errors are clustered at the country level. Table 1 presents the descriptive statistics of selected variables.

Results are presented in Tables 2. The first main observation pertains to the strong difference between sectoral equity and debt inflows. While sectoral equity inflows display no significant relationship with domestic credit (with the sole exception of a weakly significant relationship between NFC equity inflows on NFC credit growth), debt inflows of all sectors, excluding the GG sector, are strongly significant. These results are fully in line with the literature, as first observed by Lane and McQuade (2014) and subsequently corroborated by, for instance, Carvalho (2019) and Carvalho (2021). In addition, in terms of magnitudes, these results are broadly in line with the previous studies. In particular, a 1 percentage point of GDP increase in debt inflows leads to between, depending on the recipient sector, roughly 1.2 to 3.4 percentage points increase in credit extended to NFCs and 2 to 3.75 percentage points increase in HH credit.

Following these results, we focus our succeeding analyses on the cross-border debt inflows of private sectors only, as these are the ones that significantly interact with domestic credit developments.

Regarding the control variables, there is evidence of mean-reversing effects as the lagged level of the credit measures have a strongly significant negative coefficient. Moreover – and in line with DellAriccia et al. (2016) – the coefficients of GDP per capita and GDP growth are positive, showing that domestic credit growth tends to be higher in countries that experience higher growth and have higher levels of per capita income. Finally, the coefficient on the interest rate is negative, as expected, as the higher cost of finance should lead to less credit growth. Moreover, the interest rate is, by far, more relevant when it comes to household credit growth, which could be associated with the fact that the household sector has a higher dependence on the domestic banking sector. In contrast, NFCs, especially the larger ones, may have access to foreign banks or even issue securities in international capital markets, which may allow, at least to some extent, to bypass the domestic financial sector and a certain disconnect from developments in domestic interest rates.

4.2 Impact of financial policy measures on the relationship between sectoral cross-border inflows and sectoral credit growth

In this section, we add financial policy measures – CCs, FX-M and MPMs to the preceding empirical specification by extending equation 1 in the following manner:

$$\Delta ln(CRE^{s}_{i,t}) = \beta CF^{j,c}_{i,t-1} + \delta FM^{k}_{i,t-1} + \alpha \left(CF^{j,c}_{i,t-1} \times FM^{k}_{i,t-1} \right) + \theta X_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

where (i) $FM^{k}_{i,t-1}$ captures the *direct* impact of the number of tightening instances of different financial policies k (whether MPM, CC, or FX-M) on credit growth and (ii) and $\left(CF^{j,c}_{i,t-1} \times FM^{k}_{i,t-1} \right)$, an interaction term between the different cross-border sectoral capital inflow and the financial policy measures, captures the *indirect* effect. Specifically, the sign of the coefficient α informs on whether financial policy measures mitigate or exacerbate the impact of sectoral inflows on NFC and HH credit growth, i.e. the "capital flows-credit nexus".[10]

Table 3 displays the results for total macroprudential measures (MPM), as well as the other two types of financial policies that have either currency or residency discrimination, i.e., capital controls (CC) and FX-based measures ($FX\text{-}M$). The first observation is that, whenever significant, the coefficient on the interaction term of capital flows and financial policy measures has the expected negative sign, both in the case of NFC and HH credit. Starting with MPMs, the interaction coefficient is highly significant for BK flows, in the NFC and HH credit regressions. Accordingly, the latter indicates that, as a whole, macroprudential policy does partially counteract the effect of cross-border banking debt inflows on both NFC and HH credit growth, as well as, albeit with a weakly significant coefficient for OFC debt inflows in the case of HH credit growth. That this effect should mostly affect banking debt inflows is likely associated with the fact that most macroprudential policies apply to the banking sector. In this sense, the present evidence corroborates their effectiveness.

Moving to CCs and FX-M, CCs on debt inflows have no impact per se on credit growth, consistent with results in Lepers and Mehigan (2019) and FX-M have either no effect or, at times, counterproductive positive impact on credit growth. Turning to the indirect impact on credit growth through the mitigation of the capital flows-credit nexus, CCs on inflows have no impact on the link between BK debt inflows and NFC and HH credit growth, but they weaken the link between NFC debt inflows and NFC credit, as well as the link between OFC debt inflows and NFC and HH credit growth. As for FX-M, they have a strong negative impact on the inflows to banks and credit growth; no impact on the inflows to OFC link; and weaken the positive impact of NFC debt inflows on HH credit growth.

[10] As both financial policy measures and sectoral capital inflows are continuous variables, the sign of the interaction term will inform us whether tightening financial policies given rising sectoral inflows will increase or decrease sectoral credit growth. For instance, if the sign of the interaction term is negative, this means that at higher levels of sectoral inflows increasing tightening measures will reduce sectoral credit growth.

4.3 Types of macroprudential measures

As macroprudential policy encompasses adjustments in a variety of tools, we seek to get closer to the transmission channels of policy effectiveness by splitting our overall macroprudential policy index into, on the one hand capital-based measures (CB) and lending standards (LS) and, on the other hand, measures that are specifically aimed at NFC credit (NFC) and HH credit (HH). Table 4 shows the regression results with CB measures and LS, while Table 5 focuses on MPM aiming at the NFC and HH sectors.

Starting with Table 4, there are fewer instances of significant relationships. Importantly, MPMs based on LS have a negative impact on the interaction between banking debt inflows and HH credit growth. This is an intuitive result as lending standards tend to focus on restrictions affecting loans granted by banks to HHs. Table 5 also shows few instances of statistically significant relationships and only involving MPMs aimed at HH credit. The first case pertains to cross-border banking debt inflows and HH credit, which is expected as the banking sector is the main provider of funding to the HH sector. The second case refers to NFC debt inflows and corporate credit growth, and is different in nature since the coefficient is positive, the only such instance. Accordingly, this result suggests the possibility that measures tailored to rein in excessive HH sector growth may also contribute to boost the impact of cross-border NFC inflows on NFC credit growth. Under both types of split, the interaction terms with inflows to OFCs are insignificant, consistent with the limited use of MPMs targeted at the non-bank financial sector.

5 Extensions

In this section, we include three further extensions to our baseline results: First, we replace the dependent variable (sectoral credit growth) by the share of NFC credit to total credit, i.e. NFC plus HH credit. Second, we dig deeper into the type of NFC credit and replace our dependent variable with a loan vs. bond split. Finally, we investigate the impact of a country's FX regime on the flow-credit nexus and on the effectiveness of different financial policies.

5.1 Share of NFC and HH credit

The previous empirical exercises sought to analyse the impact of financial policies on the volume of credit to HH and NFC separately. In addition to the level of credit and its growth, the composition of credit according to the end-user sector is also an important policy dimension, bearing in mind the studies that have found a differentiated impact of NFC and HH credit on GDP growth. Therefore, in this subsection, we seek to assess whether financial policy measures may impact the overall share of NFC to total credit.

To shed light into this question, we follow Samarina and Bezemer (2016) and change the dependent variable in equation 2 to

$$SHCRE_{i,t}^{NFC} = \beta CF_{i,t-1}^{j,c} + \delta MPM_{i,t-1}^{k} + \alpha \left(CF_{i,t-1}^{j,c} \times MPM_{i,t-1}^{k} \right) + \theta X_{i,t-1} + \varepsilon_{i,t} \tag{3}$$

where $SHCRE_{i,t}^{NFC}$ is the proportion of NFC credit on total NFC and HH credit – all the remaining variables remain the same as before.

The results of this exercise are displayed in Tables 6 and 7. In all statistically significant cases, the interaction term between between capital flows and financial policies is positive, i.e., financial policies accentuate the role of cross-border debt inflows in increasing the proportion of NFC credit to total credit for NFCs.

In some instances, this mechanism likely works via a denominator effect, by negatively affecting the relationship between cross-border debt inflows and HH credit growth – for instance, in the case of the interaction between banking sector debt inflows and LS and between OFC inflows and CB (Table 7). In other instances, the change is brought about by a numerator effect – for instance, since total MPMs focus, to a bigger extent, on HH credit, than they may spur the effect of OFC flows on the share of NFC credit (Table 6). Finally, the positive interaction coefficient between OFC cross-border debt inflows and MPMs aiming at NFC credit, presented in Table 6, may portray a circumvention effect, whereby these MPMs measures, which mostly condition the activities of BKs, lead to an increased role of OFCs in providing credit to NFCs.

5.2 NFC bonds and loans

This next subsection looks at the breakdown between NFC bonds and loans: while NFC loans are mostly associated with the domestic market, NFCs (especially the larger) can issue bonds in international capital markets, thus bypassing the domestic financial sector. Therefore, it could be the case that domestic financial policy measures may (i) affect mostly NFC loans and (ii) spur the recourse to bonds, as a way of avoiding those measures.

As before, we first establish which sectoral capital inflows are relevant in the case of NFC bond and loan growth and then proceed with expanding the econometric framework to include financial policy measures. A word of caution is, however, in order: it should be noted that, unfortunately, the data availability for this particular breakdown is inferior to the broader breakdown between NFC and HH credit, which may limit the comparability of the two exercises.

Starting with the inflows-only regressions, Table 8 indicates that (i) there is no significant relationship between sectoral cross-border capital inflows and NFC bond growth; and (ii) that the same positive and significant relationships with NFC loan growth occur for both equity and debt sectoral inflows, in contrast to the baseline results. In line with the latter, we proceed with augmenting the regressions with financial policy measures for both debt and equity inflows, but only for NFC loans. It turns out that CCs and FX-M are the only relevant measures, as shown in Tables 9 and 10. Specifically, CCs limit the impact of NFC and OFC debt inflows, while FX-M have a weakly-significant impact for NFC equity inflows and BK debt inflows.

5.3 FX regime

In this final subsection, we investigate whether the country's FX regime is a relevant characteristic. The differences across fixed and floating FX regimes are far from unexpected, as it has long been established that fixed FX regimes provide an implicit guarantee to those who invest in foreign currency. In turn, this protection may translate into higher credit provision with recourse to foreign currency funding than would otherwise be the case under a floating FX regime (see Montiel and Reinhart (2001) and Magud et al. (2014)).

We use the FX classification measure in Ilzetzki et al. (2019) and split the country sample in half, according to the average median value of the aforementioned measure, assigned to each individual country. With this split, we rerun the baseline regressions separately for the two subsets of countries: with relatively more fixed regimes and more flexible regimes.

Following the same reasoning as in the previous subsections, we start with regressing NFC and HH credit growth on cross-border sectoral inflows only, separately for fixed and floating FX regimes – results are presented in Tables 11 and 12. There are a few differences compared to the baseline results. First, regarding fixed FX regimes, BK and NFC cross-border equity inflows also have a significant relationship with domestic credit growth, however only with the NFC sector. Second, and still in fixed FX regimes, OFC debt inflows are no longer statistically significant. Third, turning to floating FX regimes, there are less significant relationships between sectoral cross-border inflows and domestic credit: only NFC and GG debt inflows are associated with HH credit growth, as well as, albeit weakly, NFC debt inflows with NFC credit growth.

