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International Gross Capital Flows:
A New Measure and Application to a Global Panel

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Abstract

This paper presents a new measure of international gross capital flows and applies it to a global panel from 1970 to 2004. We explain why paying attention to the gross flows underlying net capital flows may be important and how our gross flow measure differs from the standard measure in the literature. For example, while by the standard measure a capital inflow decline more than fully explains Mexico's current account reversal during the 1994-95 Tequila Crisis, our measure assigns an important role to capital outflows and implies a 63 percent higher outflow in 1995 compared to the standard measure outflow.

JEL: F21, F32, F36, G15

Keywords: *Gross International Capital Flows, Balance of Payments, Financial Openness Current Account Imbalances, Financial Crises*

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1. Introduction

Cross-country capital flows may promote consumption smoothing, income convergence and growth by way of capital, technology transfers, institutional improvements, human capital or trade in financial intermediation (Eichengreen 2002, Barro et al. 1992, Chinn and Ito 2006). In endogenous growth or multiple equilibrium models, short term capital flows can also have permanent effects (Aghion et al. 2004, Galor and Zeira 1993). Skeptics, however, argue that international capital alone far from guarantees growth and development (Easterly 2002, Gourinchas and Jeanne 2006) and can even create some new problems, such as, financial instability (Edwards and Frankel 2002, Kaminski et al. 2004), support for undemocratic governments (Easterly et al. 2008, Jayachandran and Kremer 2006), and perhaps, inequality or a regulatory 'race to the bottom' due to high mobility of capital compared to labor.

Complicating this debate are diverse data sets and methodologies leading to different and sometimes conflicting conclusions in the literature. Moreover, capital flows are not the homogenous K commonly used in theory. First, gross capital inflows and outflows may be imperfect substitutes. For example, in-flowing capital may affect the technology, institutions, or policies of the host country differently, or be differentially volatile or prone to expropriation, compared to out-flowing capital. Second, different types of capital, such as foreign direct and portfolio investment, may be imperfect substitutes and currency denomination, maturity structure, state-contingency clauses, foreign control parameters, default procedures and other terms of borrowing matter (Mody and Murshid 2005).[2] Third, even a direction- and type-specific capital

[2] For example, a literature search using 'short term debt' or 'hot money' gives many recent references. However, in the paper, due to data limitations, our type disaggregation remains limited: while we distinguish private FDI from portfolio flows, for example, both could in principle be disaggregated by

flow, such as the gross inflow of FDI to country X in year Y may work differently depending on the context. For instance, physical capital scarcity may attract FDI only if the quality of human capital or infrastructure in a country are high (Bordo and Meissner 2007; Prasad et al. 2003). In this paper, we contribute by proposing a new measure of gross international capital inflows and outflows. The measure applies to all inflows or outflows as a group, as well as, for example, FDI or portfolio inflows alone. To illustrate its practical significance, we apply the measure to a global panel dataset spanning from 1970 to 2004. We show that our measure behaves quite differently than the standard gross flow measure in the literature. Additionally, we find that lagged inflows and outflows are both related to current inflows (outflows).

While the empirical literature is focused on net rather than gross capital flows (Eichengreen 2002, Obstfeld 2009), our paper is closely related to Rothenberg and Warnock (2006), who study gross flow behavior during financial crises. They argue that almost half of the 'sudden stops' (large net inflow declines) in their sample reflect a rise in gross outflows greater than a decline in gross inflows. This may imply, contrary to conventional wisdom, that confidence loss among domestic investors can be as problematic as confidence loss among foreign investors during crises. Unlike our paper, first, Rothenberg and Warnock focus on sudden stop episodes while we consider gross flows in general. Second, they use the standard approach to measuring gross flows in the literature, which we argue below may not always be appropriate. Less closely related is the capital flight literature, mainly from the 1980s, where capital flight is understood as 'abnormal' capital outflows aiming to escape government regulations, taxation or risk (World Bank 1985, Dooley 1986, Khan and Haque 1985, Ndikumana and Boyce 2002). Whereas this literature is focused either on net unrecorded private outflows or the sum of (some or all) recorded plus net

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industry or firm size, similarly to the fine product distinctions made by trade statisticians in the SITC classification system.

unrecorded private outflows, we consider *recorded* private inflows and outflows. The unrecorded component in flight capital measures is usually based on the net errors and omissions entry in balance of payments data, but as we explain below, this *net* entry cannot be used to compute the *gross* flows we are interested in. The capital flight literature also does not consider capital inflows on a par with outflows and the method used to compute recorded outflows is either the standard method in the literature explained below or not explained in enough detail for us to see if it differs from our method.

