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Global Liquidity and Reallocation of
Domestic Credit

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Global Liquidity and Reallocation of Domestic Credit *

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Abstract

This paper focuses on the receiving sector and the type of capital inflows and examines the effects of the sectoral directions and the types of capital inflows on domestic bank's credit to households or non-financial corporations and their credit allocation by using panel data analysis on quarterly data for 27 advanced and emerging economies over 2000-2016. The total capital inflows are classified into four types, like portfolio equity investment, portfolio bond investment, bank loan and FDI, and three receiving sectors, like public sector, private banking sector and private non-banking business sector.

First, the increase in equity and FDI inflows to business sector heightens the share of domestic credits to households, especially in advanced economies. Second, in emerging Asia, the increase in FDI inflows heightens the share of domestic credits to households. Third, in emerging Europe the increase in the bank loans inflows to banking sector heightens the share of domestic credits to households. The positive impacts of inflows into business sector on household credit share reflect the substitution effects between capital inflows into business sector and bank credit to corporations. The recipient countries have to give attention to this unintended side effect, i.e., domestic credit reallocation.

JEL Classification Codes: F21, F32, F41, G21

Keywords: Capital inflow, Global liquidity, Domestic credit allocation, Macro-prudential policy, and Dynamic panel.

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1. Introduction

This paper focuses on the effects of foreign capital inflows on the domestic credit allocation to firms and households. Foreign capital inflows can be a main financial resource for firms of other countries by taking the form of capital inflows like foreign bank loans, foreign portfolio equity and bond investments, and foreign direct investments. The recent trend of increasing global liquidity allows these firms to use various fundraising methods in addition to borrowing funds from domestic banks or raising funds from domestic equity and bond markets. Thus, more resource with more various types of capital can contribute to economic growth of other countries as far as the foreign capital flows into economies with a lot of investment opportunities. However, are capital inflows always expansionary? Blanchard et al. (2015) suggest that bond inflows can lead to an appreciation and has a contractionary effect on credit. The foreign capital inflow may substitute for domestic bank lending to firms when the foreign capital flows into economies with few investment opportunities. In the latter case, the global liquidity could reallocate domestic bank credit away from lending to firms and towards households.

Figure 1 shows the average credit-to-GDP ratios of advanced 20 countries (Figure 1.1) and emerging 9 countries (Figure 1.2). The domestic credits are divided by the types of borrowers into three sectors, i.e., credits to government, households and non-financing firms. Both groups experienced commonly a structural change before and after the global financial crisis in September 2008. Avdjiev et al. (2017) show a shift in the composition and drivers of global liquidity during the post-crisis period. They find out the importance of policy initiatives in creditor countries because of the increase in the sensitivity of cross-border capital flows to US monetary policy after the global financial crisis and the reversal in its sensitivity after the US fed “taper tantrum” in 2013. In sum, more globally integrated borrower countries are more easily exposed to global liquidity fluctuations. Thus, the IMF changed the long-held stance on capital flows and admitted the use of capital control when macroeconomic tools cannot mitigate the financial-driven macroeconomic instability. At the same time, many of countries began to use macro prudential instruments to minimize domestically driven financial risks.

In case of advanced countries, Figure 1.1 indicates the credits to firms and to households grow until just before the global financial crisis and maintain this level during the post-crisis period, while the credit to government increases substantially during the post-crisis period. These movements suggest that the lending attitude of domestic banks

of advanced countries seems to be turning negative after the global financial crisis. In case of emerging countries, Figure 1.2 shows the credit to firms decreases during the pre-crisis period but increases during the post-crisis period, meaning that the post-crisis global liquidity enables easier procurement of fund resource. Moreover, the emerging countries experience consistently increasing credit to households irrespective of crisis although the post-crisis advanced countries, who are main donors of global liquidity, do not increase the bank credit to households. Accordingly, this paper examines whether the domestic bank credit can be reallocated away from lending to firms and towards households as a result of ineffective use of global liquidity.

There are some studies focusing on the borrower's type, i.e., "credit to firms" and "credit to households". Firstly, Beck et al. (2012), Mian et al. (2015) and Bezemer et al. (2016) conclude that the change in domestic credit allocation, i.e., lending less to firms and more to households causes slower economic growth. Jorda et al. (2014) find more than two thirds of the increase in credit-to-GDP for 17 advanced countries over 1960-2010 is caused by the increase in lending to households. Moreover, Barba and Pivetti (2009), Büyükkarabacak and Valev (2010) and Jappelli et al (2013) indicate the increase in bank lending to households leads to higher probability of crisis and longer recessions. In sum, the existing researches warn about a negative macroeconomic impact driven by a reallocation of domestic bank credits.

Secondly, some studies examine what factors cause a rise in credit to households. Beck et al. (2012), Igan and Tan (2015), and Enya and Shinkai (2016) suggest that financial structure of the economy, and capital and borrower types of foreign capital inflows are important factors. They find that the share of household credit to total private credit is higher in countries possessing a market-based financial system. Igan and Tan (2015) insist that bank loan inflows are positively linked with household credit regardless of financial structure, and FDI and portfolio inflows are positively associated with credit to the corporate sector only in a bank-based economy. Samarina and Bezemer (2016) show that the change in allocation of domestic bank credit has been found since the 1990s and that foreign capital inflows into the non-bank sector are associated with lower share of lending to business sector in domestic bank credits by using dynamic panel data analysis. Their definition of non-banking sector includes non-financial business firms, non-bank (non-deposit-taking corporations) financial firms and households. The interests and methodology in this paper are close to those in Samarina and Bezemer (2016). This

paper refers to each factor of non-banking sector individually and focuses on the following mechanism of domestic credit reallocation, i.e., the increase in international capital inflow directly to firms decreases their borrowing from domestic banks, who have no choice to lend the surplus fund to households.

Samarina and Bezemer (2016) look for the drivers of the change in allocation from lending to firms towards lending to households by examining a direct effect of foreign capital inflows on domestic credit allocation. They use the IMF BOP (Balance of payments) data for capital inflows and central banks' domestic credits data for 36 countries over 1990-2011 for the GMM estimation. They confirm the relationship between foreign capital inflows and a change in domestic credit allocation. And they point out the importance of sectoral destination, i.e., banking or non-banking sectors, in determining the effects of capital flows. Figure 2 is the flow chart of their idea. The black arrows indicate foreign capitals flowing to banking or non-banking sectors; sum of portfolio equity and bond investments and bank loans, and FDI (foreign direct investment). The red arrows are two destinations of private credit by domestic banks; lending to non-financial business and lending to households. They use a share of credit to non-financial business in all bank credit as a dependent variable, and bank inflows, non-bank inflows and FDI as independent variables. However, they do refer neither to the types of foreign capital nor to the role of the government. Thus, this paper focuses on the types of foreign capital, the role of government, and the post-crisis global liquidity fluctuations.

Samarina and Bezemer (2016) do not have their interests on the types of foreign capital because the general consensus on gross cross-border capital inflows was no existence of substitutional relationship between portfolio inflows and bank loans. However, Cerutti and Hong (2018) firstly found out the substitution of bank loans for portfolio debt securities in both cases of corporate and sovereign borrowers in advanced countries, and in case of sovereign borrowers in emerging countries. They confirmed also its complementary relationship in case of corporate borrowers in emerging countries. The drivers of these substitutional or complementary relationships turn out to be mainly the global financial cycles during the post crisis period. In other words, the global liquidity produced by the unconventional monetary policies of advanced countries has some effects on the choice concerning the types of foreign capital. Thus, this paper focuses on the types of foreign capital.

Figure 3.1 is the values of capital flows to emerging 9 countries, which are divided into three types of capital, i.e., portfolio equity investments, portfolio bond investments, and bank loans. The fluctuations of capital inflows differ with the types of capital. Figure 3.2 is the values of capital flows to emerging 9 countries, which are divided into three types of sectoral destinations, i.e., public sector, private non-financial business (firms) sector, and banking sector. The fluctuations of capital inflows to three sectors are similar, but the degree of decrease in the capital inflows directly to business sector is smaller than that to banking sector during the post-crisis period. Figure 3.3 is the composition of capital flows to emerging 9 countries, showing the importance of capital inflows to business sector as forms of equity investment and foreign bank loan, and those to public sector as a form of bond.

The flow chart of our idea is described in Figure 4. The black arrows are four types of foreign capitals; (1) portfolio equity investments (EI), (2) portfolio bond investments (BI), (3) bank loans (OID), and (4) direct investments (DI), which flow to three sectoral directions; <1> banking sector (DMB), <2> non-financing business sector (COR), and <3> public sectors (PUB). As a fourth type of capital, the FDI cannot be classified by the sectoral destinations because of the data availability. The degree of thickness of each line indicates the size of its share. Finally, this paper considers four types of capital and three sectoral directions to investigate the effect of capital inflows on domestic credit allocation by applying to the methodology of Samarina and Bezemer (2016) and using the same IMF BOP data and different BIS (Bank of International Settlement) data over 2000-2016.

The structure of the rest of this paper is as follows. Section 2 introduces data and analytical framework. Section 3 presents the empirical results. Finally, section 4 concludes with a discussion of some policy implications.

2. Data and methodology

This paper uses the quarterly dataset covering 27 countries over the period of 2000-2016. 27 countries are divided into 2 groups, i.e., 18 advanced countries and 9 emerging countries (see the Appendix table 1). The selection of sample countries is dependent on data availability. The important variables in this paper are (1) domestic credits to households, (2) foreign capital inflows classified by capital type and borrower type. Firstly, the data for domestic credits to households is taken from the BIS database.

In the BIS database, total credit to households, total credit to non-financial corporations, and total credit to government are available. Total credit, however, is provided not only by domestic bank but also by all other sectors of the economy and non-residents. The credits cover loans and debt securities. So, it is impossible to identify bank credit to households from the credit data in the BIS database. But if the credit to households provided by all sectors other than domestic bank is negligible, total credit to households can be treated as those provided by domestic bank. Thus, it is assumed that total credits to households in the BIS database are assigned to bank credit to households. This paper focuses on the share of bank credit to households in bank credit to private sector, taken from International Financial Statistics (IFS) of International Monetary Fund (IMF).

Samarina and Bezemer (2016) focus on the share of credit to non-financial business in total bank credit by using the data provided by each central bank, while this paper focuses on the share of credit to households in total bank credit by using total credit to households taken from the BIS data. The definition of “total credit to non-financial corporations” by the BIS data includes both the lending by domestic bank to non-financial business and lending by domestic non-financial corporations to non-financial business. In other words, this value cannot allow to extract only the amount of “bank” lending to firms. Thus, this paper uses the share of credit to households in total bank credit (*SHARE_CR_HH*) by dividing a numerator “bank credit to private sector” by IMF. Appendix Table 2 gives the names of each variable, details and sources for all data.

Secondly, capital inflows classified by capital type and borrower type are taken from Balance of Payment (BOP) database of IMF. The structure of the BOP database is first broken down by type of capital inflow, and then by type of borrower. In theory, each type of capital inflow can be disaggregated by borrower type, but in practice, sectoral data is sometimes missing. Therefore, this paper proceeds with the internal filling exercise by Avdjiev et al. (2017). More concretely, this paper fills the missing data for the fourth sector with the value by subtracting three reported sectors from total when BOP database reports total for the category and data for three out of the four sectors.

This paper focuses on four types of capital inflow and three types of borrower. Four categories of capital inflows are direct investment (DI), portfolio equity investment (EI), portfolio debt investment (bonds, BI), and other investment debt (loans, OID), while three types of borrower consist of public sector (central bank and general government, PUB), deposit-taking corporations except the central bank (banks, DMB), and other

sector (mainly corporates, COR). Moreover, gross total inflows (TI) by sector are constructed as the sum of EI, BI, and OID into each sector. Only direct investment cannot be disaggregated by borrower type in the BOP database. But if direct investment flows from non-financial firms to financial firms are negligible, all direct investment can be treated as flows to non-financial firms (COR). It is hypothesized that direct investment can be assigned to the debt of the corporate sector.

This paper does not focus on net inflows, i.e., the differences between gross inflows and gross outflows, but focuses on gross inflows. The data for gross inflows (GINF) is taken from gross liability flows in the BOP database. The gross liability flows are interpreted as net inflows from foreign investors, while the gross asset flows are interpreted as net outflows from domestic investors.

Bezemer et al. (2017) examine the driver of the phenomena “debt shift”, i.e., lowering share of lending to business sector in domestic bank credits by using the new dataset of four types of bank credits: home mortgages, consumer credits, bank loans to non-bank financials, and loans to non-financial business. They show that debt shift is larger in advanced economies with a stronger presence of foreign banks and much promoted financial deregulation. This paper uses the same variables like foreign bank presence, leverage, bank deposits etc. as the drivers of debt shift.

Finally, the data for macro-prudential measures is taken from Akinci et al. (2015). Macro-prudential policy has been used to stabilize financial conditions, which can affect domestic credit volume, or credit allocation. Some studies construct an index of macro-prudential policies. Both Akinci et al. (2015) and Cerutti, et al. (2016) record the change in a policy instrument with positive or negative value (1, -1), depending on whether the policy tool became tightened or loosened in a given quarter. The index equals to zero (0) when the policy tool does not change. The cumulative indicator for each tool in each quarter is defined as the sum of tightening or easing since 2000.

