FINANCIAL CRISES AND INTERNATIONAL PORTFOLIO DYNAMICS

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Abstract

This paper analyzes the behavior of international capital flows by foreigners and domestic agents, especially during financial crises. We show that *gross* capital flows by foreigners and domestic agents are very large and volatile, especially relative to *net* capital flows. This is because when foreigners invest in a country domestic agents tend to invest abroad and vice versa. Gross capital flows are also pro-cyclical. During expansions, foreigners tend to bring in more capital and domestic agents tend to invest more abroad. During crises, there is *retrenchment*, i.e. a reduction in capital inflows by foreigners and an increase in capital inflows by domestic agents. This is especially true during severe crises and during systemic crises. The evidence can shed light on the nature of shocks driving international capital flows. It seems to favor shocks that affect foreigners and domestic agents asymmetrically –e.g. sovereign risk and asymmetric information– over productivity shocks.

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1.   Introduction

During the last decades, international capital flows have played an increasingly important role in the business cycles of developed and developing countries, particularly during episodes of financial crises. Many studies have analyzed the behavior of *net* capital flows, or capital inflows by foreigners (CIF) *plus* capital inflows by domestic agents (CID). It is known that net capital flows are highly pro-cyclical in developing countries and, to a lesser extent, in developed countries. It is also known that crises are associated with a large reduction in, or even a reversal of, net capital inflows.[1]

This paper focuses on the behavior of *gross* capital flows, i.e. capital flows by foreign and domestic agents (CIF and CID). In part, we are motivated by the behavior of capital flows prior and during the global financial crisis of 2008. During the years before the crisis, gross capital flows had been very large. They reflected, among other things, portfolio diversification among developed countries, foreign direct investment and portfolio flows to developing countries, and accumulation of safe foreign assets by developing countries. The crisis, however, was accompanied by a larger reduction in inflows by foreigners and outflows by domestic agents, prompting a debate on the possibility of entering into a phase of de-globalization.

In this paper, we analyze systematically the cyclical behavior of gross capital flows.[2,3] To do so, we construct measures of CIF and CID using Balance of Payments data from the International Financial Statistics from the International Monetary Fund (IMF). CIF equals net purchases of domestic assets by non-residents and is thus equal to

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[1] See for example Kaminsky, Lizondo and Reinhart (1998), Calvo, Izquierdo and Mejia (2002), and Broner and Rigobon (2006).

[2] Perhaps surprisingly, there are few analyses of the behavior of gross capital flows at business-cycle frequencies. Three exceptions are Faucette, Rothenberg, and Warnock (2005), Rothenberg and Warnock (2006), and Cowan, De Gregorio, Micco, and Neilson (2008), who use information on gross capital flows to determine whether in each particular crisis reductions in net capital inflows is driven by foreigners or domestic agents. A few papers also look at the distinction between domestic and foreign investors during specific events or specific markets. See, for example, Frankel and Schmukler (1996).

[3] For evidence on long-run trends in gross capital flows, see Lane and Milesi-Ferretti (2001, 2007), Kraay, Loayza, Servén, and Ventura (2005), Devereux (2007), and Gourinchas and Rey (2007a, 2007b).

the sum of all "liability" inflows. CID equals net sales of foreign assets by domestic agents and is thus equal to the sum of all "asset" inflows, including international reserves.[4] We explore the behavior of these capital flows from 1970 to 2009 in 103 developed and developing countries.

Figures 1 and 2 show the behavior of CIF and CID as a fraction of GDP for a number of developed and developing countries. Positive values of CIF indicate that foreigners are increasing their holdings of domestic assets, while positive values of CID indicate that domestic agents are reducing their holdings of foreign assets. The figures illustrate the long-run process of financial globalization, as CIF has been consistently positive and CID consistently negative and they have both been large and growing fractions of GDP. The figures also suggest that the process of globalization has not been smooth, as there have been large variations in CIF and CID from year to year. Particularly during periods of financial turbulence, such as during the global financial crisis of 2008, there seems to have been *retrenchment* in capital flows, reflected in reductions in CIF and increases in CID.

In this paper, we formally document these patterns by analyzing the dynamics of CIF and CID at business-cycle frequencies, as well as around periods of financial distress. Our main findings are as follows.

(i)   Over the last four decades, there has been a larger increase in the volatility of CIF and CID than that of net flows, especially in developed countries. Moreover, the larger volatility of CIF and CID has not been accompanied by more volatile net flows, perhaps because of the high correlation between CIF and CID.

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[4] Note that although we refer to CIF and CID as gross capital flows, they reflect net transactions in domestic and foreign assets, respectively, between foreign and domestic agents. Also note that CIF and CID are not equal to changes in foreign liability and foreign asset positions as these flow measures do not take into account valuation effects.

(ii)   Gross capital flows are pro-cyclical, as CIF is pro-cyclical and CID is counter-cyclical. In other words, during expansions foreigners increase their investment in domestic assets and domestic agents increase their investment in foreign assets. This is true regardless of whether expansions are measured in terms of real GDP growth or deviations in GDP from trend.

(iii)   During crises, especially during severe ones, there is a reduction of *total gross capital flows* (CIF-CID), with significant reductions in CIF and increases in CID. Systemic crises are associated with more retrenchment than crises that occur in a smaller set of countries.

(iv)   A decomposition of CIF and CID reveals interesting heterogeneity in the behavior of their components during crises. The reduction in CIF is due to reductions in liabilities in equity portfolio investment and other investments in developed countries and in debt portfolio investment and other investments in developing countries. The increase in CID is due to reductions in assets in equity portfolio investment, debt portfolio investment, and other investments in developed countries and in reserves and debt portfolio investment in developing countries.

The behavior of capital inflows by foreigners and domestic agents can shed light on the sources of fluctuations and international capital flows. First, we find no evidence that, on average, gross capital flows are driven by fire sales of domestic assets to foreigners and/or domestic capital flight, as we find retrenchment during crises, with foreigners leaving and domestic agents coming back home. Also, the evidence runs contrary to the view that capital flows are driven mostly by productivity shocks, since such shocks would imply a similar behavior by foreigners and domestic agents towards

domestic assets. For instance, if crises were only due to negative productivity shocks, we would expect both foreign and domestic investors to reduce their investments in domestic assets, resulting in a decrease in both CIF and CIR.[5] Similar implications would be obtained if crises were associated with a worsening of investor property rights that affected equally domestic and foreign creditors.

The evidence suggests that crises affect foreigners and domestic agents asymmetrically. If, for example, crises were associated with a worsening of investor property rights that affected foreign creditors more than domestic creditors, we would expect the type of retrenchment observed in the data. We would also expect retrenchment, if crises increased the informational asymmetry between foreigners and domestic agents.[6]

The rest of the paper is organized as follows. Section 2 describes the data. Section 3 analyzes the comovement of capital flows by foreigners and domestic agents and their behavior over the business cycle. Section 4 analyzes the behavior of gross capital flows during crises. Section 5 concludes.

2. Data

To document worldwide patterns of capital flows by domestic and foreign agents, we assemble a comprehensive dataset on both aggregate flows and the subcomponents. The data come from the "analytic" presentation of the IMF's Balance

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[5] We are not aware of papers that explicitly model the effects of productivity shocks on gross capital flows over the business cycle. Some related models include Kraay and Ventura (2000), Kraay, Loayza, Servén, and Ventura (2005), Devereux (2007), Coeurdacier, Kollmann, and Martin (2010), and Devereux and Sutherland (forthcoming).

[6] The large literature on sovereign risk and "sudden stops" has, for the most part, only concerned itself with net capital flows. See, for example, Mendoza (forthcoming). Broner, Martin, and Ventura (forthcoming) show that during periods of financial distress in which the probability of default on foreigners increases domestic agents have an incentive to repurchase domestic assets in the hands of foreigners, thereby reducing sovereign risk ex-ante. Brenan and Cao (1997) present a model based on asymmetric information. Tille and van Wincoop (2010) suggest an alternative mechanism based on time variation in asset risk.

of Payments Statistics Yearbooks (BOP). The IMF's BOP dataset provides country-level data on different types of capital inflows in millions of U.S. dollars on a yearly basis since 1970 until 2009.[7] In particular, capital flows are classified as direct investments (abroad or in the reporting economy), portfolio flows, other investment flows (which account mostly for bank flows and trade credit), and international reserve assets.[8] Portfolio flows can be further divided into equity and debt flows. Both private and public flows are included in our dataset.

Importantly, this dataset allows us to disentangle capital inflows by domestic agents (CID) and capital inflows by foreigner (CIF), which are reported as flows related to the reporting country's assets and liabilities vis-à-vis non-residents, respectively. For instance, CIF is the sum of the following inflows: direct investments in the reporting economy, portfolio investment liabilities, and other investment liabilities. Similarly, CID is the aggregation of direct investments abroad, portfolio investment assets, other investment assets, and international reserve assets by the government. Moreover, note that portfolio equity and debt inflows by foreigners account for their transactions in domestic equity and debt assets, respectively, whereas for portfolio equity and debt flows by domestic agents account for transactions in foreign equity and debt assets. All flows are reported as capital inflows to the reporting economy. Therefore, a negative CID should be interpreted as capital outflows by domestic agents whereas a positive CID means capital inflows.

The dataset, which uses the "analytic" presentation of countries' Balance of Payments, excludes exceptional financing items. These items account for debt refinancing and rescheduling entries that involve changes in existing debt contracts and

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[7] See Appendix Table 1 for the sample coverage on a country basis. First and last years of available data are reported.

[8] We do not consider financial derivatives assets or liabilities in our analysis. They are relatively small in comparison to the other reported flows and do not affect our results.

replacement by new ones, generally with extended debt service payments.[9] In the standard presentation of the IMF's BOP, these flows (credit and debt entries that account for the new contracts) are computed within a country's financial account. Therefore, our analysis excludes items derived from the rescheduling or refinancing of existing debt contracts as they generally do not involve new capital inflows to the reporting country, only a reassignment of existing assets and liabilities.

Our sample of countries is based mostly on data availability. However, given our focus on capital flows by domestic and foreign agents, we exclude countries that are either very small or relatively very poor. Some small countries are a concern due to their possible role as offshore financial centers or tax havens; many small economies often display an artificially high volume of financial transactions. Relatively poor countries might depend heavily on official aid flows that would generally behave differently that private capital flows, and are thus beyond the scope of our analysis. For our analysis, a country is considered small if its gross national income in 2005 was less than four billion current U.S. dollars, PPP adjusted. Thirty countries are excluded from the analysis for this reason, among them Belize, Guyana, and Maldives. We also exclude 46 countries with per capita gross national income smaller than 2,000 current U.S. dollars, PPP adjusted, in 2005, among them Bangladesh, Ethiopia, Haiti, Malawi, Nepal, and Niger. Given that some countries are excluded from the analysis using both criteria, we end up excluding a total of 65 countries with available data.[10]

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[9] In the analytic presentation, the recording of these items, as with debt forgiveness, depends on whether the debt being rescheduled or refinanced is due for payment in the current reporting period, in arrears, or not yet due. Rescheduling or refinancing of debt falling due in the current recording period is recorded below-the-line as a debt transaction under exceptional financing and the offsetting debit entry is recorded above-the-line. For arrears rescheduled or refinanced, both the arrears on the old debt and the rescheduling of arrears are recorded below-the-line. For rescheduling or refinancing of obligations not yet due, there is no recording under exceptional financing, both entries being above-the-line under the relevant debt instruments.

[10] We used 2005 data on both GNI and GNI per capita due to availability. Using more updated data would reduce significantly our sample coverage. Moreover, the ranking of countries does not change considerably over time nor their positions relative the thresholds used in this paper.

Our final sample includes 103 countries that are classified into groups according to their income levels measured by their per capita GNI in 2005. In particular, we classify low-income countries as those with per capita GNI below $7,500 U.S. dollars. Middle-income countries include those with GNI per capita between $7,500 U.S. dollars and $15,000 U.S. dollars. These two groups of countries, low- and middle-income countries, are sometime referred to as developing countries in this paper. Lastly, high-income countries are those with per capita gross national income above $15,000 U.S. dollars.[11] Note that according to the World Bank classification of countries, our sample includes only middle-income and high-income economies.

As already mentioned above, we also analyze capital flows around crises. To do so, we create a composite crisis indicator that takes into account currency, banking, and domestic and external debt crises on an annual basis. We consider the initial year of either one of these crises measures as the beginning of our crisis period as long as no crisis has occurred in the previous two years. In order to obtain the beginning of these different crises, we use several indicators available in the literature. Currency crises are identified by following the methodology in Laeven and Valencia (2008), which in turn follows and Frankel and Rose (1996).[12] Under their definition, an economy experiences a currency crisis if there is a nominal depreciation of the exchange rate of at least 30 percent that is also at least a 10 percent increase in the rate of depreciation compared to the year before. For countries meeting this criteria for several years, only the first year within five-year windows is considered the crisis year. Banking crises come from the dating of beginning of crisis periods available in Honohan and Laeven (2005), Laeven and Valencia (2008), and Reinhart and Rogoff (2008). Domestic debt crises are

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[11] Appendix Table 1 reports the list of countries included in our analysis, the sample coverage, and their income classification.