Moving to the regressions with both cross-border sectoral inflows and financial policy measures, we start with a first block pertaining to countries with fixed FX regimes, displayed in Tables 13 and 14. The main conclusions are the following: (i) in line with previous results, financial policy measures have no

impact on the relationship between sectoral equity flows and NFC credit growth; (ii) MPMs, CCs and FX-M are effective in limiting the impact of banking sector debt inflows on NFC and HH credit growth (with the exception of CCs and NFC credit); (iv) CCs dampen the impact of NFC debt inflows on HH credit growth; and (v) FX-M exacerbate the impact of NFC debt inflows on NFC credit.

Finally, focusing on HH credit in countries with floating regimes, financial policy measures appear ineffective in controlling the effect of NFC and GG debt inflows on HH credit growth (Table 15).

6 Concluding remarks

Recent academic and policy debates consider how capital inflows fuel domestic credit booms, leading to financial vulnerabilities, the so-called "capital flows-credit growth nexus". This paper contributes to the understanding of this nexus and the associated literature in two respects. First, this study is the first to explore the link between capital flows and credit growth using a new detailed dataset on sectoral capital inflows with finer sectoral groupings than existing work (BKs, NFCs, and OFCs); and a detailed breakdown of NFCs and HHs credit growth for a sample of 36 EMEs, from 2000 to 2018. Second, instead of focusing on the direct impact of financial policy measures on credit growth of NFCs and HHs, this paper shifts the focus on the interaction effects of sectoral capital inflows and financial policy measures on credit growth – the actual nexus. Using another recent comprehensive dataset on financial policies, it examines the effectiveness of those policies in dampening the positive link between sectoral cross-border inflows and credit growth of NFCs and HHs.

Our results underscore relevant sectoral nuances on the impact of capital inflows to BKs, NFCs, and OFCs on credit growth of NFCs and HHs, as well as the effectiveness of MPMs, CCs, and FX-M in mitigating those links. These results, which are new to both the capital flows and credit growth literature, highlight complexities in the relationship between those variables across sectors, instruments, and policy measures, and have important policy and theoretical implications. In terms of policy implications, our findings contribute to crucial policy debates that consider the most appropriate policy mix and toolkit for EMEs in order to optimally manage the volatility of capital flows and to lean against credit bubbles. First, the results highlight that the indirect impact of financial policies on credit growth through the reduction of the sensitivity of credit growth to capital flows – taming the "capital flows-credit growth nexus" – has to be considered in addition to the direct impact of different financial policies on credit growth. Second, they underscore that the different sectoral characteristics of capital flow recipients and end-user sectors of credit may warrant using different policy tools and/or a combination thereof. Regarding the theoretical

implications, the discussions and findings of this paper warrant the need for theoretical models to consider sectoral, instrument, and policy measure in greater detail, in order to properly understand the vital link between capital inflows and domestic credit growth.

A Data appendix

A.1 Details of the sectoral capital flow database

This subsection provides detail on the constructions of the sectoral capital flow database by Lepers and Mercado (2021), specifically, how missing values in the reporting of the IMF Balance of Payments statistics were estimated.

Filling in missing values. For cases when data on either CB, GG, BKs, or Other Sector were unreported, the authors used the difference between total reported flows and the three reported sectors to derive the value for the missing sector, following Avdjiev et al. (2018). For filling-in the breakdown of Other Sector flows into NFC and OFC sectors for years without a breakdown, they used reported classification for years with available breakdown. For trade credit and advances, unclassified reported Other Sector flows data were classified under NFCs based on classification of most reporting economies. For insurance and pension flows, unclassified reported Other Sector flows data were classified under OFCs based on classification of most reporting economies.

Approximating missing values from average sectoral weights. For cases when values of two or more sectors were missing, data were calculated by multiplying reported total flows by the average sectoral weight(s) of the missing sector(s).[11] Similarly, for years with missing Other Sector breakdown between NFC and OFC sectors, values for either NFCs or OFCs were derived by multiplying the reported Other Sector flows by the average sectoral weight for the missing sector. Values for the remaining missing sector were then computed as the difference between the value of the reported Other Sector flows and the computed value for NFC or OFC flows. In both cases, the average sectoral weights were derived as the share of reported sectoral holding to total holdings.

For portfolio flows, the weights were primarily derived from the IMF's International Investment Position (IIP), then the IMF's Coordinated Portfolio Investment Survey (CPIS) if IIP data were unavailable, in that order. For other investment flows, weights were taken from IIP and then Bank for International Settlements Locational Banking Statistics (BIS LBS). The use of IIP sectoral breakdown was their preferred data source as they pertain to the stock equivalent of the Financial Account Balance.

Lepers and Mercado (2021) calculated sectoral values for direct investment and foreign direct in-

[11] Average sectoral weights were used instead of annual (time-varying) weights to smoothen fluctuations in weights. In addition, the practical choice of using average weights was also driven by data constraints as sectoral holdings data from BIS Locational Banking Statistics, which was used for other investment flows, are only available for 2013-2018. OECD sectoral FDI positions are also patchy for many countries in many of the years. Consequently, the computed sectoral flows, based on average weights, are interpreted as "expected" sectoral flows, which can be viewed as "how much a sector is expected to invest or borrow from abroad over time".

vestment flows based on derived average weights of BK and OFC sectors to total direct investment of an economy, with the residual classified as NFCs. Data on direct investment abroad and foreign direct investment were sourced from the OECD Foreign Direct Investment Database and national sources accessed through the CEIC. For the few remaining economies without industry breakdown on financial services for direct investment abroad and foreign direct investment, sectoral weights for BKs and OFCs were computed as the share of financial services to total direct investments multiplied by the respective shares of BKs and OFCs assets to total domestic financial system assets. These shares were derived using their respective asset holdings to total domestic financial system assets reported in the IMF's Financial System Stability Assessment country reports for available years.

To complete the dataset, the authors classified official reserve assets under CB flows while other equity flows were assumed to fall under GG as they include transactions pertaining to quasi-corporations and international institutions. Data on financial derivatives were mostly reported in net asset basis, hence they were excluded from the dataset. All reported zero values were included in the dataset. But for filled-in and computed sectoral flows, missing values were not replaced by zero values. After compiling sectoral flows for each financial account component, data were then added by sector, yielding total sectoral capital flows, which includes all types of investments. The final sectoral capital flows dataset runs from 2000 to 2018 for over 41 economies for resident sectoral flows and 64 economies for non-resident sectoral flows. In total, the sectoral capital flows dataset include 73% reported values, 7% filled-in values, and 20% computed (expected) values across five sectors and different types of investment flows.

A.2 Emerging Economies

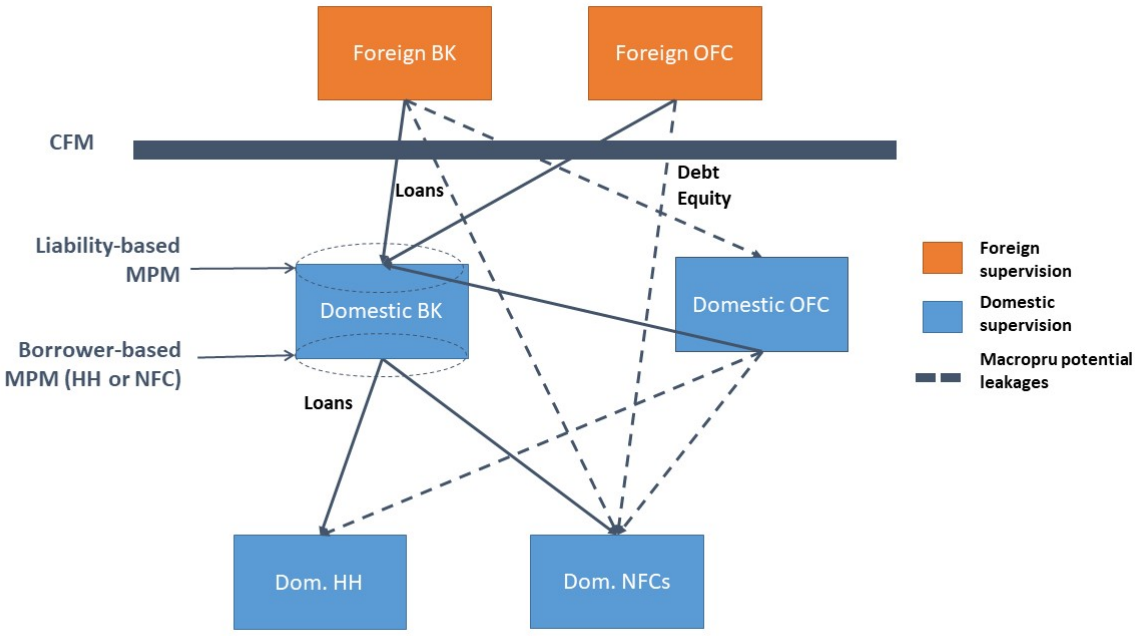
The sample of emerging economies includes: Albania, Argentina, Armenia, Belarus, Bosnia and Herzegovina, Brazil, Bulgaria, Chile, China, Colombia, Croatia, Georgia, Hungary, India, Indonesia, Kazakhstan, Kosovo, Malaysia, Mexico, Mongolia, Morocco, North Macedonia, Pakistan, Paraguay, Peru, Philippines, Poland, Romania, Russia, Serbia, South Africa, Thailand, Turkey, Ukraine, Uruguay, and Zambia.

A.3 Definitions and sources of control variables

- **GDP per capita** – per capita GDP adjusted for PPP in USD. Source: IMF World Economic Outlook.
- **GDP growth** – real GDP growth rate in %. Source: IMF World Economic Outlook.
- **Inflation rate** – CPI inflation rate in %. Source: IMF World Economic Outlook.

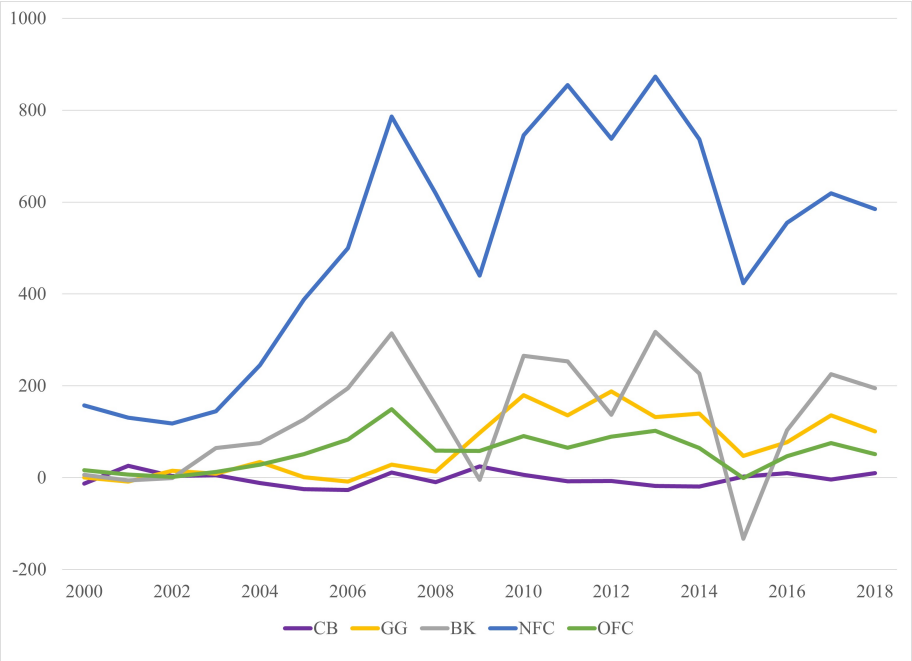
- **Interest rate** – real policy rates in %. Deposit facility rate used for euro area countries. Source: CEIC and IMF International Financial Statistics.

