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Capital Flow Dynamics in Emerging Market Economies

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[Abstract] This paper analyzes the dynamics of gross capital flows since the 1990s across three regions, i.e. East Asia, Europe and Latin America, and across types of capital flows, i.e. foreign direct investment, portfolio equity flows, portfolio debt flows and other investment. First, we demonstrate distinct features of gross capital inflows and outflows with selected EMs across the three regions by types of capital flows. Then, using panel data regression in the period of 2000-2015, we show how both domestic and global factors contribute to the dynamics of these gross capital flows. We confirm that both global factors such as expected growth and international investors' risk perception in AEs, and domestic factors such as exchange rate regimes, and financial deepening in EMs, contribute to the dynamics. Furthermore, we detect significant regional diversities in relative importance and sensitivities in the roles of these factors.

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1. Introduction

International capital flows to emerging market economies (EMs) concern many policymakers. In fact, the 1997-98 Asian Financial Crisis (AFC) was a nightmare to those in East Asia, when surging capital inflows and their reversals trapped their economies with plummeting exchange rate devaluation into a serious economic downturn accompanying prolonged investment slump.

The Global Financial Crisis (GFC) in 2008 shows us that the sudden stop of capital flows is not limited to EMs. The surge and reversal of capital flows occurred in advanced economies (AEs) and spilled over to emerging economies. Even greater surge than that before the AFC stopped suddenly with the GFC. This time, however, economic downturn in EMs was rather short-lived than before as well as in AEs.

In the past, sudden stops and/or reversals of capital inflows after rapid expansions have been associated with costly economic crises in EMs, occasionally triggered by shifts of monetary policy in AEs. This history matters. In fact, we witnessed significant irreversible structural changes in the international macro-financial economic arena since the 1980s, which include EMs' increasing integration into the global financial markets and higher share in global output.

International *gross* capital flows have behaved like a roller-coaster in recent years (IMF, 2011). After a surge toward the global financial crisis (GFC), gross inflows dropped sharply, and recovered their momentum slowly over a couple of years thereafter (Figure 1). Capital flows rose exponentially before the GFC in the 2000s, then dropped sharply during the GFC, and recovered to the level of the beginning of the 2000s by 2010. The fluctuations in gross inflows were much larger for advanced economies (AEs), where capital flows rose from 10% (2002) to 25% (2007) of GDP, then dropped to -10% and recovered to 10% again. In emerging market economies (EMs), gross inflows rose from 2.5% of GDP to 12.5%, fell to 0%, and recovered to 5% of GDP.

>>Figure 1: gross capital inflows to AEs and EMs

In contrast, the fluctuations in net capital flows, i.e. gross inflows minus gross outflows, were sharper for EMs rather than AEs (Figure 1), suggesting that gross outflows offset gross inflows more in AEs than in EMs. Net inflows fluctuated more sharply in EMs, rising from 1% to almost 4%, dropping to -2.5%, and recovered to 3%, while in AEs, they remained between 0% and 2% of GDP during the period. Note, however, that gross inflows and net inflows started to show less co-movements in the 2000s in EMs as has been the case in AEs.

International capital flows can help finance domestic demand, but can also exacerbate economic and/or financial boom-bust cycles. Way back in the early 1980s, Diaz-Alejandro (1983) warned the risk of capital flows driven by financial liberalization to lead to financial crash through the Chili's experience in the 1970s. Despite this, the lost decade of Latin America economies in the 1980s, and the AFC in the 1990s, however, policy advisors had kept advising to remove barriers against capital inflows to EMs as part of financial as well as market liberalization. Only after the GFC, they eventually

admitted that international capital flows can be a destructive force, increasing volatility and starting suffering crises, rather than promoting growth and diversifying risk by increasing investment opportunities. These days, intervention to reduce the volatility of capital inflows, using capital controls and foreign exchange market intervention has been supported by the IMF (IMF, 2013, WEO October, p. 113).

With this background in mind, this paper analyses the dynamics of gross capital flows since the 1990s across three regions of EMs as well as across types of capital flows. Most prior studies in the field have discussed EMs as one group (for example, as reviewed by Koepke, 2015), which conceals potential differences in the dynamics of capital flows across the regions as well as across types of capital flows. We are interested in the possible regional diversities in capital flow dynamics as well as in roles played by both domestic and global factors that potentially contribute to the dynamics.

First, we demonstrate and confirm distinct features of gross capital inflows and outflows with selected EMs across three regions, i.e. East Asia, Europe and Latin America by types of capital flows, i.e. foreign direct investment (FDI), portfolio equity flows, portfolio debt flows and other investment. FDI has played the major role in inflow trend throughout the three regions and in inflow swing in European EMs. Other investment including bank loans have played varying roles over time and across the regions, i.e. losing importance in East Asia, cyclically important in Europe and least important in Latin America, reflecting regional historical developments, while portfolio equity and debt flows have been relatively less important as against popular views extended in policy advisers in international financial institutions..

Then, using panel data regression for these EMs in the period of 2000-2015, we show how both domestic and global factors contribute to the dynamics of these gross capital flows across the regions and the capital flow types. We confirm that both global factors such as expected growth and policy interest rate differentials, international investors' risk perception and monetary policy shifts in AEs, and domestic factors such as institutions of policy making, capital flow restrictions, foreign exchange reserves, exchange rate regimes, and financial deepening in EMs, contribute to capital flow dynamics in EMs. Furthermore, we detect significant regional diversities in relative importance as well as in relative sensitivities in the roles of these domestic and global factors.

Finally, we scrutinize further on the reasons why East Asian EMs has shown distinct structures as well as dynamics in capital flows as compared with other EM regions. Particularly, we go deeper into policy frameworks and financial development, which would condition the size, the role and the impact of capital flows with EMs. The last section concludes the paper with some comments on potential roles of capital flows with EMs and on the history of policy debates on the capital flows with EMs.

2. Capital inflows and outflows in East Asia and other regions

Literature on capital flows have focused on either net flows or gross flows. Gross capital flows in

EMs consist of both gross capital inflows to EMs by non-residents and gross capital outflows from EMs by residents, while net capital inflows are the difference between gross inflows and outflows. As is shown in Figure 1, gross and net capital inflows to EMs were not much different until the early 1990s, but not anymore in more recent period.

In fact, such aggregate measures as net capital inflows conceal offsetting movements of various components within the measures across not only direction of flow, but type of flow and recipient regions (IMF, 2016). For example, Figure 2 shows that even net inflows are diverse between three representative regions, i.e. East Asia, Eastern Europe and Latin America (Panel a). Net inflows to EMs as a whole have not seen any strong trend during the period, reflecting those of East Asia with increasing importance in global output, while those to Eastern Europe have demonstrated visible surge toward the GFC and bust in the post-GFC period.

>>Figure 2: diverse capital inflows to EMs

Also, even gross capital inflows to EMs have concealed offsetting movements of their components across type of flow (Figure 2, Panel b). FDI and the other three types of capital flows have shown some asymmetry not only in change of direction, but in volatility.

This section reviews changes in gross capital flows and their components for EMs in East Asia and other regions. We focus on the flows since the 1990s, which include several crisis episodes such as the Asian Financial Crisis (AFC) and the Global Financial Crisis (GFC). We select 17 EMs in 3 regions, i.e. 7 countries from East Asia (EA7), 5 from Latin America (LA5) and 5 from Eastern Europe (EE5)¹. To cover the period of financial globalization, this section examines annual data for the years of 1990-2015 based on IMF's *International Financial Statistics*. We will observe distinct regional differences in capital flows with respect to size and composition during the period.

Total capital inflows and outflows

Capital inflows to EMs show large swings at more or less different timing across three regions during the sample period as shown in Figure 3. Capital inflows to EA7 dropped sharply at the AFC as well as at the GFC. They dropped from 6% of GDP to 2% during 1996-98, and from 8% to 2% during 2007-2008. Their recovery was slow at the AFC, being hit again by the dotcom bubbles, while rather swift recovery at the GFC.

>>Figure 3: capital inflows and outflows by regions

Capital inflows to LA5 dropped more modestly for 1993-1995 (the 1994 Mexican crisis), 2001-2002 (the dotcom bubbles), and 2007-2008 (GFC), by 2-3% of GDP. Being belatedly integrated to the international financial markets, EE5 depend heavily on external finance from the start and experienced a sharp drop of capital inflows for the first time at the GFC from more than 15% to 6% to GDP.

Capital outflows excluding foreign reserves from EMs have become non-negligible gradually

¹ EA7: China, Indonesia, India, Korea, Malaysia, Philippines, Thailand, EE5: Czech, Hungary, Poland, Slovak, Turkey, LA5: Argentina, Brazil, Chile, Colombia, Mexico.

(Figure 3). Particularly in EA7, they show some steady increases from less than 1% of GDP in the early 1990s to recent 3-4%. LA5 also show some increases in their capital outflows, though modest from 1% to 2% of GDP throughout the period. EE5 witnessed non-negligible size of capital outflows, but an upward trend is hard to detect until now. Capital outflows sometimes positively correlated to capital inflows as in the case of EA7 and EE5, while their fluctuations are smaller. The positive correlation tends to mitigate the fluctuations in net capital inflows to EMs. Little correlation between inflows and outflows can be found in LA5.

The size of capital inflows relative to GDP is distinctively larger in EE5 than in EA7 and LA5, while the size of capital outflows more or less similar across the regions. Consequently, the size of net inflows is larger in EE5 than the other two regions (Figure 3). In fact, EA7 generated negative net inflows in 2015-2016, which, unlike in the AFC, is not a sign of economic crisis this time. Actually, we see huge compile of foreign exchange reserves toward the GFC as well as for a few years after that.

Capital inflows by type and region

To detect the role of key capital flow components, we next decompose capital flows by type of flow. Capital flows consist of four types in the balance of payments data: foreign direct investment (FDI), portfolio equity, portfolio debt, and other investments including bank flows. The large swings in capital inflows to EMs are mostly parallel to those in other investment flows in all the three regions and magnified by similar movements of portfolio debt as well as of portfolio equity, even though the latter is small in size (Figure 4).

>>Figure 4: capital inflows by type and region

Figure 4 demonstrates quite distinct time profiles for the four asset types across the regions. While FDI is the largest gross inflow component across the regions, its time profile is quite contrasting across the regions. In EA7, FDI has been stable at 2-3% of GDP and played a stabilizing role against other three components which have commoved more or less, creating inflow swings together. In LA5, FDI has replaced and dominated other investment by the 2000s, and remained rather stable at 3-4% of GDP, while portfolio debt is the strongest component creating inflow swings, followed by other investment. By contrast, in EE5, FDI is the major component which has generated inflow swings, with other investment magnifying the swing.² Portfolio equity inflows are relatively small in size and its pro-cyclical role is limited more or less across the regions.