[12] The reason for using just one indicator of currency crises is that most indicators in the literature are constructed using data on the evolution of reserves, one of our variables of interest, making them unsuitable for the analysis.

identified by the year in which Standard & Poor's downgrades the local currency debt of an economy into default as well as by the dating of episodes available in Reinhart and Rogoff (2008). Lastly, for external debt crises, we consider Laeven and Valencia (2008), Reinhart and Reinhart (2008), and Standard & Poor's downgrades of foreign currency debt and foreign currency bank loans of an economy to default levels. Appendix Table 2 lists all the crises episodes considered in our sample.

In our analysis, we further classify these crises events into two different types of episodes depending on their intensity. First, we define "One Crisis" episodes in which a country experiences the beginning of one, and only one, type of crisis in a given year, and no other crisis is observed in the previous two years. Our second episode type considers periods in which a country faces the beginning of more than one type of crisis within a given year, and no such event has occurred in the previous two years. These episodes are called "More than One Crisis". This distinction of crisis events according to the intensity of the turmoil affecting a country allows us to distinguish between mild and severe crises episodes.

The final database, after the sample adjustments above mentioned, covers 103 economies over the 1970-2009 sample period. There are 39 countries classified as high-income, and 28 of these countries have experienced at least one crisis during our sample period and four countries have faced severe crises. Our sample includes 26 countries classified as middle-income countries and they have experienced significantly more turmoil. All countries faced at least one crisis within our sample period and a total of 78 crises episodes (24 severe ones) have been observed in these countries. Lastly, we examine 38 low-income countries in our empirical analysis and all but one country have gone through at least one crisis episode. In total, these low-income countries have experienced 96 crises episodes, being 27 severe ones.

Our last section studies the 2008 crisis with the same annual data on capital flows. Given the lack of information on crises according to the measures used in this paper and the depth and severity of this crisis episode, we assume that all countries experienced a crisis event in 2008. Note however that our sample coverage is more limited and post-crisis data are available for only 33 countries.

3.   The Joint Behavior of Flows by Foreign and Domestic Agents

We next study the behavior of CIF and CID for a number of high-income and developing countries over the past decades. Throughout this paper, we scale both CID and CIF (and their components) by trend GDP, allowing us to shed light on both how large capital flows are relative to GDP and how volatile capital flows are relative to output.[13] Positive values of CIF (CID) indicate that foreigners (domestic agents) are increasing (reducing) their holdings of domestic (foreign) assets.

Figures 1 and 2, mentioned above, show the large increase in financial globalization over the last decades with both CID and CIF generally following positive trends in absolute values, albeit with significant retrenchments around crises. These patterns suggest a strong negative comovement between gross capital flows, CID and CIF. Furthermore, this negative correlation seems to hold in both tranquil and turbulent periods, when a retrenchment in flows is observed. In the rest of this section, we document more formally the dynamic behavior of capital flows as well as the relation between different types of flows, and we leave for the next section an analysis of their dynamics around periods of financial distress.

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[13] Trend GDP is calculated by applying the Hodrick-Prescott filter to the series of nominal GDP in U.S. dollars. Nominal GDP is obtained from the World Bank's *World Development Indicators* (WDI). If data for the last years of the sample was not available, we complemented our dataset with data from the IMF's *World Economic Outlook 2009* (WEO).

The evidence presented in Table 1 indicates that, indeed, gross capital flows are large and have increased over time, particularly for high-income countries. For example, the median CIF for high-income countries is 4.73 percent of trend GDP in the 1970s and 15.16 in the 2000s, with the median CID increasing similarly in absolute value. For middle- and low-income countries, perhaps the most noticeable difference is the increase in the absolute value of CID during the 2000s. That is, the later period displays much larger outflows by domestic agents.

Table 1 also shows that the volatility of gross capital inflows has increased significantly over time, much more than that of net capital flows. For high-income countries during the 2000s, the volatility of CIF and CID is significantly larger than that of net capital flows (capital inflows by foreigners minus capital outflows by domestic agents, or CIF+CID). For example, the median standard deviation of CIF is 9.16 during the 2000s, compared to 2.66 during the 1970s, while the volatility of net flows increases from 2.41 to 3.60 during the same period. The increase in the volatility of gross flows is much less pronounced in middle- and low-income countries (whereas the volatility of net capital flows does not show such a clear increase relative to that of developed countries). For example, the median standard deviation of CIF is 4.96 for middle-income countries in the 2000s, compared to 3.07 during the 1970s.

Confirming the trends seen in a sample of countries in Figures 1 and 2, the summary statistics presented in Table 1 also suggest a broad process of financial globalization with capital flows increasing for both domestic and foreign agents, and especially so for high- and middle-income countries. For example, CIF increases from about 4.8 and 0.8 percent of trend GDP in the 80s for high- and middle-income countries, respectively, to more than 15 percent of trend GDP in developed countries and around 5.6 percent in middle-income economies. A similar pattern is observed for

CID. Furthermore, there is no clear evidence of such a positive trend in net capital flows. If anything, they have decreased over time for high- and low-income countries.

Figure 3 further illustrates in a different way the point that capital flows by both domestic agents and foreigners have increased substantially throughout our sample period, whereas net capital flows have remained relatively stable. The figure shows ellipses corresponding to the bivariate gaussian distribution of the two relevant variables, namely capital inflows by domestic agents (CID) and capital inflows by foreigners (CIF). Each ellipsis summarizes the distributions of observations (one per country-year) during the last three decades. The ellipses are centered at the mean of these variables and their shape is given by the covariance matrix between CID and CIF. In particular, the main axes of the ellipses are given by the first and second principal components of this covariance matrix. Lastly, the boundaries of the ellipses capture two standard deviations, which should encompass 86% of the total probability mass.

These ellipses show that capital flows by both foreigners and domestic agents have increased steadily over time, and especially so in the 2000s, as the ellipses increase in size along the inverted 45-degree line. In other words, these plots indicate that in order to capture most of the country-year observations within a decade, the boundaries of the ellipses need to spread further out this axis. Moreover, note that the inverted 45-degree line in Figure 3 captures country-year observations in which net capital flows are zero, i.e. points in which capital outflows by domestic agents are equal to capital inflows by foreigners. Therefore, the distance between the boundaries of the ellipsis and this inverted 45-degree line indicates the magnitude of net capital flows. Thus, our plots also suggest that net flows have not changed considerable over time.

The evidence in Table 1 also suggests that not only are capital flows by foreigners and domestic agents larger than net capital flows, and increasingly so, they

also tend to be more volatile. This is the case for high- and middle-income countries, especially in the 2000s. As shown in Table 1, the median standard deviation of CID and CIF for high-income (middle-income) countries are 8.1 and 7.8 (5.1 and 6.1) as a percentage of trend GDP, respectively. In contrast, the standard deviation of net flows is 3.9 and 5.6 for high-income and middle-income countries, respectively. Note however, that the standard deviation of net flows is smaller than that of capital inflows by both foreigners and domestic agents in middle-income countries only in the last decade. Until the 2000s, volatility in net flows was actually higher than in its disaggregated components, suggesting once more the increasing importance of gross capital flows in the 2000s.

For low-income countries, capital flows have followed slightly different trends over time. Capital outflows by domestic agents have followed a similar increasing trend if compared to high- and middle-income countries. We observe a 7-fold increase since the 1980s. However, capital inflows by foreigners have grown considerably less, going from about 4 percent of trend GDP in the 1980s to only 4.2 percent in the 2000s. Moreover, differently than what we observe for richer countries, the volatility of net flows is larger than that of inflows by foreign and domestic agents throughout our entire sample. These patterns in capital flows in low-income countries might reflect in part more closed capital accounts and greater restrictions on foreign investments by domestic agents, especially in the first half of our sample.

The evidence in Table 1 and Figure 3 suggests that capital inflows by domestic and foreign agents have become very large in recent years, surpassing the size of net international capital inflows. These patterns however are not common among all types of capital flows. A decomposition of these flows into portfolio investment, other investment, and direct investment flows by both domestic and foreign agents suggest

that different flows are responsible for these trends in different countries. In high-income countries, capital inflows by both foreign and domestic agents are concentrated in other investments, which include mostly bank loans and trade credit. In contrast, for developing countries, most of the inflows by foreigners are in the form of direct investments while outflows by domestic agents concentrate around international reserves. For instance, if whole sample averages are considered, the median high-income country has received inflows of other investments by foreigners (domestic agents) of 3.86 (-2.6) percent of trend GDP in comparison to portfolio investments around 2.1 (-2.26) percent of trend GDP and direct investments at 2.03 (-1.5) percent of trend GDP. On the other hand, developing countries have received large foreign direct investments, 2.23 (2.45) percent of trend GDP for middle-income (low-income) countries, if compared to 1.6 (1.9) percent of trend GDP in other investments by foreigners and around 0.6 (0.06) percent of trend GDP in portfolio flows. Acquisition of international reserves by domestic agents dominates outflows of capital for developing countries. For example, these flows are more than five times larger than portfolio and direct investments abroad for middle-income countries and more than 20 times larger for low-income countries.

Figure 4 plots the evolution of these different flow types for domestic agents and foreigners for our three groups of countries based on income level. Once more, the striking increase in capital flows is evident from these figures, particularly for high- and middle-income countries. Furthermore, note that capital flows by residents and non-residents started this marked increase around 1995 that continued until 2007, after a small trough observed around 2000-2002 for high-income countries and 1998-2002 for middle- and low-income countries. Nevertheless, not all flows have followed this upward trend. While other investment flows seem to capture the bulk of the increase in

capital inflows by foreigners in high-income countries, foreign direct investment flows have experienced the most accentuated increase for middle- and low-income countries since the 1990s. If anything, for low-income countries, other inflows by non-residents have actually been decreasing since the early 80s. Regarding capital flows by domestic agents, other investment flows, which include bank loans and trade credit, have increased considerably in the past five years for countries from all income groups in our sample. However, for developing countries, international reserves can also explain part of the significant increase in capital outflows by domestic agents.

Our results so far confirm the initial evidence of a generalized process of financial globalization with capital flows by both foreign and domestic agents increasing significantly over time, particularly since the 1990s. We next focus on whether the suggested negative correlation between CIF and CID in Figures 1 and 2 indeed holds on a cross-country comparison over the four decades under study. More formally, we estimate the following regressions:

$$CIF_{c,t} = \alpha + \beta CID_{c,t} + Controls + \varepsilon_{c,t}, \tag{1}$$

$$CID_{c,t} = \alpha + \beta CIF_{,c,t} + Controls + \varepsilon_{c,t} \tag{2}$$

where *Controls* stand for additional controls we include in the regressions such as country-trends or year dummies. For the remaining of this paper, CID and CIF (and their components) are not only scaled by trend GDP, but also further standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. This standardization procedure prevents the estimates from being driven by countries with large and volatile capital flows. In addition, countries are once more split in three groups according to their income level.

The results are shown in Table 2. They provide robust evidence that capital inflows by foreigners are negatively correlated with capital inflows by domestic agents.

In other words, when foreigners invest in a country, its domestic agents invest abroad, generating an expansion in financial globalization in which a country's international assets and liabilities expand. Conversely, when foreign capital leaves, domestic capital placed abroad is repatriated. Moreover, the estimated coefficient increases with countries' income level. If we include only country-trends as controls, the estimated coefficient for low-income countries is -0.25, while the same parameter is -0.48 for middle-income countries and -0.81 for high-income countries. Similar estimates are obtained independent of the set of controls used (country-trends are included as controls in panel A, country-trends and year dummies are included as controls in panel B). However, the point estimates decrease in absolute value when year dummies are included, suggesting the presence of world systemic effects, which we study in more detail in the next section.

Next, we further analyze this negative correlation by examining the dynamics of capital flows around the business cycle. We do so by estimating the following regressions:

$$Y_{c,t} = \alpha + \beta X_{c,t} + Controls + \varepsilon_{c,t}, \qquad (3)$$

where Y stands for CIF, CID, or a measure of aggregate flows, CIF-CID; X represents either net capital flows, the trade balance in goods and services, or measures of the GDP fluctuations; and *Controls* stand for additional controls we include in the regressions such as country-trends or year dummies. In these regressions, net capital flows are calculated as the sum of the standardized versions of CID and CIF. The trade balance in goods and services is also scaled by trend GDP, de-meaned and standardized by their standard deviations at the country level.[14] Our measures of business cycles are based on

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[14] Data on the trade balance is from the IMF's *Balance of Payment Statistics Yearbooks.*

real GDP in constant units of local currency.[15] A couple of alternative measures of cycles are used. First, we consider the more standard measure of cycles as the de-trended series based on the Hodrick-Prescott filter. Alternatively, we also consider the growth rates in real GDP as it might capture more accurately the current state of the economy in the business cycle, and thus be of greater relevance for investors and capital flows more broadly.

The results are shown in Table 3. Net inflows are associated mostly with inflows by foreigners rather than domestic agents as larger coefficients are estimated for the former, and especially so in middle- and low-income countries whereas for high-income countries the difference is quite small. Note however that net flows are calculated as the difference between CIF and CID, and are thus by construction positively correlated with our dependent variables CIF and CID. To partly avoid this correlation, we use the trade balance in goods and services, on the other side of the Balance of Payments. The estimated coefficients confirm the previous results. The trade balance is associated more strongly with capital flows by foreigners than by domestic agents for middle- and low-income countries. However, in high-income countries, the trade balance is associated only with inflows by domestic agents.