Figure 1: Schematic Chart of Sectoral Inflows and Credit



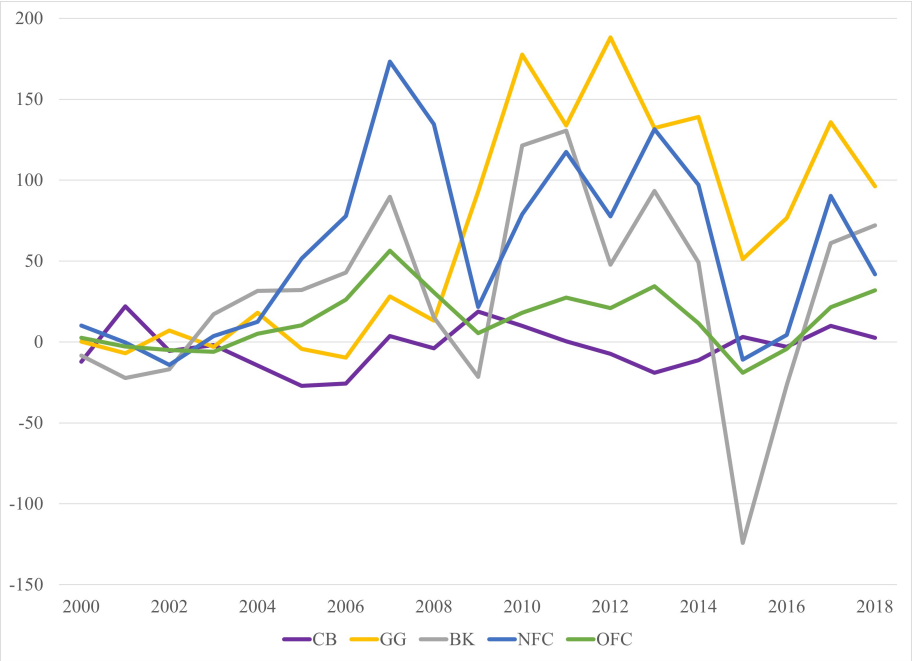
Notes: BK = banks; OFC = other financial corporates; NFC = nonfinancial corporates; HH = households; and MPM = macroprudential measures.

Figure 2: Sectoral Capital Inflows, Emerging Economies, USD billion



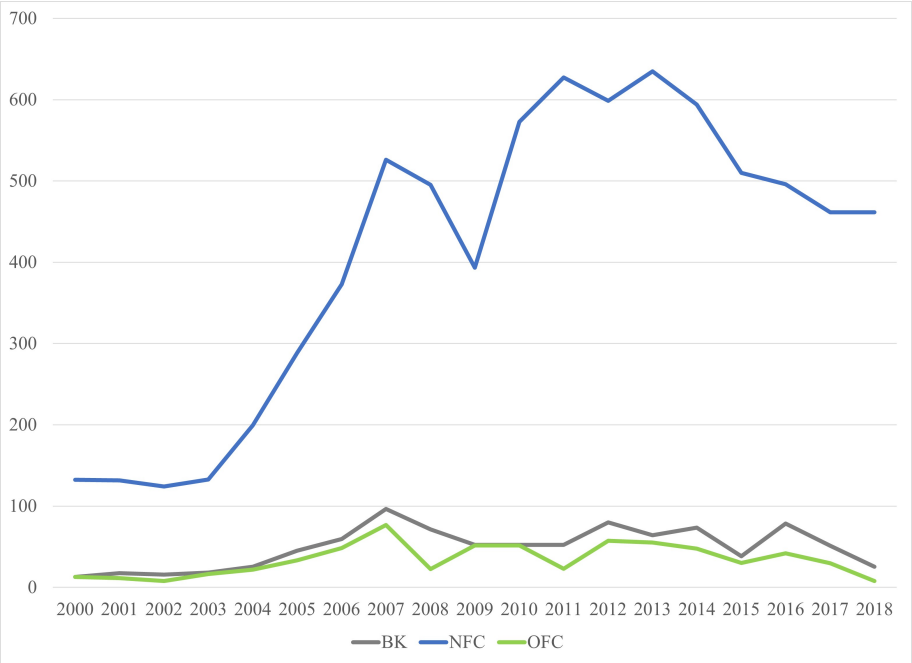
Notes: CB = central bank; GG = general government; BK = banks; NFC = nonfinancial corporates; and OFC = other financial corporates. See Appendix A2 for list of emerging economies. Data sourced from Lepers and Mercado (2021).

Figure 3: Sectoral Debt Inflows, Emerging Economies, USD billion



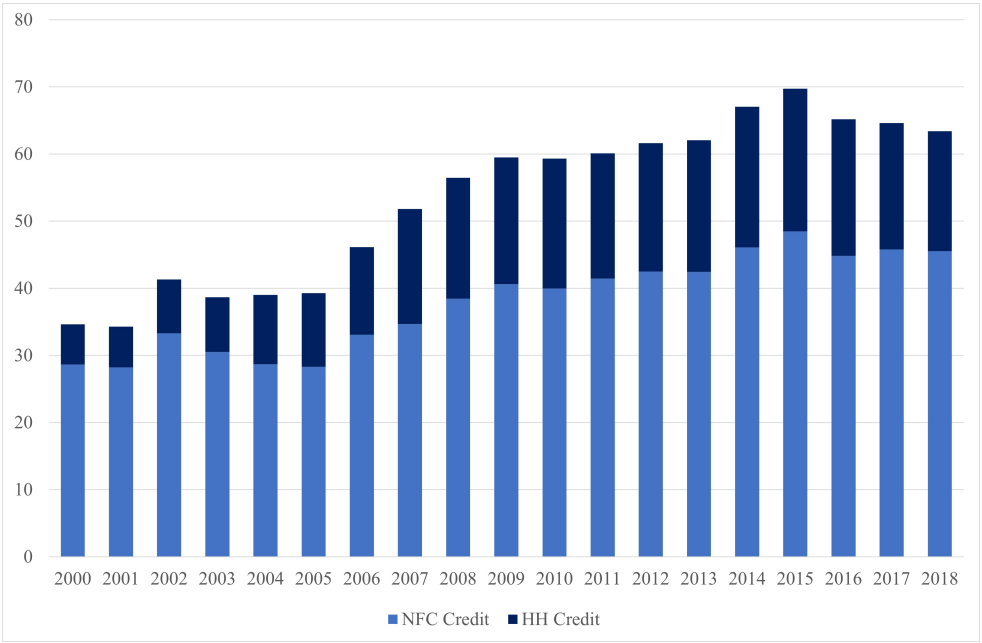
Note: CB = central bank; GG = general government; BK = banks; NFC = nonfinancial corporates; and OFC = other financial corporates. Debt inflows include portfolio debt and loans. See Appendix A2 for list of emerging economies. Data sourced from Lepers and Mercado (2021).

Figure 4: Sectoral Equity Inflows, Emerging Economies, USD billion



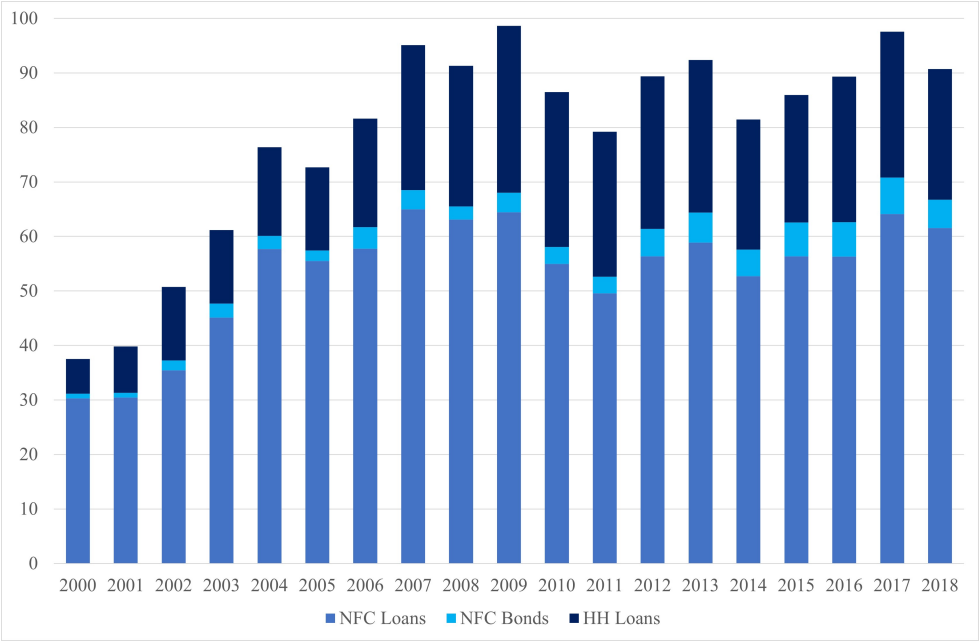
Notes: GG = general government; BK = banks; NFC = nonfinancial corporates; and OFC = other financial corporates. See Appendix A2 for list of emerging economies. Data sourced from Lepers and Mercado (2021).