Akinci et al. (2015) focus on seven categories of macro-prudential tools in 57 economies over the period from 2000Q1 to 2013Q4. Three of these tools are targeted at housing market: cap on loan to value (LTV) ratio for mortgage loan; cap on debt service to income (DSTI) ratio of borrower; and other housing measures. The other four tools are targeted at bank’s balance sheets: capital requirements (CR); loan-loss provisioning requirements; consumer loan limits; and ceilings on credit growth. They report the

macro-prudential policy housing index (the sum of the cumulative variables for the LTV, DSTI, and other housing measures), and the macro-prudential policy non-housing index (the sum of the cumulative variables for the other four measures on non-housing market). On the other hand, Cerutti, et al. (2016) focus on nine categories of tools in 64 countries during the period from 2000Q1 to 2014Q4. They cover general capital requirements, three sectoral specific capital buffers (on real estate credit, consumer credit, and other sectors), reserve requirements, concentration limits, interbank exposure limits, loan to value ratio, and two reserve requirements (on foreign currency-denominated accounts and local currency-denominated accounts). The overall macro-prudential policy index is defined as the sum of the cumulative measures of these 9 instruments, and reported by country c and time t . This paper uses the macro-prudential policy housing index and non-housing index by Akinci et al. (2015) (MP_C_H , MP_C_NH , respectively). The indexes by Akinci et al. (2015) allow to examine the impact on credits respectively from housing tool and non-housing tool.

This paper uses the panel regression approach to investigate the effects of capital inflows on the share of household credits in total bank credits. The basic regression model is as follows.

$$ShareHHC_{it} = \alpha + \beta_1 GINF_{it-1} + \gamma X_{it} + u_i + \varepsilon_{it}$$

where $ShareHHC_{it}$ is the share of credits to households in total bank credits to private sector of country i in period t ($SHARE_CR_HH$). $GINF_{it-1}$ is a matrix of explanatory variables of gross capital inflows as described above. The inflow variables are the ratios to seasonally adjusted GDP. The positive (negative) significance of β_1 means that the capital inflows contribute to the increase (decrease) in the share of bank credits to households, respectively. X_{it} is a matrix of control variables: (1) three macroeconomic condition ($g_domestic$) real GDP growth rate forecast in country i , ($inflation$) quarterly (annualized) inflation rate, and ($houseprice$) real residential housing price index (2) monetary market condition ($i_domestic$) real interest rate in country i (3) financial depth ($CR_PS_byDMB_GDP_2$) total credit to private sector by depository money bank (4) three bank characteristics ($Foreignbankpresence$) the ratio of the number of foreign owned banks, ($leverage$) the ratio of bank credit to bank deposit, and ($BankdepositstoGDP$) the Ratio of Bank Credit to Deposit and (5) macro-prudential policy indexes (MP_C_H and MP_C_NH) (see Appendix Table 2.). u_i is a country fixed term, and ε_{it} is an error term.

This paper focuses on both the changes in bank credit allocation and the change in level of bank credits to households. Thus, the latter regression model is as follows.

$$HHC_{it} = \alpha + \beta_2 GINF_{it-1} + \gamma X_{it} + u_i + \varepsilon_{it}$$

where HHC_{it} is the bank credits to households to GDP of country i in period t (CR_HH_GDP). The positive (negative) significance of β_2 means that the capital inflows contribute to the increase (decrease) in the bank credits to households, respectively. Accordingly, we can infer the following results under four combinations of the signs of β_1 and β_2 .

(i) $\beta_1 > 0$ and $\beta_2 > 0$: the domestic banks lend to the households more than to the firms.

(ii) $\beta_1 > 0$ and $\beta_2 < 0$: the domestic banks are reluctant to lend to the households less than to the firms.

(iii) $\beta_1 < 0$ and $\beta_2 > 0$: the domestic banks lend to the households less than to the firms.

(iv) $\beta_1 < 0$ and $\beta_2 < 0$: the domestic banks are reluctant to lend to the households more than to the firms.

The fixed effect model is used for within estimation based on OLS. Moreover, a GMM estimation is also used because total bank credit and the share of bank credit to households tend to be jointly determined. For a robustness check, as the control variables of the extended model, we include some dummies (emerging dummy, regional dummy, and period dummy after the global financial crisis) and lagged dependent variable in case of dynamic panel model. To test for consistency of estimates and validity of instruments, we compute a Hansen test of over-identifying restrictions, along with tests for first- and second-order autocorrelation of the residuals.

Appendix Table 3 indicates a correlation matrix among dependent as well as explanatory variables to be used in regressions. Shaded figures in Appendix Table 3 show absolute levels of more than 0.5 correlation coefficients among variables. Among every types of capital inflows, only gross bond investment inflows to business sectors show positive correlation with gross equity investment inflows to banks. Moreover, among the domestic factors, only leverage and bank deposits to GDP are positively correlated with

the bank credit to private sector. Almost all variables do not show high correlations, allowing us to include them as dependent or explanatory variables.

3. Empirical results

3.1 Credit allocation, credit to households, and sectoral destination of capital inflows

Table 1 is the estimated results on the effect of total capital inflows classified by type of borrower on the share of credit to households with different two methodologies, i.e., fixed effect estimation and GMM estimation. Table 1 indicates that the increase in capital inflow to public or banking sector leads to the significant decrease in the share of credit to households, while the increase in capital inflow to business sector, both in the form of portfolio investment and FDI heightens this share.

Table 2 is the estimated results on the effect of total capital inflows classified by type of borrower on the bank credit to households in cases of fixed effect and GMM estimations. Table 2 indicates that the increase in capital inflow to public sector leads to the significant decrease in the bank credit to households, while the increase of capital inflow to business sector in the form of FDI and portfolio equity investment can increase the bank credit to households. The portfolio equity inflows do especially contribute to the change in credit allocation through the credit growth to households. Based on these results, the following three effects of capital inflows on the domestic credit allocation can be inferred.

First, the increase in capital inflows to the public sector means that the recipient economies have a lot of investment opportunities during a boom period, which has a positive spillover effect on the business sector. As a result, the domestic firms borrow more funds from the domestic banks than before, which leads to decreasing share of credit to households. Second, increasing capital inflow to banking sector makes total volume of their funds larger than before, so the domestic banks can afford to lend their additional funds to both firms and households. The domestic banks, however, lends their additional funds more to firms and less to households, because the banks' rate of return on credit to firms is normally higher than that to households. As a result, both the credit to households in itself and the share of credit to households are decreasing. Third, increasing capital inflow to business sector means that the domestic firms come to have

another fundraising tool in place of borrowing from domestic banks. Decreasing demand for domestic bank funds gives domestic banks an incentive to lending more to households instead of lending to firms. In other words, the increase in international capital inflow directly to firms decreases their borrowing from domestic banks, who have no choice but to lend the surplus fund to households. This substitution effect increases the credit share to households.

Next, we refer to the effects of control variables on the credit allocation. First, Table 2 cannot obtain the robust results concerning the one-year ahead forecast of GDP growth, while it is statistically significant with negative sign in Table1. The anticipation of economic boom increases the demand for both investment and housings, which accelerates the domestic bank credit to both households and firms. However, the amount of increase in credit to households seems to be smaller than that to firms. Second, the real interest rate is statistically significant with negative sign in both cases of Table1 and Table2. The increase in the real interest rate decreases the demand for borrowing. The households' sensitivity to change in the interest rate seems to be stronger than that of firms. Third, the foreign bank presence is statistically significant with negative sign in Table 2, but significant with positive sign in Table1. The high presence of foreign banks means that the money market is really competitive, which induces domestic banks to reduce their lending to firms more than that to households. Fourth, the leverage, i.e., the ratio of bank credit to bank deposit is statistically significant with both signs in Table 2, but significant with positive sign in Table1. The active stance of lending does not turn out to be limited only to the households, but tends to increase the share of credit to households. In short, the allocation of bank credit can be inefficient because of its activeness. Fifth, both cases of Table 1 and 2 cannot obtain the robust results concerning the ratio of bank deposit to GDP. The increase in bank deposits, as an index of financial depth, promotes generally the bank lending, but the level of financial depth does not determine the direction of this lending to firms or households. Sixth, the housing price is statistically significant with positive signs in both cases of Table 1 and 2. The growing demand for housings accompanied with the increase in housing price contributes to increase the credit to households, which heightens the share of credit to households. Seventh, the inflation rate is statistically significant with negative signs in both cases of Table 1 and 2. Increasing capital inflows could induce overheating especially in emerging countries. Higher inflation tends to produce concerns about future economic

growth and expectation of monetary tightening to avoid overheating. Therefore, the domestic banks have no choice to change their lending stance from positively to passively. However, the degree of credit withdrawal seems to be larger to households than to firms, which decreases the credit share to households.

In Table 2, tightening macro-prudential measures for both housing and non-housing have no effect on the credit to households. However, in Table 1, tightening macro-prudential measures for housing increase clearly the share of credit to households. This result may be obtained by the fact that the causality goes in the opposite direction, i.e., higher share of credit to households requires more tightening macro-prudential measures for housing. The remaining issue is a problem of causality. The GFC dummy is not statistically significant in Table 2 but statistically significant with negative signs in Table 1. During the period of global financial crisis, the banks seem to reduce their lending to households more than that to firms.

3.2 Credit allocation, credit to households, and types of capital inflows

As far as the types of capital concerned, Table 3 and Table 4 are GMM type's estimated results on the share of credit to households in total bank credit, and on the credit to households as a % of GDP, respectively. Table 4 shows that the increase in bond inflows does not have any effects on the credits to households, while Table 3 indicates that the increase in bond inflows to banking sector is related to higher credit share to households, and that the increase in bond inflows to business sector is related to lower credit share to households. The former result suggests that the increase in bond inflows to banking sector generates the surplus funds, which go to the households. The latter result suggests that increasing bond inflows has a positive spillover effect on firms and induces banks to lend more to firms than to households.

The increase in cross-border loans to public sector is associated with more credit to households but with lower credit share to households. In such a recipient country with a lot of investment opportunities, the domestic firms seem to borrow more from the domestic banks than the households do. The increase in cross-border interbank loans does not have significant effects on the credits to households, but increases the credit share to households. The cross-border interbank loans seem to give domestic banks additional funds, which go more to households than to firms.

The increase in FDI inflows does not have any effects on the credits to households in Table 4, but increases the credit share to households in Table 3. Moreover, the increase in portfolio equity inflows to business sector increases both the credit to households in Table 4, and the share of credit to households in Table 3. Foreign firms' or institutional investors' investment in the issued stocks of domestic firms gives them another tool for fundraising in place of borrowing from the domestic banks. This replacement seems to have a strong effect on decrease in bank credit to firms, which leads to higher credit share to households.

3.3 Robustness checks

As robustness checks, this paper refers to (1) structural changes after the global financial crisis, (2) differences of country groups between advanced and emerging members, and (3) differences of regional groups like East Asia, Central and Eastern Europe and Latin America. Table 5 and Table 6 are GMM type's estimated results on the effects of total capital inflows on the share of credit to households in total bank credit and on the bank credit to households as a % of GDP, respectively. First, the increase in FDI and capital inflows to business sector heightens the credit share to households over the post-crisis period. As the global liquidity increases as a result of quantitative easing measures by major advanced countries over the post-crisis period, the capital inflows to business sector turn out to crowd out domestic bank lending to firms. This is an unintended side effect on the allocation of domestic bank credit.

Second, the increase in capital inflows to almost all sectors are associated with higher bank credit to households in the emerging economies than that in advanced countries in Table 6. However, it is also associated with lower credit share to households in the emerging economies than that in advanced countries in Table 5. In sum, the capital inflows to emerging economies contribute to increase in the domestic bank lending both to firms and to households, but the degree of the increase in lending is larger to firms than to households. Conversely, the capital inflows to advanced countries turn out to crowd out domestic bank lending to firms, which increases their credit share to households. The unintended side effect on the allocation of domestic bank credit is a phenomenon specific to advanced countries.

Finally, the capital inflows to banking sector in Central and Eastern Europe increase both the bank credit to households in Table 6 and the credit share to households

in Table 5. These countries are periphery countries of the EU. Thus, the European excess capital inflows to banking sector heighten the credit share to households, that is, generates an unintended side effect on the allocation of domestic bank credit. However, the FDI inflow in this region increases the bank credit to households in Table 6 but decreases the credit share to households in Table 5, indicating the domestic bank lends more to firms than to households. In Latin America, the FDI inflow decreases the credit share to households, too. In sum, it can be said that the long-term capital inflows have a beneficial effect on the recipient economies in these regions.

On the other hand, in East Asia, the FDI inflows increase the credit share to households more than other regions, while the capital inflow to banking sector and portfolio equity inflow to business sector decrease the credit share to households in Table 5. After the Asian financial crisis, it is said that the East Asian countries, particularly the banking sector, turned to be generally more sensitive to the short-term capital inflows. This sensitivity can be a reason of the lower credit share to households in the latter types of capital flows. However, the long-term FDI inflows are generally desirable for the recipient countries, so the banking sector is not so sensitive to this type of capital. The FDI in East Asia has been already accumulated, which may generate an undesirable overabundance of investment, and in the end, unintended change in credit allocation.