Regarding the dynamics of capital flows around business cycles, we find that during good times total gross flows are large and during bad times gross flows are small. In particular, we find that capital flows by foreigners are pro-cyclical, particularly in developing countries, increasing in periods of positive output gaps or in periods of positive growth in real GDP. On the other hand, inflows by domestic agents tend to be counter-cyclical, especially for high-income countries. In other words, domestic agents

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[15] Similarly to our measure of nominal GDP, real GDP in constant units of local currency comes from the World Bank's *World Development Indicators* (WDI). If data for the last years of the sample was not available, we complemented our dataset with information from the IMF's *World Economic Outlook 2009* (WEO).

invest more abroad in good times when the economy is above potential or is growing in real terms. The evidence in Table 3 develops the widely documented stylized fact of pro-cyclicality in net capital inflows. During booms, foreigners increase their purchases of domestic assets and domestic agents augment their investments abroad, suggesting that an increase in net capital inflows would be driven mostly by foreigners. During recessions, our findings are consistent with sales of domestic assets by foreigners rather than domestic capital leaving the country.

In sum, the evidence in this section suggests that capital inflows by domestic and foreign agents have become very large and volatile in recent years, surpassing the size and, in most cases, the volatility of net international capital inflows. Furthermore, capital inflows by foreigners are negatively correlated with capital inflows by domestic agents. When foreigners invest in a country, domestic agents invest abroad, generating an expansion in financial globalization. Our results suggest that these periods of financial globalization happen in times of positive real GDP growth or of output levels above potential. Similarly, during recessionary periods, our results would indicate a retrenchment, with domestic agents returning home and foreigners going back to their own countries. We investigate next whether financial crises affect these dynamics of capital flows as they contradict the view that, during periods of turbulence, domestic agents leave their home country while foreigners might come in to buy assets at fire-sale prices.

4.   Capital Flows and Financial Crises

In this section, we analyze the dynamics of capital flows by foreign and domestic agents around periods of financial crises. As described in Section 2, our crisis definition encompasses several types of crises indicators used in the literature, namely

indicators of currency crises, of banking crises, and of domestic and external debt crises. Moreover, our composite crisis indicator captures only the initial year of the turmoil period in a country, independent of its source. Our empirical strategy is based on an event study analysis that focuses on a five-year window around crises episodes. Hence, we study the behavior of foreign and domestic agents both in the run-up to the crises and in their immediate aftermath.

We start by examining the behavior of these agents around turmoil periods (within our five-year window) in comparison to tranquil periods in Table 4. Consistent with the evidence presented in Section 3, we observe a retrenchment in capital flows by both domestic and foreign agents during turbulent times. Capital inflows by foreigners decline during crises periods while capital inflows by domestic agents increase for countries in all income groups. For example, CIF falls by more than 50 percent for high-income countries (from 13.6 to 6.6 percent of trend GDP) while CID increases by more than 70 percent, although neither of these flows switches from inflows to outflows during turmoil periods. On the other hand, capital flows by foreigners in middle-income countries goes from inflows of 6.8 percent of trend GDP to outflows of 5.2 percent of trend GDP. Similarly, capital flows by domestic agents in these countries go from outflows of 6.1 percent of trend GDP to inflows of 5.4 percent of trend GDP. For low-income countries, however, there seems to be a relatively weaker reaction, with a milder retrenchment in capital flows during crises periods.[16] In net terms, there is not a very clear pattern. While there is an increase in net capital flows during crises for high- and low-income countries, net capital inflows in middle-income countries decline. But by focusing on these unsystematic changes in net capital flows, one would miss the large changes in gross capital flows.

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[16] The milder reaction of capital flows in low-income countries might be related to the relative size of official funding in comparison to total flows for these economies as these flows are unlikely to decline during crises.

More formally, we perform next an event study analysis to examine the dynamics of capital flows within our five-year windows of turbulent periods. The following equation is estimated:

$$Y_{c,t} = \alpha + \sum_{i=-2}^{i=2} \beta_i Crisis_{c,t+i} + Controls + \varepsilon_{c,t},$$

(4)

where Y stands for our standardized measures of CIF or CID; $Crisis$ is our composite crisis indicator; and $Controls$ stand for additional controls we include in the regressions such as country-trends.[17] Once more, we perform the analysis by pooling countries according to their income level. As described in Section 2, we do not have consistently available data for our $Crisis$ indicator for the recent 2008 financial crisis. Therefore, for the purposes of this section, we exclude this most recent period of turmoil in financial markets. We will return to it in the next section.

The results of our event study analysis are shown in Table 5 and Figure 5. There is robust evidence of retrenchment in capital flows by both foreigners and domestic agents with our event study analysis for countries in all income groups. As shown by the Wald tests at the bottom of the table, not only capital inflows by foreigners decline significantly in the crisis year in comparison to the average flow in the previous two years, but capital inflows by domestic agents also increase significantly over the same period. Moreover, capital inflows by foreigners remained at depressed levels (or declined even more for middle-income countries) during the two-year period after the onset of the crisis. Capital inflows by domestic agents also remain significantly higher for high-income countries in this aftermath. Nevertheless, after peaking in the crisis years, CID declines for both middle- and low-income countries.

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[17] We report results with country-trends as controls only, but our results are qualitatively robust to the inclusion of country and year dummies as well.

The results in Table 5 use our crisis indicator that pools together any type of financial crisis for a particular country in a given year. We extend next this analysis by considering the intensity of these crisis episodes and making a distinction between mild and severe crises episodes.[18] In particular, as already described in Section 2, we now use two indicators: "One Crisis" episodes, in which a country experiences the beginning of one, and only one, type of crisis in a given year, and a "More than One Crisis" indicator, in which a country faces the beginning of more than one type of crisis within a given year. We estimate equation (4) once more but using two indicators for *Crisis*:

$$Y_{c,t} = \alpha + \sum_{i=-2}^{i=2} \beta_i OneCrisis_{c,t+i} + \sum_{i=-2}^{i=2} \beta_i MoreOneCrisis_{c,t+i} + Controls + \varepsilon_{c,t}, \tag{5}$$

where *Y* stands for our standardized measures of CIF or CID; *OneCrisis* is the One Crisis indicator; *MoreOneCrisis* is the More than One Crisis indicator; and *Controls* stand for additional controls we include in the regressions such as country-trends.

Table 6 and Figure 6 report the estimations of equation (5). For One Crisis periods, the evidence suggests significant retrenchment in capital flows by both foreign and domestic agents in high-income countries. In middle-income countries, there is no significant change in behavior by these agents around mild turbulent periods. As a hybrid case between high- and middle-income countries, we find that foreigners tend to retrench from low-income countries but domestic agents do not alter their behavior once a crisis hit. However, consistent with retrenchment in flows, CID in both middle- and low-income countries are significantly different than zero suggesting that they are significantly higher than in non-crisis periods. Severe crises episodes on the other hand suggest a significant retrenchment in capital flows by both foreign and domestic agents in middle- and low-income countries. Capital inflows by foreigners not only decline,

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[18] In a recent paper, De Paoli et al. (2009) have shown that the occurrence of "twin" or "triple" crises is more strongly associated with output losses than milder episodes.

they become outflows for the crisis year as well as the post-crisis period. Capital inflows by domestic agents also increase significantly in comparison to pre-crisis periods, but only temporarily so. Outflows seem to resume in the two years following the onset of the crisis. For high-income countries, the results are less robust probably due to the low number of More than One Crisis episodes, only two in our sample. Therefore, the evidence in Table 6 suggests that the retrenchment in capital flows seen in Table 5 is related to the behavior of domestic and foreign agents towards mild crises episodes in high-income countries and severe turbulent events in middle- and low-income countries.

We next analyze whether a particular flow type is driving the dynamic behavior of capital flows around crises events or whether the observed patterns are widespread across all flow types. We estimate equation (5) separately for each component of CID and CIF, namely portfolio investment flows, other investment flows, direct investment flows, and in the case of CID, international reserve asset flows.[19] The results for high-, middle-, and low-income countries can be found in Tables 7A through 7C.

The results suggest strongly asymmetric effects across different components of capital flows that also vary significantly across countries with different income levels. First, we focus on the different components of capital inflows by foreigners. A constant for all countries in our sample is the decline of other investment flows during More than One Crisis episodes. Moreover, for low- and high-income countries, other investment flows also fall on the onset of milder crises episodes. For high-income countries, while decreases in portfolio equity investments are observed at the onset of the crisis, independent of the intensity of the crisis hitting a country, portfolio debt investments only decline for during the post-crisis period of more severe episodes, remaining

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[19] The size and volatility of the different components by decade are shown in Appendix Table 3.

relatively stable through One Crisis episodes. Lastly, there is no clear evidence of changes in the behavior of foreign direct investments. For middle-income countries, different patterns are observed. During One Crisis episodes, all components of CIF remained relatively stable within our five-year windows. On the other hand, during more severe episodes, both portfolio debt investments and, as already mentioned, other investments decline significantly if compared to flows in the two pre-crisis years. Neither portfolio equity investments nor foreign direct investment seem to change considerably around crisis episodes. Lastly, the components of CIF in low-income countries also follow slightly different patterns if compared to middle-income countries. In particular, only other investments by foreigners show a strong reaction during One Crisis periods. In contrast, not only other investments, but also portfolio debt investments and foreign direct investments retrench during More than One Crisis episodes.

Regarding the different components of CID, the differences across countries are even more striking. In high-income countries, all flow types but those related to international reserves retrench around Only One Crisis episodes, but no change is significantly observed during more severe episodes. In contrast, international reserve flows retrench in developing countries. Moreover, this retrenchment is only observed in More than One Crisis episodes. In other words, while high-income countries clearly do not sell their international reserve assets during turbulent periods, less developed countries, especially middle-income ones, make a buffer use of international reserves. Nevertheless, this retrenchment by domestic agents in middle-income countries is not concentrated in international reserve assets. There is a significant decline in portfolio debt investment assets as well.

Our analysis so far of the behavior of domestic and foreign agents around crises episodes has excluded the financial crisis that hit countries in 2008. The main reason, as stated in Section 2, was the lack of available data to identify our crises events. In order to test the robustness of our event study results to the latest financial crisis, we make a strong assumption. As described in Section 2, we assume in this section that all countries suffered a crisis just in 2008..

To confirm the visual impression of retrenchment given in Figure 7 for the U.S., we estimate equation (4) considering the 2008 crisis as an independent episode and excluding all other crises events. This is equivalent to estimating a regression of CID or CIF on year dummies for the pre- and post-crisis periods. The results are presented on Table 8. The Wald tests at the bottom of Table 8 suggest that the evolution of capital flows around the world follow a similar pattern as the ones experienced by the U.S. and shown in Figure 7. Furthermore, this retrenchment in capital flows by both foreign and domestic agents around the 2008 crisis is actually statistically significant. Capital inflows in 2008 are indeed statistically smaller than the average of capital flows in the previous two years for all countries and agents but for foreign agents in low-income countries. Our finding suggests that the 2008 crisis indeed has triggered a contraction in the pattern of increasing financial integration that took place over the previous five years, by leading to a reduction in the speed at which countries were accumulating foreign assets or, at worst, a reduction in countries' holdings of foreign assets.

To confirm this evidence and test the robustness of our previous results, we pool together the 2008 crisis with our sample of crises episodes and estimate equation (4) once more. The results are reported in Table 9. As expected, given that agents' behavior during the last crisis very much resembles the one observed for the 1970-2005 sample according to the results in Table 8, the new estimates provide strong evidence of

retrenchment in capital flows. The results suggest a sudden reversal in capital flows by both foreign and domestic agents.

We next explore whether the nature of the crises affects the behavior of domestic and foreign agents. In particular, crises events can be of a systemic nature or idiosyncratic (domestic) one. Systemic events are those with the potential to affect a great number of countries around the world, while idiosyncratic (domestic) episodes are less widespread and generally caused by more country-specific (or idiosyncratic) factors. To distil out this potential difference, we reclassify our crises composite indicators. We divide our events in two groups. Systemic Crises include turbulent periods that occurred during periods of global distress. The crisis in 2008 clearly has a systemic nature in its origins. For instance, GDP collapses were observed around the globe, with almost no country immune to the turmoil originated in the U.S. financial system. Similarly of a systemic nature, we consider the crises in 1998 systemic ones as countries around the world were affected by the Asian and Russian crises in late 1997 and 1998. Therefore, if our crises composite indicator indicates a crisis event in either 1998 or 2008, these episodes are re-classified as Systemic Crises. All the other crises in our composite index described in Section 2 are re-classified to Domestic Crises due to their idiosyncratic or domestic origin. While arguably there have been a number of periods in which a number of countries in our sample were simultaneously involved in crises situations, we consider that most of them did not have a true systemic nature. For that reason, we define as systemic crises periods just the years 1998 and 2008.