Figure 5: Credit to NFCs and HHs, Emerging Economies, % of GDP Median



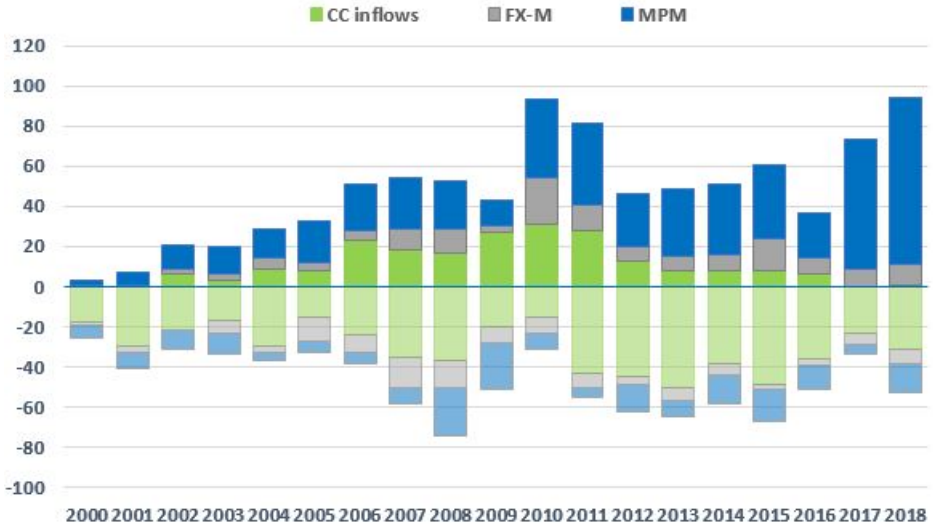
Notes: NFCs = non-financial corporates and HHs = households. Data refer to the annual median values of credit to NFCs and HHs across emerging economy sample. See Appendix A2 for list of emerging economies. Data sourced from Mbaye et al. (2018), BIS Credit Statistics, and Sectoral Accounts from OECD, Eurostat, and national sources.

Figure 6: Loans and Bonds Credit to NFCs and HHs, Emerging Economies, % of GDP Median



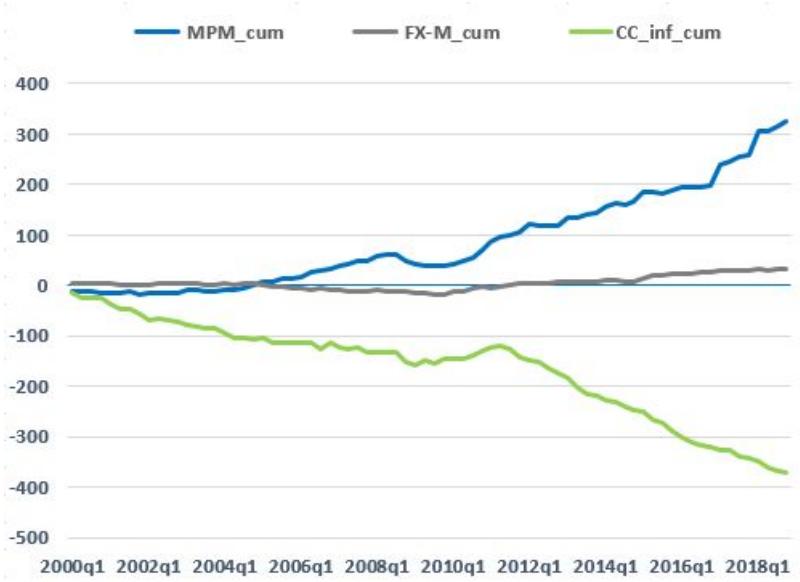
Notes: NFCs = non-financial corporates and HHs = households. Data refer to the annual median values of loans and bonds credit to NFCs and HHs across emerging economy sample. See Appendix A2 for list of emerging economies. Data sourced Sectoral Accounts from OECD, Eurostat, and national sources.

Figure 7: Yearly number of adjustments in financial policy measures, Emerging economies



Notes: CC inflows: capital controls on inflows; FX-M: currency-based measures; MPM: traditional macroprudential tools. Source: IMF iMaPP and Lepers and Mehigan (2019).

Figure 8: Cumulative adjustments in financial policy measures, Emerging economies



Notes: CC inflows: capital controls on inflows; FX-M: currency-based measures; MPM: traditional macroprudential tools. Source: IMF iMaPP and Lepers and Mehigan (2019).

Table 1: Selected Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
			Capital flows		
$CF^{BK,E}$	673	0.59	1.66	-16.10	22.19
$CF^{NFC,E}$	673	3.53	4.04	-35.87	42.29
$CF^{OFC,E}$	641	0.26	1.13	-9.90	13.47
$CF^{BK,D}$	644	0.27	1.69	-7.38	21.26
$CF^{NFC,D}$	637	0.66	2.11	-7.03	37.36
$CF^{OFC,D}$	551	0.09	0.60	-3.45	4.64
$CF^{GG,D}$	666	0.98	2.34	-20.90	13.34
			Credit data		
ΔCRE^{NFC}	420	9.45	16.55	-65.90	58.81
ΔCRE^{HH}	422	14.55	26.68	-155.78	120.50
$\Delta CRE^{NFC,B}$	170	11.82	60.16	-502.30	368.85
$\Delta CRE^{NFC,L}$	170	8.74	14.69	-27.20	54.30
$SHCRE^{NFC}$	445	70.51	12.79	37.76	97.36
			Financial policy measures		
MPM	720	1.05	1.71	0	13
CC	804	0.32	1.33	0	15
$FX\text{-}M$	720	0.20	0.57	0	5
MPM^{CB}	720	0.37	0.83	0	6
MPM^{LS}	720	0.19	0.60	0	6
MPM^{NFC}	720	0.05	0.26	0	3
MPM^{HH}	720	0.23	0.64	0	5
			Control variables		
GDP pc	719	9.26	0.57	7.63	10.26
GDP growth	718	4.20	3.69	-15.10	17.29
Inflation	715	7.42	15.34	-2.41	293.73
Interest rate	689	8.73	10.82	-0.40	183.20

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit; $CRE^{NFC,B}$ is the log of NFC credit in the form of bonds and $CRE^{NFC,L}$ in the form of loans; $SHCRE^{NFC}$ is the share of NFC credit in total NFC and HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, BK, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are BK, NFC, OFC and general government debt flows. MPM are macroprudential measures, CC are residency-based measures (capital controls on inflows) and $FX\text{-}M$ are FX-based regulations. MPM^{CB}, MPM^{LS}, MPM^{NFC} and MPM^{HH} are macroprudential measures, respectively, capital-based and lending standards, NFC and HH credit-based.

Table 2: Relationship between cross-border sectoral flows and NFC and HH credit

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ΔCRE^{NFC}				ΔCRE^{HH}			
CRE^{NFC}	-22.58***	-24.08***	-22.48***					
	(1.85)	(1.71)	(1.90)					
CRE^{HH}					-27.09***	-27.65***	-27.05***	
					(2.26)	(2.37)	(2.25)	
GDP pc	37.22**	38.17**	37.47**		47.88*	48.95**	48.16*	
	(15.84)	(15.42)	(15.89)		(23.73)	(23.63)	(23.68)	
GDP growth	0.82**	0.66**	0.82**		1.82***	1.73***	1.82***	
	(0.30)	(0.29)	(0.31)		(0.41)	(0.39)	(0.41)	
Inflation	-0.22	-0.29	-0.21		0.23	0.18	0.23	
	(0.18)	(0.18)	(0.18)		(0.21)	(0.22)	(0.21)	
Interest rate	-0.16*	-0.15	-0.16*		-0.74***	-0.73***	-0.74***	
	(0.09)	(0.09)	(0.09)		(0.10)	(0.10)	(0.10)	
$CF^{BK,E}$	0.15				0.27			
	(0.25)				(0.25)			
$CF^{NFC,E}$		0.80*				0.46		
		(0.45)				(0.40)		
$CF^{OFC,E}$			-0.34				0.18	
			(0.34)				(0.22)	
Observations	395	395	395		397	397	397	
R-squared	0.64	0.65	0.64		0.68	0.68	0.68	
Number of countries	25	25	25		25	25	25	
CRE^{NFC}	-22.10***	-23.57***	-23.14***	-22.51***				
	(2.11)	(1.98)	(2.37)	(1.93)				
CRE^{HH}					-28.22***	-28.73***	-25.14***	-28.46***
					(2.54)	(2.94)	(1.62)	(2.56)
GDP pc	36.88**	35.46**	33.06*	37.40**	52.23**	50.32*	31.29	49.92**
	(14.22)	(16.41)	(16.25)	(15.82)	(21.27)	(26.78)	(23.30)	(24.04)
GDP growth	0.67**	0.55*	0.99***	0.82**	1.47***	1.43***	1.54***	1.80***
	(0.26)	(0.29)	(0.28)	(0.31)	(0.42)	(0.30)	(0.52)	(0.44)
Inflation	-0.17	-0.21	-0.28	-0.21	0.24	0.24	0.04	0.15
	(0.18)	(0.22)	(0.20)	(0.18)	(0.22)	(0.21)	(0.17)	(0.22)
Interest rate	-0.18*	-0.19*	-0.13	-0.16*	-0.76***	-0.78***	-0.65***	-0.74***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.11)	(0.07)	(0.11)
$CF^{BK,D}$	1.20***				2.03***			
	(0.24)				(0.32)			
$CF^{NFC,D}$		2.23***				3.76***		
		(0.65)				(0.98)		
$CF^{OFC,D}$			3.42**				3.70**	
			(1.58)				(1.69)	
$CF^{GG,D}$				-0.03				1.43*
				(0.46)				(0.73)
Observations	387	375	350	395	389	377	352	397
R-squared	0.65	0.68	0.67	0.64	0.69	0.71	0.71	0.68
Number of countries	25	25	23	25	25	25	23	25

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, BK, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are BK, NFC, OFC and general government debt flows. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Impact of macroprudential and other financial policy measures on the relationship between cross-border sectoral flows and NFC and HH credit