The rest of the paper proceeds as follows. First, section 2 presents our gross flow measure and compares it to the standard measure in the literature. We illustrate the quantitative difference between the measures with an application to Mexico, showing summary statistics, the empirical distribution and correlations for the two measures in the dataset. We also explore how our measure correlates with two measures of de jure financial openness and one measure of de facto trade openness. Section 3 presents our panel data and the inflow and outflow patterns we find for selected countries. In section 4, we search for the determinants of inflows and outflows and ask if the same determinants are valid when using the standard gross flow measure in the literature instead. Section 5 concludes the paper. Most data sources, variable explanations, tables and graphs are in the appendix. Throughout, we focus on private capital flows, although we sometimes include official flows as an explanatory variable.

2. Our gross flows measure

2.1. Our Measure

In the literature, the standard measure of gross international capital outflows (inflows) (Rothenberg and Warnock 2006, Ito 1999, Alfaro et al. 2004, Tille and van Wincoop 2008, Prasad and Wei 2005) is the sum of the net foreign asset (liability) changes in each country over a

given time period, where asset (liability) changes are summed to the gross outflow (gross inflow). However, in the data, a country's asset and liability changes for a given type of capital (FDI, equity etc.) are often negative, while conceptually a gross flow cannot be negative. Therefore, we deviate from the literature to treat negative liability changes as outflows and negative asset changes as inflows. Thus, unlike the standard measure, we record as a capital outflow both, for example, (i) a rise in domestic holdings of foreign bonds (an asset increase) and (ii) a buy-back of domestic bonds from foreign investors (a liability decrease). These capital movements may both be generated by a current account surplus, but using the standard method the capital movement would decrease the measured inflow instead of raising the measured outflow. Therefore, the gross flows would be underestimated and the current account surplus would seem to lower the inflow rather than raise the outflow of capital.[3] Thus, our gross inflows and outflows are (weakly) larger than the standard measure implies.

We believe that the standard approach underestimates the true inflows and outflows. Nevertheless, unlike our method, it does measure the net acquisition by domestics of foreign assets (the sum of all asset side entries) and the net acquisition by foreigners of domestic assets (the sum of all liability changes) over the year. These are probably the right variables to look at for stock-related questions, such as, whether diversification is increasing, the degree of foreign ownership of an economy's assets and its effects on growth, or the accumulation of external asset stocks over time. Related, current account reversals are often viewed as reflecting declines in foreign confidence, and reluctance to own, domestic assets, causing a declining sum of liability

[3] When the standard method implies a negative gross inflow, papers usually *interpret* that negative number not as a negative inflow but as a positive outflow. However, we convert a negative liability change to a positive asset change *for each type of capital*. Therefore, not only the sign but the absolute value of the gross inflows and outflows, both total and by capital type, are different and (weakly) larger by our measure compared to the standard measure

changes or what the standard method defines as 'inflows'. However, even if smaller liability increases drive current account reversals - which Rothenberg and Warnock (2006) show is not the case for almost half of the sudden stops in their sample (where increasing asset side changes are more important) – a given decline in the sum of liability changes may in principle reflect increased domestic demand for domestic assets (e.g. due to a more developed domestic financial system) as well as growing foreign supply of these assets. Consequently, although the simple sums of asset changes and liability changes may seem easier to interpret than the gross inflows and outflows we compute, we think that interpreting the data deserves careful attention, and generally, more than just equilibrium quantity information is needed.

2.2 Application to Mexico 1994-95

To illustrate our measure, we now analyze the dramatic capital movements during the Mexican balance of payments crisis in 1994-95. The dataset comes from the IMF's International Financial Statistics (IFS) and is further discussed below. As can be seen from Table 1 below, our method increases the measured gross inflows and outflows by $US 664mn each in 1994 and close to $2bn each in 1995. Thus, the 1994 outflow (inflow) increases by 18.2% (2.8%) compared to the standard measure and the 1995 outflow (inflow) increases by 63% (17.8%). The dominant source of the difference is currency claims, i.e. the standard method counts the decline in currency claims on Mexico in both years as an inflow decline. However, we count this as a capital outflow since, in practice, the obligation must have been satisfied by Mexico buying back the currency claims from foreign investors. To the extent the decline reflects a debt write-down, this amounts to Mexico buying up foreign claims on its output for a zero price, which is again an outflow, but Mexico fully serviced at least its official domestic and foreign currency obligations during the 1994-95 crisis (Mathieson et al. 1998).