In order to evaluate whether the nature of the shock has any impact on the behavior of domestic and foreign agents, we estimate the following equation:

$$Y_{c,t} = \alpha + \sum_{i=-2}^{i=2} \beta_i DomesticCrises_{c,t+i} + \sum_{i=-2}^{i=2} \beta_i SystemicCrises_{c,t+i} + Controls + \varepsilon_{c,t}, \tag{6}$$

where *Y* stands for our standardized measures of CIF or CID; *DomesticCrises* is the indicator of crises with domestic or idiosyncratic nature; *SystemicCrises* is the indicator of crises of a systemic nature; and *Controls* stand for additional controls we include in the regressions such as country-trends.

Table 10 contains our estimations distinguishing crises episodes according to their systemic/idiosyncratic nature. Once more, similar patterns emerge from Table 10. Retrenchment in capital flows is a common feature of both types of episodes. There is, however, an interesting difference. Systemic events seem to be more sudden and stronger than those caused by domestic idiosyncrasies. These patterns could, at least in part, be explained by the timing of events. Systemic events in our sample occur after periods in which the level of financial integration was raising sharply.

These results reported in this section shed light on the likely mechanisms behind financial crises. A common explanation behind crises is that they are due to negative real shocks (e.g. productivity, terms of trade). However, this type of explanation seems inconsistent with our results, as real shocks should lead to reductions on both CIF and CID. In addition, there is no evidence of fire-sales of domestic assets to foreign agents or of domestic capital flight. It seems that, on average, shocks affect domestic and foreign agents asymmetrically. This is consistent with crises being associated increase in the risk of default or expropriation on assets held by foreigners, namely sovereign risk, in line with the mechanism described in Broner, Martin and Ventura (2010). [20]

5.   Conclusions

This paper provides a number of important stylized facts on the behavior of gross capital flows. We have shown that: (i) while the volatility of gross capital flows

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[20] This observation is also consistent with an increase in the importance of informational asymmetries during crises, as in Brennan and Cao (1997).

has increased over time, this increase has not translated in the same magnitude into more volatile net capital flows, since CIF and CID are highly negatively correlated; (ii) gross capital flows are pro-cyclical, with CIF increasing and CID decreasing during expansions; (iii) total gross capital flows fall significantly during crises, especially during severe crises and during systemic crises; and (iv) the behavior of gross capital flows during crises is not driven by a single component, although reserves play an important part in middle- and low-income countries and FDI flows seem less affected than other types of flows.

The behavior of gross capital flows can shed light on the sources of fluctuations and international capital flows. First, we find no evidence that, on average, gross capital flows are driven by fire sales of domestic assets to foreigners and/or domestic capital flight. Also, the evidence runs contrary to the view that capital flows are driven mostly by productivity shocks, since such shocks would imply a similar behavior by foreigners and domestic agents towards domestic assets. Instead, the evidence suggests that crises affect foreigners and domestic agents asymmetrically. If, for example, crises were associated with a worsening of investor property rights that affected foreign creditors more than domestic creditors, we would expect the type of retrenchment observed in the data. We would also expect retrenchment, if crises increased the informational asymmetry between foreigners and domestic agents.

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Figure 1
Capital Flows by Foreign and Domestic Agents
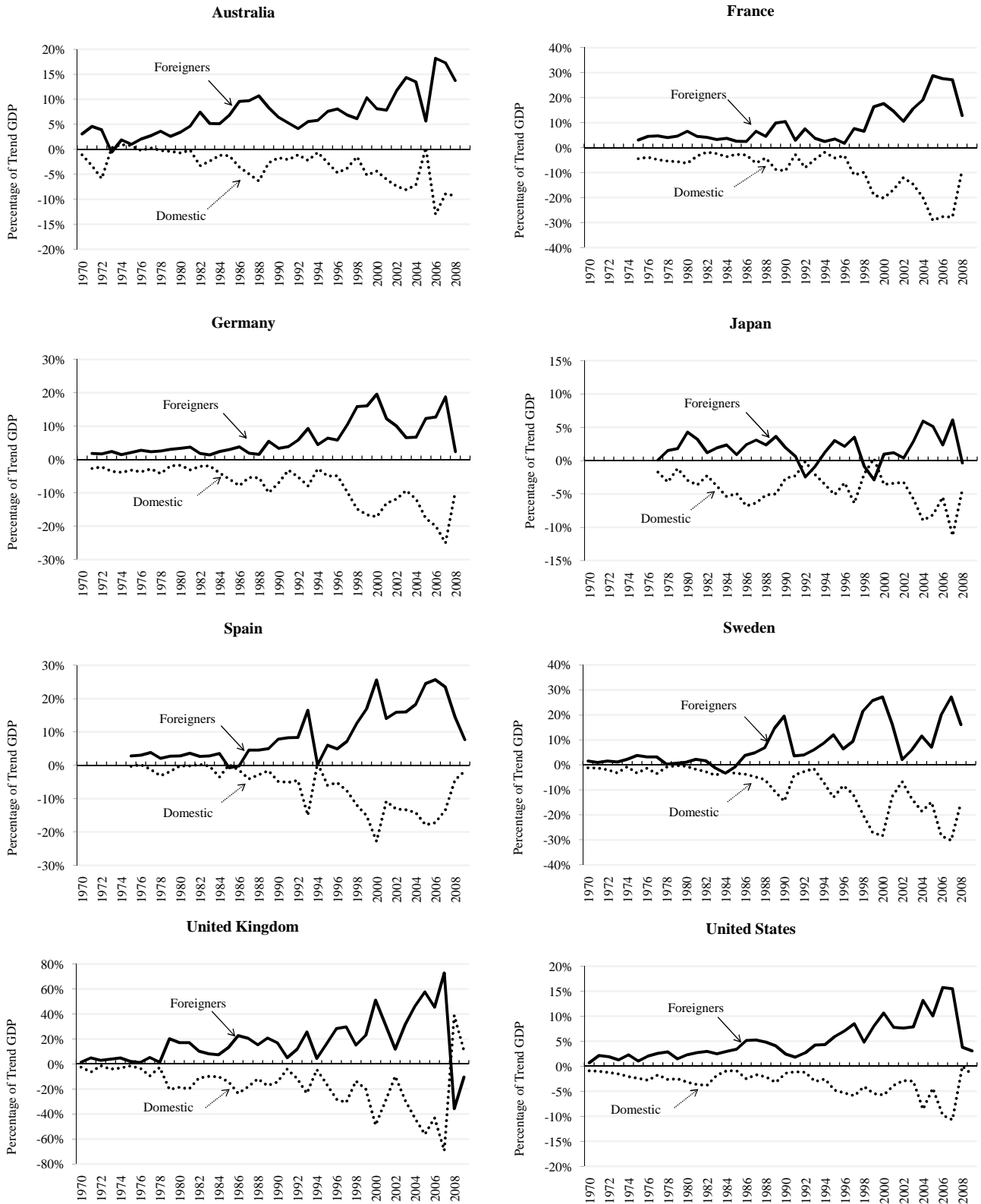
This figure shows the evolution of capital flows as a percentage of trend GDP for a select sample of high-income countries from 1970 until 2009.

Figure 2
Capital Flows by Foreign and Domestic Agents
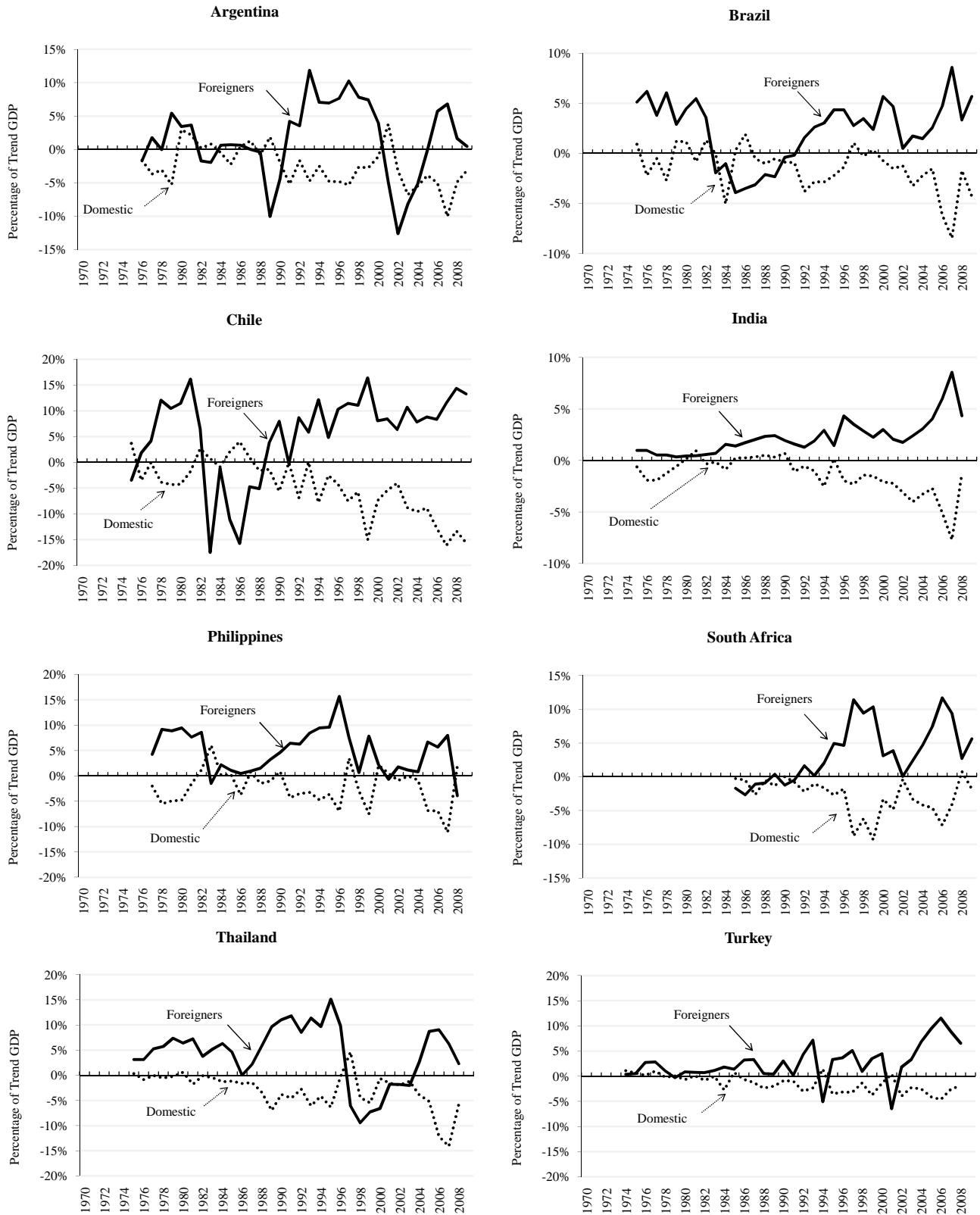
This figure shows the evolution of capital flows as a percentage of trend GDP for a select sample of middle-income countries from 1970 until 2009.

Figure 3
Capital Flows by Foreign and Domestic Agents vs. Net Capital Flows
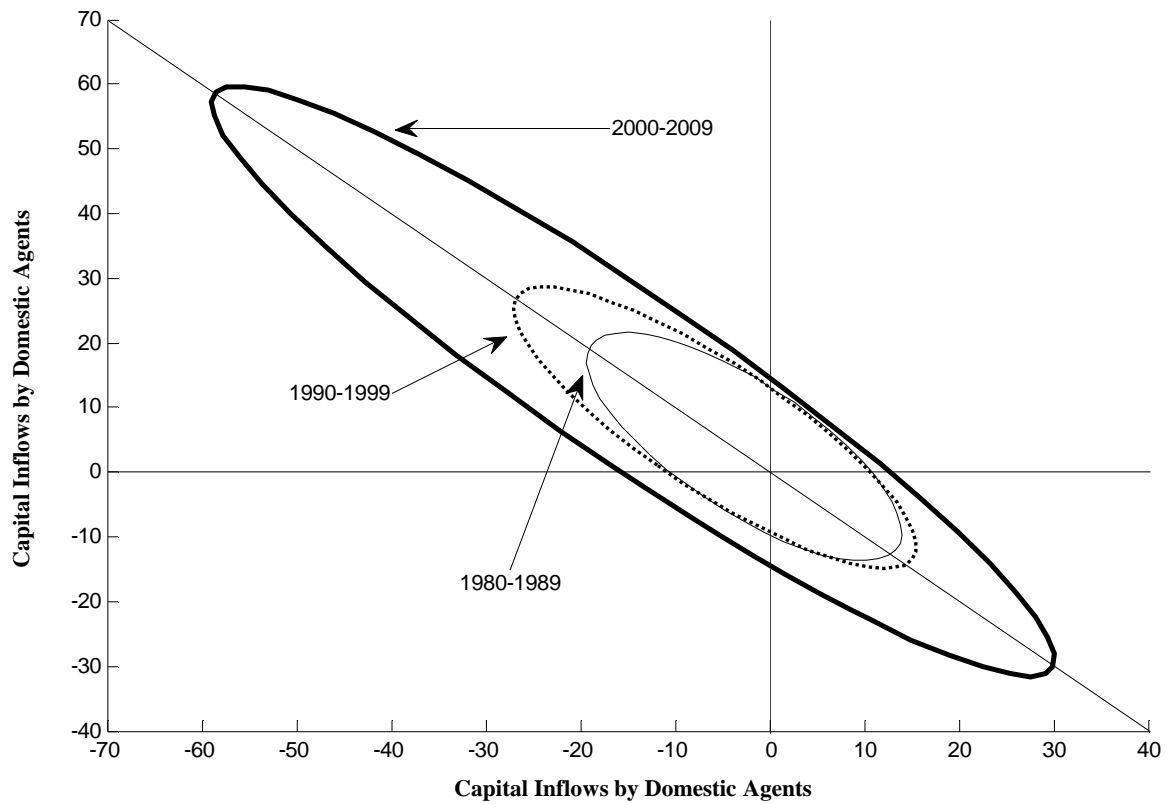
This figure show ellipses that account for the joint distribution of capital flows by domestic and foreign agents. One ellipsis for each decade is reported. Each ellipsis captures 103 points and each one point represents the average for that decade for a country in our sample. Capital flows are scaled by trend GDP.