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	ΔCRE^{NFC}									ΔCRE^{HH}								
CRE^{NFC}	-21.56***	-19.65***	-21.92***	-23.77***	-20.91***	-23.76***	-23.00***	-20.98***	-23.25***									
	(2.12)	(2.59)	(2.17)	(1.98)	(2.56)	(1.98)	(2.30)	(3.51)	(2.34)									
CRE^{HH}										-26.95***	-27.06***	-28.12***	-27.98***	-29.34***	-28.70***	-24.05***	-24.31***	-25.27***
										(2.27)	(3.03)	(2.35)	(3.13)	(3.31)	(2.80)	(1.56)	(2.84)	(1.70)
GDP pc	36.10**	33.47**	35.43**	34.85**	36.67**	35.14**	32.45*	34.33*	32.82*	46.93**	43.32**	50.46**	46.91*	59.66**	50.20*	25.10	27.14	31.41
	(14.19)	(14.56)	(14.13)	(16.39)	(15.29)	(16.30)	(16.13)	(16.72)	(16.30)	(20.88)	(19.29)	(21.23)	(26.41)	(24.60)	(25.74)	(22.98)	(17.52)	(23.32)
GDP growth	0.70**	0.70**	0.67**	0.56*	0.73**	0.52*	1.00***	1.00***	0.97***	1.64***	1.16**	1.48***	1.54***	1.11***	1.43***	1.63***	0.86*	1.53***
	(0.26)	(0.31)	(0.26)	(0.29)	(0.27)	(0.29)	(0.28)	(0.29)	(0.28)	(0.37)	(0.47)	(0.43)	(0.27)	(0.36)	(0.32)	(0.47)	(0.41)	(0.54)
Inflation	-0.14	-0.18	-0.16	-0.23	-0.31	-0.22	-0.27	-0.35	-0.28	0.33	0.56*	0.26	0.27	0.42	0.23	0.07	0.29	0.03
	(0.19)	(0.27)	(0.18)	(0.22)	(0.31)	(0.22)	(0.20)	(0.24)	(0.21)	(0.22)	(0.31)	(0.22)	(0.21)	(0.35)	(0.22)	(0.17)	(0.29)	(0.17)
Interest rate	-0.19**	-0.15	-0.18**	-0.18*	-0.13	-0.19*	-0.13	-0.07	-0.13	-0.81***	-0.80***	-0.77***	-0.79***	-0.78***	-0.77***	-0.67***	-0.67***	-0.65***
	(0.09)	(0.11)	(0.09)	(0.10)	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)	(0.14)	(0.11)	(0.12)	(0.15)	(0.11)	(0.08)	(0.12)	(0.07)
MPM	0.09			-0.21			-0.08			-0.87*			-0.80			-0.66		
	(0.39)			(0.36)			(0.39)			(0.49)			(0.82)			(0.62)		
CC		-0.23			0.53			0.15			0.38			0.75			0.84	
		(0.49)			(0.39)			(0.55)			(0.50)			(0.63)			(0.55)	
$FX\text{-}M$			1.44*			1.08			1.27			1.70			2.69*			2.06
			(0.84)			(0.78)			(0.87)			(1.80)			(1.47)			(1.53)
$CF^{BK,D}$	1.69***	1.59**	1.65***							2.89***	2.41***	2.64***						
	(0.33)	(0.61)	(0.31)							(0.35)	(0.75)	(0.38)						
$CF^{BK,D} \times MPM$	-0.43**									-0.74***								
	(0.16)									(0.23)								
$CF^{BK,D} \times CC$		-0.05									-0.36							
		(0.24)									(0.30)							
$CF^{BK,D} \times FX\text{-}M$			-1.11***									-1.50***						
			(0.29)									(0.29)						
$CF^{NFC,D}$				1.93***	2.74***	2.25***							3.90***	3.58***	4.05***			
				(0.58)	(0.81)	(0.64)							(1.05)	(0.90)	(1.02)			
$CF^{NFC,D} \times MPM$				0.31									-0.19					
				(0.40)									(0.66)					
$CF^{NFC,D} \times CC$					-0.98**									-0.73				
					(0.39)									(0.57)				
$CF^{NFC,D} \times FX\text{-}M$						0.06									-1.35**			
						(0.42)									(0.62)			
$CF^{OFC,D}$							3.81*	4.16**	3.28*							6.29***	5.03***	3.71**
							(2.10)	(1.73)	(1.61)							(2.02)	(1.60)	(1.56)
$CF^{OFC,D} \times MPM$							-0.24									-1.60**		
							(0.71)									(0.74)		
$CF^{OFC,D} \times CC$								-2.27*									-3.28**	
								(1.13)									(1.31)	
$CF^{OFC,D} \times FX\text{-}M$									0.34									-1.15
									(2.40)									(2.97)
										(2.34)	(3.03)	(2.35)	(3.18)	(3.31)	(2.80)	(1.61)	(2.84)	(1.70)
Observations	387	305	387	375	296	375	350	277	350	389	307	389	377	298	377	352	279	352
R-squared	0.66	0.60	0.66	0.68	0.63	0.68	0.67	0.63	0.67	0.70	0.67	0.69	0.71	0.69	0.71	0.71	0.71	0.71
Number of countries	25	19	25	25	19	25	23	18	23	25	19	25	25	19	25	23	18	23

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, BK, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are BK, NFC, OFC and general government debt flows. MPM are macroprudential measures, CC are residency-based measures (capital controls on inflows) and $FX\text{-}M$ are FX-based regulations. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Impact of macroprudential measures on the relationship between cross-border sectoral flows and NFC and HH credit – capital-based and lending standards

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ΔCRE^{NFC}						ΔCRE^{HH}					
CRE^{NFC}	-22.07***	-22.22***	-23.60***	-23.68***	-23.19***	-23.18***						
	(2.13)	(2.07)	(1.98)	(2.01)	(2.28)	(2.28)						
CRE^{HH}							-28.24***	-27.78***	-28.77***	-28.11***	-25.01***	-24.74***
							(2.46)	(2.51)	(2.75)	(2.98)	(1.53)	(1.57)
GDP pc	36.60**	37.41**	35.44**	35.44**	33.82*	33.28*	52.07**	50.54**	50.00*	46.72*	29.39	29.49
	(14.42)	(14.32)	(16.43)	(16.18)	(16.46)	(16.12)	(21.07)	(21.06)	(25.73)	(26.26)	(22.99)	(22.90)
GDP growth	0.66**	0.65**	0.54*	0.55*	0.99***	0.98***	1.48***	1.58***	1.41***	1.51***	1.53***	1.64***
	(0.25)	(0.26)	(0.29)	(0.30)	(0.28)	(0.28)	(0.39)	(0.38)	(0.30)	(0.27)	(0.51)	(0.49)
Inflation	-0.17	-0.17	-0.21	-0.23	-0.28	-0.28	0.25	0.28	0.25	0.26	0.04	0.07
	(0.18)	(0.18)	(0.22)	(0.23)	(0.20)	(0.21)	(0.22)	(0.22)	(0.21)	(0.21)	(0.17)	(0.16)
Interest rate	-0.17*	-0.18*	-0.19*	-0.18*	-0.13	-0.13	-0.76***	-0.78***	-0.78***	-0.79***	-0.66***	-0.67***
	(0.09)	(0.09)	(0.10)	(0.10)	(0.09)	(0.10)	(0.10)	(0.11)	(0.11)	(0.12)	(0.07)	(0.08)
MPM^{CB}	-0.07		0.28		-0.49		0.56		1.44		0.95	
	(0.62)		(0.60)		(0.61)		(0.81)		(1.08)		(1.04)	
MPM^{LS}		0.70		-1.05		0.38		-1.98		-2.58*		-1.79
		(1.16)		(0.68)		(1.11)		(1.16)		(1.48)		(1.23)
$CF^{BK,D}$	1.16***	1.24***					2.07***	2.14***				
	(0.26)	(0.29)					(0.37)	(0.42)				
$CF^{BK,D} \times MPM^{CB}$	0.44						-0.43					
	(0.76)						(0.99)					
$CF^{BK,D} \times MPM^{LS}$		-0.20						-0.90**				
		(0.30)						(0.32)				
$CF^{NFC,D}$			2.30***	1.89***					4.09***	3.80***		
			(0.62)	(0.55)					(0.99)	(1.03)		
$CF^{NFC,D} \times MPM^{CB}$			-0.20						-0.85*			
			(0.41)						(0.43)			
$CF^{NFC,D} \times MPM^{LS}$				1.57						0.02		
				(1.29)						(1.45)		
$CF^{OFC,D}$					3.11*	3.57*					4.96**	4.66**
					(1.75)	(1.72)					(1.98)	(1.78)
$CF^{OFC,D} \times MPM^{CB}$					0.78						-2.94	
					(1.26)						(1.86)	
$CF^{OFC,D} \times MPM^{LS}$						-0.36						-2.09
						(1.16)						(1.28)
Observations	387	387	375	375	350	350	389	389	377	377	352	352
R-squared	0.65	0.65	0.68	0.68	0.67	0.67	0.69	0.69	0.71	0.71	0.71	0.71
Number of countries	25	25	25	25	23	23	25	25	25	25	23	23

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, BK, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are BK, NFC, OFC and general government debt flows. MPM^{CB}, MPM^{LS} are macroprudential measures, respectively, capital-based and lending standards. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Impact of macroprudential measures on the relationship between cross-border sectoral flows and NFC and HH credit – NFC and HH credit-based

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ΔCRE^{NFC}						ΔCRE^{HH}					
CRE^{NFC}	-21.92***	-22.24***	-23.60***	-23.48***	-22.93***	-23.23***						
	(2.07)	(2.05)	(2.00)	(2.06)	(2.41)	(2.27)						
CRE^{HH}							-28.18***	-27.94***	-28.78***	-28.36***	-24.89***	-24.97***
							(2.53)	(2.47)	(2.94)	(2.90)	(1.60)	(1.57)
GDP pc	36.82**	37.46**	35.66**	35.74**	32.93*	33.49**	52.47**	50.93**	50.96*	48.18*	30.55	30.17
	(14.80)	(14.29)	(16.60)	(16.40)	(16.77)	(16.15)	(21.55)	(21.30)	(27.23)	(26.27)	(23.80)	(23.21)
GDP growth	0.65**	0.66**	0.54*	0.58*	0.97***	0.98***	1.45***	1.53***	1.42***	1.47***	1.52***	1.56***
	(0.26)	(0.26)	(0.29)	(0.28)	(0.28)	(0.28)	(0.42)	(0.39)	(0.30)	(0.28)	(0.52)	(0.50)
Inflation	-0.17	-0.17	-0.21	-0.22	-0.28	-0.28	0.24	0.26	0.24	0.25	0.04	0.05
	(0.18)	(0.18)	(0.22)	(0.22)	(0.20)	(0.20)	(0.22)	(0.22)	(0.21)	(0.21)	(0.17)	(0.17)
Interest rate	-0.18**	-0.18*	-0.19*	-0.19*	-0.13	-0.13	-0.76***	-0.77***	-0.78***	-0.78***	-0.65***	-0.66***
	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)	(0.10)	(0.10)	(0.11)	(0.11)	(0.11)	(0.07)	(0.07)
MPM^{NFC}	4.05		0.90		2.94		2.82		0.79		3.17	
	(3.09)		(2.25)		(2.64)		(2.86)		(2.95)		(2.59)	
MPM^{HH}		0.46		-0.63		0.30		-1.02		-1.25		-0.68
		(0.96)		(0.52)		(0.92)		(1.09)		(1.23)		(1.09)
$CF^{BK,D}$	1.22***	1.23***					2.04***	2.14***				
	(0.25)	(0.29)					(0.32)	(0.42)				
$CF^{BK,D} \times MPM^{NFC}$	-3.50						-0.96					
	(3.14)						(3.49)					
$CF^{BK,D} \times MPM^{HH}$		-0.17						-0.67**				
		(0.27)						(0.30)				
$CF^{NFC,D}$			2.25***	1.84***					3.79***	3.73***		
			(0.64)	(0.57)					(1.00)	(1.11)		
$CF^{NFC,D} \times MPM^{NFC}$			-0.72						-1.90			
			(2.99)						(3.55)			
$CF^{NFC,D} \times MPM^{HH}$				1.07**						0.07		
				(0.50)						(0.72)		
$CF^{OFC,D}$					3.51**	3.13*					3.92**	4.32**
					(1.63)	(1.74)					(1.77)	(1.90)
$CF^{OFC,D} \times MPM^{NFC}$					-2.07						-7.44	
					(4.72)						(5.13)	
$CF^{OFC,D} \times MPM^{HH}$						0.54						-1.11
						(1.39)						(1.20)
Observations	387	387	375	375	350	350	389	389	377	377	352	352
R-squared	0.66	0.65	0.68	0.68	0.67	0.67	0.69	0.69	0.71	0.71	0.71	0.71
Number of countries	25	25	25	25	23	23	25	25	25	25	23	23