As in the case of inflows, FDI is the largest outflow component across the three regions, but its role is distinct between EA7 and the other two regions (Figure 5). FDI has contributed to trend increases in outflows in EA7 and LA5, but not in EE5, while FDI played a pro-cyclical role to outflows in EE5, but not in EA7 and LA5. Both portfolio debt and other investment contributed to cyclical movements in outflows across the regions, while portfolio equity is also pro-cyclical to a lesser degree

² In EE5, portfolio debt inflows have been counter-cyclical to total inflows, which may reflect some sort of government intervention.

than other components in LA5 and EE5.

>>Figure 5: capital outflows by type and region

In sum, we can see distinctive sizes and time profiles of gross capital inflows and outflows across emerging market regions such as EA7, EE5 and LA5. As a result, sizes and time profiles of net capital inflows are also distinctive across the regions, while the net inflows commove with gross inflows to a greater extent than in AEs. Looking further into the components of capital flows, we see diverse sizes and time profiles of inflows and outflows by type of capital flows as well as by the regions. Some underpin trend movements and others contribute to cyclical patterns. Some become dominant and others retrench. Noting that these heterogeneous components' heterogeneous movements across region constituted and/or were aggregated into gross capital flows, it is not only far from surprising to see these distinctive sizes and time profiles of capital flows between EA7, EE5 and LA5, but also unwise to assume EMs as a mass of representative EMs.

3. External assets and liabilities in East Asia and other regions

Capital flows to and from EMs affect their external assets and liabilities positions and structures, and they also affect capital flows in turn. In fact, continued and sometimes surging capital flows resulted in accumulation of external assets and liabilities in EMs. Now they have more engaged in global asset trade, so that getting increasingly integrated to global financial markets.

Based on the database by Lane and Milesi-Ferretti (2007, 2017), this section reviews changes in external assets and liabilities and their components for the same country groups (i.e. EA7, LA5, and EE5) during the period of 1980-2015. As a result of the distinct regional differences in capital flows, we will also observe distinct differences in external assets and liabilities with respect to size and composition across the regions during the period.

The accumulation in total external assets and liabilities of EMs exhibits very distinct time profiles across the three regions as shown in Figure 6. Total external liabilities of EA7 has remained generally stable around 50% of GDP. There was some hiccups downward at the AFC as well as at the GFC, but the level of total external liabilities regained previous levels and showed no sign of any strong upward trend since the GFC.

>>Figure 6: external assets and liabilities by type and region

By contrast, total external liabilities of EE5 showed a strong upward trend since the mid-1990s, which started from around 50% of GDP, went beyond 100% before the GFC and stayed at nearly 120% of GDP in 2015, which is more than twice as large as those of EA7 relative to GDP. Total external liabilities of LA5 showed some upward trend until around the early 2000s, but stayed at around 70% of GDP until 2014.

The apparent stability of total external liabilities of EA7, however, contains offsetting changes in its components (Figure 6). FDI has steadily increased from less than 10% of GDP to nearly 25% during

the sample period, and portfolio equity has also increased from around 5% to the present 10% with some short-lived surge before the GFC. The offsetting component is other investment, which gradually fell from more than 30% of GDP before the AFC to a little more than 10% before the GFC and remained mostly stable there. In other words, in EA7, we see explicit shifts from debt (portfolio debt and other investment) to non-debt liabilities (FDI and portfolio equity) in the composition of external liabilities particularly after the AFC.

Total external assets (including foreign exchange reserves) of EA7 showed a steady increase from 10% of GDP in the early 1990s to more than 50% by the GFC, and stayed there. In the meantime, foreign exchange market interventions for exchange rate stability helped accumulating foreign exchange reserves beyond 30% of GDP. As a result, EA7 has become a net external creditor as the region as a whole since around the GFC. The second largest contributor to this increase in external assets is FDI, which monotonously increased from 3% of GDP to more than 10% during the period. Other investment is a large component, but its increase has been very moderate, while portfolio equity increased from negligible to more than 2% of GDP.

The strong upward trend of total external liabilities in EE5 has been underpinned by an explosive growth of FDI from 30% of GDP in the mid-2000s to more than 50%, and the second largest component has remained to be other investment at around 30% of GDP during the same period. Portfolio equity has played a minor role in the liability accumulation. EE5 showed a modest increase in total external assets relative to its increase in external liabilities in contrast to the case of EA7. The increase in EE5 is mostly supported by FDI. Consequently, the net external debtor position has been magnified in the recent period in EE5 from 30% (2001) to 50% (2015).

The development of total external liabilities in LA5 has been a compromise of those of its four capital components during the sample period. The basic long-run upward trend has been supported by FDI. Portfolio equity climbed up until the GFC, but stagnated thereafter, and other investments are swinging as, upward in the early 2000s, downward toward the GFC, and slowly upward again thereafter. Upward trend of external assets in LA5 is slower than in the other two regions, which has been supported by FDI, foreign exchange reserves and portfolio equity at a far from dramatic pace. As a result, LA5 has remain a net external debtor, but not more nor less in the recent period.

All in all, the structure of external assets and liabilities of the three regions after the GFC can be summarized as in Table 1, which shows that EA7 is conspicuous with respect to the size of gross external liabilities, the share of nondebt liabilities in total external liabilities, and the size/sign of net external liabilities. Namely, gross external liabilities are as small as 50% of GDP as against 114% in EE5, the share of nondebt liabilities is as small as 33% as against 58% in EE5, and net external liabilities are as small as -4% of GDP as against 66% in EE5. The Table appears to suggest that EA7 is successful in attaining more resilient external portfolio structure against global financial risks than the other regions.

>>Table 1: External liabilities structure

4. Drivers of capital flows: empirical estimation

How and why some EMs are more resilient to capital flow fluctuations? Are they policies, institutions and/or the degree of financial integration which matter? Macro-financial linkages between AEs and EMs consist of common global factors that generate similar effects across all EMs on one hand, and individual country-specific factors that differ between individual EMs on the other. Global factors are related to commodity prices, global output, global interest rates and global asset prices as well as global shifts in market sentiment or risk aversion. The role of such global factors reflects financial globalization or the increasing financial integration of EMs in the recent decades.

In fact, total external liabilities (and then assets) of EMs grew rapidly relative to GDP particularly since the 1990s. As seen in the previous sections, the growth reflected particularly those in foreign direct investment and portfolio equity flows, while other investment was large, but rather stable, and portfolio bond flows were small. Financial integration has increased unevenly across regions, though. EMs in east Asia kept their exposure more or less stable relative to GDP since the AFC. In contrast, EMs in Europe increased their total external liabilities from 50% in the 1990s to more than 100% of GDP and EMs in Latin America from 50% to 75% by the GFC. As to relative contributions of components of capital inflows to the growth of external liabilities, both FDI and other investment flows contributed less in EMs in East Asia than in those in Europe and Latin America

Estimation strategies

We have witnessed such diverse pattern as well as composition of capital inflows to EMs across regions as above. We see no reason why we can assume common financial linkages nor homogenous financial adjustments across regions as well as individual EMs there. Since total capital flows consist of four types of capital, which show very distinct dynamic features over time, it would be more meaningful to examine what drive these dynamics by separating by types rather than by aggregating across types. This section links changes in four types of capital flows to EMs to a set of potential contributing factors and to examine how structural characteristics, policy choices and other factors of EMs as well as of the global economy affect the dynamics of capital flows and then how EMs are different from one another in these contexts.

Generally, international capital flows result from decisions by residents and nonresidents to allocate investments across countries. Other things being equal, investors allocate more investments in a particular country, the higher the risk-adjusted returns relative to those from investments in other countries. Expected returns from investing in a country is related to such local factors as its expected growth and interest rate differentials and the quality of domestic policy making and institutions on one hand, and such global factors as the risk appetite of investors, global expected growth and interest rate differentials between AEs and EMs, commodity prices and policy choices of AEs.

Estimation methodology

In this section, the sample of 17 countries, constituting EA7, LA5 and EE5, is covered on the quarterly basis for the first quarter of 2000 through the fourth quarter of 2016. We focus on the period after the AFC when EA7 were forced to seriously restructure their macro-financial policy frameworks. After all, our empirics are free from econometric problems associated with structural breaks in capital flow dynamics during the 1980s and the 1990s.

We follow a panel data specification used in IMF (2016) that relates EMs' country-specific capital flows to domestic factors such as country-specific expected growth and policy interest rate and country characteristics as the quality of institution and the degree of capital restrictions on one hand, and to global factors such as VIX and/or corporate bond spread for investors' risk perception, AEs' expected growth and policy interest rate, oil price changes and long-term to short-term yield gap for monetary policy in US (for AE) on the other hand. Namely, our regression equation is as follows:³

$$\text{Capital flows}_t = \beta_0 + \beta_1 \text{ expected domestic growth}_t + \beta_2 \text{ domestic policy interest rate}_t + \beta_3 \text{ domestic institution}_t + \beta_4 \text{ domestic capital flow restriction}_t + \beta_5 \text{ global risk perception}_t + \beta_6 \text{ AE corporate bond spread}_t + \beta_7 \text{ expected AE growth}_t + \beta_8 \text{ AE policy interest rate}_t + \beta_9 \text{ oil price changes}_t + \beta_{10} \text{ AE yield gap}_t + u_t$$

Basic results for inflows

Basic results of estimation without considering regional differences are shown in Table 2. For total inflows as a reference (the first column), we see positive and statistically significant coefficients on domestic expected growth, institution, and capital restrictions, and negative and statistically significant coefficients on global risk perceptions (corporate bond spreads as well as VIX, the latter of which is not reported here), and expected global growth. These results are generally consistent with prior studies such as Ahmed and Zlate (2013) and NSM (2014), except for the positive coefficient on capital restrictions, which suggests a possible reverse causality where capital inflows trigger capital restrictions. Coefficients on domestic policy interest rate and on global factors such as US policy interest rate, oil price changes and US yield gaps are not statistically significant⁴.

>>Table 2: drivers of capital inflows to EMs: basic results of estimation

Next, we will see that the four types of capital flows show distinct features (the other columns of Table 2), which are combined to generate the above result for total inflows. For FDI inflows, we see positive and statistically significant coefficients on institution and negative coefficient on expected

³ Definitions of dependent as well as explanatory variables are given in the Appendix,

⁴ IMF (2016) shows a significantly positive coefficient on domestic growth differential, though.

global growth, but coefficients on expected domestic growth, capital restrictions and global risk perceptions are not significant any more as against the case of the total inflows.

For portfolio equity inflows, we see negative and significant coefficients on global risk perceptions, but no significant coefficients on any domestic factors and on expected global growth as against the case of total inflows. Additionally, we see positive and significant coefficient on US yield gap. For portfolio debt flows, we see positive and significant coefficients on domestic institution and capital restrictions, and negative and significant coefficient on global risk-perceptions and expected global growth, but no significant coefficient on expected domestic growth as against the case of total inflows.