Table 2 and Figures 1a-1b in the appendix depict the differences in the two measures for Mexico over the longer period 1979-2004. As can be seen, the standard measure explains the Mexican debt crisis and current account reversal in the early 1980s entirely with a decline in gross capital inflows to a *negative* level; while we identify a rise in the gross outflow of capital as an important contributing cause. This is also consistent with flight capital leaving Mexico during the 1980s crisis years (Eggerstedt et al. 1995). In the 1994-95 crisis, whereas the standard method records a declining outflow and makes the inflow decline (again to a negative absolute level) more than entirely responsible for the net flow reversal, our measure shows both a rising outflow and a declining inflow as key factors in the reversal.

Table 1: Standard Measure of Gross Flows vs. Our Measure for Mexico 1994 and 1995

	Standard Measure				New Measure			
	1994		1995		1994		1995	
	Δ (Foreign Assets)	Δ (Foreign Liabilities)	Δ (Foreign Assets)	Δ (Foreign Liabilities)	Gross Outflows	Gross Inflows	Gross Outflows	Gross Inflows
FDI*		10972.5		9526.29		10972.5		9526.3
PI **								
Equity		4083.7		519.2		4083.7		519.2
Bonds	151.7	5907		-504.7	151.7	5907		
OI ***								
Trade Credits	41.09	25.4	250	-19.9	41.09	25.4	269.9	
Loans	264.5	3926.32		847.07	264.5	3926.32		847.07
Currency	3198	-664	2825	-1918	3862		4743	
Total	**3655.29**	**24250.92**	**3075**	**8449.96**	**4319.29**	**24914.9**	**5012.9**	**10893**
	Gross Outflows	**Gross Inflows**	**Gross Outflows**	**Gross Inflows**				

Sources: IMF BOPS and authors' calculations. In millions of US Dollars. Delta represents change in the foreign flows. *Foreign Direct Investment, ** Portfolio Investment, *** Other Investment

2.3. General Comparison to the Standard Measure

Tables 3 and 4 present summary statistics for our measure and the standard measure in the subsample for which we have quarterly data. This includes 30 OECD and 70 developing

countries, mainly since the mid 1980s. Here and throughout the rest of the paper, we exclude Bahamas, Bahrain, Panama, Luxembourg and Tonga from the sample due to their large capital flows to GDP ratios. Table 3 underscores how our measure results in larger gross flows, has no negative values by construction, and gives quite different results, in practice, compared to the standard measure. For example, our mean outflow is almost twice the standard mean outflow. While larger in variance, our measure displays less skewness and kurtosis. Figure 2 plots the frequency distributions for our measure and the standard measure in the data, illustrating informally but starkly, we believe, the differences between the measures. Table 4 show once again that the number of negative observations under the standard measure is significant: at least 25% of the standard outflow and 10% of the standard inflow observations are negative. Table 5 displays the sample correlations between the standard measures of gross flows and our measure. Tables 6 to 7 show the fixed effects regression coefficients from regressing our measure on the standard measure and vice versa.

Focusing on the pooled sample (Table 5) correlation, we highlight two observations. First, although the correlations between our measure and the standard measure are relatively high, there are also substantial differences, especially for the emerging markets regions of Latin America, East Asia and Eastern Europe. One conjecture is that when foreign confidence in an economy declines, investors first simply stop buying new claims, which will drive the economy's annual liability changes toward zero using either measure. During crisis times this is not enough, however, so investors sell off the claims they already own as well. This causes the standard inflow measure to decline further, while we instead record an outflow increase. Conversely, when domestics wish to decrease their holdings of foreign assets, they may first decrease buying and

only sell if necessary, which may be more likely when liquidity is needed during crises.[4] This interpretation is also consistent with Figure 1 for Mexico where, first, the standard measure and our measure diverge mainly during crisis times and, second, our inflow and outflow measures in Figure 1 follow the standard measure chronologically until asset and liability changes come close to zero. Finally, table 8 shows the correlation between the two measures of total gross capital flows scaled to GDP using annual data (quarterly GDP data limits our sample significantly). This tends to raise the correlations.

2.4. Relation to other integration measures

Next, we examine how our total gross flows relative to GDP, a common measure of financial integration, correlates with two de jure measures of financial integration and one de facto measure of trade integration. The de jure financial integration measures are Chinn and Ito's (2002) capital account openness measure and Sebastian Edwards' (2004) measure of financial integration. For de facto trade openness, we use exports plus imports relative to GDP. For comparison, we present the same correlation coefficients when our measure is replaced with the standard measure. We now work with annual data (since we lack sufficient quarterly GDP data).