Figure 4
Decomposition of Capital Flows by Foreign and Domestic Agents
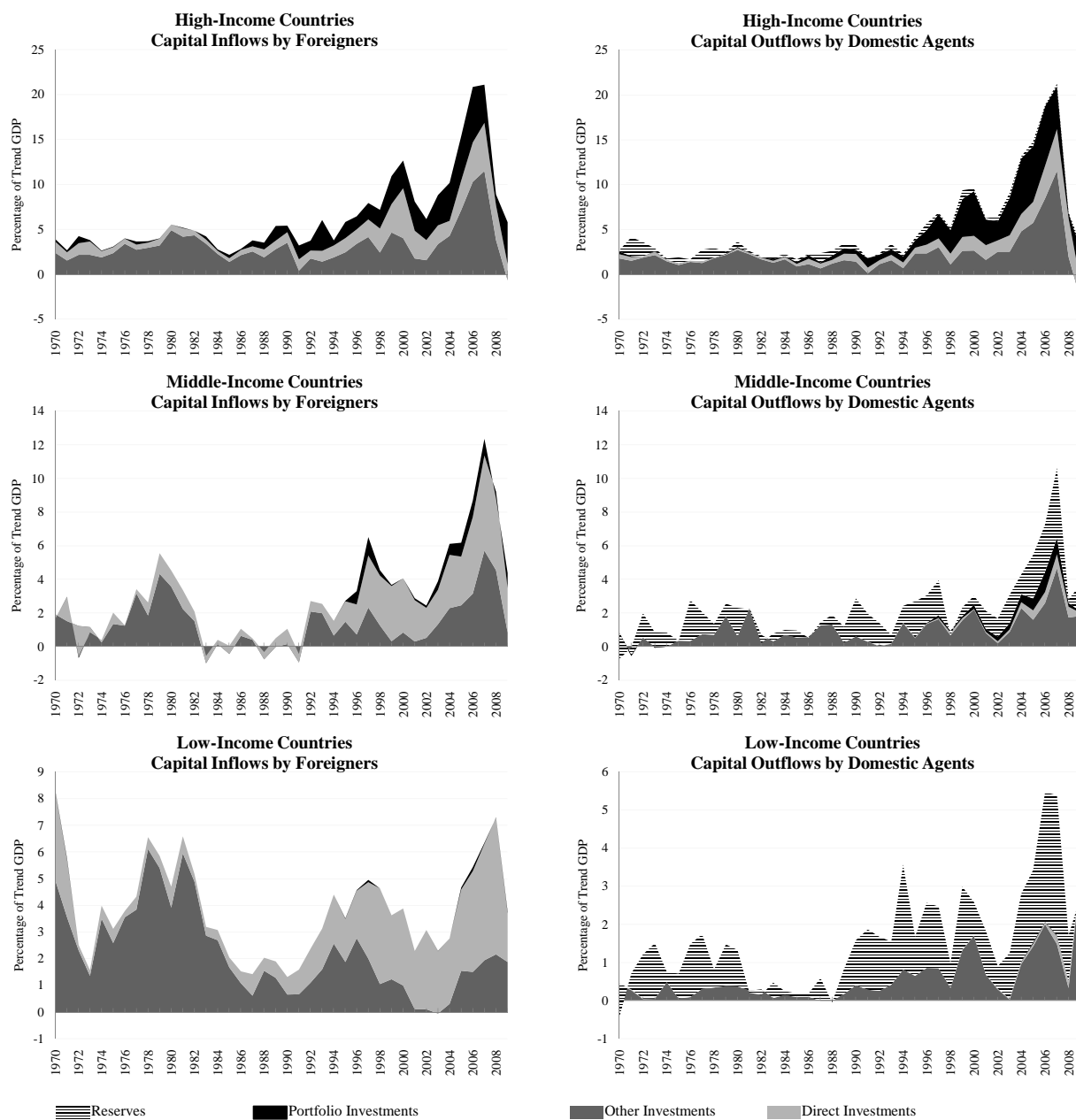
This figure shows the evolution of the components of capital inflows by both foreign and domestic agents. Other investment flows, direct investment flows, portfolio investment flows, and international reserve asset flows are reported. Countries are split according to three income groups: high-income, middle-income, and low-income groups. The median value for countries within each income group is reported from 1970 until 2009.

Figure 5

Capital Flows Around Crises
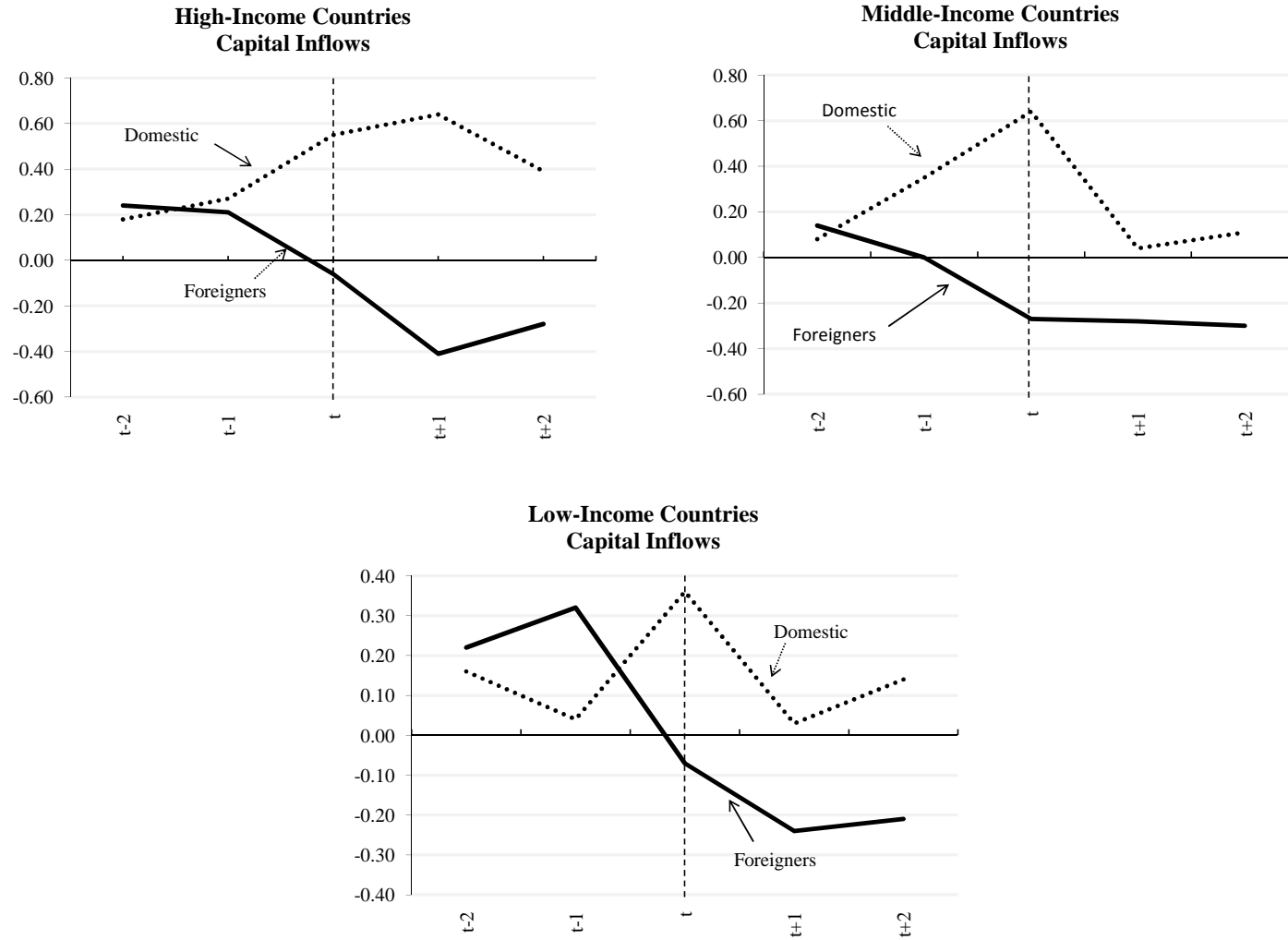
High-Income Countries
Capital Inflows

Middle-Income Countries
Capital Inflows

Low-Income Countries
Capital Inflows

These figures show the regression coefficients of the event study analysis of capital inflows by foreigners (CIF) and capital inflows by domestic agents (CID) around a five-year window of crises periods. These regressions are reported in Table 5. Capital flows are normalized by trend GDP and standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is 1970 to 2005.

Figure 6
Capital Flows around Crises of Different Intensities

Only One Crisis
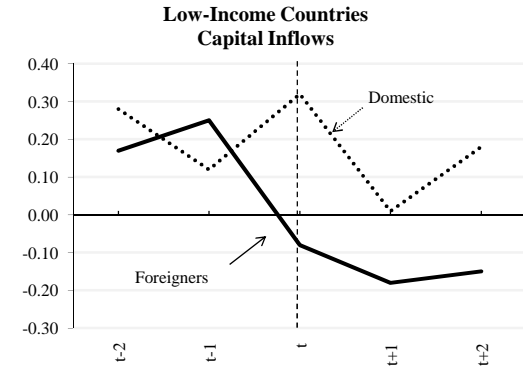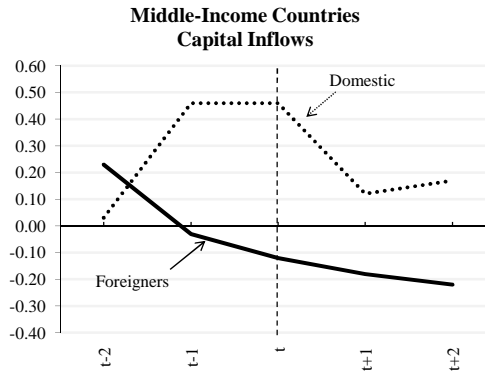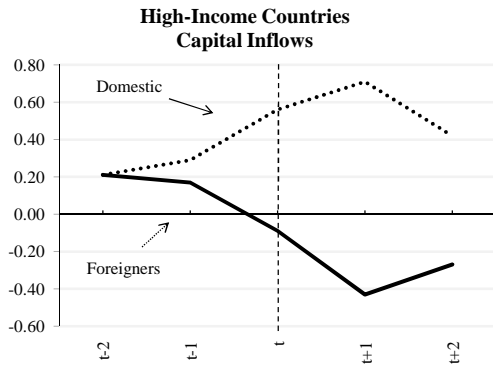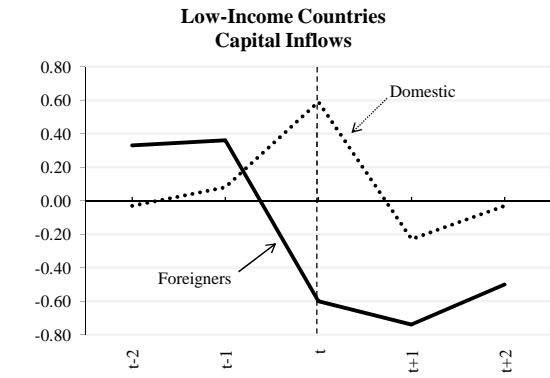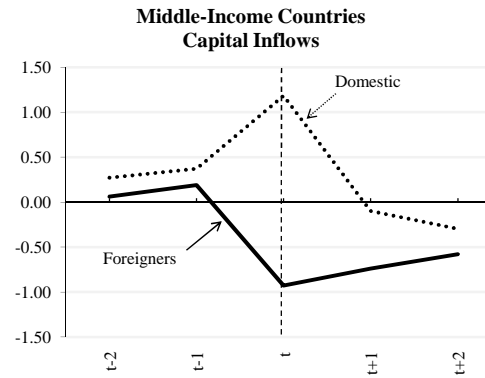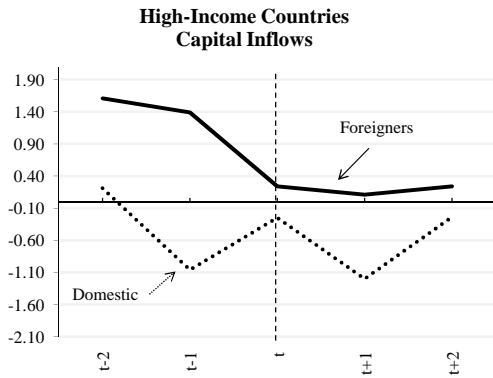
High-Income Countries
Capital Inflows

Middle-Income Countries
Capital Inflows

Low-Income Countries
Capital Inflows

More Than One Crisis

High-Income Countries
Capital Inflows

Middle-Income Countries
Capital Inflows

Low-Income Countries
Capital Inflows

These figures show the regression coefficients of the event study analysis of capital inflows by foreigners (CIF) and capital inflows by domestic agents (CID) around a five-year window of crises periods. Crises events are divided into One Crisis periods and More than One Crisis periods, according to their intensity. These regressions are reported in Table 6. Capital flows are normalized by trend GDP and standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is 1970 to 2005.