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. MPM^{NFC} and MPM^{HH} are macroprudential measures targeted at the NFC or HH sector, respectively. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Impact of macroprudential and other financial policy measures on the relationship between cross-border sectoral flows and the share of NFC credit

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$SHCRE^{NFC}$								
$SHCRE^{NFC}$	0.81***	0.83***	0.81***	0.84***	0.82***	0.83***	0.83***	0.82***	0.83***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.05)	(0.03)	(0.04)	(0.05)	(0.04)
GDP pc	0.06	0.42	-0.13	0.51	-0.53	0.36	1.70	1.64	1.38
	(1.68)	(1.83)	(1.76)	(2.40)	(2.87)	(2.40)	(1.90)	(1.97)	(2.01)
GDP growth	-0.12*	-0.08	-0.11*	-0.14**	-0.08	-0.13*	-0.07	0.01	-0.07
	(0.06)	(0.08)	(0.06)	(0.06)	(0.08)	(0.06)	(0.06)	(0.06)	(0.06)
Inflation	-0.03	-0.05	-0.03	-0.04	-0.06	-0.04	-0.02	-0.02	-0.02
	(0.03)	(0.05)	(0.03)	(0.03)	(0.05)	(0.03)	(0.03)	(0.05)	(0.03)
Interest rate	0.05***	0.05**	0.05***	0.05***	0.05**	0.05***	0.04***	0.04	0.04***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
MPM	0.16**			0.11			0.08		
	(0.06)			(0.08)			(0.06)		
CC		-0.15*			-0.08			-0.16*	
		(0.08)			(0.09)			(0.09)	
$FX\text{-}M$			-0.02			-0.22			-0.13
			(0.21)			(0.17)			(0.18)
$CF^{BK,D}$	-0.20***	-0.14	-0.16***						
	(0.05)	(0.12)	(0.05)						
$CF^{BK,D} \times MPM$	0.04								
	(0.03)								
$CF^{BK,D} \times CC$		0.06							
		(0.04)							
$CF^{BK,D} \times FX\text{-}M$			0.02						
			(0.06)						
$CF^{NFC,D}$				-0.18	-0.06	-0.17			
				(0.13)	(0.12)	(0.13)			
$CF^{NFC,D} \times MPM$				0.05					
				(0.06)					
$CF^{NFC,D} \times CC$					-0.06				
					(0.10)				
$CF^{NFC,D} \times FX\text{-}M$						0.19*			
						(0.09)			
$CF^{OFC,D}$							-0.31	-0.14	-0.00
							(0.21)	(0.21)	(0.21)
$CF^{OFC,D} \times MPM$							0.20***		
							(0.06)		
$CF^{OFC,D} \times CC$								0.16	
								(0.11)	
$CF^{OFC,D} \times FX\text{-}M$									0.15
									(0.41)
Observations	387	305	387	375	296	375	350	277	350
R-squared	0.90	0.91	0.90	0.90	0.91	0.90	0.91	0.92	0.91
Number of countries	25	19	25	25	19	25	23	18	23

$SHCRE^{NFC}$ is the share of NFC credit in total NFC and HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. MPM are non-discriminatory macroprudential tools, CC are capital controls on inflows (residency-based), $FX\text{-}M$ are currency-based regulations. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Impact of macroprudential measures on the relationship between cross-border sectoral flows and the share of NFC credit - capital-based, lending standards, NFC and HH credit-based

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	$SHCRE^{NFC}$											
$SHCRE^{NFC}$	0.81***	0.81***	0.81***	0.81***	0.83***	0.84***	0.83***	0.84***	0.83***	0.83***	0.83***	0.83***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
GDP pc	-0.16	-0.01	-0.18	-0.02	0.50	0.72	0.41	0.68	1.73	1.50	1.43	1.47
	(1.77)	(1.71)	(1.72)	(1.74)	(2.47)	(2.37)	(2.49)	(2.39)	(1.93)	(2.00)	(1.99)	(2.02)
GDP growth	-0.11*	-0.12*	-0.11*	-0.12*	-0.13*	-0.14**	-0.13*	-0.13*	-0.06	-0.08	-0.06	-0.07
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Inflation	-0.03	-0.03	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04	-0.02	-0.02	-0.02	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Interest rate	0.05***	0.05***	0.05***	0.05***	0.05***	0.05***	0.05***	0.05***	0.04***	0.04***	0.04***	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
MPM^{CB}	-0.04				-0.12				-0.21			
	(0.14)				(0.14)				(0.13)			
MPM^{LS}		0.39**				0.29				0.31**		
		(0.15)				(0.21)				(0.14)		
MPM^{NFC}			0.05				-0.16				-0.14	
			(0.19)				(0.31)				(0.18)	
MPM^{HH}				0.23				0.15				0.14
				(0.14)				(0.17)				(0.12)
$CF^{BK,D}$	-0.16***	-0.16***	-0.15***	-0.16***								
	(0.05)	(0.04)	(0.04)	(0.04)								
$CF^{BK,D} \times MPM^{CB}$	0.12											
	(0.10)											
$CF^{BK,D} \times MPM^{LS}$		0.07*										
		(0.04)										
$CF^{BK,D} \times MPM^{NFC}$			-0.36									
			(0.22)									
$CF^{BK,D} \times MPM^{HH}$				0.05								
				(0.03)								
$CF^{NFC,D}$					-0.17	-0.17	-0.14	-0.17				
					(0.12)	(0.11)	(0.12)	(0.12)				
$CF^{NFC,D} \times MPM^{CB}$					0.08							
					(0.12)							
$CF^{NFC,D} \times MPM^{LS}$						0.14						
						(0.15)						
$CF^{NFC,D} \times MPM^{NFC}$							0.16					
							(0.46)					
$CF^{NFC,D} \times MPM^{HH}$								0.10				
								(0.11)				
$CF^{OFC,D}$									-0.28	-0.06	-0.02	-0.09
									(0.22)	(0.21)	(0.22)	(0.21)
$CF^{OFC,D} \times MPM^{CB}$									0.68***			
									(0.23)			
$CF^{OFC,D} \times MPM^{LS}$										0.14		
										(0.13)		
$CF^{OFC,D} \times MPM^{NFC}$											1.20**	
											(0.50)	
$CF^{OFC,D} \times MPM^{HH}$												0.17
												(0.11)
Observations	387	387	387	387	375	375	375	375	350	350	350	350
R-squared	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91
Number of countries	25	25	25	25	25	25	25	25	23	23	23	23

$SHCRE^{NFC}$ is the share of NFC credit in total NFC and HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. MPM^{CB}, MPM^{LS}, MPM^{NFC} and MPM^{HH} are macroprudential measures, respectively, capital-based and lending standards, NFC and HH credit-based. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Relationship between cross-border sectoral flows and NFC bonds and loans

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\Delta CRE^{NFC,B}$				$\Delta CRE^{NFC,L}$			
$CRE^{NFC,B}$	-62.35***	-62.49***	-62.27***					
	(8.93)	(9.30)	(8.94)					
$CRE^{NFC,L}$					-17.91***	-21.69***	-17.77***	
					(4.71)	(5.11)	(4.83)	
GDP pc	25.27	24.64	25.73		36.44*	42.35**	36.69*	
	(69.09)	(69.55)	(68.79)		(19.57)	(18.44)	(19.69)	
GDP growth	-1.69	-1.72	-1.72		0.88***	0.53*	0.89***	
	(1.73)	(1.77)	(1.75)		(0.25)	(0.25)	(0.26)	
Inflation	4.79***	4.76***	4.79***		0.55	0.39	0.57	
	(1.30)	(1.22)	(1.31)			(0.28)	(0.41)	
Interest rate	0.44	0.47	0.45		-0.22	-0.16	-0.23	
	(1.13)	(1.12)	(1.15)		(0.27)	(0.22)	(0.28)	
$CF^{BK,E}$	-0.12				0.40*			
	(0.38)				(0.21)			
$CF^{NFC,E}$		0.15				0.83**		
		(0.85)				(0.32)		
$CF^{OFC,E}$			-0.62				0.50*	
			(0.43)				(0.24)	
Observations	159	159	159		159	159	159	
R-squared	0.47	0.47	0.47		0.67	0.70	0.67	
Number of countries	13	13	13		13	13	13	
$CRE^{NFC,B}$	-62.29***	-64.93***	-65.40***	-61.85***				
	(9.10)	(9.35)	(8.19)	(8.85)				
$CRE^{NFC,L}$					-18.09***	-22.34***	-19.91***	-18.05***
					(4.79)	(4.06)	(4.00)	(4.86)
GDP pc	23.41	4.84	25.67	16.99	33.25	37.40*	30.68	38.52*
	(74.22)	(78.82)	(80.22)	(71.72)	(19.64)	(18.74)	(19.90)	(20.07)
GDP growth	-1.72	-2.33	-1.78	-1.45	0.74***	0.46*	0.47**	0.83**
	(1.65)	(2.09)	(1.93)	(1.58)	(0.17)	(0.22)	(0.16)	(0.28)
Inflation	4.77***	4.18***	4.12***	4.82***	0.52	0.29	0.34	0.57
	(1.30)	(1.12)	(1.31)	(1.29)	(0.37)	(0.27)	(0.36)	(0.40)
Interest rate	0.45	0.66	1.27	0.28	-0.20	-0.19	-0.08	-0.22
	(1.12)	(1.08)	(1.26)	(1.12)	(0.24)	(0.24)	(0.27)	(0.28)
$CF^{BK,D}$	0.42				1.38			
	(2.98)				(0.81)			
$CF^{NFC,D}$		5.53				2.07*		
		(4.76)				(1.16)		
$CF^{OFC,D}$			7.57				4.30*	
			(7.50)				(1.99)	
$CF^{GG,D}$				2.27				-0.18
				(1.53)				(0.51)
Observations	159	159	155	159	159	159	155	159
R-squared	0.47	0.48	0.49	0.47	0.68	0.69	0.68	0.67
Number of countries	13	13	13	13	13	13	13	13

$CRE^{NFC,B}$ is the log of NFC credit in the form of bonds and $CRE^{NFC,L}$ in the form of loans. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Impact of macroprudential and financial policy measures on the relationship between cross-border sectoral equity flows and NFC bonds and loans