Finally, other investment inflows find positive and significant coefficients on expected domestic growth, institutions and capital restrictions and on global expected global growth, and negative and significant coefficients on global risk-perceptions and expected global growth as in the case of total inflows). They also respond positively to US yield gap.

To sum, the result suggests that, among domestic factors, total capital inflows' positive responses to expected domestic growth comes from other investment, but not from the other components, and their positive responses to institution come from FDI, portfolio debt and other investment, but not from portfolio equity. Meanwhile their positive correlations with capital restrictions come from portfolio debt and other investment, but not from FDI and portfolio equity. Among global factors, the result suggests that total inflows' negative responses to global risk perceptions come from portfolio equity and debt flows as well as other investment but not from FDI, and those to expected global growth come from FDI, portfolio debt and other investment but not from portfolio equity⁵.

Basic results for outflows

Turning to capital outflows, for total outflows, we see negative and statistically significant coefficients on global risk perceptions and expected global growth (Table 3). Coefficients on domestic factors such as domestic expected growth and interest rate, and on global factors such as expected global interest rate differentials, oil price changes and US yield gaps are not statistically significant.

>>Table 3: drivers of capital outflows to EMs: basic results of estimation

For FDI outflows, we see negative and statistically significant coefficient on expected global growth, but the coefficient on global risk perceptions is not significant as against the case of the total inflows. We see positive and significant coefficients on domestic institution and capital outflow restrictions for FDI outflows. For portfolio equity outflows, we see negative and significant coefficients on global risk perceptions and expected global growth as in the case of total outflows. In

⁵ Negative responses to global risk perceptions were confirmed by prior studies such as Ahmad and Zlate (2013), F (2012) and Mirres-Ferretti and Tille (2011) for portfolio equity and debt and as Bruno and Shin (2013) and Mirres-Ferretti and Tille (2011) for other investment. Positive responses to global growth differentials were also confirmed by studies such as Ahmed and Zlate (2013) for portfolio debt and as Bruno and Shin (2013) for other investment.

addition, we see negative and significant coefficients on domestic capital outflow restrictions and on oil price changes, and positive coefficient on US yield gap. For portfolio debt outflows, we see negative and significant coefficients on global risk perceptions, but the coefficient on expected global growth is not significant as against the case of total outflows. In addition, we see negative and significant coefficients on domestic institution and capital outflow restrictions. Finally, other investment inflows have negative and significant coefficient on global risk perceptions, but not on expected global growth. In addition we see negative and significant coefficient on oil price changes, but no significant coefficient on any other factors.

To sum, the result suggests that total capital outflows' negative response to global risk perceptions come from non-FDI outflows and that to expected global growth come from FDI. It seems that institutions and global growth differences work as push factors to FDI outflows in EMs, while capital outflow restrictions effectively constrain portfolio outflows and domestic portfolio investors as well as other investment outflows share global risk perceptions.

Regional differences in drivers of capital flows

We now examine how capital flows to EMs respond to global factors differently from those to the other regions, by multiplying each explanatory variable by regional dummies. Table 4 shows the result.

>>Table 4: drivers of capital flows to EMs: results of estimation with regional dummies

We see rather robust negative responses to risk perceptions of total inflows as well as their component flows except FDI almost without regional differences (Table 4),⁶. We also detect robust negative responses to expected global growth of portfolio debt and other investment without regional differences. Note that positive responses to US yield gap of portfolio equity and other investment become insignificant when using regional dummies. If this is truly the case, it seems to suggest that shifts in monetary policy stance in US will not much affect portfolio equity and other investment inflows as well as total capital inflows to EMs.

For some global factors, some of the significant responses of capital inflows we have got so far turn out to be sorts of fallacies of composition. For example, positive responses of FDI to expected global growth differentials are those from EE5, but not generally hold, while portfolio debt and other investment remain to respond positively to expected global growth across the regions. Also, negative

⁶ We rely on corporate bond spreads for global risk perceptions rather than VIX. Although VIX and corporate bond spread for global risk perception are highly correlated, coefficients on VIX lost statistical significance in some cases, when using regional dummies. Actually, we see negative coefficients on portfolio equity and other investment, but they are not significant any more, which results in negative, but not significant coefficient on VIX in total inflows.

responses of FDI to US yield gaps come from EE5 and not generally hold in the other regions. Estimated responses of capital flows to global factors are summarized in Table 5, where signs show those of significant coefficients.

>>Table 5: responses of capital flows to domestic and global factors: a summary

As to outflows (not reported here), we can see robust negative responses to global risk perceptions of portfolio equity and debt outflows even with significant regional dummies, but negative responses of total outflows as well as other investment to global risk perceptions become insignificant with regional dummies. We also see for portfolio equity outflows to see robust negative responses to expected global growth and oil price changes and positive ones to US yield gaps even with regional dummies. But, positive responses to expected global growth of total outflows become insignificant, when using regional dummies, because they reflect strong positive responses of FDI specific to EE5.

In sum, our basic results on the responses to global factors of total inflows and outflows show that they are sometimes various combinations of the responses of various types of capital flows, but other times they reflect some extraordinary changes specific to some regions. Our next move will be to examine where these regional or other heterogeneities come from.

5. Domestic structures and policy frameworks

This section tries to find out why EA7 is different from the other EM regions in terms of composition of capital flows and their dynamics. We start from some changes in the structural characteristics and policies of EMs since the AFC. They are increasing integration to global financial markets, changing structure of external assets and liabilities, and shifts in macroeconomic policy in EMs.

Integration to global financial markets

Gross capital flows to and from EMs affect their external portfolio positions and compositions, and they in turn affect their capital flows. Each time they experience capital flow surges, they accumulated external assets and liabilities and became integrated to global financial markets. How they have been integrated differs across regions.

While all the three regions see more or less increases in both external assets (excluding foreign exchange reserves) and liabilities relative to GDP, EA7 shows the most modest increase in external liabilities from slightly less than 50% to 50% during the period of 2000-2015 and some increase in external assets from 4*% to more than 50%, becoming a net creditor in terms of external positions.

The other two regions have seen higher increases in external liabilities and lower increases in external assets, strengthening their net borrower positions further than before. Particularly, EE5 see most conspicuous increase in external liabilities from 50% to more than 100% of GDP, worsening their external positions significantly.

Structure of external assets and debts

Along with these accumulations of external assets and liabilities, their compositions have changed to a great extent. First, as to external liabilities, FDI has become the major component throughout the three regions, the degree of which is the most conspicuous in EE5 (increasing from 25% of GDP in 2000 to more than 50% in 2015), followed by LA5 and EA7 (40% and 25% each in 2015).

While portfolio equity has remained modest and stable around 10% of GDP across the three regions since the GFC, portfolio debt has been very modest and stable in EA7 at 5% of GDP, while LA5 and EE5 have shown more or less upward trend up to 15% and 20% of GDP, respectively. Both EA7 and LA5 have retained some stable levels of other investment at 10-15% of GDP after its sharp drop around the AFC, while EE5 appeared to sustain the plateau of 25-30%.

To sum up, EA7 is distinct from the other two regions in that non-debt liabilities such as FDI and portfolio equity have increased their share to replace debt liabilities such as portfolio debt and other investment. While both LA5 and EE5 have increased their FDI shares in external liabilities, LA5 has relied on portfolio debt instead of other investment, and EE5 have kept fairly heavily relied on other investment (loans).

Shifts in policy

Ten years before the GFC, the policy authorities in East Asia witnessed boom-bust cycles with massive international capital flows, forced to face problems on how to deal with these flows. According to conventional wisdom, they were advised not to control the flows, but to make exchange rate flexible and to discipline monetary and fiscal policy. They followed these advices at first, at least. Actually, they learnt that virtual fixed exchange rate to the US dollar was not sustainable, so that there was no choice but to move to freer exchange rates.

The authorities have believed that exchange rate stability and maintaining international competitiveness remain to be their indispensable macroeconomic policy objectives, on the other hand. They started macroeconomic adjustments with slower economic growth, lower investment and current account surplus forced by net capital outflows. Even after net capital inflows resumed in the early 2000s, they maintained exchange rate stability and international competitiveness, resulting in accumulation of foreign exchange reserves, probably as a by-product.

In order to maintain exchange rate stability as well as financial stability, the policy authorities in East Asia have used a constellation of policy tools, such as monetary policy, exchange rate policy, prudential policy, and capital controls. Monetary policy can help controlling booms stimulated by capital inflows, foreign exchange market intervention can help containing currency appreciation which might threaten international competitiveness, prudential policy can help reducing excessive credit growth and containing financial-stability risks, and capital controls can help reducing excessive capital

flows and changing their compositions to more desirable directions⁷.

The result is what we have seen in the above as some conspicuous configuration of financial features as foreign exchange accumulation, more reliance on non-debt external liabilities and more managed and less flexible exchange rates, which characterized East Asia even since before the GFC.

Domestic financial development

The reliance on international capital flows can be assessed in view of both intertemporal trade and international asset trade. In the former context, saving-investment gaps imply that EE5 with persistently negative gaps (or current account deficits in the balance of payments) are most reliant on net capital inflows, while EA7 are least reliant on net capital inflows as net international lenders with persistently positive saving-investment gaps and LA5 are in-between the two regions.

In the context of international asset trade, the reliance on capital flows depend on how deep domestic financial developments are. Domestic financial systems are expected to intermediate financial resources between sectors, thereby helping external financing of deficit sectors, particularly in the private sector. External financing has three channels, i.e. the banking sector, the stock market and the bond market. In emerging market economies with relatively underdeveloped financial systems, the banking sector tends to play the major role in domestic financial intermediation, while the stock and the bond market to play limited roles. Global financial development database by the World Bank shows direct measures of financial intermediation to the private sector through private credit by the banking sector and private bonds outstanding, separately from public bond outstanding for public sector financing (Figure 7).

>>Figure 7: financial intermediation, 1995-2015

Figure 7, covering three points in time during 1995-2015, reveals several aspects worth mentioning. First, before the GFC, China, Korea, Malaysia and Thailand have attained developed domestic credit outstanding as large as more than 100% of GDP, which is comparable to those in advanced economies. While India, Indonesia and Philippines in EA7 remain underdeveloped in this respect, only Chile showed comparable financial intermediation in LA5 and none did in EE5.

Second, these EMs with deep domestic credit outstanding also developed private bond markets to some degree. Third, with or without developments in private financial intermediation, public sector financing has seen significant expansions through both domestic and international bond markets across the EM regions.

Now what can we say about the interplay between domestic financial development and international capital flows? First, as far as banking flows are concerned, the surges and stops of

⁷ Ghosh, Ostry and Qureshi 2017 found: first, EMs respond to capital inflows using a combination of conventional macroeconomic and other less orthodox policy instruments, second, the policy response differs across the types of capital flows, and third, policies are, generally, more likely to respond during inflow surges than in more normal times.

banking flows remain to have significant impacts on domestic credit supply in EMs except for some financially developed EMs in EA7 (and Chile in LA5). In other words, only EA7 have become more resilient against banking flows among EM regions. Second, the vulnerability to volatile portfolio debt flows are rather concentrated to public sectors than to private financing in EMs. Third, the volatility of portfolio equity flows may impact on domestic equity markets, but may not on domestic financial intermediation because of their limited roles there.