Again, Table 5 indicates that the increase in capital inflows to banking sector lowers the credit share to households especially in East Asia but heightens it in Central and Eastern Europe. Increasing capital inflow to banking sector makes total volume of their funds larger than before, so their additional funds go more to firms than to households in East Asia. On the contrary, their additional funds go more to households than to firms in Central and Eastern Europe. In other words, domestic bank lending is reallocated away from loans to firms, towards loans to households. This reallocation may be driven by the capital inflows to countries with few investment opportunities or too much deregulated and financially fragile institutions in many of emerging countries. Samarina and Bezemer (2016) conclude that capital inflows into banks do not correlate with domestic credit allocation. Contrary to their conclusion, this paper confirms this correlation by dividing the countries into regional groups.

4. Conclusion

This paper focuses on the destination and the type of capital flows and examines whether the directions and the types of cross-border capital flows cause the change in domestic bank credit allocation for 27 economies over 2000-2016. The results suggest that the increase in FDI and portfolio equity inflows to business sector heightens the share of domestic credits to households, especially over the post-crisis period in advanced countries. As the global liquidity increases as a result of quantitative easing measures by major advanced countries over the post-crisis period, the domestic bank credits are reallocated away from lending to business sector, towards lending to households since the capital inflows allow domestic firms to raise funds on the international equity markets rather than to borrow from domestic banks. Bezemer et al. (2017) show also that the debt shift is larger in advanced economies with a stronger presence of foreign banks and much promoted financial deregulation. Thus, our results are consistent with those of Bezemer et al. (2017). This change of credit allocation can be found in the post-crisis period, suggesting that the cross-border effect of global liquidity is increasing and diversifies the route of fundraising.

The increase in capital inflow to the public sector decreases the share of domestic credits to households. The increasing attractiveness of national bond seems to have a positive spillover effect on firms, who tend to borrow more from domestic banks. However, the increase in bond inflows to banking sector and interbank loans heightens the credit share to households, especially in Central and Eastern Europe, but lowers it in East Asia. This credit reallocation in Central and Eastern Europe can be driven by the characteristics of this region like fragile financial structure, or the excessive capital flows from EU member countries to the economies with few investment opportunities. The recipient countries have to give attention to this unintended side effect, i.e., domestic credit reallocation.

References

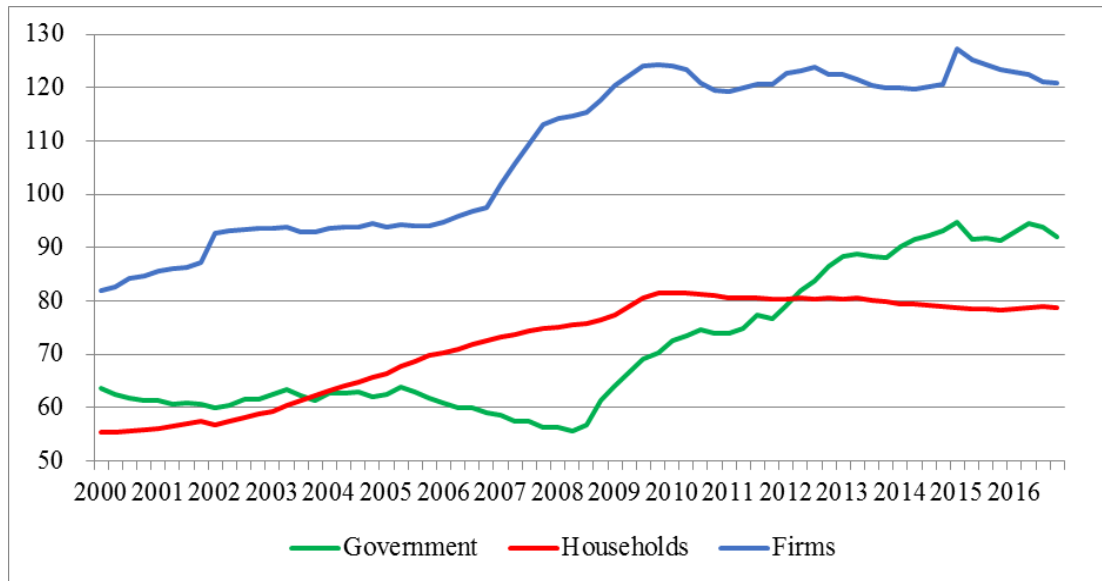
- Akinci, O. and Olmstead-Rumsey, J. (2015) "How Effective are Macroprudential Policies? An Empirical Investigation," *International Finance Discussion Papers*, 1136.
- Avdjiev, S., Binder, S. and Sousa, R. (2017) "External Debt Composition and Domestic Credit Cycles," *BIS Working Papers*, No. 627.

- Avdjiev, S., Gambacorta, L., Goldberg, L., and Schiaffi, S. (2017) “The Shifting Drivers of Global Liquidity” BIS Working Papers, No. 644.
- Avdjiev, S., Hardy, B., Kalemli-Ozcan, S. and Servén, L. (2017) “Gross Capital Inflows to Banks, Corporates, and Sovereigns” NBER Working Paper No. 23116.
- Barba, A. and Pivetti, M. (2009) “Rising Household Debt: its Causes and Macroeconomic Implications – a Long-period Analysis” *Cambridge Journal of Economics*, 33, pp. 113–137.
- Beck, T., Büyükkarabacak, B., Rioja, F. K., and Valev, N. (2012) “Who Gets the Credit? And Does It Matter? Household vs. Firm Lending across Countries” *B.E. Journal of Macroeconomics*, 12(1), pp. 1–46.
- Bezemer, D., Grydaki, M., and Zhang, L. (2016) “More Mortgages, Lower Growth?” *Economic Inquiry*, 54 (1), 652–674.
- Bezemer, D., Samarina, A. and Zhang, L. (2017) “The Shift in Bank Credit Allocation: New Data and New Findings” *De Nederlandsche Bank Working Paper No. 559*.
- Blanchard, O., Ostry, J.D., Ghosh, A.R. and Chamon, M. (2015) “Are Capital Inflows Expansionary or Contractionary? Theory, Policy Implications, and Some Evidence,” NBER Working Paper, No. 21619.
- Büyükkarabacak, B. and Valev, N.T. (2010) “The Role of Household and Business Credit in Banking Crises” *Journal of Banking & Finance*, 34(6), pp. 1247-1256.
- Cerutti, E., Correa, R., Fiorentino, E. and Segalla, E. (2016) “Changes in Prudential Policy Instruments—A New Cross-Country Database,” IMF Working Paper, WP/16/110.
- Cerutti, E. and Hong, G. H. (2018) “Portfolio Inflows Eclipsing Banking Inflows: Alternative Facts?” IMF Working Paper, WP/18/29.
- Enya, M. and Shinkai, J. (2016) “Capital Inflows, Asset Prices, Financial Systems in East Asia,” Paper presented at the 15th International Convention of the East Asian Economic Association, 5-6 November 2016, Bandung, Indonesia.
- Ghosh, A.R., Ostry, J.D. and Qureshi, M.S. (2017) “Managing the Tide: How Do Emerging Markets Respond to Capital Flows?” IMF Working Paper, WP/17/69.
- Igan, D. and Tan, Z. (2015) “Capital Inflows, Credit Growth, and Financial Systems” IMF Working Paper, WP/15/193, pp. 1-31.
- Jappelli, T., Pagano, M., and di Maggio, M. (2013) “Households’ Indebtedness and Financial Fragility” *Journal of Financial Management, Markets and Institutions*, 1, 26–35.
- Jordà, Ò., Schularick, M. and Taylor, A. M. (2014) “The Great Mortgaging: Housing Finance, Crises, and Business Cycles”, NBER Working Papers 20501.
- Mian, A.R., Sufi, A. and Verner, E. (2015), “Household Debt and Business Cycles Worldwide,” NBER Working Paper, No. 21581, September 2015.
- Samarina, A. and Bezemer, D. (2016) “Do Capital Flows Change Domestic Credit Allocation?” *Journal of International Money and Finance*, 62, pp. 98–121.

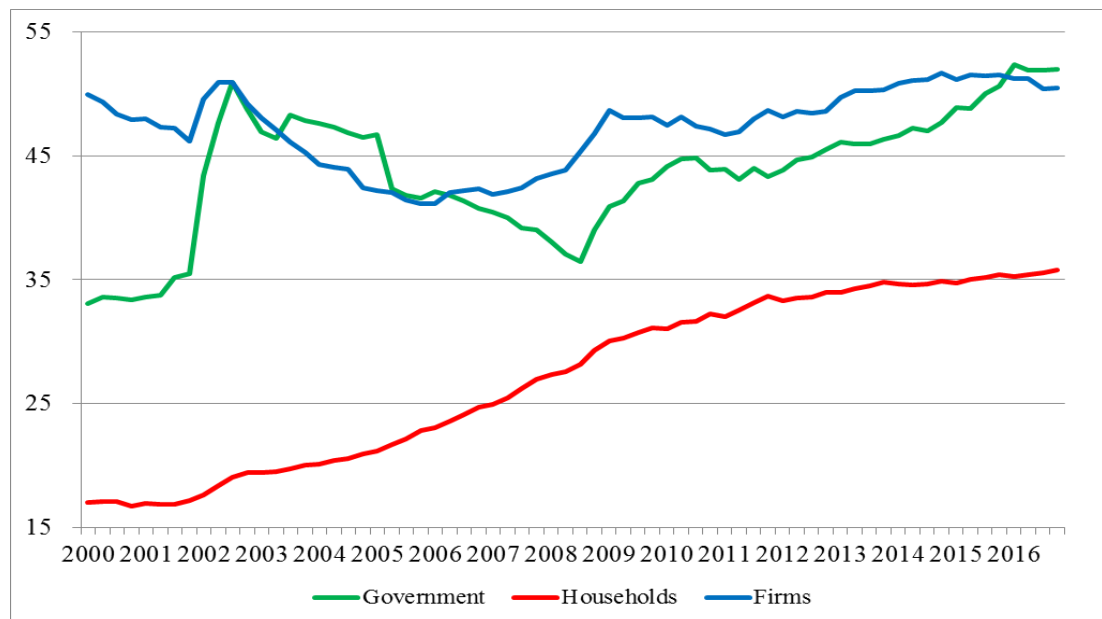
Shinkai, J. and Enya, M. (2014), “The Impact of Capital Inflows on Asset Prices in East Asia,” Discussion Paper Series, No.22, Faculty of Economics and Management, Kanazawa University

Figure 1 Total credit to government, households and firms (average credit to GDP (%))

1.1 Advanced 20 countries



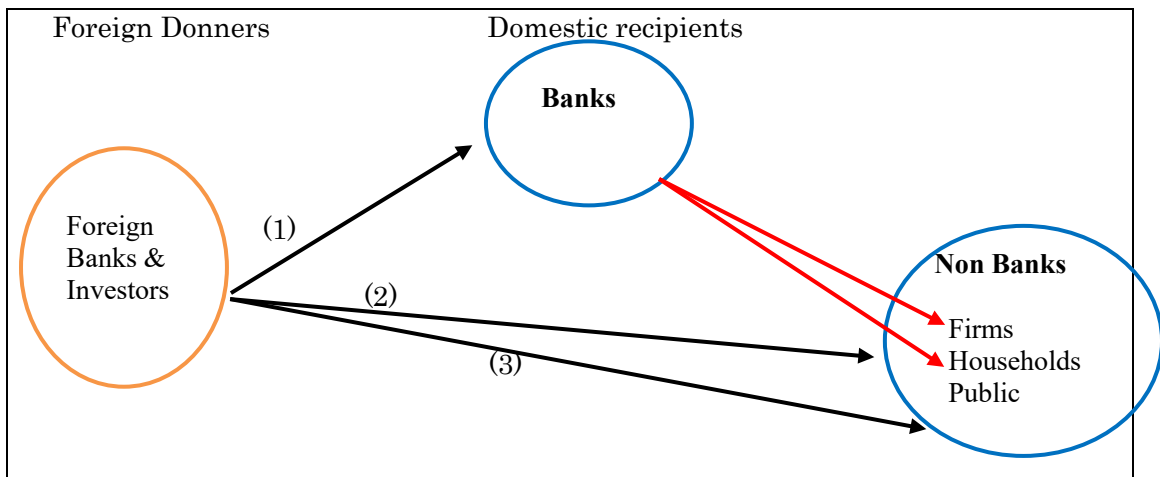
1.2 Emerging 9 countries



Note: Advanced 20 economies include, Austria, Australia, Belgium, Canada, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Portugal and Sweden. Emerging 9 economies include Korea, Thailand, Argentina, Brazil, Colombia, Mexico, Czech Republic, Hungary and Poland. Total credit is provided by domestic bank, all other sectors of the economy and non-residents. Credit covers loans and debt securities.