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\Delta CRE^{NFC,L}$								
$CRE^{NFC,L}$	-17.23***	-17.70***	-18.71***	-20.84***	-21.33***	-23.58***	-17.09***	-17.72***	-18.02***
	(4.81)	(4.71)	(4.81)	(4.91)	(5.12)	(5.91)	(4.89)	(4.84)	(4.82)
GDP pc	36.53*	35.79*	36.87*	43.11**	40.82**	44.95**	36.77*	35.51*	36.85*
	(19.42)	(19.80)	(19.80)	(17.97)	(18.44)	(19.82)	(19.56)	(19.73)	(19.85)
GDP growth	0.82**	0.81***	0.88***	0.48*	0.47	0.48*	0.83**	0.79**	0.88***
	(0.28)	(0.26)	(0.26)	(0.24)	(0.28)	(0.23)	(0.29)	(0.29)	(0.28)
Inflation	0.53	0.54	0.53	0.38	0.34	0.31	0.55	0.53	0.56
	(0.40)	(0.39)	(0.40)	(0.29)	(0.26)	(0.25)	(0.41)	(0.41)	(0.41)
Interest rate	-0.18	-0.20	-0.23	-0.12	-0.11	-0.13	-0.20	-0.20	-0.23
	(0.28)	(0.28)	(0.28)	(0.23)	(0.22)	(0.21)	(0.29)	(0.28)	(0.29)
MPM	0.35			-0.06			0.33		
	(0.33)			(0.46)			(0.34)		
CC		0.89***			1.38*			0.59	
		(0.15)			(0.65)			(0.33)	
$FX\text{-}M$			0.74			2.36**			0.57
			(0.69)			(0.82)			(0.68)
$CF^{BK,E}$	0.41	0.39*	0.59						
	(0.30)	(0.21)	(0.37)						
$CF^{BK,E} \times MPM$	0.02								
	(0.11)								
$CF^{BK,E} \times CC$		-0.83							
		(0.68)							
$CF^{BK,E} \times FX\text{-}M$			-0.42						
			(0.40)						
$CF^{NFC,E}$				0.66**	0.83**	1.03***			
				(0.26)	(0.33)	(0.27)			
$CF^{NFC,E} \times MPM$				0.11					
				(0.10)					
$CF^{NFC,E} \times CC$					-0.23				
					(0.28)				
$CF^{NFC,E} \times FX\text{-}M$						-0.70*			
						(0.35)			
$CF^{OFC,E}$							0.50	0.48*	0.59
							(0.44)	(0.24)	(0.45)
$CF^{OFC,E} \times MPM$							0.04		
							(0.21)		
$CF^{OFC,E} \times CC$								1.22	
								(2.82)	
$CF^{OFC,E} \times FX\text{-}M$									-0.22
									(0.54)
Observations	159	159	159	159	159	159	159	159	159
R-squared	0.67	0.68	0.68	0.70	0.70	0.70	0.67	0.67	0.67
Number of countries	13	13	13	13	13	13	13	13	13

$CRE^{NFC,B}$ is the log of NFC credit in the form of bonds and $CRE^{NFC,L}$ in the form of loans. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. MPM are non-discriminatory macroprudential tools, CC are capital controls on inflows (residency-based), $FX\text{-}M$ are currency-based regulations. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Impact of macroprudential and financial policy measures on the relationship between cross-border sectoral debt flows and NFC bonds and loans

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\Delta CRE^{NFC,L}$								
$CRE^{NFC,L}$	-17.61***	-17.72***	-18.39***	-22.28***	-22.99***	-23.64***	-19.48***	-20.57***	-20.04***
	(4.98)	(4.74)	(4.99)	(4.02)	(4.19)	(5.12)	(4.16)	(4.02)	(4.10)
GDP pc	33.13	31.17	32.83	37.34*	39.48*	41.49*	30.40	31.05	30.99
	(19.64)	(19.55)	(20.09)	(19.02)	(18.54)	(20.45)	(19.63)	(20.00)	(19.98)
GDP growth	0.70***	0.66***	0.74***	0.46*	0.31	0.53*	0.47**	0.28	0.46**
	(0.19)	(0.20)	(0.19)	(0.25)	(0.24)	(0.25)	(0.18)	(0.16)	(0.17)
Inflation	0.51	0.47	0.51	0.29	0.28	0.24	0.34	0.32	0.32
	(0.38)	(0.36)	(0.37)	(0.28)	(0.25)	(0.30)	(0.37)	(0.35)	(0.37)
Interest rate	-0.18	-0.14	-0.21	-0.18	-0.19	-0.10	-0.07	-0.06	-0.07
	(0.25)	(0.24)	(0.24)	(0.24)	(0.24)	(0.25)	(0.29)	(0.27)	(0.26)
MPM	0.33			0.01			0.14		
	(0.38)			(0.32)			(0.36)		
CC		0.96***			2.00***			1.03***	
		(0.26)			(0.47)			(0.23)	
$FX\text{-}M$			1.10			0.85			0.72
			(0.89)			(0.86)			(0.72)
$CF^{BK,D}$	1.65*	1.54*	1.64*						
	(0.87)	(0.79)	(0.82)						
$CF^{BK,D} \times MPM$	-0.17								
	(0.20)								
$CF^{BK,D} \times CC$		-0.58							
		(0.41)							
$CF^{BK,D} \times FX\text{-}M$			-1.01**						
			(0.41)						
$CF^{NFC,D}$				2.03**	2.32*	2.37**			
				(0.90)	(1.10)	(1.08)			
$CF^{NFC,D} \times MPM$				0.02					
				(0.46)					
$CF^{NFC,D} \times CC$					-1.45*				
					(0.68)				
$CF^{NFC,D} \times FX\text{-}M$						-1.96			
						(1.11)			
$CF^{OFC,D}$							3.83**	5.20**	4.36**
							(1.76)	(2.00)	(1.89)
$CF^{OFC,D} \times MPM$							0.26		
							(0.34)		
$CF^{OFC,D} \times CC$								-2.08**	
								(0.87)	
$CF^{OFC,D} \times FX\text{-}M$									-0.38
									(1.77)
Observations	159	159	159	159	159	159	155	155	155
R-squared	0.68	0.68	0.68	0.69	0.70	0.70	0.69	0.70	0.69
Number of countries	13	13	13	13	13	13	13	13	13

$CRE^{NFC,B}$ is the log of NFC credit in the form of bonds and $CRE^{NFC,L}$ in the form of loans. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. MPM are non-discriminatory macroprudential tools, CC are capital controls on inflows (residency-based), $FX\text{-}M$ are currency-based regulations. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Relationship between cross-border sectoral flows and NFC and HH credit - fixed FX regimes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ΔCRE^{NFC}				ΔCRE^{HH}			
CRE^{NFC}	-27.16***	-27.91***	-25.58***					
	(2.00)	(2.16)	(2.08)					
CRE^{HH}					-31.37***	-31.21***	-29.90***	
					(3.12)	(3.01)	(3.33)	
GDP pc	49.84**	51.79***	51.14***		70.97***	72.11***	70.41***	
	(17.17)	(16.78)	(16.97)		(22.16)	(22.33)	(23.21)	
GDP growth	0.10	0.04	0.29		1.92***	1.93***	2.13***	
	(0.29)	(0.32)	(0.36)		(0.44)	(0.46)	(0.47)	
Inflation	-0.29	-0.35	-0.20		-0.12	-0.13	0.01	
	(0.26)	(0.26)	(0.29)		(0.39)	(0.40)	(0.40)	
Interest rate	-0.22	-0.19	-0.24		-0.56	-0.55	-0.58	
	(0.35)	(0.34)	(0.34)		(0.71)	(0.70)	(0.71)	
$CF^{BK,E}$	4.68**				4.75			
	(1.84)				(3.02)			
$CF^{NFC,E}$		1.26***				0.90		
		(0.41)				(0.52)		
$CF^{OFC,E}$			-0.74				-1.25	
			(3.00)				(4.97)	
Observations	213	213	213		213	213	213	
R-squared	0.70	0.71	0.69		0.72	0.72	0.71	
Number of countries	14	14	14		14	14	14	
CRE^{NFC}	-26.15***	-27.67***	-26.39***	-25.75***				
	(2.59)	(2.36)	(2.51)	(2.19)				
CRE^{HH}					-31.42***	-33.16***	-25.89***	-30.99***
					(3.42)	(3.02)	(4.80)	(2.88)
GDP pc	55.08***	47.98**	50.75**	51.73***	76.88***	80.74**	68.61***	73.89***
	(14.63)	(22.12)	(20.52)	(16.63)	(21.59)	(27.75)	(20.84)	(22.49)
GDP growth	0.15	-0.15	0.43	0.26	1.86***	1.70***	1.66***	2.07***
	(0.25)	(0.33)	(0.37)	(0.32)	(0.45)	(0.42)	(0.44)	(0.43)
Inflation	-0.17	-0.19	-0.21	-0.21	0.03	0.11	-0.20	-0.00
	(0.28)	(0.28)	(0.41)	(0.27)	(0.41)	(0.42)	(0.60)	(0.40)
Interest rate	-0.23	-0.33	-0.24	-0.21	-0.68	-0.75	-0.39	-0.73
	(0.34)	(0.28)	(0.53)	(0.35)	(0.77)	(0.67)	(1.10)	(0.74)
$CF^{BK,D}$	0.77**				1.66***			
	(0.26)				(0.51)			
$CF^{NFC,D}$		2.17**				3.37**		
		(0.86)				(1.38)		
$CF^{OFC,D}$			2.30				-0.50	
			(1.83)				(2.05)	
$CF^{GG,D}$				-0.24				1.24
				(0.43)				(1.02)
Observations	205	193	182	213	205	193	182	213
R-squared	0.70	0.75	0.72	0.69	0.72	0.74	0.78	0.72
Number of countries	14	14	13	14	14	14	13	14