Regional integration in investment positions

We have focused on the heterogeneity of EMs, particularly working on regional differences in financial integration to the global financial market, domestic policy frameworks and domestic financial developments. As a matter of fact, however, the global financial market as well as global investors in AEs are far from homogeneous. Furthermore, they tend to show an intrinsic regional bias. In other words, the way EMs become integrated to the global financial market is necessarily uneven and regionally biased.

If we compare the size (as % of EMs' GDP) and composition of financial linkages across EMs, the early 2000s have witnessed that bank liabilities to European AEs grew rapidly in EMs in Europe, while stagnated in EMs in Asia after the AFC. Since portfolio equity flows increased in Asia and Latin America rapidly, EMs in Europe were exposed to banking crises, whereas EMs in Asia and Latin America exposed to securities markets turmoil.

In view of investor countries, while North America, i.e. Canada and US, are the main portfolio equity investors across the three EM regions, Europe, i.e. France, Germany, Italy and UK, are the main portfolio debt investors in EE5 and compete with North America in LA5 (Figure 9). Figure 9 shows that, until the GFC, European banks were the main source of banking flows not only in EMs in EE5, but also in EA7. East Asia, i.e. Hong Kong, Japan and Singapore, were the main investors to EA7 in FDI and portfolio debt, though the latter was relatively small in size. In portfolio equity and other investment, we see almost no regional bias in investor countries in EA7.

>>Figure 8: regional financial linkages between AEs and EMs

In the post-GFC period, European banks' presence decreased in EA7 and LA5, replaced by East Asian and North America banks, respectively. While we can find generally significant regional bias in investment positions in all capital flow types, it is particularly the case with FDI and banking claims, which have become most dominant capital flow types to EMs for now. Investors in East Asia, Europe and North America tend to prefer EA7, EE5 and LA5, respectively, to the other regions.

6. Concluding remarks

In theory, international capital flows can improve national welfare through intertemporal trade as well as through international asset trade. In intertemporal trade, net capital flows exchange assets in return for goods and services to help financing higher-return domestic investment with lower-return

foreign saving, thereby enhancing global efficiency in resource allocation and to help smoothing domestic consumption, thereby improving intertemporal welfare. In international asset trade, gross capital flows exchange domestic assets in return for foreign assets to help diversifying risks, thereby enhancing global efficiency in resource allocation and to help reducing state-dependent variability of income and consumption.

In practice, however, net capital inflows do not necessarily finance higher-return domestic investment. Rather, volatile net flows rarely contribute to domestic consumption smoothing, but sometimes contribute to consumption crash. Likewise, gross capital inflows do not necessarily diversify investment risks. Rather, they often times exacerbate risks through their pro-cyclical nature, which likely generates overexpansion, resulting in boom and bust cycles and again economic crash.

Since the 1980s, developing economies have been advised to deregulate financial markets and open up capital accounts to accept capital flows. Capital flows were regarded as beneficial and capital controls were harmful and ineffective. At the AFC in 1997, not financial liberalization but virtual fixed exchange rate regimes and crony capitalism appeared to take responsibilities. The policy authorities have muddled through the post-crisis period, learning lessons on how to manage exchange rates as well as capital flows.

International advisors admit the dangers of excessive capital flows (surges) and the need to manage the flows as late as after the GFC (Ostry et al. 2010). They still believe that capital flows are basically beneficial and only their surges may cause problems, though. In their macro-fundamental policy priorities in EMs, flexible exchange rates, low public debt, and macro-prudence always come before selective measures for capital flows such as foreign exchange reserves and capital market restrictions.

Strengthening macroeconomic fundamentals in EMs is always desirable. If this goal is attained, it is not EM anymore, though. We should note that, as far as an economy is one of EMs or international investors regard it so, capital flows are intrinsically volatile, so that dangerous, particularly to EMs. Policy authorities in EMs, particularly those in East Asia, know this very well. They have made well use of euphemism as prudential instead of capital controls to restrict instruments or channels favored by foreigners, which is understandably rational to cope with international business professionals with vested interests and academic professionals and policy advisors with market fundamentalism.

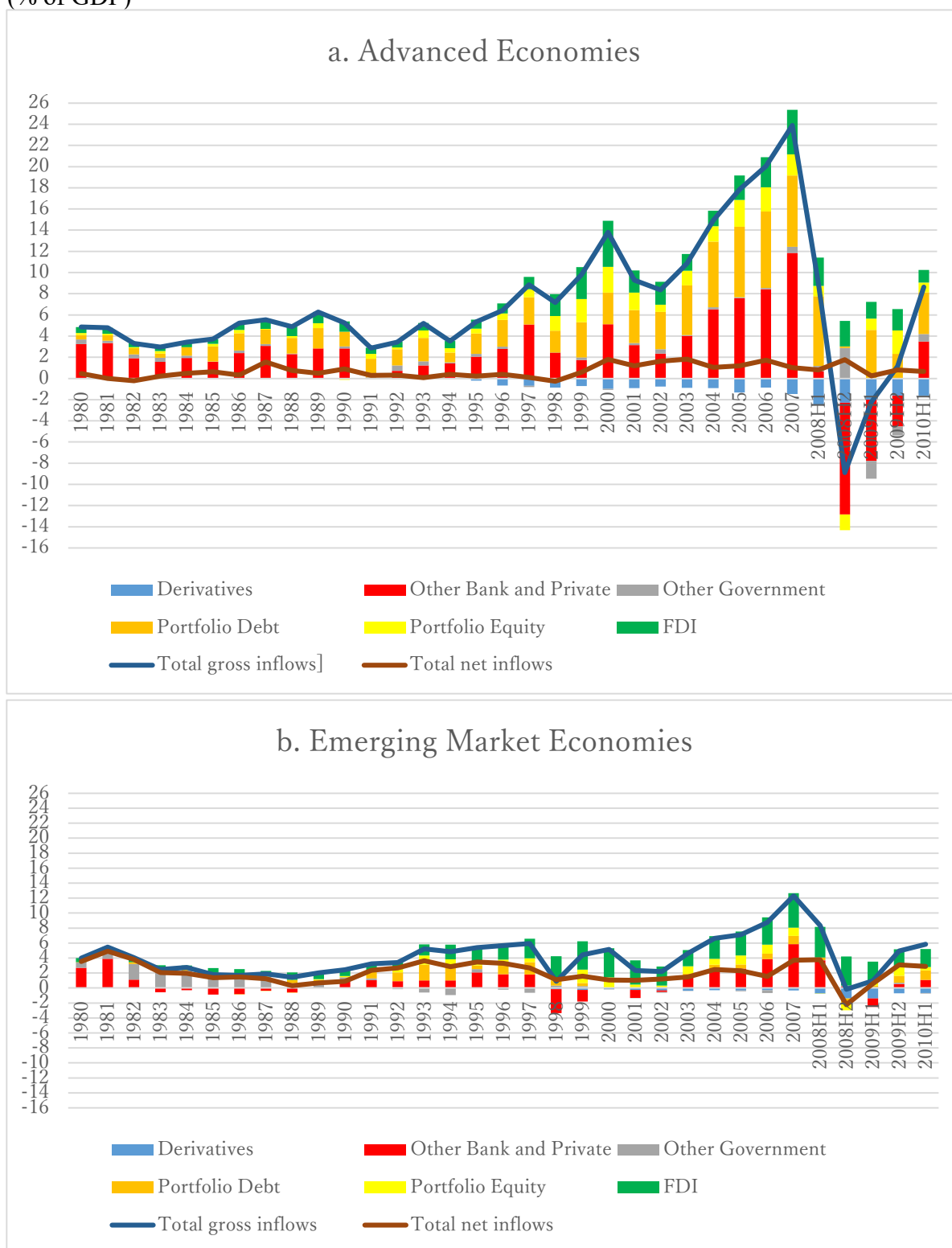
References

- Bruno, Valentina, and Hyun Song Shin. 2015a. "Cross-Border Banking and Global Liquidity." *Review of Economic Studies* 82 (2): 535–64.
- . 2015b. "Capital Flows and the Risk-Taking Channel of Monetary Policy." *Journal of Monetary Economics* 71 (C): 119–32.
- Calvo, Guillermo A., Leonardo Leiderman, and Carmen M. Reinhart. 1993. "Capital Inflows and Real Exchange Rate Appreciation in Latin America: The Role of External Factors." *IMF Staff Papers* 40 (1): 108–51.
- . 1996. "Inflows of Capital to Developing Countries in the 1990s." *Journal of Economic Perspectives* 10 (2):123–39.
- Cerutti, Eugenio, and Stijn Claessens. 2014. "The Great Cross-Border Bank Deleveraging: Supply Side Characteristics and Intra-Group Frictions." *IMF Working Paper* WP/14/180.
- Cerutti, Eugenio, Stijn Claessens, and Patrick McGuire. 2012. "Systemic Risks in Global Banking: What Available Data Can Tell Us and What More Data Are Needed?" *NBER Working Paper* No. 18531.
- Cerutti, Eugenio, Stijn Claessens, and Lev Ratnovski. 2014. "Global Liquidity and Drivers of Cross-Border Bank Flows." *IMF Working Paper* WP/14/69.
- Claessens, Stijn, and Neeltje Van Horen. 2014. "Foreign Banks: Trends and Impact." *Journal of Money, Credit, and Banking* 46 (1): 295–326.
- Forbes, Kristin J., and Francis E. Warnock. 2012. "Debt- and Equity-Led Capital Flow Episodes." *NBER Working Paper* No. 18329.
- Fratzscher, Marcel. 2011. "Capital Flows, Push versus Pull Factors and the Global Financial Crisis." *ECB Working Paper* No. 1364.
- Fratzscher, Marcel, Marco Lo Duca, and Roland Straub. 2013. "On the International Spillovers of U.S. Quantitative Easing." *DIW Berlin Discussion Papers* 1304.
- Ghosh, Atish R., Mahvash S. Qureshi, Jun Il Kim, and Juan Zaldueño. 2014. "Surges." *Journal of International Economics* 92 (2): 266–85.
- Ilzetzki, Ethan O., Carmen M. Reinhart, and Kenneth Rogoff. 2004. "Exchange Rate Arrangements into the 21st Century: Will the Anchor Currency Hold?." Unpublished.
- International Monetary Fund (IMF). 2013a. "Global Impact and Challenges of Unconventional Monetary Policies." Background paper. Washington, DC.
- . 2013b. "The Yin and Yang of Capital Flow Management: Balancing Capital Inflows with Capital Outflows." *World Economic Outlook*, Chapter 4, Fall.
- Koepke, Robin. 2014. "Fed Policy Expectations and Portfolio Flows to Emerging Markets." *IIF Working Paper*, May, Washington, DC.
- . 2015. "What Drives Capital Flows to Emerging Markets: A Survey of the Empirical

- Literature.” *IIF Working Paper*, April, Washington DC.
- Koepke, Robin, and Saacha Mohammed. 2014. “Portfolio Flows Tracker FAQ.” *IIF Research Note*.
- Kose, Ayhan, Christopher Otrok, and Charles H. Whiteman. 2003. “International Business Cycles: World, Region, and Country-Specific Factors.” *American Economic Review* 93 (4): 1216–39.
- Lane, Philip R. and Gian Maria Milesi-Ferretti. 2007. “The External Wealth of Nations Mark II,” *Journal of International Economics*.
- , 2011. “International Financial Integration in the Aftermath of the Global Financial Crisis,” IMF Working Paper 17/115.
- Reinhart, Carmen M., and Vincent R. Reinhart. 2008. “Capital Flow Bonanzas: An Encompassing View of the Past and Present.” *NBER Working Paper* No. 14321.
- Shaghil, Ahmed, Brahim Coulibaly, and Andrei Zlate. 2014. “International Financial Spillovers to Emerging Market Economies: How Important Are Economic Fundamentals?” *Board of Governors of the Federal Reserve System Working Paper* D2015–37.
- Shin, Hyun Song. 2012. “Global Banking Glut and Loan Risk Premium Mundell-Fleming Lecture.” *IMF Economic Review* 60 (2): 155–92.