Source: BIS long series on total credit updated 6 June 2017.

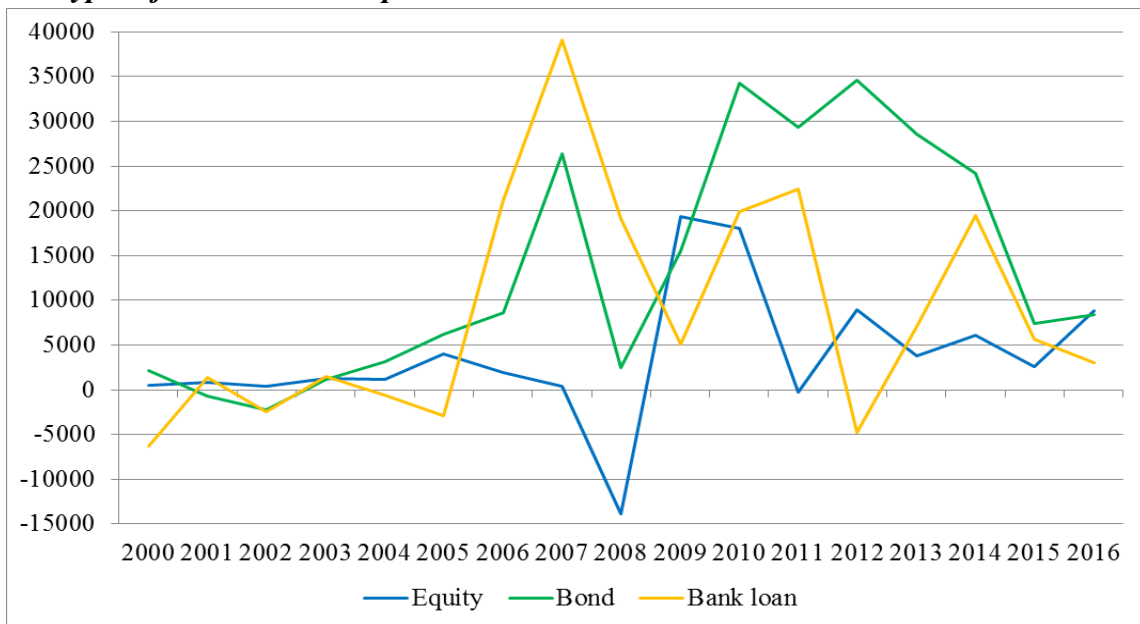
Figure 2 Capital inflows and domestic credits by Samarina and Bezemer (2016)



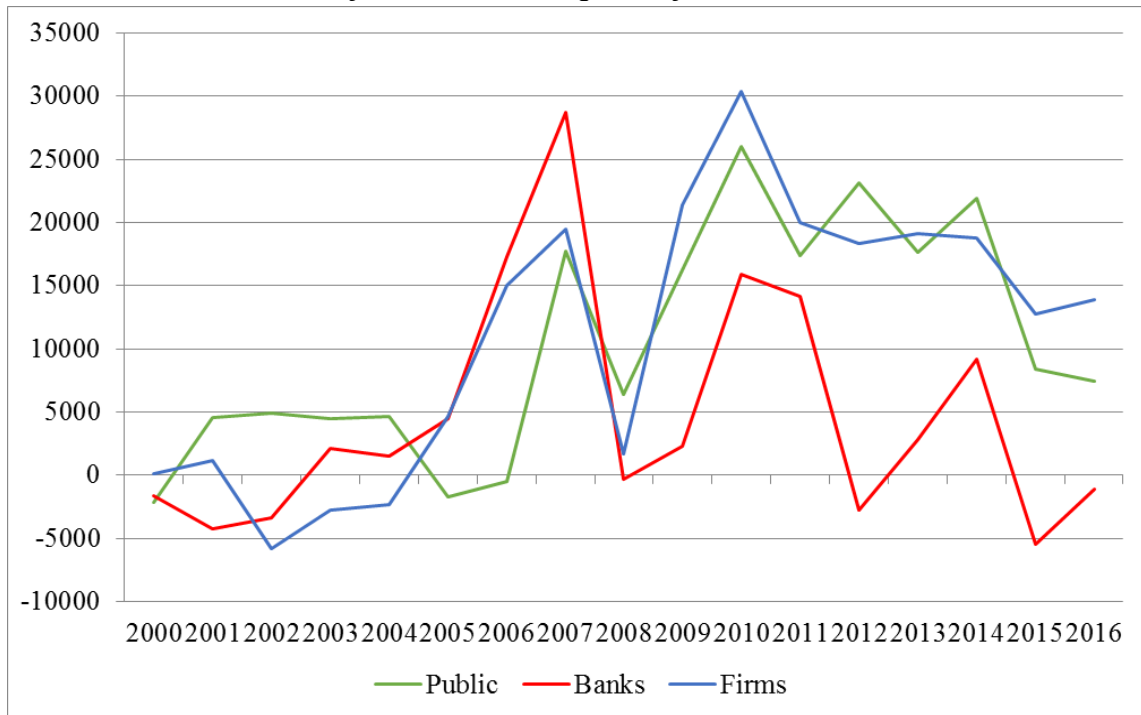
Note: Black and red arrows are the capital inflows and domestic credits, respectively. Samarina and Bezemer (2016) show two destinations of capital flows: capital flow to Banking sector and Non-banking sector. (1) and (2) include the portfolio equity and bond investments and bank loans, and (3) FDI.

Figure 3 Types and compositions of capital flows to emerging 9 economies in U.S. dollars

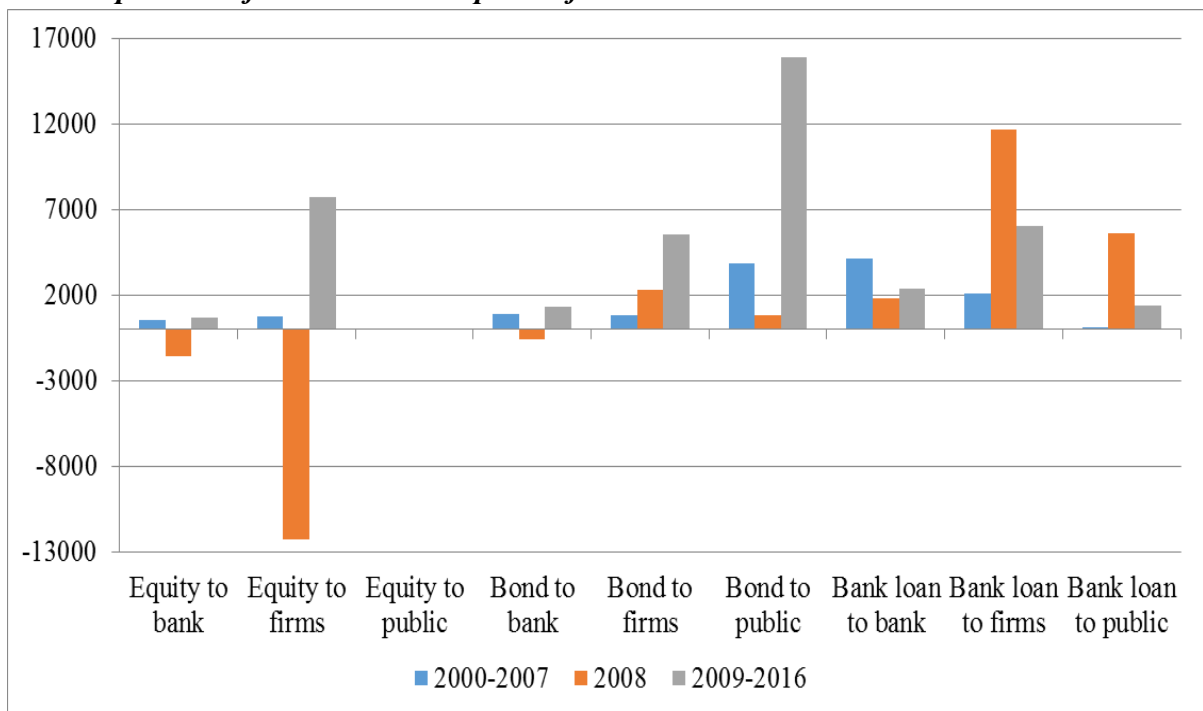
3.1 Types of international capital



3.2 Sectoral destinations of international capital inflows



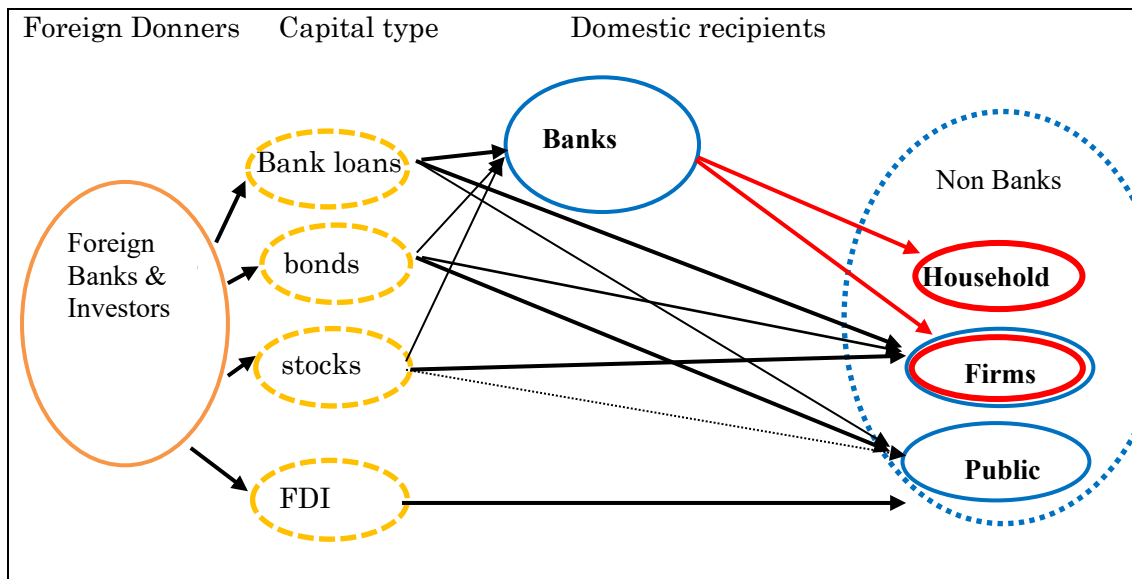
3.3 Composition of international capital inflows



Note: Emerging 9 economies include Korea, Thailand, Argentina, Brazil, Colombia, Mexico, Czech Republic, Hungary and Poland. The annual data is obtained by the annual average of quarterly data. Case 3 is the average value of three periods like before, during and after the global financial crisis.

Source: Balance of Payments statistics by IMF 2017.

Figure 4 Capital inflows and domestic credits by our idea



Note: Black and red arrows are the capital inflows and domestic credits, respectively. They show four destinations of capital flows: capital flow to (1) Banking sector (2) Household sector (3) Non-financial business sector (i.e., firms) and (4) public sector (central bank and government). This paper divides into four types of capital like bank loans, bonds, equities and FDI.

Table 1 The effect of total Inflow on HH credit share

VARIABLES	FE			GMM		
	(1)	(2)	(3)	(4)	(5)	(6)
	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3
L.CR_PNF_byDMB_GDP_2	-0.167*** (0.037)	-0.223*** (0.044)	-0.223*** (0.044)	-0.299*** (0.024)	-0.158*** (0.028)	-0.167*** (0.032)
L.GINFL_TI_PUB_GDP	-0.050*** (0.014)	-0.056*** (0.016)	-0.054*** (0.016)	-0.039** (0.016)	-0.030* (0.017)	-0.049*** (0.019)
L.GINFL_TI_DMB_GDP	-0.044*** (0.010)	-0.047*** (0.011)	-0.049*** (0.011)	-0.009 (0.013)	0.007 (0.013)	0.013 (0.015)
L.GINFL_TI_COR_GDP	0.000 (0.013)	0.004 (0.014)		0.225*** (0.018)	0.221*** (0.020)	
L.GINFL_TI_COR_GDP_exclDI			0.023 (0.027)			0.139*** (0.031)
L.GINFL_DI_GDP			-0.004 (0.018)			0.298*** (0.030)
g_domestic	-0.627*** (0.211)	-1.005*** (0.254)	-1.023*** (0.255)	-3.169*** (0.177)	-2.516*** (0.188)	-2.440*** (0.209)
i_domestic	-0.457*** (0.123)	-0.483*** (0.150)	-0.475*** (0.150)	-0.983*** (0.147)	-1.045*** (0.160)	-1.172*** (0.180)
Foreignbankpresence	0.003*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.001*** (0.000)	-0.000 (0.000)	0.000 (0.000)
leverage	-0.020 (0.025)	-0.023 (0.029)	-0.023 (0.029)	0.196*** (0.016)	0.056*** (0.019)	0.072*** (0.022)
BankdepositstoGDP	0.001* (0.000)	0.000 (0.001)	0.000 (0.001)	0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
houseprice	0.000** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
inflation	-0.202*** (0.073)	-0.223*** (0.080)	-0.226*** (0.081)	-0.482*** (0.087)	-0.495*** (0.092)	-0.453*** (0.102)
L.MP_C_H		0.012*** (0.002)	0.012*** (0.002)		0.007*** (0.002)	0.005** (0.002)
L.MP_C_NH		-0.004 (0.004)	-0.004 (0.004)		-0.062*** (0.005)	-0.062*** (0.006)
Q1	-0.005 (0.005)	-0.003 (0.006)	-0.003 (0.006)	0.004 (0.004)	0.005 (0.004)	0.006 (0.004)
Q2	-0.002 (0.005)	-0.004 (0.006)	-0.004 (0.006)	-0.006* (0.004)	-0.009** (0.004)	-0.008* (0.004)
Q3	-0.004 (0.005)	-0.005 (0.006)	-0.006 (0.006)	-0.003 (0.004)	-0.005 (0.004)	-0.003 (0.004)
GFC	-0.037*** (0.010)	-0.041*** (0.011)	-0.041*** (0.011)	-0.087*** (0.008)	-0.066*** (0.009)	-0.066*** (0.010)
Constant	0.652*** (0.043)	0.698*** (0.055)	0.699*** (0.055)	0.518*** (0.026)	0.798*** (0.033)	0.765*** (0.037)
Observations	1,176	949	949	1,176	949	949
R-squared	0.187	0.223	0.224			
Number of A	27	27	27	27	27	27
AR(1)				0.000	0.000	0.000
AR(2)				0.619	0.774	0.825

Note: Dependent Variable is the *SHARE_CR_HH*. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation.