Table 1
Capital Flows: Summary Statistics

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	Median Average	Median Std. Dev.	Median Average	Median Std. Dev.	Median Average	Median Std. Dev.
Capital Inflows by Foreigners (CIF)	8.89	7.81	4.83	6.06	4.07	5.21
1970s	4.73	2.66	5.08	3.07	5.62	2.29
1980s	4.79	3.47	0.83	4.03	3.99	3.37
1990s	7.00	5.54	3.96	4.12	4.43	4.16
2000s	15.16	9.16	5.58	4.96	4.22	3.93
Capital Inflows by Domestic Agents (CID)	-8.33	8.05	-3.78	5.10	-2.87	3.87
1970s	-3.43	2.29	-3.34	2.96	-2.07	1.77
1980s	-3.78	3.09	-1.40	2.71	-0.54	2.06
1990s	-6.56	5.32	-2.80	3.32	-2.54	3.03
2000s	-17.71	8.13	-6.44	4.86	-3.73	3.35
Net Capital Inflows (CIF + CID)	0.64	3.92	1.29	5.62	2.08	5.51
1970s	1.64	2.41	3.37	3.94	3.54	3.09
1980s	1.42	2.71	0.39	5.56	2.71	4.11
1990s	0.87	2.79	0.82	4.23	1.28	4.18
2000s	-0.18	3.60	1.90	3.94	0.56	4.37
No. of Countries	39		26		38	

The table shows the summary statistics of capital flows by both foreign and domestic agents as well as net capital inflows. The median value of country averages and the median of country standard deviations of capital flows over trend GDP are shown. The sample period is from 1970 to 2009.

Table 2
Capital Flows by Foreign and Domestic Agents

Panel A. Country-Trend Dummies

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	CIF	CID	CIF	CID	CIF	CID
CID	-0.81 ***		-0.48 ***		-0.25 ***	
	[0.042]		[0.067]		[0.058]	
CIF		-0.81 ***		-0.48 ***		-0.25 ***
		[0.042]		[0.066]		[0.058]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	No	No	No	No	No	No
No. of Countries	39	39	26	26	38	38
No. of Observations	1,300	1,300	702	702	1,050	1,050
R-squared	0.65	0.65	0.24	0.24	0.06	0.06

Panel B. Country-Trend Dummies and Year Dummies

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	CIF	CID	CIF	CID	CIF	CID
CID	-0.73 ***		-0.38 ***		-0.26 ***	
	[0.055]		[0.063]		[0.057]	
CIF		-0.64 ***		-0.37 ***		-0.24 ***
		[0.061]		[0.076]		[0.053]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Countries	39	39	26	26	38	38
No. of Observations	1,300	1,300	702	702	1,050	1,050
R-squared	0.67	0.71	0.37	0.38	0.18	0.25

The table reports pooled OLS regressions of capital inflows by foreigners (CIF) on capital inflows by domestic agents (CID) and CID on CIF, controlling for country-trend effects (Panel A) and time and country-trend effects (Panel B). Capital flows are normalized by trend GDP and standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is from 1970 to 2009. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1%, respectively.

Table 3
Cyclicality in Capital Flows

High-Income Countries

	CIF	CID	CIF-CID	CIF	CID	CIF-CID	CIF	CID	CIF-CID	CIF	CID	CIF-CID
Net Capital Inflows (CIF + CID)	0.24 *** [0.064]	0.22 *** [0.076]	0.02 [0.128]									
Trade Balance				-0.08 [0.073]	-0.28 *** [0.072]	0.20 [0.136]						
GDP Cycle (Real GDP/ Trend GPD)							8.30 *** [2.465]	-5.01 *** [1.684]	13.31 *** [3.717]			
GDP Growth										2.00 [1.397]	-3.14 ** [1.206]	5.15 ** [2.008]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Countries	39	39	39	39	39	39	39	39	39	39	39	39
No. of Observations	1,300	1,300	1,300	1,300	1,300	1,300	1,287	1,287	1,287	1,298	1,298	1,298
R-squared	0.01	0.08	0.01	0.06	0.05	0.00	0.01	0.02	0.01	0.04	0.01	0.03

Middle-Income Countries

	CIF	CID	CIF-CID	CIF	CID	CIF-CID	CIF	CID	CIF-CID	CIF	CID	CIF-CID
Net Capital Inflows (CIF + CID)	0.65 *** [0.060]	0.21 ** [0.094]	0.44 *** [0.137]									
Trade Balance				-0.53 *** [0.054]	-0.22 ** [0.088]	-0.32 ** [0.123]						
GDP Cycle (Real GDP/ Trend GPD)							8.23 *** [1.923]	-2.22 * [1.257]	10.45 *** [2.547]			
GDP Growth										5.14 *** [0.904]	-3.84 *** [0.837]	8.98 *** [1.467]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Countries	26	26	26	26	26	26	26	26	26	26	26	26
No. of Observations	702	702	702	702	702	702	681	681	681	686	686	686
R-squared	0.29	0.06	0.05	0.43	0.06	0.08	0.10	0.06	0.11	0.10	0.02	0.07

Low-Income Countries

	CIF	CID	CIF-CID	CIF	CID	CIF-CID	CIF	CID	CIF-CID	CIF	CID	CIF-CID
Net Capital Inflows (CIF + CID)	0.72 *** [0.038]	0.40 *** [0.050]	0.32 *** [0.072]									
Trade Balance				-0.52 *** [0.047]	-0.25 *** [0.055]	-0.27 *** [0.074]						
GDP Cycle (Real GDP/ Trend GPD)							5.28 *** [1.406]	-1.07 [1.339]	6.36 *** [2.153]			
GDP Growth										3.52 *** [0.853]	-3.62 *** [0.689]	7.14 *** [1.282]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Countries	38	38	38	38	38	38	38	38	38	38	38	38
No. of Observations	1,050	1,050	1,050	1,050	1,050	1,050	1,042	1,042	1,042	1,047	1,047	1,047
R-squared	0.27	0.06	0.03	0.52	0.16	0.04	0.03	0.03	0.05	0.03	0.00	0.01

The table reports pooled OLS regressions of capital inflows by foreigners (CIF), capital inflows by domestic agents (CID), and a measure of aggregate capital flows, CIF-CID, on net capital inflows, the trade balance in goods and services, GDP cycle, and real GDP growth. All regressions controll for country-trend effects. Capital flows are normalized by trend GDP and standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. GDP cycles are measured as real GDP in local currency over trend GDP. The sample period is from 1970 to 2009. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1%, respectively.

Table 4
Capital Flows: Tranquil vs. Crises Periods

	Capital Flows/GDP			Standardized Capital Flows		
	High-Income Countries	Middle-Income Countries	Low-Income Countries	High-Income Countries	Middle-Income Countries	Low-Income Countries
Capital Inflows by Foreigners (CIF)						
Non-Crises Years	13.59	6.82	4.90	0.01	0.05	0.02
Crises Years	6.57	-5.21	3.67	-0.11	-0.36	-0.19
Capital Inflows by Domestic Agents (CID)						
Non-Crises Years	-13.73	-6.13	-3.28	-0.02	-0.08	-0.04
Crises Years	-3.85	5.42	-1.62	0.44	0.58	0.35
Net Capital Inflows (CIF + CID)						
Non-Crises Years	-0.14	0.68	1.62	-0.02	0.00	-0.01
Crises Years	2.72	0.20	2.04	0.41	-0.02	0.08
No. of Countries	39	26	38	39	26	38

The table shows the averages of capital flows around crises and non-crises periods. Crises years capture five-year window around our crises events described in Section 2 of the main text. Non-crises years capture all the remaing years in the sample. Two measures of capital flows are reported: capital flows as a percentage of trend GDP and standardized capital flows. Standardized capital flows are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is from 1970 to 2009.

Table 5
Capital Flows around Crises

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	CIF	CID	CIF	CID	CIF	CID
Year t - 2	0.24 *	0.18 **	0.14	0.08	0.22	0.16
	[0.129]	[0.082]	[0.102]	[0.115]	[0.154]	[0.113]
Year t - 1	0.21	0.27	0.00	0.35 ***	0.32 **	0.04
	[0.200]	[0.180]	[0.129]	[0.097]	[0.154]	[0.122]
Crisis Year	-0.06	0.55 ***	-0.27 *	0.64 ***	-0.07	0.36 ***
	[0.131]	[0.102]	[0.157]	[0.125]	[0.159]	[0.117]
Year t + 1	-0.41 ***	0.64 ***	-0.28 *	0.04	-0.24 *	0.03
	[0.098]	[0.116]	[0.161]	[0.153]	[0.129]	[0.117]
Year t + 2	-0.28 **	0.39 ***	-0.30 **	0.11	-0.21	0.14
	[0.121]	[0.130]	[0.116]	[0.127]	[0.128]	[0.110]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Crises	46	46	66	66	85	85
No. of Countries	39	39	26	26	38	38
No. of Observations	1,108	1,108	567	567	867	867
R-squared	0.03	0.05	0.05	0.07	0.04	0.04
Wald Tests:						
Crisis Year Vs. Avg. Previous 2 Years	7.12 ***	13.39 ***	5.92 ***	6.93 ***	10.38 ***	3.72 *
P-Value	0.01	0.00	0.02	0.01	0.00	0.06

The table reports pooled OLS regressions of capital inflows by foreigners (CIF) and capital inflows by domestic agents (CID) on a five-year window around crises events, controlling for country-trend effects. Standardized capital flows are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is from 1970 to 2005. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Table 6
Capital Flows around Crises of Different Intensities

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	CIF	CID	CIF	CID	CIF	CID
One Crisis Episodes						
Year t - 2	0.21 *	0.21 **	0.23 *	0.03	0.17	0.28 ***
Year t - 1	0.17	0.29	-0.03	0.46 ***	0.25 *	0.12
Crisis Year	-0.09	0.56 ***	-0.12	0.46 ***	-0.08	0.32 **
Year t + 1	-0.43 ***	0.71 ***	-0.18	0.12	-0.18	0.01
Year t 2 1	-0.27 **	0.42 ***	-0.22	0.17	-0.15	0.18
More than One Crisis Episodes						
Year t - 2	1.61 ***	0.21 **	0.06	0.27	0.33	-0.03
Year t - 1	1.39 ***	-1.06 ***	0.19	0.37	0.36	0.08
Crisis Year	0.24	-0.25	-0.93 ***	1.18 ***	-0.60 *	0.59 **
Year t + 1	0.11	-1.20 ***	-0.74 ***	-0.10	-0.74 ***	-0.23
Year t 2 1	0.24	-0.24	-0.58 ***	-0.30 **	-0.50 **	-0.03
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Only One Crisis Episodes	45	45	49	49	74	74
No. of More than One Crisis Episodes	2	2	24	24	25	25
No. of Countries	39	39	26	26	38	38
No. of Observations	1,082	1,082	563	563	861	861
R-squared	0.04	0.07	0.11	0.13	0.07	0.05
Wald Tests: Only One Crisis Episodes						
Crisis Year Vs. Avg. Previous 2 Years	6.56 ***	14.2 ***	2.00	2.30	5.35 **	0.88
P-Value	0.01	0.00	0.17	0.14	0.03	0.35
Wald Tests: More than One Crisis Episodes						
Crisis Year Vs. Avg. Previous 2 Years	4.82 **	0.55	22.78 ***	14.02 ***	12.59 ***	3.30 *
P-Value	0.03	0.46	0.00	0.00	0.00	0.08

The table reports pooled OLS regressions of capital inflows by foreigners (CIF) and capital inflows by domestic agents (CID) on a five-year window around crises events, controlling for country-trend effects. Crises events are split into One Crisis episodes and More than One Crisis episodes. See Section 2 of the main text for details on how these indicators were constructed. Standardized capital flows are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is from 1970 to 2005. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Table 7A
Components of Capital Flows around Crises of Different Intensities