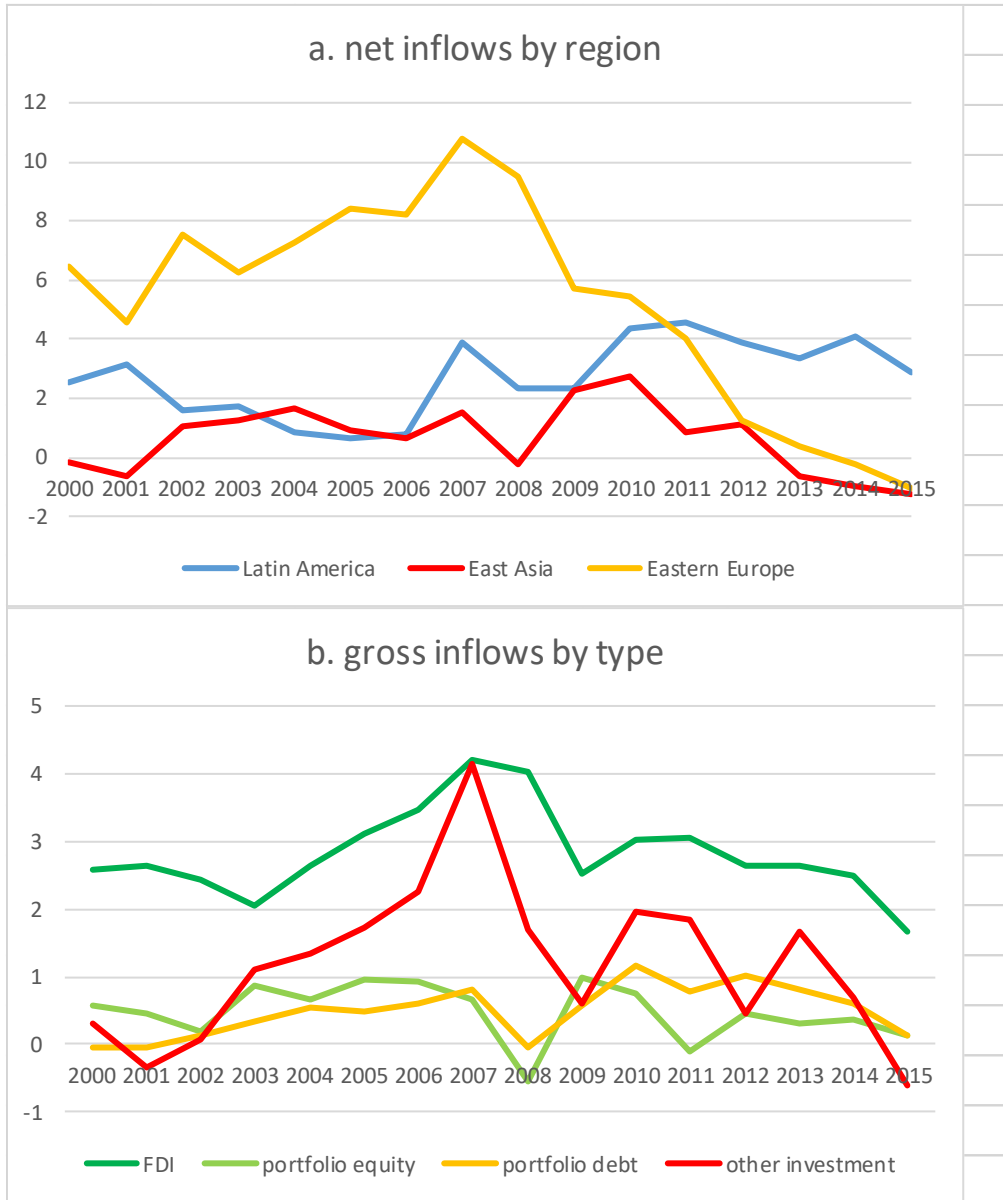
Figure 1: capital flows to AEs and EMs

(% of GDP)



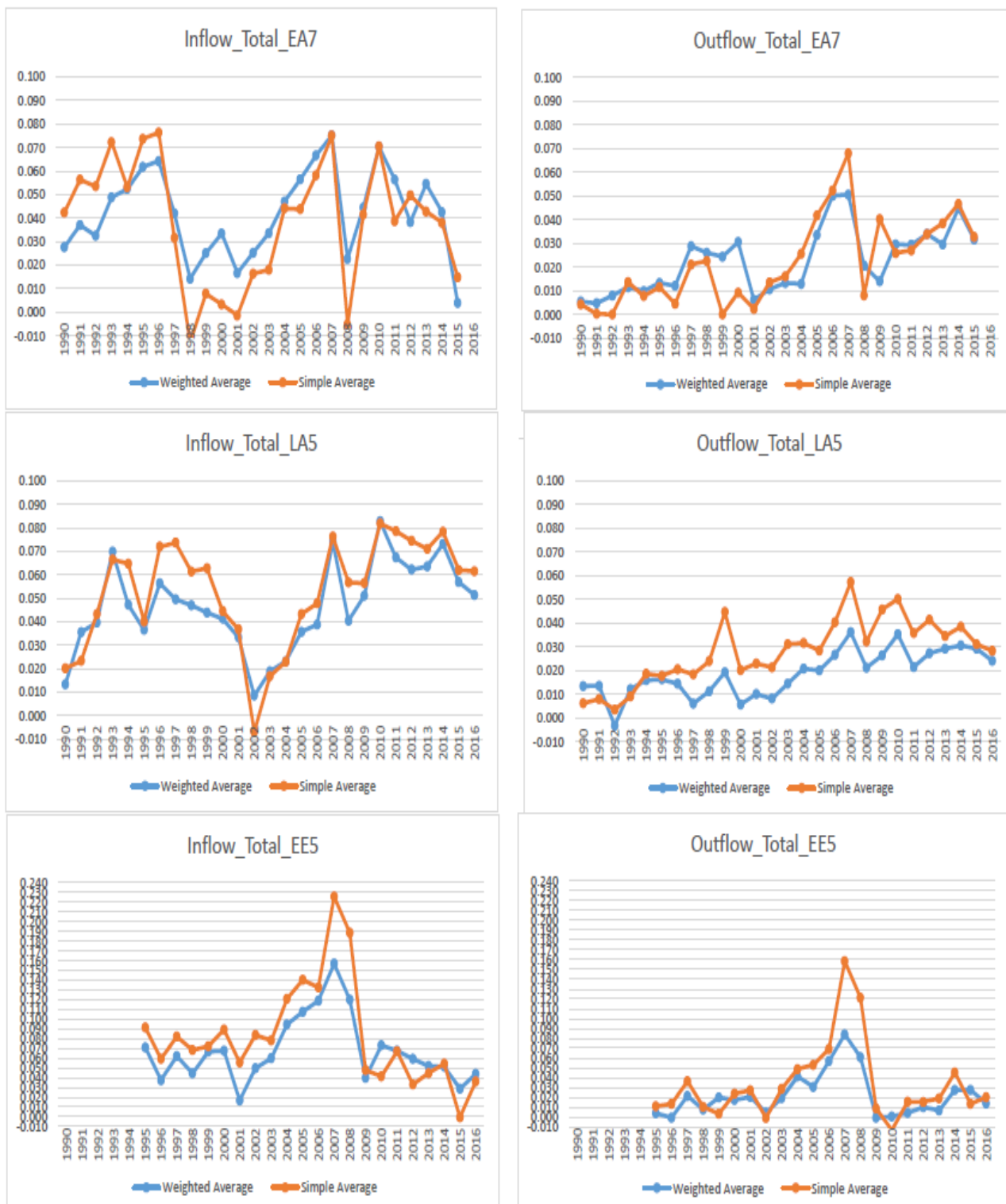
Source: IMF, *World Economic Outlook*, April 2016, adapted from Figure 4.1.