Table 2 The effect of total Inflow on HH credit / GDP

VARIABLES	FE			GMM			GMM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CR_HH_G DP	CR_HH_G DP	CR_HH_G DP	CR_HH_G DP	CR_HH_G DP	CR_HH_G DP	CR_HH_G DP	CR_HH_G DP	CR_HH_G DP
L.CR_HH_GDP	0.921*** (0.006)	0.901*** (0.006)	0.901*** (0.006)	0.827*** (0.027)	0.840*** (0.031)	0.840*** (0.031)	0.812*** (0.030)	0.808*** (0.032)	0.808*** (0.033)
CR_PNF_byDMB_GDP_2							13.216*** (2.319)	15.431*** (3.029)	15.344*** (2.943)
L.CR_PNF_byDMB_GDP_2	2.383*** (0.504)	3.193*** (0.563)	3.199*** (0.563)				-1.706 (2.530)	-1.225 (2.683)	-1.150 (2.669)
L.GINFL_TI_PUB_GDP	-0.025 (0.171)	-0.247 (0.179)	-0.221 (0.180)	-0.374** (0.164)	-0.362** (0.160)	-0.356* (0.184)	-0.331* (0.171)	-0.287* (0.160)	-0.255* (0.152)
L.GINFL_TI_DMB_GDP	0.068 (0.122)	-0.071 (0.128)	-0.090 (0.129)	-0.110* (0.064)	-0.098 (0.081)	-0.097 (0.093)	-0.082 (0.063)	-0.064 (0.077)	-0.073 (0.088)
L.GINFL_TI_COR_GDP	0.200 (0.151)	0.189 (0.162)		0.274* (0.154)	0.339** (0.166)		0.321 (0.198)	0.358 (0.218)	
L.GINFL_DI_GDP			0.071 (0.200)			0.319 (0.369)			0.231 (0.438)
L.GINFL_TI_COR_GDP_exclDI			0.441 (0.298)			0.367 (0.507)			0.605* (0.362)
g_domestic	-7.077*** (2.512)	-9.262*** (2.890)	-9.502*** (2.899)	-12.686 (9.481)	-11.325 (9.438)	-11.357 (9.355)	-3.082 (4.442)	3.936 (4.764)	3.720 (4.906)
i_domestic	7.758*** (1.460)	1.742 (1.690)	1.844 (1.693)	-9.797** (4.275)	-11.615** (4.717)	-11.596** (4.818)	-11.128** (5.405)	-15.518*** (5.411)	-15.232*** (5.577)
Foreignbankpresence	-0.013* (0.007)	-0.004 (0.009)	-0.005 (0.009)	-0.036** (0.018)	-0.042* (0.022)	-0.040* (0.021)	-0.043 (0.027)	-0.037 (0.029)	-0.036 (0.029)
leverage	0.017 (0.297)	0.314 (0.328)	0.312 (0.328)	5.581*** (1.329)	4.958*** (1.419)	4.955*** (1.419)	-1.878 (1.196)	-2.287* (1.300)	-2.282* (1.326)
BankdepositstoGDP	0.011* (0.006)	0.009 (0.007)	0.009 (0.007)	0.106*** (0.029)	0.111*** (0.033)	0.111*** (0.034)	-0.005 (0.027)	-0.014 (0.029)	-0.014 (0.029)
houseprice	0.024*** (0.002)	0.028*** (0.002)	0.028*** (0.002)	0.039*** (0.014)	0.038** (0.015)	0.038** (0.015)	0.016 (0.013)	0.009 (0.013)	0.009 (0.013)
inflation	-3.340*** (0.863)	-4.377*** (0.905)	-4.418*** (0.906)	-2.405*** (0.898)	-2.597*** (0.982)	-2.585*** (0.980)	-1.985** (0.904)	-1.711** (0.842)	-1.748** (0.833)
LMP_C_H		-0.037 (0.026)	-0.037 (0.026)		-0.222 (0.137)	-0.218 (0.134)		-0.172 (0.132)	-0.166 (0.129)
LMP_C_NH		-0.269*** (0.048)	-0.269*** (0.048)		-0.241 (0.198)	-0.238 (0.198)		0.075 (0.268)	0.075 (0.267)
Q1	-0.300*** (0.058)	-0.340*** (0.065)	-0.341*** (0.065)	-0.258*** (0.062)	-0.321*** (0.054)	-0.321*** (0.054)	-0.326*** (0.053)	-0.371*** (0.055)	-0.371*** (0.055)
Q2	0.046 (0.058)	0.019 (0.065)	0.018 (0.065)	0.039 (0.063)	0.003 (0.069)	0.002 (0.070)	-0.037 (0.051)	-0.073 (0.064)	-0.074 (0.064)
Q3	-0.069 (0.058)	-0.095 (0.066)	-0.099 (0.066)	-0.086 (0.064)	-0.104 (0.075)	-0.104 (0.081)	-0.105 (0.065)	-0.126* (0.076)	-0.129 (0.079)
GFC	0.191 (0.121)	0.038 (0.124)	0.040 (0.124)	-0.114 (0.226)	-0.097 (0.235)	-0.096 (0.232)	-0.278 (0.185)	-0.290 (0.178)	-0.282 (0.177)
Constant	0.316 (0.510)	0.247 (0.616)	0.263 (0.616)	-6.934** (2.742)	-6.462** (2.863)	-6.530** (2.870)	3.880 (2.388)	3.521* (1.898)	3.471* (1.951)
Observations	1,160	933	933	1,126	899	899	1,126	899	899
R-squared	0.991	0.990	0.990	0.009	0.016	0.016	0.010	0.018	0.018
				0.777	0.810	0.818	0.850	0.945	0.914
Number of A	27	27	27	27	27	27	27	27	27

Note: Dependent Variable is the CR_HH_GDP. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation

Table 3 The effect of any type of capital inflow on HH credit share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3
L.CR_PNF_byDMB_GDP_2	-0.226*** (0.016)	-0.187*** (0.019)	-0.212*** (0.015)	-0.143*** (0.017)	-0.239*** (0.023)	-0.166*** (0.027)	-0.231*** (0.024)	-0.164*** (0.029)
L.GINFL_BI_PUB_GDP	-0.009 (0.028)	0.090*** (0.030)					0.033 (0.046)	0.064 (0.046)
L.GINFL_OID_PUB_GDP	-0.108*** (0.011)	-0.076*** (0.012)					-0.024 (0.018)	-0.026 (0.018)
L.GINFL_EI_DMB_GDP			-0.025 (0.022)	-0.020 (0.021)			-0.040 (0.041)	0.004 (0.039)
L.GINFL_BI_DMB_GDP			0.167*** (0.021)	0.114*** (0.021)			-0.026 (0.038)	-0.057 (0.038)
L.GINFL_OID_DMB_GDP			0.000 (0.011)	0.018* (0.011)			0.078*** (0.018)	0.090*** (0.018)
L.GINFL_DI_GDP					0.316*** (0.022)	0.282*** (0.022)	0.317*** (0.024)	0.291*** (0.025)
L.GINFL_EI_COR_GDP					0.292*** (0.033)	0.261*** (0.032)	0.315*** (0.038)	0.287*** (0.038)
L.GINFL_BI_COR_GDP					-0.146** (0.068)	-0.097 (0.068)	-0.177** (0.084)	-0.151* (0.084)
L.GINFL_OID_COR_GDP					0.070 (0.044)	0.042 (0.044)	0.074 (0.048)	0.025 (0.049)
g domestic	-2.836*** (0.108)	-1.712*** (0.121)	-3.198*** (0.110)	-2.299*** (0.114)	-3.220*** (0.166)	-2.655*** (0.173)	-3.349*** (0.180)	-2.781*** (0.189)
i domestic	-0.805*** (0.089)	-0.725*** (0.097)	-0.945*** (0.088)	-1.087*** (0.092)	-0.951*** (0.137)	-0.933*** (0.139)	-1.009*** (0.145)	-1.049*** (0.151)
Foreignbankpresence	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000 (0.000)	0.001*** (0.000)	0.000 (0.000)
leverage	0.202*** (0.011)	0.114*** (0.013)	0.172*** (0.010)	0.071*** (0.011)	0.175*** (0.016)	0.091*** (0.018)	0.165*** (0.017)	0.082*** (0.019)
BankdepositstoGDP	0.001*** (0.000)	-0.001*** (0.000)	0.001*** (0.000)	-0.001*** (0.000)	0.001*** (0.000)	-0.001** (0.000)	0.001*** (0.000)	-0.001** (0.000)
houseprice	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
inflation	-0.539*** (0.056)	-0.641*** (0.059)	-0.419*** (0.053)	-0.445*** (0.053)	-0.477*** (0.083)	-0.470*** (0.081)	-0.451*** (0.087)	-0.435*** (0.086)
L.MP_C_H		0.016*** (0.001)		0.012*** (0.001)		0.006*** (0.002)		0.007*** (0.002)
L.MP_C_NH		-0.102*** (0.003)		-0.073*** (0.003)		-0.051*** (0.004)		-0.051*** (0.005)
Q1	0.004 (0.003)	0.010*** (0.003)	0.004* (0.003)	0.007*** (0.003)	0.006 (0.004)	0.005 (0.004)	0.010** (0.004)	0.010** (0.004)
Q2	-0.003 (0.003)	-0.004 (0.003)	-0.006** (0.003)	-0.007*** (0.003)	-0.005 (0.004)	-0.007* (0.004)	-0.008* (0.004)	-0.009* (0.004)
Q3	-0.004 (0.003)	-0.005* (0.003)	-0.008*** (0.002)	-0.009*** (0.003)	-0.002 (0.004)	-0.004 (0.004)	-0.000 (0.004)	-0.001 (0.004)
GFC	-0.090*** (0.006)	-0.075*** (0.006)	-0.086*** (0.006)	-0.068*** (0.005)	-0.094*** (0.009)	-0.078*** (0.008)	-0.086*** (0.010)	-0.068*** (0.009)
Constant	0.438*** (0.016)	0.619*** (0.020)	0.476*** (0.015)	0.705*** (0.019)	0.505*** (0.026)	0.680*** (0.030)	0.532*** (0.027)	0.716*** (0.033)
Observations	1,310	1,053	1,188	961	1,178	951	1,176	949
Number of A	29	29	27	27	27	27	27	27
AR(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.227	0.267	0.001	0.003	0.503	0.108	0.348	0.562

Note: Dependent Variable is the *SHARE_CR_HH*. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation.