Table 9 shows large differences in the co-movement of de facto and de jure measures of capital market integration. While this could be partly due to limited effectiveness of capital controls or to measurement error, the low correlation even applies to OECD countries and the correlation actually tends to be higher for some emerging market regions. Using a different de facto integration measure, Kose et al. (2006) also find a limited correlation between de facto and de

[4] That investors first stop buying and then sell if they need could be due to transaction costs, because new investors are less informed and more sensitive to 'news', or because existing investors are reluctant to sell when markets are down.

jure integration. Both de-facto financial integration measures are positively correlated with de-facto trade integration. In most cases, the de facto-de jure and de facto financial-de facto trade openness correlations are approximately similar using our measure or the standard measure; yet some of the coefficients are slightly higher using our measure. Table 10a sets up the estimates from a fixed effect regression instead of using the pooled data, yielding largely the same results (with our measure a more significant predictor in a few cases). Table 10b pools, once more, the data but replaces total capital flows with capital inflows and outflows separately. This table suggests that gross inflows may be a better proxy for de jure financial openness and de facto trade openness than gross outflows (Alfaro and Charlton 2006).

2.5. Limitations of Our Measure

Unrecorded Flows

Unrecorded flows could bias our results. For example, most countries have historically had capital controls and efforts to avoid those (or current account) controls have led to illegal outflows, often referred to as capital flight (Dooley 1986, Rojas-Suarez, 1990). One could conversely imagine illegal inflows. Such unrecorded flows will at least cause underestimation of the gross inflows and/or outflows. More importantly, though, the unrecorded part is unlikely to be either the same for inflows and outflows or uncorrelated with the correlates and determinants of measured inflows and outflows.[5] This could bias our results.

[5] For example, Lensink et al. (1998) find a strong correlation between a capital flight measure equal to net errors and omissions plus private short term non-bank flows, on the one hand, and two capital flight measures partly or fully based on recorded outflows on the other (Dooley 1986). This suggests that the unrecorded and recorded outflows are indeed correlated.

A well known method to measure unrecorded flows, applied in some of the capital flight literature (see Claessens and Naudé 1998 for an overview of capital flight estimation), uses the net errors and omissions recording in balance of payments statistics. However, this method cannot be used in our case since we need to know not only the *net* unrecorded outflow, but both the unrecorded inflow and the unrecorded outflow. In other words, whereas the identity "measured inflows = measured outflows + net unmeasured outflows" has only one unknown, the identity "unmeasured outflows + measured outflows = measured inflows + unmeasured inflows" has two unknowns - unless one of the two is assumed to be zero or some relationship between them is assumed.[6]

We can think of three reasons why ignoring unrecorded flows may not be critical, however. First, recorded gross flows probably dominate unrecorded flows quantitatively in most countries, since otherwise the real gross flows would be very large, and, in any case, recording errors should be more crucial for net flows than gross flows analysis. Second, if recorded flows are a good proxy for unrecorded flows, we may be off by a constant fraction and the results will be, at least , qualitatively accurate. For example, adverse policy shocks may encourage both recorded and unrecorded outflows. Third, in the econometric analysis below, we control for capital account openness and trade openness, both of which proxy for illegal capital flows.[7]

[6] Measures of capital flight based on the net errors and omissions record (Cuddington 1986, Gibson and Tsakalotos 1993, Claessens and Naudé 1993) may therefore not really measure 'flight' but 'net flight.'

[7] Trade mis-invoicing is commonly used to avoid capital controls. Capital account openness measures turn out to be insignificant in the final regressions.

Our Measure Remains NET Gross

Similarly to the standard gross flows measure, our measure retains a net component. To see why, notice that within the year a country can, for example, first buy $100 worth of its own equity back from foreigners; then, sell it again, and buy it once more. In the balance of payments statistics for the year, the portfolio equity account will show a liability decrease of 100. Therefore, by the standard measure, inflows will fall by 100 and according to our measure outflows rise by 100. Were all flows properly recorded, the standard measure would show a gross inflow of -100+100-100=-100 and zero outflow, while our measure would display a $200 outflow and a $100 inflow. Thus, while we seek to improve on the standard measure, failing to account for the same asset types traded back and forth within the year still leads to gross flows underestimation. With categories as aggregate as portfolio equity, where, within a year, domestics often invest and disinvest substantially in foreign assets, and foreigners do likewise in domestic assets, the underestimation errors could be large.[8]

3. The Data and Inflow-Outflow Patterns

3.1. Data

We employ our measure to a large panel ranging from 1970 to 2004 with annual observations for most countries and quarterly observations for a subset. The basic dataset is the IMF's International Financial Statistics (IFS), which we supplement with constructed data and data from the World Development Indicators (WDI), United Nations Conference on Trade and Development (UNCTAD), International Country Risk Guide (ICRG), Chinn and Ito's (2002), and Edwards' (2004). Table 11 shows the summary statistics of all the variables used in the regressions.