	High-Income Countries								
	CIF				CID				
	PI - Equity	PI - Debt	OI	DI	Res	PI - Equity	PI - Debt	OI	DI
One Crisis Episodes									
Year t - 2	-0.19 **	-0.01	0.46 ***	-0.31 ***	0.30 **	0.21 *	0.36 ***	-0.11	0.26 **
Year t - 1	-0.20	-0.17	0.45 **	-0.39 ***	0.05	0.42 ***	0.53 ***	0.00	0.28 **
Crisis Year	-0.34 ***	-0.20	0.16	-0.37 ***	0.07	0.47 ***	0.60 ***	0.24 **	0.38 ***
Year t + 1	-0.29 ***	-0.34 ***	-0.22	-0.43 ***	0.16	0.48 ***	0.45 ***	0.30 *	0.48 ***
Year t 2 1	0.06	-0.22 *	-0.19	-0.29 **	-0.11	0.25	0.29 **	0.37 ***	0.22
More than One Crisis Episodes									
Year t - 2	0.01	1.21 ***	1.36 ***	-0.19 ***	0.07	0.10	-0.12	-1.52 *	-0.35
Year t - 1	0.11	1.61 ***	0.96 ***	-0.05	0.05	0.03	-0.69	-1.98 ***	-0.61
Crisis Year	-0.37 *	1.14 ***	0.07	0.04	0.85	0.17 **	0.81 ***	-2.17 ***	-0.38
Year t + 1	-0.25	0.08	0.28	0.38	-1.63 ***	0.09	0.19	0.26	-0.29
Year t 2 1	0.08	-0.53 *	0.38	0.29	-0.19	0.20 **	0.64 ***	-0.51	0.24
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Only One Crisis Episodes	43	45	45	45	45	45	45	45	45
No. of More than One Crisis Episodes	2	2	2	2	2	2	2	2	2
No. of Countries	36	38	39	39	39	38	38	39	39
No. of Observations	981	1,038	1,082	1,082	1,082	1,037	1,039	1,082	1,082
R-squared	0.02	0.03	0.05	0.04	0.02	0.05	0.07	0.05	0.04
Wald Tests: Only One Crisis Episodes									
Crisis Year Vs. Avg. Previous 2 Years	4.82 **	0.53	4.14 **	0.02	0.38	7.71 ***	9.74 ***	9.94 ***	2.78 *
P-Value	0.03	0.47	0.05	0.89	0.54	0.01	0.00	0.00	0.10
Wald Tests: More than One Crisis Episodes									
Crisis Year Vs. Avg. Previous 2 Years	24.55 ***	2.31	4.46 **	1.53	2.98 *	1.41	2.81 *	0.62	1.77
P-Value	0.00	0.14	0.04	0.22	0.09	0.24	0.10	0.44	0.19

The table reports pooled OLS regressions of the components of capital inflows by foreigners (CIF) and of capital inflows by domestic agents (CID) for high-income countries on a five-year window around crises events, controlling for country-trend effects. Crises events are split into One Crisis episodes and More than One Crisis episodes. See Section 2 of the main text for details on how these indicators were constructed. PI means "Portfolio Investments", OI means "Other Investments", DI means "Direct Investments", and "Res" means "International Reserve Assets." Standardized capital flow measures are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their own standard deviation, also at the country level. The sample period is from 1970 to 2005. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Table 7B
Components of Capital Flows around Crises of Different Intensities

	Middle-Income Countries								
	CIF				CID				
	PI - Equity	PI - Debt	OI	DI	Res	PI - Equity	PI - Debt	OI	DI
One Crisis Episodes									
Year t - 2	-0.13	0.21	0.14	-0.13	0.14	0.07	0.10	-0.09	0.23 **
Year t - 1	-0.30	-0.09	0.11	-0.30	0.38 ***	0.13	0.26 **	0.16	0.39 ***
Crisis Year	-0.28 *	-0.31 *	0.06	-0.40 **	0.36 ***	0.05	0.22 **	0.07	0.22
Year t + 1	-0.06	0.13	-0.13	-0.42 ***	0.10	0.01	0.10	-0.03	0.09
Year t 2 1	-0.09	-0.28	-0.05	-0.26 *	0.22	0.01	0.11	-0.06	0.14
More than One Crisis Episodes									
Year t - 2	-0.25	-0.01	0.18	-0.28	0.31	0.27	-0.18	-0.11	0.23 *
Year t - 1	-0.01	0.28	0.23	-0.44 **	0.50 ***	0.21 *	0.36 ***	-0.03	0.05
Crisis Year	-0.10	-0.40 **	-0.83 ***	-0.65 ***	1.17 ***	0.44 ***	0.56 **	0.24	0.30
Year t + 1	-0.25 *	-0.45 **	-0.54 ***	-0.58 ***	-0.10	0.12	0.18	-0.27	0.36 **
Year t 2 1	-0.02	-0.25	-0.46 ***	-0.49 ***	-0.32 *	0.36 **	-0.37	-0.11	0.11
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Only One Crisis Episodes	40	43	49	49	49	43	45	49	43
No. of More than One Crisis Episodes	23	24	24	24	24	22	24	24	23
No. of Countries	22	23	26	26	26	23	24	26	23
No. of Observations	482	506	563	563	563	508	533	563	509
R-squared	0.03	0.04	0.08	0.1	0.11	0.05	0.05	0.04	0.06
Wald Tests: Only One Crisis Episodes									
Crisis Year Vs. Avg. Previous 2 Years	0.14	3.97 *	0.12	2.23	0.40	0.13	0.09	0.05	0.19
P-Value	0.72	0.06	0.73	0.15	0.53	0.73	0.76	0.82	0.67
Wald Tests: More than One Crisis Episodes									
Crisis Year Vs. Avg. Previous 2 Years	0.01	13.24 ***	17.56 ***	2.62	8.76 ***	0.63	3.49 **	1.12	0.74
P-Value	0.91	0.00	0.00	0.12	0.01	0.44	0.07	0.30	0.40

The table reports pooled OLS regressions of the components of capital inflows by foreigners (CIF) and of capital inflows by domestic agents (CID) for middle-income countries on a five-year window around crises events, controlling for country-trend effects. Crises events are split into One Crisis episodes and More than One Crisis episodes. See Section 2 of the main text for details on how these indicators were constructed. PI means "Portfolio Investments", OI means "Other Investments", DI means "Direct Investments", and "Res" means "International Reserve Assets." Standardized capital flow measures are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their own standard deviation, also at the country level. The sample period is from 1970 to 2005. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Table 7C
Components of Capital Flows around Crises of Different Intensities

	Low-Income Countries								
	CIF					CID			
	PI - Equity	PI - Debt	OI	DI	Res	PI - Equity	PI - Debt	OI	DI
One Crisis Episodes									
Year t - 2	-0.10	-0.05	0.38 **	-0.29 ***	0.25 **	0.14 *	0.09	0.05	0.16
Year t - 1	0.01	-0.26 **	0.46 ***	-0.23 *	0.17	0.09	0.05	-0.03	0.15
Crisis Year	-0.25 **	-0.28 *	0.09	-0.27 **	0.27 **	-0.06	-0.04	0.17	0.22 *
Year t + 1	0.08	-0.29 ***	0.01	-0.23 **	0.17	0.00	0.17	-0.22	0.22 **
Year t 2 1	-0.09	-0.19	-0.08	-0.18	0.18	-0.03	0.03	0.12	0.24 ***
More than One Crisis Episodes									
Year t - 2	0.24	0.24	0.31	0.05	-0.02	-0.03	0.02	-0.10	0.06
Year t - 1	0.44 **	0.55 *	0.39	-0.10	0.36	0.11	0.35 **	-0.31	0.05
Crisis Year	-0.08	-0.13	-0.58	-0.27 *	0.76 **	0.21 **	0.27 ***	-0.05	0.23
Year t + 1	-0.09	-0.36	-0.51 **	-0.36	-0.15	-0.11	0.25	-0.28	0.21 *
Year t 2 1	0.12	-0.31	-0.35	-0.29	-0.33	0.04	0.18	0.32 *	0.19 *
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Only One Crisis Episodes	55	63	74	74	74	65	66	74	62
No. of More than One Crisis Episodes	18	24	25	25	25	22	21	25	19
No. of Countries	30	30	38	38	38	32	31	38	33
No. of Observations	670	702	861	861	861	730	697	861	723
R-squared	0.04	0.04	0.07	0.05	0.06	0.04	0.03	0.04	0.05
Wald Tests: Only One Crisis Episodes									
Crisis Year Vs. Avg. Previous 2 Years	2.30	0.67	6.58 ***	0.02	0.27	1.89	0.94	1.92	0.47
P-Value	0.14	0.42	0.01	0.89	0.61	0.18	0.34	0.18	0.50
Wald Tests: More than One Crisis Episodes									
Crisis Year Vs. Avg. Previous 2 Years	1.40	2.83 *	10.1 ***	3.61 *	3.32 *	1.38	0.30	0.48	2.63
P-Value	0.25	0.10	0.00	0.07	0.08	0.25	0.59	0.49	0.12

The table reports pooled OLS regressions of the components of capital inflows by foreigners (CIF) and of capital inflows by domestic agents (CID) for low-income countries on a five-year window around crises events, controlling for country-trend effects. Crises events are split into One Crisis episodes and More than One Crisis episodes. See Section 2 of the main text for details on how these indicators were constructed. PI means "Portfolio Investments", OI means "Other Investments", DI means "Direct Investments", and "Res" means "International Reserve Assets." Standardized capital flow measures are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their own standard deviation, also at the country level. The sample period is from 1970 to 2005. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Table 8
Capital Flows around Year 2008

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	CIF	CID	CIF	CID	CIF	CID
Year 2006	1.36 ***	-1.55 ***	0.80 ***	-1.16 ***	0.15	-1.01 ***
	[0.193]	[0.156]	[0.214]	[0.208]	[0.173]	[0.171]
Year 2007	2.22 ***	-2.25 ***	1.75 ***	-1.91 ***	0.65 ***	-1.18 ***
	[0.187]	[0.164]	[0.248]	[0.232]	[0.225]	[0.234]
Year 2008	0.36	-0.19	0.48 **	-0.11	0.59 ***	-0.18
	[0.254]	[0.266]	[0.221]	[0.235]	[0.164]	[0.243]
Year 2009	-0.21	0.14	0.21	-0.34	0.02	-0.58
	[0.302]	[0.277]	[0.241]	[0.234]	[0.387]	[0.708]
No. of Countries	39	39	23	23	37	37
No. of Observations	132	132	81	81	110	110
R-squared	0.56	0.61	0.52	0.59	0.17	0.34
Wald Tests:						
2008 vs Avg. Previous 2 Years	22.43 ***	35.32 ***	12.96 ***	27.36 ***	0.89	12.51 ***
P-Value	0.00	0.00	0.00	0.00	0.35	0.00

The table reports pooled OLS regressions of capital inflows by foreigners (CIF) and capital inflows by domestic agents (CID) on four year dummies. Standardized capital flows are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is from 2006 to 2009. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Table 9
Capital Flows around Crises
Including the 2008 Crisis

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	CIF	CID	CIF	CID	CIF	CID
Year t - 2	0.85 ***	-0.70 ***	0.31 ***	-0.25 **	0.23 *	-0.22 *
	[0.115]	[0.108]	[0.088]	[0.105]	[0.127]	[0.110]
Year t - 1	1.28 ***	-1.04 ***	0.46 ***	-0.25 *	0.46 ***	-0.36 ***
	[0.166]	[0.171]	[0.138]	[0.144]	[0.143]	[0.117]
Crisis Year	0.30 **	0.04	-0.11	0.47 ***	0.15	0.18
	[0.136]	[0.150]	[0.132]	[0.114]	[0.116]	[0.112]
Year t + 1	-0.31 ***	0.49 ***	-0.27 *	0.05	-0.21	0.03
	[0.115]	[0.129]	[0.149]	[0.135]	[0.130]	[0.116]
Year t + 2	-0.33 ***	0.47 ***	-0.44 ***	0.28 **	-0.21	0.19
	[0.112]	[0.117]	[0.126]	[0.126]	[0.130]	[0.119]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Crises	85	85	89	89	119	119
No. of Countries	39	39	26	26	38	38
No. of Observations	1240	1240	648	648	976	976
R-squared	0.16	0.12	0.08	0.06	0.04	0.03
Wald Tests:						
Crisis Year Vs. Avg. Previous 2 Years	26.65 ***	47.08 ***	15.32 ***	29.66 ***	3.47 *	14.57 ***
P-Value	0.00	0.00	0.00	0.00	0.07	0.00

The table reports pooled OLS regressions of capital inflows by foreigners (CIF) and capital inflows by domestic agents (CID) on a five-year window around crises events, controlling for country-trend effects. Standardized capital flows are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is from 1970 to 2009. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Table 10
Capital Flows around Different Types of Crises