Table 4 The effect of any type of capital inflow on HH credit / GDP

VARIABLES	(1) CR_HH_G DP	(2) CR_HH_G DP	(3) CR_HH_G DP	(4) CR_HH_G DP	(5) CR_HH_G DP	(6) CR_HH_G DP	(7) CR_HH_G DP	(8) CR_HH_G DP
L.CR_HH_GDP	0.834*** (0.027)	0.847*** (0.030)	0.831*** (0.028)	0.845*** (0.033)	0.829*** (0.027)	0.840*** (0.031)	0.829*** (0.027)	0.842*** (0.031)
CR_PNF_byDMB_GDP_2								
L.CR_PNF_byDMB_GDP_2								
L.GINFL_BI_PUB_GDP	-0.067 (0.359)	-0.075 (0.484)					-0.061 (0.396)	-0.093 (0.532)
L.GINFL_OID_PUB_GDP	-0.463** (0.217)	-0.464** (0.203)					-0.369* (0.205)	-0.362* (0.210)
L.GINFL_EI_DMB_GDP			0.840** (0.341)	0.861** (0.387)			0.887** (0.394)	0.949** (0.452)
L.GINFL_BI_DMB_GDP			0.157 (0.413)	0.161 (0.391)			-0.177 (0.534)	-0.202 (0.542)
L.GINFL_OID_DMB_GDP			-0.182 (0.138)	-0.187 (0.167)			-0.149 (0.134)	-0.127 (0.155)
L.GINFL_DI_GDP					0.276 (0.275)	0.365 (0.336)	0.293 (0.254)	0.393 (0.314)
L.GINFL_EI_COR_GDP					1.823** (0.747)	1.875** (0.932)	1.498* (0.900)	1.516 (1.106)
L.GINFL_BI_COR_GDP					-0.354 (0.874)	-0.591 (1.189)	-0.524 (0.674)	-0.759 (0.905)
L.GINFL_OID_COR_GDP					-0.243 (0.269)	-0.227 (0.309)	-0.517* (0.314)	-0.547 (0.413)
g_domestic	-12.872 (9.267)	-10.407 (8.911)	-14.227 (9.905)	-12.448 (9.741)	-13.958 (9.541)	-12.537 (9.372)	-14.338 (9.726)	-12.902 (9.611)
i_domestic	-9.141** (3.561)	-10.008*** (3.852)	-10.207** (4.184)	-11.569** (4.508)	-9.478** (4.341)	-11.598** (4.977)	-8.807** (4.421)	-10.666** (5.009)
Foreignbankpresence	-0.026* (0.014)	-0.036* (0.019)	-0.038** (0.019)	-0.047* (0.025)	-0.040** (0.019)	-0.046** (0.023)	-0.040** (0.016)	-0.046** (0.020)
leverage	5.582*** (1.237)	4.836*** (1.298)	5.518*** (1.311)	4.834*** (1.423)	5.542*** (1.323)	4.866*** (1.394)	5.334*** (1.330)	4.685*** (1.420)
BankdepositstoGDP	0.103*** (0.026)	0.112*** (0.031)	0.102*** (0.028)	0.107*** (0.033)	0.104*** (0.028)	0.110*** (0.033)	0.099*** (0.029)	0.104*** (0.033)
houseprice	0.036** (0.014)	0.033** (0.014)	0.038*** (0.015)	0.036** (0.015)	0.042*** (0.014)	0.043*** (0.015)	0.039*** (0.014)	0.039*** (0.014)
inflation	-1.595** (0.702)	-1.964*** (0.735)	-2.301*** (0.867)	-2.495*** (0.937)	-2.296*** (0.880)	-2.391*** (0.925)	-2.220*** (0.833)	-2.319*** (0.883)
L.MP_C_H		-0.228* (0.137)		-0.208 (0.139)		-0.203 (0.133)		-0.218 (0.145)
L.MP_C_NH		-0.244 (0.173)		-0.248 (0.196)		-0.256 (0.204)		-0.252 (0.203)
Q1	-0.213*** (0.061)	-0.265*** (0.048)	-0.249*** (0.062)	-0.306*** (0.054)	-0.258*** (0.064)	-0.322*** (0.054)	-0.263*** (0.065)	-0.325*** (0.057)
Q2	0.063 (0.057)	0.036 (0.061)	0.042 (0.060)	0.011 (0.067)	0.032 (0.062)	-0.001 (0.070)	0.046 (0.065)	0.013 (0.072)
Q3	-0.086 (0.059)	-0.097 (0.072)	-0.095 (0.063)	-0.114 (0.075)	-0.091 (0.066)	-0.105 (0.076)	-0.081 (0.067)	-0.090 (0.079)
GFC	-0.068 (0.214)	-0.063 (0.217)	-0.115 (0.226)	-0.102 (0.234)	-0.068 (0.206)	-0.051 (0.207)	-0.040 (0.219)	-0.020 (0.228)
Constant	-7.275*** (2.599)	-6.532** (2.669)	-6.685** (2.854)	-5.987* (3.072)	-7.004** (2.747)	-6.551** (2.880)	-6.162** (2.864)	-5.666* (3.031)
Observations	1,260	1,004	1,143	916	1,130	903	1,126	899
AR(1)	0.006	0.010	0.009	0.015	0.010	0.019	0.010	0.019
AR(2)	0.635	0.976	0.676	0.866	0.542	0.869	0.653	0.882
Number of A	29	29	27	27	27	27	27	27

Note: Dependent Variable is the *CR_HH_GDP*. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation.

Table 5 The effect of total inflow on HH credit share (regional effects)

VARIABLES	(1) SHARE_C R HH 3	(2) SHARE_C R HH 3	(3) SHARE_C R HH 3	(4) SHARE_C R HH 3	(5) SHARE_C R HH 3	(6) SHARE_C R HH 3	(7) SHARE_C R HH 3	(8) SHARE_C R HH 3
L.CR_PNF_byDMB_GDP_2	-0.244*** (0.014)	-0.288*** (0.018)	-0.270*** (0.019)	-0.304*** (0.024)	-0.077*** (0.015)	-0.037* (0.020)	-0.088*** (0.018)	-0.036 (0.024)
L.GINFL_TI_PUB_GDP	-0.067*** (0.010)	-0.084*** (0.011)	-0.080*** (0.014)	-0.108*** (0.015)	-0.043*** (0.010)	-0.036*** (0.012)	-0.060*** (0.013)	-0.052*** (0.015)
L.GINFL_TI_PUB_GDP × emerging	-0.352*** (0.093)	-0.065 (0.098)	-0.273** (0.122)	0.030 (0.130)				
L.GINFL TI PUB GDP × EA					0.090 (0.134)	0.163 (0.146)	0.270 (0.170)	0.312* (0.183)
L.GINFL TI DMB GDP	-0.067*** (0.007)	-0.031*** (0.008)	-0.050*** (0.010)	-0.006 (0.011)	-0.045*** (0.007)	-0.004 (0.008)	-0.035*** (0.010)	0.004 (0.011)
L.GINFL TI DMB GDP × emerging	0.127 (0.102)	-0.097 (0.107)	0.058 (0.134)	-0.188 (0.144)				
L.GINFL TI DMB GDP × EA					-0.314*** (0.116)	-0.325** (0.127)	-0.497*** (0.147)	-0.529*** (0.160)
L.GINFL TI COR GDP	0.072*** (0.011)	0.068*** (0.012)			0.147*** (0.010)	0.156*** (0.012)		
L.GINFL TI COR GDP × emerging	-0.217*** (0.032)	-0.164*** (0.033)						
L.GINFL TI COR GDP × EA					-0.470*** (0.102)	-0.249** (0.114)		
L.GINFL DI GDP			0.247*** (0.022)	0.255*** (0.025)			0.238*** (0.018)	0.236*** (0.021)
L.GINFL DI GDP × emerging			-0.380*** (0.048)	-0.384*** (0.051)				
L.GINFL DI GDP × EA							0.913*** (0.263)	1.394*** (0.290)
L.GINFL TI COR GDP exclDI			-0.088*** (0.021)	-0.100*** (0.023)			0.041** (0.019)	0.066*** (0.023)
L.GINFL TI COR GDP exclDI × emerging			-0.630*** (0.131)	-0.153 (0.143)				
L.GINFL TI COR GDP exclDI × EA							-0.618*** (0.148)	-0.503*** (0.164)
g domestic	-1.381*** (0.130)	-0.798*** (0.141)	-1.168*** (0.170)	-0.619*** (0.187)	-0.297** (0.138)	0.185 (0.161)	-0.144 (0.173)	0.373* (0.200)
i domestic	-0.746*** (0.087)	-0.080 (0.097)	-0.916*** (0.114)	-0.247* (0.131)	-1.146*** (0.086)	-1.022*** (0.104)	-1.124*** (0.110)	-0.970*** (0.131)
Foreignbankpresence	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.003*** (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)
leverage	0.106*** (0.010)	0.084*** (0.012)	0.138*** (0.013)	0.113*** (0.016)	0.081*** (0.010)	0.027** (0.013)	0.102*** (0.012)	0.040** (0.016)
BankdepositstoGDP	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000** (0.000)	-0.000 (0.000)
houseprice	0.002*** (0.000)	0.000*** (0.000)	0.002*** (0.000)	0.000** (0.000)	0.002*** (0.000)	0.000*** (0.000)	0.002*** (0.000)	0.000*** (0.000)
inflation	-0.106** (0.052)	-0.344*** (0.055)	-0.079 (0.069)	-0.285*** (0.073)	-0.273*** (0.052)	-0.489*** (0.060)	-0.352*** (0.068)	-0.610*** (0.078)
L.MP_C_H		0.023*** (0.001)		0.021*** (0.002)		0.019*** (0.001)		0.018*** (0.002)
L.MP_C_NH		0.046*** (0.004)		0.050*** (0.005)		-0.001 (0.004)		0.001 (0.004)
Q1	-0.001 (0.002)	-0.001 (0.003)	0.001 (0.003)	0.001 (0.004)	-0.004 (0.002)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.004)
Q2	-0.000 (0.002)	-0.004 (0.003)	0.002 (0.003)	-0.002 (0.004)	-0.004* (0.002)	-0.009*** (0.003)	-0.003 (0.003)	-0.008** (0.004)
Q3	-0.005** (0.002)	-0.003 (0.003)	-0.002 (0.003)	0.002 (0.004)	-0.002 (0.002)	-0.000 (0.003)	-0.000 (0.003)	0.000 (0.004)
GFC	-0.048*** (0.006)	-0.028*** (0.006)	-0.053*** (0.008)	-0.022** (0.009)	-0.043*** (0.006)	-0.021*** (0.007)	-0.051*** (0.008)	-0.031*** (0.009)
1.emerging	-0.220*** (0.006)	-0.348*** (0.008)	-0.217*** (0.008)	-0.347*** (0.011)				
1.EA7					-0.263*** (0.008)	-0.327*** (0.011)	-0.298*** (0.011)	-0.370*** (0.015)
Constant	0.584*** (0.015)	0.758*** (0.020)	0.509*** (0.021)	0.697*** (0.028)	0.458*** (0.016)	0.639*** (0.022)	0.404*** (0.021)	0.598*** (0.028)
Observations	1,176	949	1,176	949	1,176	949	1,176	949
Number of A	27	27	27	27	27	27	27	27
AR(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.326	0.228	0.207	0.431	0.558	0.610	0.580	0.896

Note: Dependent Variable is the *SHARE_CR_HH*. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation.

Table 5 The effect of total inflow on HH credit share (regional effects): continue