Figure 2: Net and gross capital inflows to EMs by region, 2000-2015
 (% of GDP)



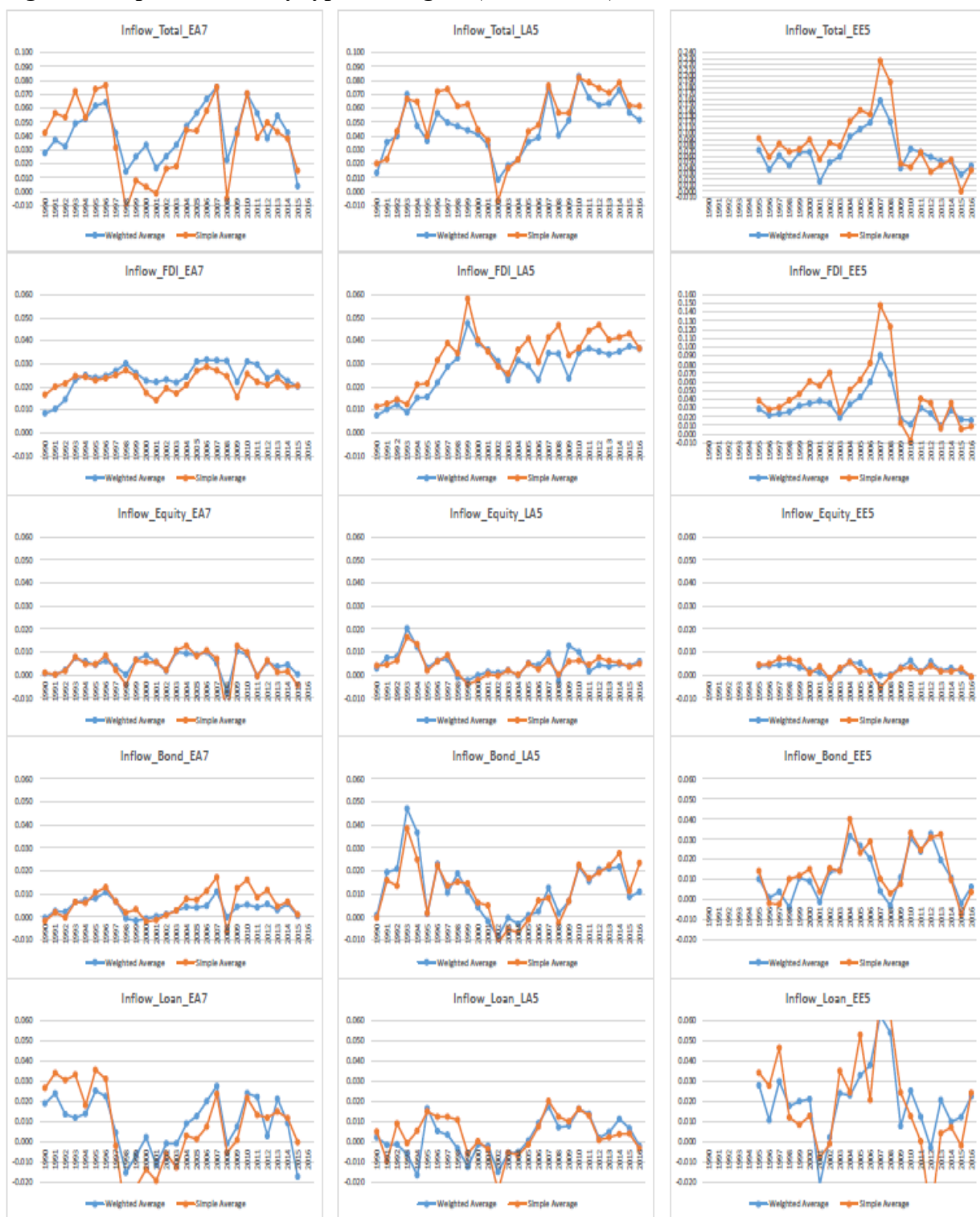
Source: IMF, *World Economic Outlook*, April 2016, adapted from Figures 2.2 – 2.5.

Figure 3: Total capital inflows and outflows by regions (ratio to GDP)



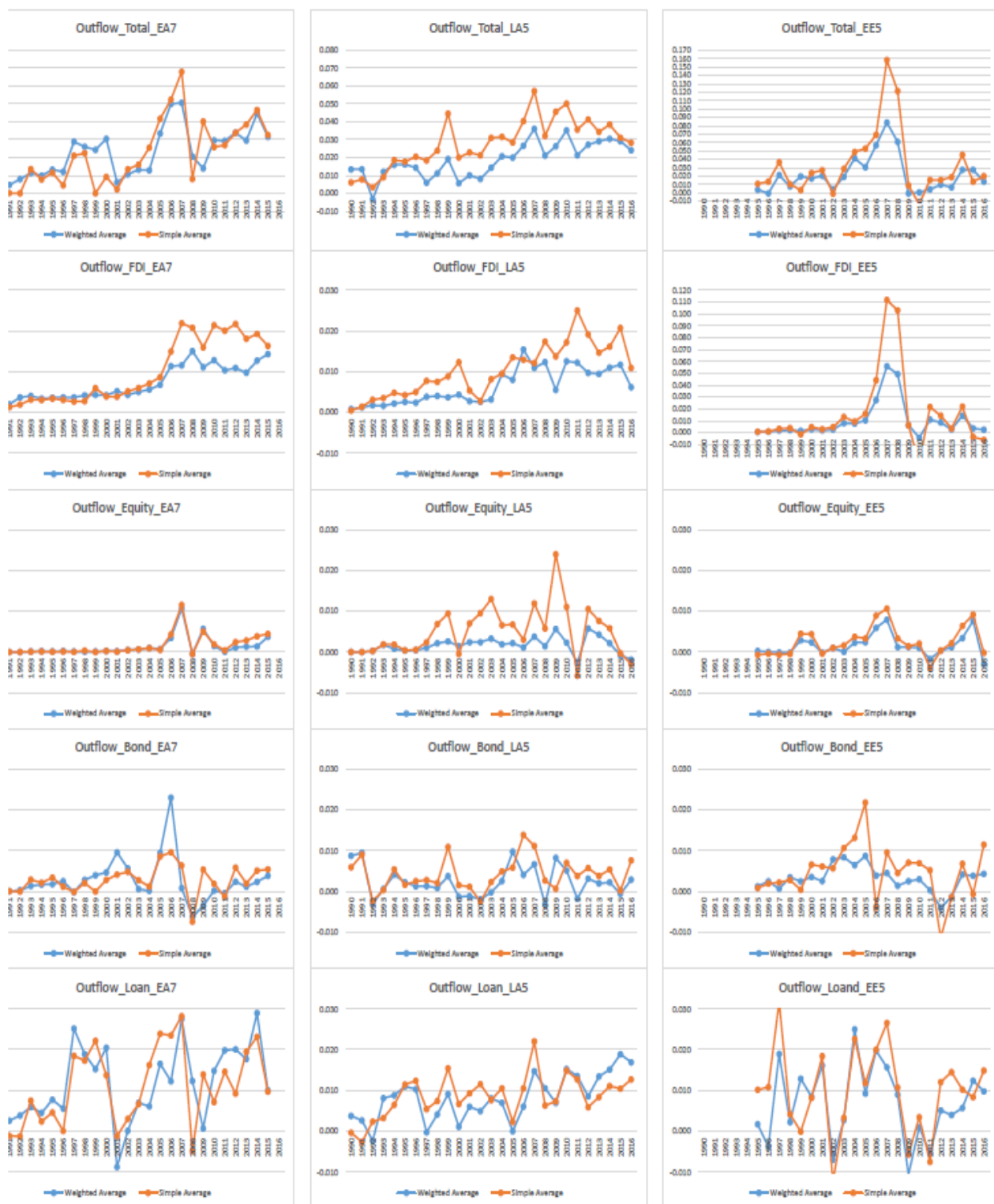
Data source: IMF, *International Financial Statistics*.

Figure 4: Capital inflows by type and region (ratio to GDP)



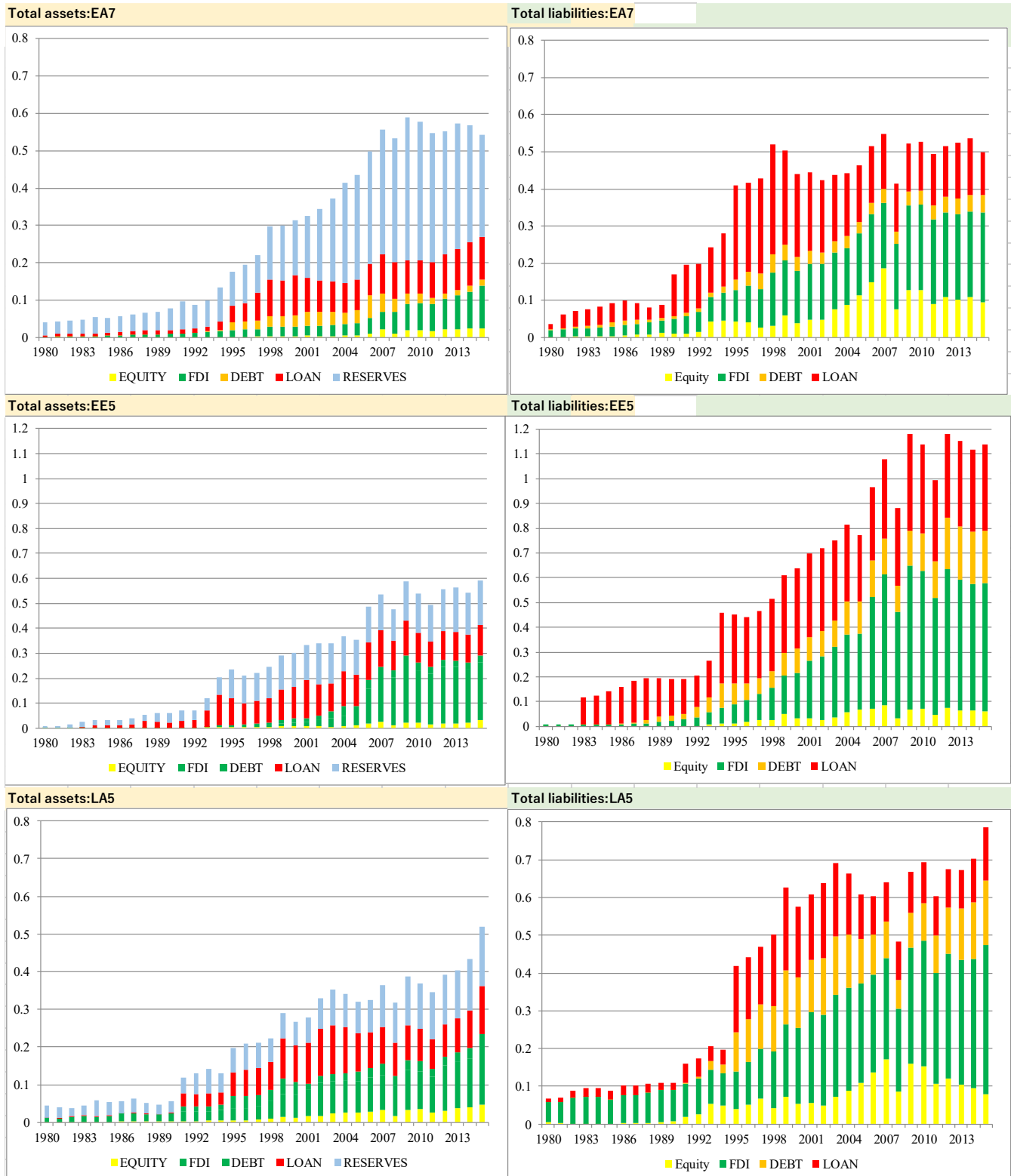
Data source: IMF, *International Financial Statistics*.