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	CIF	CID	CIF	CID	CIF	CID
Domestic Crises:						
Year t - 2	0.28 *	0.14	0.13	0.08	0.17	0.18
	[0.141]	[0.089]	[0.102]	[0.120]	[0.150]	[0.119]
Year t - 1	0.25	0.25	-0.03	0.35 ***	0.27 *	0.08
	[0.207]	[0.183]	[0.129]	[0.097]	[0.151]	[0.135]
Crisis Year	0.02	0.44 ***	-0.29 *	0.63 ***	-0.06	0.34 ***
	[0.139]	[0.102]	[0.161]	[0.128]	[0.157]	[0.123]
Year t + 1	-0.45 ***	0.71 ***	-0.31 *	0.05	-0.21	0.05
	[0.104]	[0.106]	[0.163]	[0.155]	[0.137]	[0.122]
Year t + 2	-0.27 **	0.39 ***	-0.33 ***	0.15	-0.18	0.15
	[0.118]	[0.125]	[0.117]	[0.125]	[0.131]	[0.118]
Systemic Crises:						
Year t - 2	1.45 ***	-1.58 ***	0.77 ***	-1.10 ***	0.34 *	-0.94 ***
	[0.192]	[0.164]	[0.215]	[0.208]	[0.191]	[0.183]
Year t - 1	2.31 ***	-2.31 ***	1.72 ***	-1.82 ***	0.79 ***	-1.17 ***
	[0.191]	[0.171]	[0.262]	[0.253]	[0.234]	[0.226]
Crisis Year	0.51 *	-0.28	0.44 *	-0.06	0.59 ***	-0.14
	[0.254]	[0.266]	[0.234]	[0.231]	[0.162]	[0.237]
Year t + 1	-0.06	0.05	0.14	-0.31	-0.23	-0.53 *
	[0.296]	[0.268]	[0.270]	[0.266]	[0.298]	[0.307]
Year t + 2	0.15	-0.05	-1.14 ***	-0.52 ***	-0.46	-0.12
	[0.323]	[0.240]	[0.112]	[0.105]	[0.404]	[0.228]
Country-Trend Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of Domestic Crises	46	46	65	65	81	81
No. of Systemic Crises	39	39	24	24	38	38
No. of Countries	39	39	26	26	38	38
No. of Observations	1240	1240	648	648	976	976
R-squared	0.25	0.28	0.19	0.24	0.06	0.11
Wald Tests: Domestic Crises						
Crisis Year Vs. Avg. Previous 2 Years	4.69 **	8.94 ***	5.59 **	6.72 **	8.69 ***	2.22
P-Value	0.04	0.00	0.03	0.02	0.01	0.15
Wald Tests: Systemic Crises						
Crisis Year Vs. Avg. Previous 2 Years	23.83 ***	37.4 ***	14.14 ***	27.8 ***	0.02	16.27 ***
P-Value	0.00	0.00	0.00	0.00	0.90	0.00

The table reports pooled OLS regressions of capital inflows by foreigners (CIF) and capital inflows by domestic agents (CID) on a five-year window around crises events, controlling for country-trend effects. Crises events are split into Domestic Crises episodes and Systemic Crises episodes. Systemic Crises episodes were crises events that occurred in 1998 and 2008. See Section 2 of the main text for further details on how these indicators were constructed. Standardized capital flows are first normalized by trend GDP and then standardized by de-meaning the data at the country level and dividing each variable by their standard deviation, also at the country level. The sample period is from 1970 to 2009. Robust standard errors are reported in brackets. *, **, and *** mean significant at 10%, 5%, and 1% respectively.

Appendix Table 1
Sample Coverage

High-Income Countries	Coverage	Middle-Income Countries (cont.)	Coverage
Australia	1970 - 2008	Lithuania	1993 - 2008
Austria	1970 - 2009	Latvia	1992 - 2009
Bahamas, The	1976 - 2008	Mexico	1979 - 2008
Belgium-Luxembourg	1975 - 2008	Mauritius	1976 - 2008
Barbados	1970 - 2007	Malaysia	1974 - 2008
Canada	1970 - 2009	Panama	1977 - 2009
Switzerland	1977 - 2009	Poland	1985 - 2009
Cyprus	1976 - 2009	Romania	1987 - 2009
Czech Republic	1993 - 2008	Russian Federation	1994 - 2009
Germany	1971 - 2008	Turkey	1974 - 2008
Denmark	1975 - 2009	Uruguay	1978 - 2008
Spain	1975 - 2009	Venezuela, R.B.	1970 - 2009
Estonia	1992 - 2009	South Africa	1985 - 2009
Finland	1975 - 2009		
France	1975 - 2008		
United Kingdom	1970 - 2009	**Low-Income Countries**	**Coverage**
Greece	1976 - 2008	Angola	1985 - 2008
Hong Kong	1998 - 2008	Albania	1984 - 2008
Hungary	1982 - 2008	Armenia	1993 - 2008
Ireland	1974 - 2009	Azerbaijan, Rep. of	1995 - 2008
Iceland	1976 - 2009	Bosnia and Herzegovina	1998 - 2008
Israel	1970 - 2009	Bolivia	1976 - 2008
Italy	1970 - 2009	China, P.R.: Mainland	1982 - 2008
Japan	1977 - 2008	Congo, Republic of	1978 - 2007
Korea, Rep.	1976 - 2009	Colombia	1970 - 2008
Kuwait	1975 - 2008	Dominican Republic	1970 - 2008
Malta	1971 - 2008	Algeria	1977 - 1991
Netherlands	1970 - 2009	Ecuador	1976 - 2008
Norway	1975 - 2008	Egypt	1977 - 2008
New Zealand	1972 - 2008	Georgia	1997 - 2008
Oman	1974 - 2008	Guatemala	1977 - 2008
Portugal	1975 - 2009	Honduras	1974 - 2008
Saudi Arabia	1971 - 2008	Indonesia	1981 - 2009
Singapore	1972 - 2008	India	1975 - 2008
Slovak Republic	1993 - 2008	Jamaica	1976 - 2008
Slovenia	1992 - 2008	Jordan	1972 - 2008
Sweden	1970 - 2008	Sri Lanka	1975 - 2008
Trinidad and Tobago	1975 - 2007	Morocco	1975 - 2008
United States	1970 - 2009	Moldova	1994 - 2009
		Macedonia	1996 - 2008
Middle-Income Countries	**Coverage**	Mongolia	1981 - 2006
Argentina	1976 - 2009	Namibia	1990 - 2008
Bulgaria	1980 - 2009	Nicaragua	1977 - 2008
Belarus	1993 - 2009	Pakistan	1976 - 2008
Brazil	1975 - 2009	Peru	1977 - 2008
Botswana	1975 - 2008	Philippines	1977 - 2008
Chile	1975 - 2009	Paraguay	1975 - 2009
Costa Rica	1977 - 2008	El Salvador	1976 - 2008
Gabon	1978 - 2005	Swaziland	1974 - 2007
Equatorial Guinea	1987 - 1996	Syrian Arab Republic	1977 - 2007
Croatia	1993 - 2008	Thailand	1975 - 2008
Iran, I.R. of	1976 - 2000	Tunisia	1976 - 2008
Kazakhstan	1995 - 2008	Ukraine	1994 - 2009
Libya	1977 - 2008	Vietnam	1996 - 2008

High-Income Countries	Crises Dates
Australia	1989
Austria	-
Bahamas, The	-
Belgium-Luxembourg	-
Barbados	-
Canada	1983
Switzerland	-
Cyprus	-
Czech Republic	1996
Germany	1976
Denmark	1987
Spain	1977, 1983
Estonia	1992, 1998
Finland	1991
France	1994
United Kingdom	1974, 1980, 1984, 1991, 1995, 2007
Greece	1983, 1991
Hong Kong	1998
Hungary	1991
Ireland	-
Iceland	1978, 1985, 1989, 1993, 2008
Israel	1975, 1985
Italy	1981, 1990
Japan	1992, 1997
Korea, Rep.	1980, 1983, 1997, 2008
Kuwait	1980, 1990
Malta	-
Netherlands	-
Norway	1987, 1990
New Zealand	1984, 1987, 2008
Oman	-
Portugal	1982
Saudi Arabia	-
Singapore	1982
Slovak Republic	1998
Slovenia	1992
Sweden	1991
Trinidad and Tobago	1982, 1985, 1993
United States	1984, 1988, 2007

Middle-Income Countries	Crises Dates
Argentina	1980, 1985, 1995, 2001
Bulgaria	1990, 1993, 1996
Belarus	1994, 1999
Brazil	1976, 1982, 1990, 1999, 2002, 2008
Botswana	1984, 1994, 2001
Chile	1975, 1980
Costa Rica	1981, 1987, 1991, 1994
Gabon	1986, 1994, 1999, 2002
Equatorial Guinea	1994
Croatia	1993, 1996
Iran, I.R. of	1978, 1985, 1992, 2000
Kazakhstan	1999
Libya	2002

Middle-Income Countries (cont.)	Crises Dates
Lithuania	1995
Latvia	1992, 1995
Mexico	1981, 1985, 1994
Mauritius	1981, 1996
Malaysia	1985, 1997
Panama	1983, 1987
Poland	1986, 1989
Romania	1990, 1993, 1996, 1999
Russian Federation	1995, 1998
Turkey	1978, 1982, 1988, 1994, 1999, 2008
Uruguay	1978, 1981, 1987, 2002
Venezuela, R.B.	1976, 1982, 1989, 1993, 2002
South Africa	1985, 1989, 1993, 2001, 2008

Low-Income Countries	Crises Dates
Angola	1985, 1988, 1991, 1996
Albania	1990, 1997
Armenia	1994
Azerbaijan, Rep. of	1995
Bosnia and Herzegovina	-
Bolivia	1980, 1985, 1994, 1999
China, P.R.: Mainland	1984, 1990, 1998
Congo, Republic of	1983, 1986, 1991
Colombia	1982, 1985, 1998
Dominican Republic	1975, 1982, 1985, 1990, 2003
Algeria	1988
Ecuador	1980, 1996, 2008
Egypt	1979, 1984, 1989, 2003
Georgia	1998
Guatemala	1986, 1989, 2001, 2006
Honduras	1981, 1990, 1999
Indonesia	1983, 1986, 1992, 1997
India	1991
Jamaica	1978, 1981, 1987, 1991
Jordan	1988
Sri Lanka	1977, 1981, 1989, 1996
Morocco	1980, 1986
Moldova	1998, 2002
Macedonia	1997
Mongolia	1990, 1993, 1996
Namibia	2001, 2008
Nicaragua	1979, 1985, 1990, 2000
Pakistan	1981, 1998
Peru	1978, 1988, 1999
Philippines	1981, 1997
Paraguay	1982, 1989, 1995, 2001
El Salvador	1981, 1986, 1989, 1998
Swaziland	1984, 1995, 2001
Syrian Arab Republic	1988
Thailand	1983, 1996
Tunisia	1980, 1991
Ukraine	1997, 2008
Vietnam	1997

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	Median Average	**Median Std. Dev.**	**Median Average**	**Median Std. Dev.**	**Median Average**	**Median Std. Dev.**
Capital Inflows by Foreigners						
Portfolio Investments	2.13	2.84	0.58	1.34	0.06	0.62
1970s	0.32	0.38	0.03	0.17	0.00	0.00
1980s	0.60	0.73	0.00	0.12	0.00	0.00
1990s	2.25	1.79	0.48	1.02	0.02	0.15
2000s	3.35	3.20	0.48	1.46	0.08	0.51
Other Investments	3.86	5.09	1.61	4.87	1.86	4.06
1970s	3.22	2.45	3.21	2.84	4.90	2.30
1980s	2.94	3.01	0.25	3.36	3.19	3.19
1990s	2.69	3.48	1.77	2.52	1.59	2.74
2000s	5.98	7.27	1.98	3.36	0.90	2.22
Direct Investments	2.03	2.33	2.23	2.09	2.45	2.22
1970s	0.76	0.35	0.63	0.48	0.40	0.45
1980s	0.64	0.56	0.42	0.38	0.67	0.38
1990s	1.91	1.25	2.04	1.84	2.25	1.44
2000s	3.65	2.79	3.12	2.01	3.81	1.98
Capital Inflows by Domestic Agents						
Portfolio Investments	-2.26	3.22	-0.25	0.79	-0.05	0.22
1970s	-0.03	0.12	0.00	0.00	0.00	0.00
1980s	-0.30	0.35	0.00	0.00	0.00	0.00
1990s	-1.77	2.25	-0.08	0.29	0.00	0.02
2000s	-4.15	3.47	-0.52	0.84	-0.09	0.30
Other Investments	-2.62	3.56	-1.07	2.74	-0.87	1.73
1970s	-1.38	1.14	-1.26	1.34	-0.56	0.63
1980s	-1.58	1.95	-0.95	1.53	-0.35	0.53
1990s	-1.76	2.68	-0.78	1.98	-0.68	1.47
2000s	-4.53	4.71	-2.25	2.96	-1.01	2.17
Direct Investments	-1.48	1.93	-0.25	0.43	-0.04	0.15
1970s	-0.17	0.06	0.00	0.02	0.00	0.00
1980s	-0.40	0.24	-0.01	0.02	0.00	0.00
1990s	-0.82	0.83	-0.07	0.12	-0.01	0.03
2000s	-3.07	2.72	-0.45	0.58	-0.09	0.15
International Reserves	-0.77	2.26	-1.33	2.78	-1.31	2.97
1970s	-0.63	1.61	-0.66	2.17	-0.89	1.70
1980s	-0.40	1.46	-0.30	2.42	-0.01	1.85
1990s	-0.57	2.42	-1.32	2.36	-1.43	2.31
2000s	-0.94	1.72	-1.54	2.53	-2.23	2.89
No. of Countries	39		26		38	

The table shows the summary statistics of the components of capital flows by both foreign and domestic agents. The median value of country averages and the median of country standard deviations of capital flows over trend GDP are shown. The sample period is from 1970 to 2009.