VARIABLES	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3	SHARE_C R HH 3
L.CR_PNF_byDMB_GDP_2	-0.267*** (0.028)	-0.265*** (0.030)	-0.295*** (0.033)	-0.285*** (0.037)	-0.290*** (0.022)	-0.185*** (0.033)	-0.299*** (0.027)	-0.185*** (0.037)
L.GINFL_TI_PUB_GDP	-0.034* (0.020)	-0.033* (0.017)	-0.055** (0.024)	-0.059*** (0.022)	-0.032** (0.015)	-0.017 (0.019)	-0.053*** (0.019)	-0.035 (0.021)
L.GINFL_TI_PUB_GDP × EE	-0.640** (0.253)	-0.252 (0.227)	-0.557* (0.293)	-0.251 (0.279)				
L.GINFL_TI_PUB_GDP × LA					-1.098 (0.681)	-4.420*** (0.957)	-1.290 (0.852)	-4.161*** (1.102)
L.GINFL_TI_DMB_GDP	-0.012 (0.015)	0.007 (0.013)	0.015 (0.017)	0.035** (0.016)	-0.035*** (0.011)	-0.016 (0.014)	-0.023 (0.014)	-0.001 (0.016)
L.GINFL_TI_DMB_GDP × EE	2.602*** (0.356)	1.981*** (0.355)	2.536*** (0.416)	1.924*** (0.435)				
L.GINFL_TI_DMB_GDP × LA					-0.316 (0.603)	0.407 (0.811)	-0.968 (0.762)	0.346 (0.930)
L.GINFL_TI_COR_GDP	0.202*** (0.022)	0.158*** (0.020)			0.211*** (0.014)	0.199*** (0.019)		
L.GINFL_TI_COR_GDP × EE	-0.448*** (0.080)	-0.325*** (0.074)						
L.GINFL_TI_COR_GDP × LA					-1.179*** (0.217)	-1.474*** (0.341)		
L.GINFL_DI_GDP			0.397*** (0.039)	0.367*** (0.037)			0.304*** (0.026)	0.300*** (0.031)
L.GINFL_DI_GDP × EE			-0.684*** (0.102)	-0.573*** (0.098)				
L.GINFL_DI_GDP × LA							-2.970*** (0.423)	-2.837*** (0.591)
L.GINFL_TI_COR_GDP_exclDI			0.022 (0.037)	-0.020 (0.035)			0.085*** (0.028)	0.075** (0.033)
L.GINFL_TI_COR_GDP_exclDI × EE			-1.125 (0.701)	-1.231* (0.661)				
L.GINFL_TI_COR_GDP_exclDI × LA							1.237** (0.607)	-0.266 (0.877)
g_domestic	-4.074*** (0.222)	-3.916*** (0.208)	-4.035*** (0.258)	-3.896*** (0.255)	-3.242*** (0.161)	-2.770*** (0.212)	-3.082*** (0.203)	-2.586*** (0.244)
i_domestic	-1.321*** (0.184)	-1.380*** (0.162)	-1.435*** (0.216)	-1.483*** (0.202)	-0.923*** (0.142)	-1.065*** (0.197)	-1.027*** (0.181)	-1.270*** (0.232)
Foreignbankpresence	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.003*** (0.000)	0.001*** (0.000)	0.000 (0.000)	0.001*** (0.000)	0.001** (0.000)
leverage	0.168*** (0.019)	0.117*** (0.020)	0.203*** (0.023)	0.150*** (0.024)	0.173*** (0.014)	0.088*** (0.021)	0.200*** (0.018)	0.107*** (0.024)
BankdepositstoGDP	0.000 (0.000)	-0.001* (0.000)	0.001* (0.000)	-0.000 (0.000)	0.001*** (0.000)	-0.001 (0.000)	0.001*** (0.000)	-0.001 (0.000)
houseprice	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
inflation	-0.380*** (0.103)	-0.393*** (0.090)	-0.352*** (0.119)	-0.364*** (0.110)	-0.425*** (0.077)	-0.520*** (0.096)	-0.399*** (0.096)	-0.478*** (0.110)
L.MP_C_H		0.013*** (0.002)		0.011*** (0.002)		0.008*** (0.002)		0.007*** (0.002)
L.MP_C_NH		-0.041*** (0.005)		-0.038*** (0.006)		-0.051*** (0.006)		-0.052*** (0.006)
Q1	0.007 (0.005)	0.007 (0.004)	0.010* (0.006)	0.010* (0.005)	0.004 (0.004)	0.004 (0.005)	0.008* (0.005)	0.007 (0.006)
Q2	-0.007 (0.005)	-0.008* (0.005)	-0.004 (0.006)	-0.006 (0.006)	-0.007* (0.004)	-0.010** (0.005)	-0.005 (0.005)	-0.009 (0.005)
Q3	-0.008* (0.005)	-0.010** (0.005)	-0.003 (0.006)	-0.004 (0.006)	-0.007** (0.004)	-0.011** (0.005)	-0.004 (0.005)	-0.007 (0.006)
GFC	-0.085*** (0.011)	-0.074*** (0.010)	-0.082*** (0.013)	-0.069*** (0.012)	-0.100*** (0.008)	-0.084*** (0.010)	-0.100*** (0.010)	-0.082*** (0.012)
1.EE5	-0.151*** (0.026)	-0.273*** (0.028)	-0.165*** (0.030)	-0.277*** (0.035)				
1.LA5					-0.017 (0.021)	0.110*** (0.030)	0.058** (0.028)	0.165*** (0.036)
Constant	0.628*** (0.032)	0.788*** (0.033)	0.557*** (0.038)	0.717*** (0.042)	0.562*** (0.023)	0.721*** (0.036)	0.501*** (0.030)	0.676*** (0.042)
Observations	1,176	949	1,176	949	1,176	949	1,176	949
Number of A	27	27	27	27	27	27	27	27
AR(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.014	0.946	0.151	0.822	0.929	0.567	0.543	0.483

Note: Dependent Variable is the *SHARE_CR_HH*. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation.

Table 6 The effect of total inflow on HH credit / GDP (regional effects)

VARIABLES	(1) CR_HH_G DP	(2) CR_HH_G DP	(3) CR_HH_G DP	(4) CR_HH_G DP	(5) CR_HH_G DP	(6) CR_HH_G DP	(7) CR_HH_G DP	(8) CR_HH_G DP
L.CR_HH_GDP	0.826*** (0.027)	0.840*** (0.031)	0.827*** (0.009)	0.841*** (0.030)	0.825*** (0.028)	0.838*** (0.032)	0.824*** (0.028)	0.837*** (0.032)
L.GINFL_TI_PUB_GDP	-0.426** (0.183)	-0.426** (0.187)	-0.379** (0.149)	-0.374* (0.218)	-0.382** (0.165)	-0.370** (0.162)	-0.368* (0.191)	-0.368* (0.192)
L.GINFL_TI_PUB_GDP × emerging	1.609** (0.764)	1.660* (0.906)	1.617 (1.014)	1.562* (0.891)				
L.GINFL_TI_PUB_GDP × EA					0.948 (1.181)	1.242 (1.292)	1.090 (1.320)	1.341 (1.412)
L.GINFL_TI_DMB_GDP	-0.124* (0.065)	-0.115 (0.077)	-0.145 (0.109)	-0.138 (0.088)	-0.108* (0.065)	-0.100 (0.081)	-0.107 (0.070)	-0.094 (0.094)
L.GINFL_TI_DMB_GDP × emerging	3.043** (1.283)	3.704*** (1.288)	2.936*** (0.931)	3.548*** (1.187)				
L.GINFL_TI_DMB_GDP × EA					1.428 (1.864)	2.036 (1.899)	1.835 (1.831)	2.405 (1.913)
L.GINFL_TI_COR_GDP	0.112 (0.103)	0.146 (0.126)			0.270* (0.153)	0.341** (0.164)		
L.GINFL_TI_COR_GDP × emerging	0.720*** (0.252)	0.726*** (0.256)						
L.GINFL_TI_COR_GDP × EA					0.689 (1.182)	-0.374 (1.092)		
L.GINFL_DI_GDP			-0.095 (0.188)	-0.111 (0.242)			0.234 (0.306)	0.327 (0.372)
L.GINFL_DI_GDP × emerging			1.079*** (0.367)	1.165*** (0.402)				
L.GINFL_DI_GDP × EA							-3.304 (3.480)	-4.168 (3.808)
L.GINFL_TI_COR_GDP exclDI			0.487* (0.256)	0.514 (0.476)			0.354 (0.426)	0.356 (0.521)
L.GINFL_TI_COR_GDP exclDI × emerging			-1.829 (1.288)	-2.626*** (0.934)				
L.GINFL_TI_COR_GDP exclDI × EA							1.823 (2.176)	0.721 (1.918)
g_domestic	-13.617 (9.451)	-12.403 (9.514)	-13.785*** (2.845)	-12.651 (9.352)	-12.784 (9.564)	-11.419 (9.600)	-13.256 (9.532)	-11.882 (9.556)
i_domestic	-10.646** (4.654)	-12.334** (4.988)	-10.775*** (2.529)	-12.524** (4.947)	-10.113** (4.428)	-12.091** (4.840)	-10.228** (4.506)	-12.304** (4.985)
Foreignbankpresence	-0.035** (0.017)	-0.041** (0.020)	-0.034* (0.021)	-0.039* (0.020)	-0.036** (0.018)	-0.042* (0.022)	-0.035** (0.017)	-0.041** (0.021)
leverage	5.530*** (1.324)	4.899*** (1.410)	5.525*** (0.444)	4.896*** (1.372)	5.623*** (1.346)	4.989*** (1.438)	5.629*** (1.349)	4.986*** (1.439)
BankdepositstoGDP	0.106*** (0.029)	0.111*** (0.034)	0.105*** (0.010)	0.110*** (0.033)	0.107*** (0.029)	0.113*** (0.034)	0.108*** (0.029)	0.113*** (0.034)
houseprice	0.039*** (0.014)	0.038** (0.015)	0.038*** (0.004)	0.038** (0.015)	0.039*** (0.015)	0.038** (0.015)	0.039*** (0.014)	0.039** (0.015)
inflation	-2.179*** (0.775)	-2.299*** (0.807)	-2.081** (0.857)	-2.136** (0.904)	-2.418*** (0.937)	-2.529** (1.081)	-2.299** (0.911)	-2.377** (1.044)
L.MP_C_H		-0.234* (0.129)		-0.235* (0.127)		-0.229* (0.137)		-0.224* (0.135)
L.MP_C_NH		-0.201 (0.195)		-0.195 (0.196)		-0.230 (0.194)		-0.225 (0.194)
Q1	-0.254*** (0.060)	-0.317*** (0.054)	-0.262*** (0.043)	-0.323*** (0.054)	-0.256*** (0.062)	-0.318*** (0.056)	-0.253*** (0.061)	-0.318*** (0.055)
Q2	0.035 (0.066)	-0.003 (0.073)	0.028 (0.043)	-0.008 (0.074)	0.037 (0.064)	-0.001 (0.070)	0.037 (0.065)	-0.001 (0.071)
Q3	-0.090 (0.064)	-0.106 (0.076)	-0.098** (0.042)	-0.119 (0.082)	-0.087 (0.064)	-0.106 (0.075)	-0.086 (0.067)	-0.103 (0.080)
GFC	-0.091 (0.221)	-0.067 (0.233)	-0.108 (0.105)	-0.095 (0.236)	-0.093 (0.229)	-0.075 (0.239)	-0.077 (0.226)	-0.059 (0.238)
Constant	-6.801** (2.760)	-6.352** (2.872)	-6.795*** (1.165)	-6.366** (2.817)	-7.001** (2.784)	-6.531** (2.923)	-7.007** (2.805)	-6.555** (2.930)
Observations	1,126	899	1,126	899	1,126	899	1,126	899
AR(1)	0.010	0.019	0.009	0.018	0.009	0.017	0.009	0.016
AR(2)	0.739	0.943	0.568	0.803	0.771	0.857	0.731	0.896
Number of A	27	27	27	27	27	27	27	27

Note: Dependent Variable is the CR_HH_GDP. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation.

Table 6 The effect of total inflow on HH credit / GDP (regional effects): continue

VARIABLES	(9) CR_HH_G DP	(10) CR_HH_G DP	(11) CR_HH_G DP	(12) CR_HH_G DP	(13) CR_HH_G DP	(14) CR_HH_G DP	(15) CR_HH_G DP	(16) CR_HH_G DP
L.CR_HH_GDP	0.830*** (0.026)	0.845*** (0.028)	0.831*** (0.026)	0.845*** (0.028)	0.826*** (0.027)	0.840*** (0.031)	0.826*** (0.027)	0.839*** (0.031)
L.GINFL_TI_PUB_GDP	-0.413** (0.176)	-0.411** (0.178)	-0.365* (0.209)	-0.362* (0.209)	-0.375** (0.167)	-0.363** (0.163)	-0.355* (0.190)	-0.353* (0.187)
L.GINFL_TI_PUB_GDP × EE	2.256** (0.978)	2.468* (1.323)	2.058* (1.067)	1.939 (1.389)				
L.GINFL_TI_PUB_GDP × LA					1.364 (1.762)	1.498 (1.548)	1.335 (1.938)	1.380 (1.760)
L.GINFL_TI_DMB_GDP	-0.123** (0.062)	-0.113 (0.075)	-0.135** (0.068)	-0.118 (0.088)	-0.115* (0.064)	-0.101 (0.080)	-0.122* (0.069)	-0.103 (0.092)
L.GINFL_TI_DMB_GDP × EE	4.435** (2.124)	6.003*** (2.007)	3.995** (1.903)	5.341*** (1.606)				
L.GINFL_TI_DMB_GDP × LA					2.420 (1.594)	2.054 (1.470)	2.450 (1.605)	2.105 (1.328)
L.GINFL_TI_COR_GDP	0.103 (0.102)	0.130 (0.124)			0.289* (0.158)	0.349** (0.169)		
L.GINFL_TI_COR_GDP × EE	0.766** (0.348)	0.738** (0.350)						
L.GINFL_TI_COR_GDP × LA					-1.372 (1.175)	-1.324 (1.023)		
L.GINFL_DI_GDP			-0.101 (0.162)	-0.114 (0.244)			0.234 (0.307)	0.322 (0.373)
L.GINFL_DI_GDP × EE			1.120*** (0.394)	1.181*** (0.414)				
L.GINFL_DI_GDP × LA							0.522 (1.298)	0.441 (1.146)
L.GINFL_TI_COR_GDP_exclDI			0.477 (0.377)	0.495 (0.461)			0.424 (0.410)	0.398 (0.510)
L.GINFL_TI_COR_GDP_exclDI × EE			-5.143*** (1.817)	-6.783*** (2.312)				
L.GINFL_TI_COR_GDP_exclDI × LA							-4.848*** (1.646)	-4.802*** (1.769)
g_domestic	-13.279 (9.253)	-12.071 (9.201)	-13.732 (9.073)	-12.712 (8.828)	-12.879 (9.553)	-11.597 (9.467)	-12.984 (9.543)	-11.655 (9.403)
i_domestic	-10.271** (4.437)	-11.761** (4.736)	-10.027** (4.348)	-11.483** (4.641)	-9.963** (4.274)	-11.745** (4.691)	-10.200** (4.280)	-12.065*** (4.681)
Foreignbankpresence	-0.034** (0.017)	-0.035** (0.020)	-0.030* (0.017)	-0.034* (0.019)	-0.035** (0.018)	-0.041* (0.022)	-0.035** (0.018)	-0.040* (0.021)
leverage	5.477*** (1.281)	4.828*** (1.377)	5.412*** (1.230)	4.751*** (1.305)	5.588*** (1.336)	4.956*** (1.425)	5.620*** (1.332)	4.989*** (1.421)
BankdepositstoGDP	0.104*** (0.028)	0.108*** (0.032)	0.102*** (0.027)	0.106*** (0.031)	0.106*** (0.029)	0.111*** (0.033)	0.106*** (0.029)	0.111*** (0.034)
houseprice	0.038*** (0.014)	0.036** (0.015)	0.033*** (0.014)	0.036** (0.014)	0.039*** (0.014)	0.039** (0.015)	0.039*** (0.014)	0.039*** (0.015)
inflation	-2.110*** (0.777)	-2.162*** (0.787)	-2.094*** (0.777)	-2.175*** (0.807)	-2.421*** (0.902)	-2.608*** (0.990)	-2.398*** (0.892)	-2.564*** (0.972)
L.MP_C_H		-0.229* (0.130)		-0.220* (0.128)		-0.221 (0.136)		-0.217 (0.134)
L.MP_C_NH		-0.239 (0.191)		-0.244 (0.193)		-0.223 (0.196)		-0.224 (0.195)
Q1	-0.258*** (0.062)	-0.324*** (0.055)	-0.262*** (0.062)	-0.324*** (0.054)	-0.259*** (0.061)	-0.318*** (0.054)	-0.264*** (0.061)	-0.323*** (0.053)
Q2	0.034 (0.066)	-0.004 (0.072)	0.031 (0.066)	-0.005 (0.072)	0.039 (0.064)	0.004 (0.070)	0.035 (0.065)	0.001 (0.071)
Q3	-0.092 (0.064)	-0.109 (0.077)	-0.091 (0.068)	-0.109 (0.082)	-0.087 (0.065)	-0.104 (0.076)	-0.091 (0.068)	-0.109 (0.083)
GFC	-0.139 (0.221)	-0.121 (0.232)	-0.128 (0.225)	-0.109 (0.236)	-0.114 (0.227)	-0.098 (0.236)	-0.117 (0.226)	-0.103 (0.236)
Constant	-6.727** (2.634)	-6.212** (2.733)	-6.674*** (2.569)	-6.138** (2.612)	-6.942** (2.759)	-6.457** (2.876)	-7.027** (2.779)	-6.585** (2.886)
Observations	1,126	899	1,126	899	1,126	899	1,126	899
AR(1)	0.009	0.017	0.008	0.015	0.009	0.016	0.009	0.017
AR(2)	0.805	0.827	0.507	0.657	0.766	0.846	0.755	0.871
Number of A	27	27	27	27	27	27	27	27