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 12: Relationship between cross-border sectoral flows and NFC and HH credit - floating FX regimes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ΔCRE^{NFC}				ΔCRE^{HH}			
CRE^{NFC}	-22.99***	-23.07***	-22.82***					
	(4.97)	(4.98)	(5.03)					
CRE^{HH}					-24.20***	-24.05***	-24.18***	
					(3.36)	(3.48)	(3.34)	
GDP pc	46.99	46.85	47.17		47.33	48.09	47.19	
	(30.43)	(30.37)	(30.63)		(42.06)	(42.43)	(42.02)	
GDP growth	1.15**	1.14**	1.15**		1.04**	1.06**	1.04**	
	(0.50)	(0.50)	(0.50)		(0.46)	(0.45)	(0.46)	
Inflation	-0.10	-0.10	-0.09		0.68	0.69	0.68	
	(0.33)	(0.33)	(0.33)		(0.43)	(0.44)	(0.43)	
Interest rate	-0.16**	-0.16**	-0.16**		-0.80***	-0.80***	-0.80***	
	(0.07)	(0.07)	(0.07)		(0.12)	(0.11)	(0.11)	
$CF^{BK,E}$	0.06				0.09			
	(0.11)				(0.11)			
$CF^{NFC,E}$		0.11				-0.19		
		(0.19)				(0.29)		
$CF^{OFC,E}$			-0.16				0.21	
			(0.30)				(0.19)	
Observations	182	182	182		184	184	184	
R-squared	0.67	0.67	0.67		0.72	0.72	0.72	
Number of countries	11	11	11		11	11	11	
CRE^{NFC}	-22.01***	-22.50***	-21.30***	-25.04***				
	(5.06)	(4.41)	(5.19)	(5.19)				
CRE^{HH}					-24.21***	-23.03***	-22.34***	-30.29***
					(2.38)	(2.72)	(4.56)	(3.91)
GDP pc	37.53	41.59	36.22	46.88	37.02	34.03	14.17	53.64
	(26.09)	(27.26)	(24.03)	(29.64)	(34.72)	(37.02)	(32.12)	(42.34)
GDP growth	0.97	1.07**	1.10**	1.12*	0.68	0.89*	0.76**	0.74
	(0.57)	(0.43)	(0.45)	(0.55)	(0.45)	(0.41)	(0.26)	(0.55)
Inflation	-0.05	-0.14	-0.08	-0.16	0.73*	0.62	0.62	0.34
	(0.30)	(0.27)	(0.30)	(0.33)	(0.37)	(0.36)	(0.39)	(0.40)
Interest rate	-0.19**	-0.17**	-0.17**	-0.16**	-0.83***	-0.82***	-0.77***	-0.72***
	(0.06)	(0.05)	(0.07)	(0.07)	(0.11)	(0.09)	(0.09)	(0.09)
$CF^{BK,D}$	1.37				2.19			
	(1.14)				(1.35)			
$CF^{NFC,D}$		1.41*				3.21***		
		(0.69)				(0.95)		
$CF^{OFC,D}$			1.83				4.10	
			(3.47)				(3.90)	
$CF^{GG,D}$				0.82				2.54**
				(0.75)				(0.96)
Observations	182	182	168	182	184	184	170	184
R-squared	0.68	0.68	0.70	0.68	0.73	0.74	0.76	0.75
Number of countries	11	11	10	11	11	11	10	11

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, bank, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are bank, NFC, OFC and general government debt flows. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 13: Impact of macroprudential and financial policy measures on the relationship between cross-border sectoral flows and NFC credit - fixed FX regimes

	(1)	(2)	(3)	(4)	(5)	(6)
	ΔCRE^{NFC}					
CRE^{NFC}	-27.13***	-26.66***	-27.29***	-27.88***	-28.50***	-28.00***
	(2.03)	(3.90)	(2.03)	(2.18)	(3.57)	(2.26)
GDP pc	49.52**	63.04**	49.32**	51.86***	64.72**	51.57***
	(16.71)	(21.40)	(17.38)	(17.02)	(18.65)	(17.07)
GDP growth	0.11	-0.12	0.09	0.05	-0.31	0.03
	(0.29)	(0.36)	(0.29)	(0.30)	(0.32)	(0.30)
Inflation	-0.29	-0.43	-0.29	-0.34	-0.47	-0.34
	(0.28)	(0.49)	(0.26)	(0.27)	(0.46)	(0.26)
Interest rate	-0.22	0.03	-0.24	-0.21	-0.01	-0.20
	(0.37)	(0.44)	(0.34)	(0.33)	(0.42)	(0.34)
MPM	0.04			-0.51		
	(0.75)			(1.66)		
CC		-0.07			0.15	
		(0.90)			(0.94)	
$FX\text{-}M$			1.50			0.34
			(2.79)			(2.64)
$CF^{BK,E}$	5.03**	6.45***	4.86**			
	(1.90)	(1.55)	(1.84)			
$CF^{BK,E} \times MPM$	-0.28					
	(1.11)					
$CF^{BK,E} \times CC$		-1.16				
		(1.18)				
$CF^{BK,E} \times FX\text{-}M$			-1.36			
			(2.91)			
$CF^{NFC,E}$				1.18**	1.80**	1.26***
				(0.48)	(0.53)	(0.41)
$CF^{NFC,E} \times MPM$				0.09		
				(0.41)		
$CF^{NFC,E} \times CC$					-0.39	
					(0.44)	
$CF^{NFC,E} \times FX\text{-}M$						0.01
						(0.43)
Observations	213	123	213	213	123	213
R-squared	0.70	0.65	0.70	0.71	0.68	0.71
Number of countries	14	8	14	14	8	14

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, BK, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are BK, NFC, OFC and general government debt flows. MPM are non-discriminatory macroprudential tools, CC are capital controls on inflows (residency-based), $FX\text{-}M$ are currency-based regulations. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 14: Impact of macroprudential and financial policy measures on the relationship between cross-border sectoral flows and the NFC and HH credit - fixed FX regimes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ΔCRE^{NFC}						ΔCRE^{HH}					
CRE^{NFC}	-25.54***	-25.17***	-25.74***	-27.72***	-25.77***	-27.70***						
	(2.49)	(5.05)	(2.83)	(2.58)	(3.93)	(2.72)						
CRE^{HH}							-30.15***	-32.85***	-31.23***	-32.40***	-36.71***	-33.54***
							(2.80)	(2.06)	(3.03)	(3.06)	(3.63)	(3.46)
GDP pc	55.01***	65.26**	53.45***	45.03*	49.13	50.33**	72.81***	71.14**	76.88***	77.72**	110.58***	86.36**
	(14.22)	(22.93)	(14.91)	(21.24)	(26.58)	(22.65)	(20.02)	(26.16)	(22.89)	(25.96)	(14.86)	(29.65)
GDP growth	0.15	0.11	0.17	-0.09	0.00	-0.16	1.96***	1.82**	1.88***	1.76***	1.95**	1.69***
	(0.27)	(0.43)	(0.26)	(0.31)	(0.53)	(0.31)	(0.42)	(0.67)	(0.46)	(0.42)	(0.74)	(0.43)
Inflation	-0.16	-0.40	-0.16	-0.19	-0.41	-0.18	0.12	-0.56	0.03	0.18	-0.43	0.10
	(0.29)	(0.53)	(0.27)	(0.31)	(0.58)	(0.28)	(0.42)	(0.86)	(0.41)	(0.45)	(0.93)	(0.42)
Interest rate	-0.22	0.10	-0.23	-0.37	-0.26	-0.30	-0.73	0.32	-0.64	-0.82	0.19	-0.69
	(0.36)	(0.41)	(0.32)	(0.29)	(0.53)	(0.28)	(0.80)	(0.91)	(0.75)	(0.69)	(0.95)	(0.67)
MPM	0.20			-0.65*			-0.73			-0.92		
	(0.61)			(0.31)			(0.77)			(0.99)		
CC		-0.18			-0.21			1.47**			1.49	
		(0.76)			(0.78)			(0.57)			(0.85)	
$FX\text{-}M$			0.67			-2.23			-0.80			-3.25
			(1.57)			(1.73)			(2.82)			(3.53)
$CF^{BK,D}$	1.35***	0.53	1.30***				2.76***	4.67*	2.49**			
	(0.35)	(1.75)	(0.40)				(0.71)	(2.19)	(0.84)			
$CF^{BK,D} \times MPM$	-0.52**						-0.99***					
	(0.17)						(0.24)					
$CF^{BK,D} \times CC$		-1.68						-3.71**				
		(1.09)						(1.46)				
$CF^{BK,D} \times FX\text{-}M$			-1.15**						-1.79*			
			(0.52)						(0.91)			
$CF^{NFC,D}$				1.86**	3.20*	1.94**				4.00**	2.99	3.24**
				(0.64)	(1.42)	(0.83)				(1.52)	(1.95)	(1.26)
$CF^{NFC,D} \times MPM$				0.35						-0.52		
				(0.48)						(0.81)		
$CF^{NFC,D} \times CC$					-1.14						-2.05**	
					(0.78)						(0.60)	
$CF^{NFC,D} \times FX\text{-}M$						1.15*						0.71
						(0.65)						(1.06)
Observations	205	123	205	193	114	193	205	123	205	193	114	193
R-squared	0.70	0.62	0.71	0.75	0.66	0.75	0.73	0.69	0.72	0.75	0.72	0.75
Number of countries	14	8	14	14	8	14	14	8	14	14	8	14

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{BK,E}$, $CF^{NFC,E}$ and $CF^{OFC,E}$ are respectively, BK, NFC and OFC equity flows; $CF^{BK,D}$, $CF^{NFC,D}$, $CF^{OFC,D}$ and $CF^{GG,D}$ are BK, NFC, OFC and general government debt flows. MPM are non-discriminatory macroprudential tools, CC are capital controls on inflows (residency-based), $FX\text{-}M$ are currency-based regulations. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 15: Impact of macroprudential and financial policy measures on the relationship between cross-border sectoral flows and HH credit - floating FX regimes

	(1)	(2)	(3)	(4)	(5)	(6)
	ΔCRE^{HH}					
CRE^{HH}	-21.68***	-23.15***	-23.52***	-28.77***	-30.19***	-30.22***
	(2.06)	(2.84)	(2.73)	(3.70)	(3.98)	(4.08)
GDP pc	30.09	35.14	37.71	49.29	52.88	53.36
	(37.19)	(38.25)	(37.26)	(42.63)	(43.94)	(42.65)
GDP growth	1.06**	0.83*	0.88*	0.89*	0.74	0.74
	(0.36)	(0.41)	(0.43)	(0.48)	(0.54)	(0.55)
Inflation	0.68**	0.61	0.60	0.39	0.35	0.35
	(0.30)	(0.37)	(0.37)	(0.36)	(0.41)	(0.41)
Interest rate	-0.84***	-0.82***	-0.81***	-0.74***	-0.72***	-0.72***
	(0.09)	(0.10)	(0.09)	(0.08)	(0.08)	(0.09)
MPM	-1.44**			-1.74**		
	(0.60)			(0.58)		
CC		-0.54			-0.00	
		(0.94)			(0.35)	
$FX\text{-}M$			2.37**			1.19
			(1.01)			(0.96)
$CF^{NFC,D}$	3.07**	3.10**	3.73**			
	(1.34)	(1.04)	(1.21)			
$CF^{NFC,D} \times MPM$	-0.29					
	(0.94)					
$CF^{NFC,D} \times CC$		0.72				
		(1.00)				
$CF^{NFC,D} \times FX\text{-}M$			-1.69			
			(1.30)			
$CF^{GG,D}$				2.22*	2.52**	2.62**
				(1.02)	(0.98)	(0.96)
$CF^{GG,D} \times MPM$				0.17		
				(0.33)		
$CF^{GG,D} \times CC$					0.14	
					(0.38)	
$CF^{GG,D} \times FX\text{-}M$						-0.41
						(0.56)
Observations	184	184	184	184	184	184
R-squared	0.75	0.74	0.74	0.76	0.75	0.75
Number of countries	11	11	11	11	11	11

CRE^{NFC} is the log of NFC credit and CRE^{HH} of HH credit. $CF^{NFC,D}$ and $CF^{GG,D}$ are NFC and general government debt flows. MPM are non-discriminatory macroprudential tools, CC are capital controls on inflows (residency-based), $FX\text{-}M$ are currency-based regulations. All explanatory variables are included with a 1-year lag. Robust standard errors, clustered at the country level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

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