Figure 5: capital outflows by type and region (ratio to GDP)



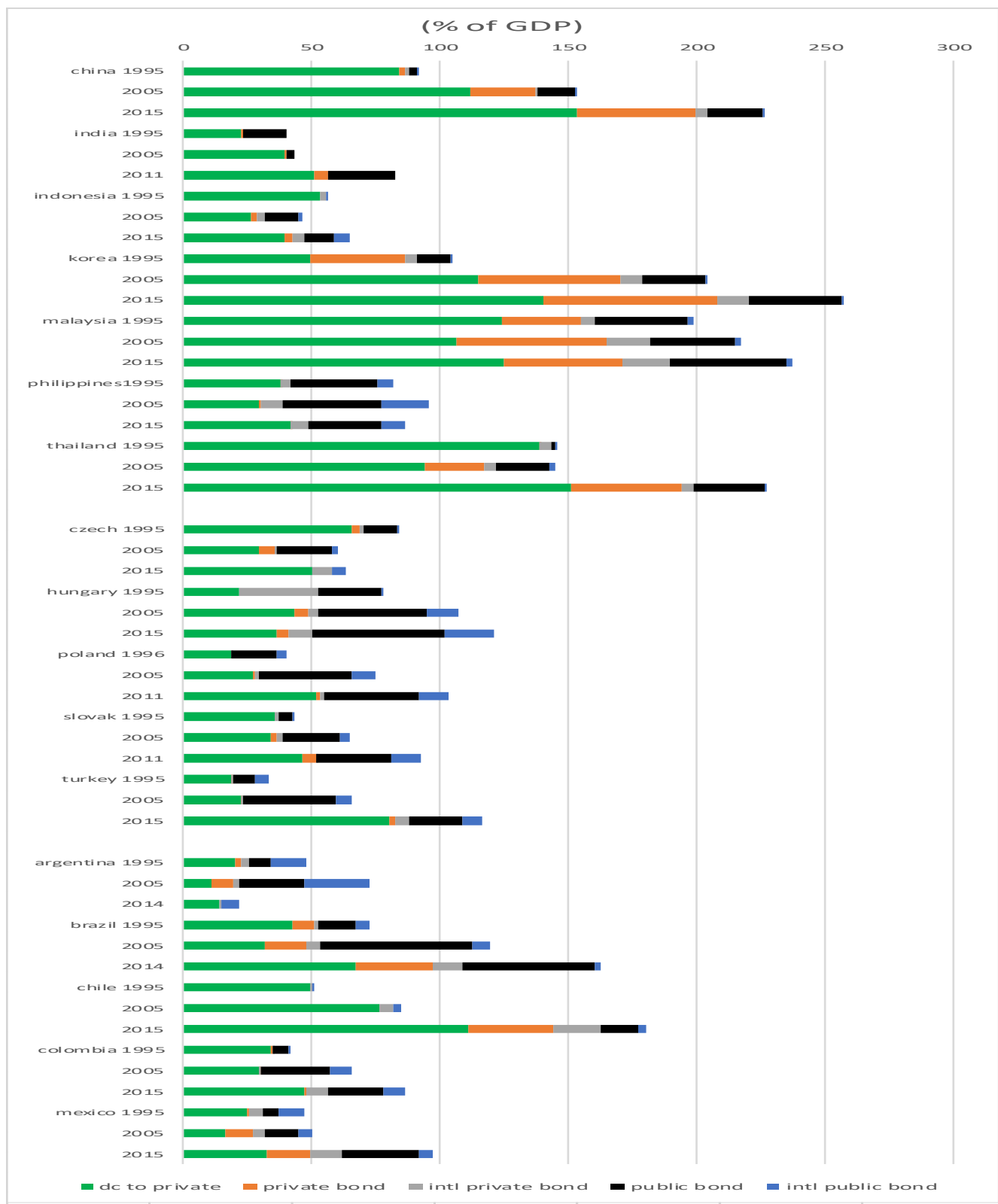
Data source: IMF, *International Financial Statistics*.

Figure 6: External assets and liabilities by region
(ratio to GDP)



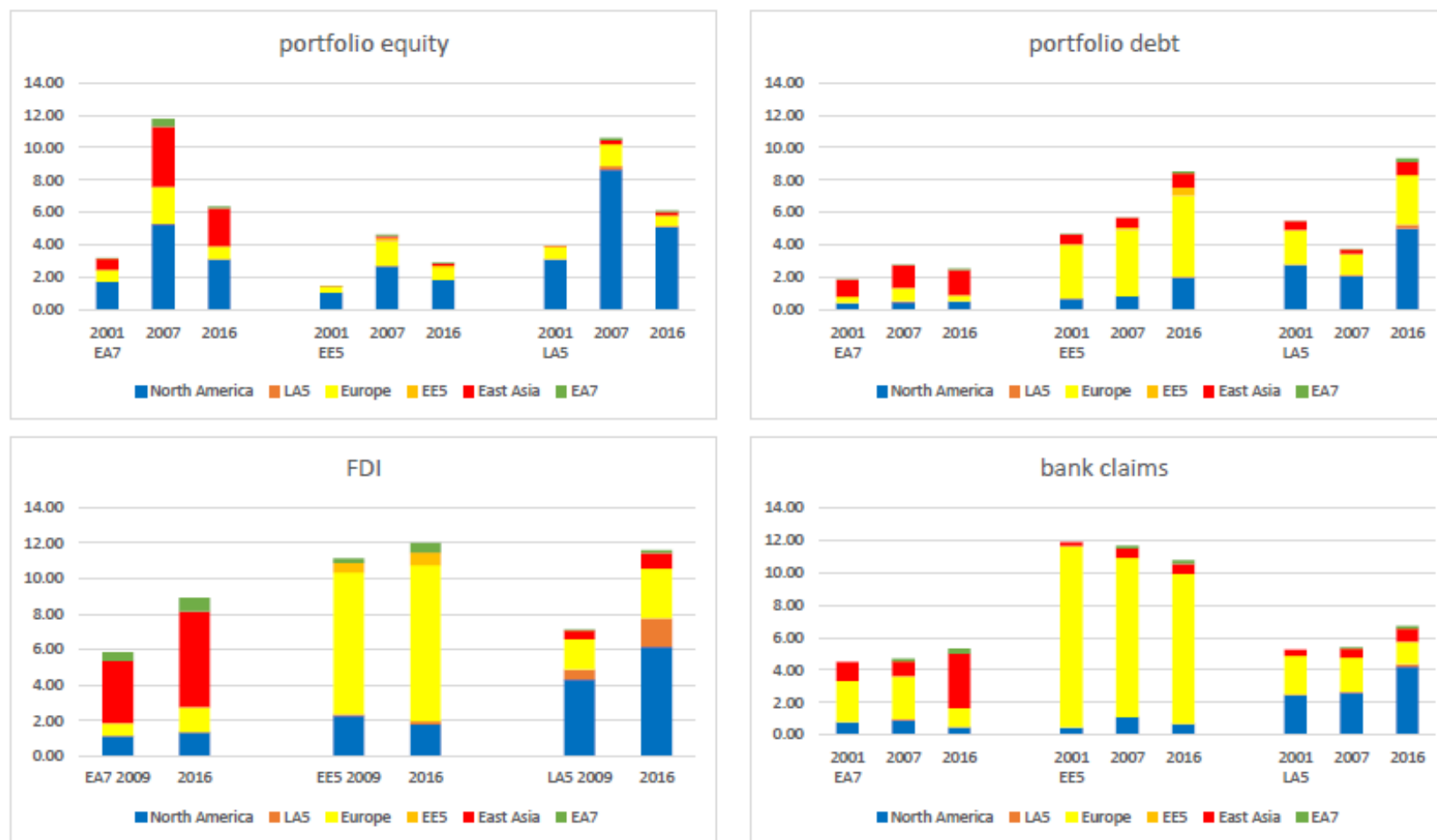
Data source: Lane and Milesi-Ferretti, 2017.

Figure 7: Financial intermediation



Data source: World Bank, *Global financial development database*, June 2017.

Figure 8: regional financial linkages between AEs and EMs (% of GDP)



Data source: IMF, *Coordinated Portfolio Investment Survey (CPIS)*, IMF, *Coordinated Direct Investment Survey (CDIS)*, and BIS, *Locational Banking Statistics*.

Table 1: External wealth' structure

% of GDP	EA7		EE5		LA5		G7	
	2007	2015	2007	2015	2007	2015	2007	2015
Gross liabilities	55	50	108	114	64	79	175	183
Debt liabilities	19	16	46	56	20	31	116	112
Nondebt liabilities	36	34	61	58	44	47	59	70
Gross assets	56	54	54	59	36	52	175	171
Debt assets	15	13	18	15	13	16	96	82
Nondebt assets	7	14	21	26	13	20	75	84
Foreign reserves	33	27	14	18	11	16	4	5
Net liabilities	-1	-4	54	55	28	27	0	12
Gross liabilities and assets	110	104	161	173	100	131	350	353

Source: Updated version of the External Wealth of Nations Mark II database (see Lane and Milesi-Ferretti (2007, 2017)).

Note: Each value shows the weighted average of capital-to-GDP ratio. Debt assets or liabilities include portfolio debt investments (Debt) and other investments (Loan), while nondebt assets or liabilities include direct investments (FDI) and portfolio equity investments (Equity) in each group.

Table 2: Drivers of capital inflows to EMs: basic results

VARIABLES	Total	FDI	Equity	Bond	Loan
g_domestic	0.808** (0.349)	0.282 (0.205)	0.016 (0.044)	0.097 (0.093)	0.354*** (0.118)
i_domestic	-0.047 (0.053)	-0.018 (0.031)	-0.002 (0.007)	-0.021 (0.014)	-0.003 (0.018)
institution	0.055** (0.023)	0.046*** (0.014)	0.003 (0.003)	0.025*** (0.006)	0.009 (0.008)
capitalrestrictions_inflow	0.044* (0.024)	0.008 (0.014)	0.003 (0.003)	0.014** (0.006)	0.021*** (0.008)
B_Corporatebondsread	-5.157*** (0.924)	-0.855 (0.536)	-0.528*** (0.117)	-1.232*** (0.245)	-2.013*** (0.312)
g_us	-2.873*** (0.541)	-0.678** (0.317)	-0.018 (0.068)	-0.458*** (0.143)	-1.250*** (0.183)
i_us	-0.464 (0.338)	0.062 (0.196)	0.045 (0.043)	-0.146 (0.090)	-0.028 (0.114)
oilpricechange	0.004 (0.011)	0.005 (0.007)	-0.004*** (0.001)	-0.000 (0.003)	0.002 (0.004)
USyieldgap	-0.009 (0.646)	-0.396 (0.374)	0.267*** (0.081)	0.222 (0.170)	0.408* (0.218)
Constant	0.205*** (0.037)	0.059*** (0.022)	0.012** (0.005)	0.034*** (0.010)	0.056*** (0.013)
Q1	0.008 (0.010)	-0.001 (0.006)	0.002 (0.001)	0.011*** (0.003)	0.003 (0.003)
Q2	-0.008 (0.010)	-0.008 (0.006)	-0.001 (0.001)	0.001 (0.003)	0.008** (0.003)
Q3	-0.009 (0.010)	-0.004 (0.006)	-0.001 (0.001)	0.002 (0.003)	0.002 (0.003)
GFC	0.049 (0.031)	0.038** (0.018)	0.001 (0.004)	-0.004 (0.008)	0.012 (0.010)
Observations	1,020	1,051	1,016	996	1,020
R-squared	0.067	0.038	0.064	0.103	0.096
Number of A	16	16	16	16	16

Note: Standard errors in parentheses. ***, ** and * denote the 1%, 5% and 10% significance level, respectively. All the results are obtained by the fixed effect model. See Appendix Table for the definitions of variables and their data sources.