Note: Dependent Variable is the *CR_HH_GDP*. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Source: Author's calculation.

Appendix table 1 List of countries included in estimation

18 advanced countries:

(1) Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy,

Netherlands, Norway, Portugal, Spain, Sweden

(2) Other regions: Australia, Canada, Japan, New Zealand

9 Emerging Economies:

(1) Asia: Korea, Thailand

(2) Latin America: Argentina, Brazil, Colombia, Mexico

(3) CEE: Czech Republic, Hungary, Poland

Note: The BIS database on credit to the non-financial sector covers 44 economies, both advanced and emerging economies, such as Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Czech Republic, Denmark, Euro area, Finland, France, Germany, Greece, (Hong Kong SAR,) Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, (Luxembourg,) Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Saudi Arabia, (Singapore,) South Africa, Spain, Sweden, (Switzerland,) Thailand, Turkey, (United Kingdom,) United States. The data for the macro-prudential policy measure is available only for 38 economies. 5 international financial centers economies in parentheses are excluded. Because of the lack of data availability for China, India, and Malaysia, the unbalanced panel dataset is used.

Appendix table 2 Variable definitions and data sources

Variable	Definition	Data Sources
Credits (ratio to GDP_sa)		
<i>Level</i>		
CR_HH_GDP	Total Credit to Households & NPISHs	BIS long series on total credit, BIS
CR_PS_byDMB_GDP_2	Credit to Private Sector by Depository money bank, as a % of GDP_SAAR	International Financial Statistics, IMF
<i>Share</i>		
SHARE_CR_HH_3	Share of Total Credit to Households & NPISHs to Credit to private sector by depository monetary bank, CR_HH_GDP / CR_PS_byDMB_GDP_2	BIS long series on total credit, BIS International Financial Statistics, IMF
Inflows (ratio to GDP_sa)		
<i>Direct Investment Inflows</i>		
GINFL_DI_GDP	Gross Direct Investment Inflows	Balance of Payment (BOP), IMF
<i>Portfolio Investment Inflows: Equity</i>		
GINFL_EI_GDP	Gross Equity Investment Inflows	Balance of Payment (BOP), IMF
GINFL_EI_CB_GDP	Gross Equity Investment Inflows to central bank	Balance of Payment (BOP), IMF
GINFL_EI_GOV_GDP	Gross Equity Investment Inflows to general government	Balance of Payment (BOP), IMF
GINFL_PI_PUB_GDP	Gross Equity Investment Inflows to public sector, GINFL_PI_CB_GDP + GINFL_PI_GOV_GDP	Balance of Payment (BOP), IMF
GINFL_EI_DMB_GDP		Balance of Payment (BOP), IMF
GINFL_EI_COR_GDP	Gross Equity Investment Inflows to corporate sectors	Balance of Payment (BOP), IMF
<i>Portfolio Investment Inflows: Bond</i>		
GINFL_BI_GDP	Gross Bond Investment Inflows	Balance of Payment (BOP), IMF
GINFL_BI_CB_GDP	Gross Bond Investment Inflows to central bank	Balance of Payment (BOP), IMF
GINFL_BI_GOV_GDP	Gross Bond Investment Inflows to general government	Balance of Payment (BOP), IMF
GINFL_PI_PUB_GDP	Gross Bond Investment Inflows to public sector, GINFL_BI_CB_GDP + GINFL_BI_GOV_GDP	Balance of Payment (BOP), IMF
GINFL_BI_DMB_GDP	Gross Bond Investment Inflows to banks (except the central bank)	Balance of Payment (BOP), IMF
GINFL_BI_COR_GDP	Gross Bond Investment Inflows to corporate sectors	Balance of Payment (BOP), IMF
<i>Other Investment Inflows: loan</i>		
GINFL_OID_GDP	Gross Other Investment Debt Inflows	Balance of Payment (BOP), IMF
GINFL_OID_CB_GDP	Gross Other Investment Debt Inflows to central bank	Balance of Payment (BOP), IMF
GINFL_OID_GOV_GDP	Gross Other Investment Debt Inflows to general government	Balance of Payment (BOP), IMF
GINFL_OID_PUB_GDP	Gross Bond Investment Inflows to public sector, GINFL_OID_CB_GDP + GINFL_OIDE_GOV_GDP	Balance of Payment (BOP), IMF
GINFL_OID_DMB_GDP	Gross Other Investment Debt Inflows to banks (except the central bank)	Balance of Payment (BOP), IMF
GINFL_OID_COR_GDP	Gross Other Investment Debt Inflows to corporate sectors	Balance of Payment (BOP), IMF
<i>Total Investment Inflows</i>		
GINFL_TI_PUB_GDP	Gross Total Investment Inflows to public sector, GINFL_EI_PUB_GDP+ GINFL_BI_PUB_GDP+ GINFL_OID_PUB_GDP	Balance of Payment (BOP), IMF
GINFL_TI_DMB_GDP	Gross Total Investment Inflows to depository money bank, GINFL_EI_DMB_GDP+ GINFL_BI_DMB_GDP+ GINFL_OID_DMB_GDP	Balance of Payment (BOP), IMF
GINFL_TI_COR_GDP	Gross Total Investment Inflows to corporate sector, GINFL_DI_GDP +GINFL_EI_COR_GDP+ GINFL_BI_COR_GDP+ GINFL_OID_COR_GDP	Balance of Payment (BOP), IMF
Policy variables		
MP_H_LTV	Changes (relative to 2000q1) in Macroprudential policies: housing, Loan-to-Value Cap	Akinci and Olmstead-Rumsey (2017)
MP_H_DTI	Changes (relative to 2000q1) in Macroprudential policies: housing, Debt-to-Income Cap	Akinci and Olmstead-Rumsey (2017)
MP_H_Others	Changes (relative to 2000q1) in Macroprudential policies: housing, Other measures	Akinci and Olmstead-Rumsey (2017)
MP_NH_CCR	Changes (relative to 2000q1) in Macroprudential policies: non housing, Countercyclical capital requirements	Akinci and Olmstead-Rumsey (2017)
MP_NH_LLP	Changes (relative to 2000q2) in Macroprudential policies: non housing, Loan-loss provisioning	Akinci and Olmstead-Rumsey (2017)
MP_NH_CL	Changes (relative to 2000q3) in Macroprudential policies: non housing, Consumer loan measures	Akinci and Olmstead-Rumsey (2017)
MP_C_H	Changes (relative to 2000q1) in Macroprudential policies: housing (= MP_C_H_1LTV + MP_C_H_2DTI + MP_C_H_3Others)	
MP_C_NH	Changes (relative to 2000q1) in Macroprudential policies: non housing (= MP_C_NH_1CCR + MP_C_NH_2LLP + MP_C_NH_3CL + MP_C_NH_4CGLimits)	
Other variables		
g_domestic	real GDP growth rate forecast in country i (one-year ahead) (spring→Q1, Q2, fall→Q3,Q4), semiannual frequency)	WEO, IMF
i_domestic	real interest rate in country i (policy rate, deflated by forecast inflation(one-year ahead), semiannual frequency)	IFS, IMF; WEO, IMF
Foreignbankpresence	Foreign bank presence, The ratio of the number of foreign owned banks (>50% of its share are owned by foreigners) to the number of the total banks.	GFDD
leverage	The ratio of bank credit to bank deposit	IFS, IMF
BankdepositstoGDP	The Bank Deposits as a % of GDP	IFS, IMF
houseprice	real residential housing price index	BIS
inflation	CPI growth rate, yoy	IFS, IMF

Appendix table 3. Correlation coefficients between variables

	SHARE_C R_HH_3	I.CR_PNF _byDMB_ GDP_2	I.GINFL_E I_PUB_GD P	I.GINFL_B I_PUB_GD P	I.GINFL_O ID_PUB_G DP	I.GINFL_E I_DMB_G DP	I.GINFL_B I_DMB_G DP	I.GINFL_O ID_DMB_ GDP	I.GINFL_E I_COR_G DP	I.GINFL_B I_COR_G DP	I.GINFL_O ID_COR_ GDP	I1.GINFL_ DI_GDP	g_domestic	i_domestic	Foreignban kpresence	leverage	Bankdepos istoGDP	houseprice	inflation	I1.MP_C_ H	I1.MP_C_ NH
SHARE_CR_HH_3	1.0																				
I.CR_PNF_byDMB_GDP_2	0.1	1.0																			
I.GINFL_EI_PUB_GDP	0.0	0.0	1.0																		
I.GINFL_BI_PUB_GDP	0.0	0.0	0.0	1.0																	
I.GINFL_OID_PUB_GDP	-0.1	0.0	0.0	-0.1	1.0																
I.GINFL_EI_DMB_GDP	0.0	0.1	0.0	0.0	-0.1	1.0															
I.GINFL_BI_DMB_GDP	0.1	0.0	0.0	-0.1	-0.2	0.3	1.0														
I.GINFL_OID_DMB_GDP	0.0	0.0	0.0	0.0	-0.1	0.2	0.3	1.0													
I.GINFL_EI_COR_GDP	0.2	0.1	0.0	-0.1	-0.3	0.3	0.1	-0.1	1.0												
I.GINFL_BI_COR_GDP	0.1	0.1	0.0	0.0	0.0	0.5	0.3	0.3	0.3	1.0											
I.GINFL_OID_COR_GDP	0.1	0.1	0.0	0.1	-0.1	0.4	0.1	0.1	0.3	0.3	1.0										
I1.GINFL_DI_GDP	0.2	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.1	0.1	0.2	1.0									
g_domestic	-0.2	-0.3	0.0	0.0	-0.1	0.1	0.2	0.2	0.0	0.1	0.0	0.0	1.0								
i_domestic	-0.2	-0.4	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	0.0	0.0	0.0	0.2	1.0							
Foreignbankpresence	0.2	-0.3	0.0	0.0	-0.1	0.2	-0.1	0.0	0.3	0.3	0.2	0.3	0.2	0.2	1.0						
leverage	0.1	0.6	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.4	1.0					
BankdepositstoGDP	0.0	0.5	0.0	0.0	0.0	0.0	-0.1	0.0	0.1	0.1	0.1	0.1	-0.2	-0.3	0.0	-0.4	1.0				
houseprice	0.1	0.2	0.0	0.1	0.0	0.2	0.1	0.2	0.0	0.3	0.2	0.1	0.0	-0.3	0.1	0.1	0.1	1.0			
inflation	-0.1	-0.3	0.0	-0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.4	0.1	-0.1	-0.3	-0.1	1.0		
I1.MP_C_H	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	0.0	0.3	-0.1	0.1	0.0	1.0	
I1.MP_C_NH	-0.2	-0.2	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.1	0.0	-0.1	0.3	0.1	0.1	0.0	-0.2	0.2	0.2	0.3	1.0