Table 3: Drivers of capital outflows from EMs: basic results

VARIABLES	Total	FDI	Equity	Bond	Loan
g_domestic	0.182 (0.311)	0.273 (0.205)	0.017 (0.044)	0.103 (0.093)	0.362*** (0.118)
i_domestic	0.004 (0.048)	-0.008 (0.032)	-0.002 (0.007)	-0.019 (0.014)	0.001 (0.018)
institution	0.006 (0.021)	0.046*** (0.014)	0.003 (0.003)	0.024*** (0.006)	0.008 (0.008)
capitalrestrictions_outflow	0.006 (0.020)	0.030** (0.013)	0.003 (0.003)	0.011* (0.006)	0.018** (0.008)
B_Corporatebondsread	-3.455*** (0.818)	-0.883* (0.533)	-0.522*** (0.116)	-1.202*** (0.244)	-1.971*** (0.311)
g_us	-2.142*** (0.482)	-0.687** (0.316)	-0.018 (0.068)	-0.459*** (0.143)	-1.251*** (0.183)
i_us	-0.500* (0.302)	0.086 (0.196)	0.047 (0.043)	-0.138 (0.090)	-0.015 (0.114)
oilpricechange	-0.007 (0.010)	0.005 (0.006)	-0.004*** (0.001)	-0.001 (0.003)	0.002 (0.004)
USyieldgap	-0.734 (0.577)	-0.361 (0.373)	0.267*** (0.081)	0.222 (0.170)	0.409* (0.218)
Constant	0.189*** (0.034)	0.045** (0.022)	0.012** (0.005)	0.034*** (0.010)	0.055*** (0.013)
Q1	-0.001 (0.009)	-0.001 (0.006)	0.002 (0.001)	0.011*** (0.003)	0.003 (0.003)
Q2	-0.012 (0.009)	-0.008 (0.006)	-0.002 (0.001)	0.001 (0.003)	0.008** (0.003)
Q3	-0.012 (0.009)	-0.004 (0.006)	-0.001 (0.001)	0.002 (0.003)	0.002 (0.003)
GFC	0.028 (0.027)	0.039** (0.018)	0.001 (0.004)	-0.005 (0.008)	0.011 (0.010)
Observations	1,024	1,051	1,016	996	1,020
R-squared	0.034	0.043	0.064	0.102	0.095
Number of A	16	16	16	16	16

Note: Standard errors in parentheses. ***, ** and * denote the 1%, 5% and 10% significance level, respectively. All the results are obtained by the fixed effect model. See Appendix Table for the definitions of variables and their data sources.

Table 4: Drivers of capital inflows to EMs: results with regional dummies

VARIABLES	Total	FDI	Equity	Bond	Other
g_domestic	0.406 (0.609)	-0.135 (0.360)	0.107 (0.076)	0.327** (0.159)	0.110 (0.201)
g_domestic × EA7	0.645 (0.843)	0.666 (0.495)	-0.153 (0.105)	-0.155 (0.223)	0.292 (0.277)
g_domestic × EE5	0.724 (1.046)	0.176 (0.619)	-0.174 (0.131)	-0.343 (0.273)	0.245 (0.345)
i_domestic	-0.071 (0.110)	-0.063 (0.065)	0.004 (0.014)	0.006 (0.029)	-0.019 (0.036)
i_domestic × EA7	0.094 (0.400)	-0.053 (0.227)	-0.098* (0.050)	0.090 (0.106)	0.142 (0.132)
i_domestic × EE5	-0.045 (0.128)	0.006 (0.075)	-0.008 (0.016)	-0.053 (0.033)	-0.032 (0.042)
institution	0.063 (0.040)	0.032 (0.024)	0.001 (0.005)	0.012 (0.010)	0.017 (0.013)
institution × EA7	-0.099* (0.057)	-0.019 (0.033)	0.007 (0.007)	-0.019 (0.015)	-0.070*** (0.019)
institution × EE5	0.119** (0.060)	0.100*** (0.036)	-0.005 (0.008)	0.054*** (0.016)	0.078*** (0.020)
capitalrestrictions_inflow	0.048 (0.031)	0.007 (0.018)	0.001 (0.004)	0.019** (0.008)	0.021** (0.010)
capitalrestrictions_inflow × EA7	-0.069 (0.089)	-0.017 (0.050)	0.035*** (0.011)	-0.057** (0.023)	-0.031 (0.029)
capitalrestrictions_inflow × EE5	-0.077 (0.057)	-0.039 (0.034)	-0.010 (0.007)	-0.024 (0.015)	-0.025 (0.019)
B_Corporatebondsread	-3.666*** (1.323)	-0.469 (0.780)	-0.358** (0.166)	-1.073*** (0.345)	-1.619*** (0.435)
B_Corporatebondsread × EA7	-1.850 (1.642)	-0.490 (0.955)	-0.378* (0.206)	-0.047 (0.431)	-0.880 (0.540)
B_Corporatebondsread × EE5	-1.554 (1.847)	0.180 (1.093)	0.178 (0.231)	-0.041 (0.481)	0.346 (0.608)
g_us	-2.266** (0.906)	-0.150 (0.535)	-0.245** (0.113)	-0.812*** (0.236)	-1.076*** (0.298)
g_us × EA7	0.568 (1.246)	-0.078 (0.725)	0.385** (0.156)	0.385 (0.328)	-0.068 (0.410)
g_us × EE5	-2.359 (1.449)	-1.212 (0.859)	0.324* (0.181)	1.035*** (0.378)	-0.166 (0.477)
i_us	-0.506 (0.587)	-0.032 (0.347)	-0.146** (0.073)	-0.405*** (0.153)	0.059 (0.193)
i_us × EA7	0.425 (0.821)	0.146 (0.468)	0.411*** (0.104)	0.349 (0.218)	-0.464* (0.270)
i_us × EE5	-0.149 (0.911)	0.633 (0.541)	0.188* (0.114)	0.405* (0.237)	0.474 (0.300)
oilpricechange	-0.013 (0.019)	0.001 (0.012)	-0.003 (0.002)	-0.010* (0.005)	-0.002 (0.006)
oilpricechange × EA7	-0.006 (0.026)	-0.004 (0.015)	-0.006* (0.003)	0.005 (0.007)	0.001 (0.009)
oilpricechange × EE5	0.070** (0.029)	0.022 (0.017)	0.005 (0.004)	0.025*** (0.007)	0.016* (0.009)
USyieldgap	-0.241 (1.080)	-0.252 (0.638)	-0.052 (0.135)	-0.298 (0.282)	0.300 (0.356)
USyieldgap × EA7	2.050 (1.444)	0.592 (0.837)	0.572*** (0.181)	0.680* (0.379)	0.188 (0.475)
USyieldgap × EE5	-2.750* (1.601)	-1.748* (0.947)	0.285 (0.200)	0.593 (0.417)	-0.313 (0.527)
Observations	1,020	1,051	1,016	996	1,020
R-squared	0.119	0.087	0.127	0.162	0.186
Number of A	16	16	16	16	16

Note: Standard errors in parentheses. ***, ** and * denote the 1%, 5% and 10% significance level, respectively. All the results are obtained by the fixed effect model. See Appendix Table for the definitions of variables and their data sources.

Table 5: Drivers of capital inflows to EMs: summary with regional dummies

		Inflows_Total			Inflows_FDI			Inflows_Equity			Inflows_Bond			Inflows_Loan			
		EA7	EE5	LA5	EA7	EE5	LA5	EA7	EE5	LA5	EA7	EE5	LA5	EA7	EE5	LA5	
Domestic factor	g_domestic	+		+			+						+		+		
	i_domestic																
	institution	+	-		+	+		+			+		+	+		-	+
	capitalrestrictions_inflow	+			+				+	-		+	-	+		+	
Global factor	B_Corporatebondspread	-			-			-	-		-			-		-	
	g_us	-			-		-		+		-		+	-		-	
	i_us								+		-					+	
	oilpricechange				+								+			+	
	USyieldgap							+	+				+			+	

Note: See Appendix Table for the definitions of variables and their data sources.

Appendix Table: Variable definitions and data source

Variable	Definition	Data Source
Inflows_Total, it	Gross Total Inflows (FDI, PI, OI) in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Outflows_Total, it	Gross Total Outflows (FDI, PI, OI) in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Inflows_FDI, it	Gross Direct Investment Inflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Inflows_Equity, it	Gross Equity Investment Inflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Inflows_Bond, it	Gross Bond Investment Inflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Inflows_Loan, it	Gross Other Investment Debt Inflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Outflows_FDI, it	Gross Direct Investment Outflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Outflows_Equity, it	Gross Equity Investment Outflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Outflows_Bond, it	Gross Bond Investment Outflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
Outflows_Loan, it	Gross Other Investment Debt Outflows in the ratio to GDP (quarterly GDP, converted to USD based on average exchange rate)	IFS, IMF
g_domestic	real GDP growth rate forecast in country i (one-year ahead) (spring→Q1, Q2, fall→Q3,Q4), semiannual)	WEO, IMF
i_domestic	real interest rate in country i (policy rate, deflated by forecast inflation(one-year ahead), semiannual)	IFS, IMF; WEO, IMF
institution, it	institutional quality, Rule of law (annual)	World Governance Indicators
capitalrestrictions_inflow, it	Overall capital inflow restrictions index, 0-1	Fernandez et al (2015)
capitalrestrictions_outflow, it	Overall capital outflow restrictions index, 0-1	Fernandez et al (2015)
lvix, t	logarithm of the Chicago Board Options Exchange's Volatility Index (VIX)	Chicago Board Options Exchange
g_us	real GDP growth rate forecast in US (one-year ahead) (spring→Q1, Q2, fall→Q3,Q4), semiannual)	IFS, IMF; WEO, IMF
i_us	real interest rate in US	IFS, IMF; WEO, IMF
B_Corporatebondspread, t	Moody's Seasoned Baa Corporate Bond Yield Relative to Yield on 10-Year Treasury Constant Maturity, rate, Monthly, not Seasonally Adjusted	Federal Reserve Economic Data
oilpricechange, t	the growth rate of oil price	IFS, IMF
USyieldgap, t	10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity, rate, Monthly, Not Seasonally Adjusted	Federal Reserve Economic Data
EA7, i	Dummy variable, 1 for East Asian economies, 0 otherwise	
LA5, i	Dummy variable, 1 for Latin American economies, 0 otherwise	
EE5, i	Dummy variable, 1 for Emerging European economies, 0 otherwise	
GFC	Dummy variable, 1 for 2008Q4 and 2009Q1 0 otherwise	