[8] Another concern is that if flows are not clearly private or official, they are recorded as private in the dataset. This could cause overestimation of private capital flows.

3.2 A Note on Interpreting Inflow-Outflow Correlations with Our Measure

According to our measure, an inflow is recorded when foreign agents buy either domestic assets (a plus on the liability side in the balance of payments accounts) or foreign assets (a minus on the asset side) from domestic agents. In other words, unlike the standard method, we consider an inflow (outflow) as such regardless of who originally issued the asset it buys. Thus, it cannot be inferred that an inflow (outflow) reflects foreigners (domestics) buying domestic (foreign) assets since it could also be foreigners (domestics) buying foreign (domestic) assets. Indeed, the inflows for one year and the outflows for the next year can be offsetting in the strong sense that a country sells an asset the first year and buys it back the next year, leaving all asset holdings completely unchanged. Then, two-way capital flows may not necessarily be interpreted as showing increased diversification, for example. The quite imperfect correlation between our measure and the standard measure shown above suggest that foreign or domestic investors repurchasing their own assets are indeed an important part of international capital flows.[9] Fortunately, the data does allow all four types of capital flow - inflows vs. outflows, purchase of foreign vs. purchase of domestically issued asset - to be studied separately and we think that this is an important avenue for future research.

3.3 Patterns of Inflows and Outflows in the Data

Tables 12 and 13 give coefficient estimates for regressions of the log inflow (outflow) on current and lagged values of the log outflow (inflow) with country fixed effects, and quarter dummies to control for seasonality. Outflows and inflows are significantly and strongly positively correlated

[9] Of course, a German asset originally bought by France may be repurchased not by a German investor but a Malaysian investor. For simplicity, however, we treat all foreign investors as coming from the same country.

in all regressions: in the full sample, a one percent rise in the outflow (inflow) is associated with a .71 (.52) percent rise in the contemporary inflow (outflow). The coefficient magnitudes are much smaller when we lag the right hand side variables in Table 13, however, suggesting moderate persistence in the gross flows[10]. Additionally, the relationship varies by subset: OECD countries have a tighter current inflow-current outflow relationship than developing countries as a whole, East Asia and, particularly, Latin America. The weaker non-OECD relationships may reflect a greater relative proneness to financial crises of non-OECD countries if crisis tend to turn the inflow-outflow correlation negative.

Since the current account equals gross outflows minus inflows, the gross flows can be seen as the determinants of the current account at least in an accounting sense. A perfect correlation between total inflows and outflows implies a constant current account surplus or deficit, while a negative correlation implies a volatile current account. Therefore, understanding inflows, outflows and their relationship can help us gain a better insight on current account. To this end, Figure 3 displays the country average gross private inflows, gross private outflows and current account as a share of GDP for different regions and countries. The gross flow differential does not quite equal the current account because we only include private gross flows. However, official flows are relatively small for most countries, and the net official flow can be seen as the residual between the net private flow and the current account. The growing deficits of Latin America in the 90s appear to be driven by large increases in private gross inflows. On the other hand, the well known current account reversals from large deficits to large surpluses in Asia during the 90s are driven mainly by changes in the level of outflows rather than the level of inflows. In Eastern Europe, the deficits in the 90s are driven by increased inflows; whereas in Japan, during the same decade, inflows and outflows followed each other closely, neither obviously dominant. China saw

[10] We discuss the stationary of gross inflows and outflows in the next section.

large inflow increases in the first half of the 90s, followed by growing outflows in the second half. Our data for Russia is too limited in order for us to reach firm conclusions. China and Russia, and to a certain extent the US, do show an interesting anomaly. That is to say, the current account is less closely predicted by private gross flows than for the other countries. This means that official flows play a larger role for the current account in these countries (Dooley et al. 2004, Gieve 2008, Aizenman and Glick 2007). For completeness, therefore, we show also the official flows for China, Russia and the US.

Table 14 presents the correlation coefficients for each country over the sample years. For the bulk of countries, and overwhelmingly for emerging markets, the FDI inflow-outflow correlation is higher than that of portfolio flows, which is consistent with the 'hot money' view of portfolio flows (Bacchetta and Van Wincoop 2000, Wei and Wu 2002, Montiel and Reinhart 1999). Interestingly enough, first, for some developing countries the correlation coefficient is highest for portfolio flows (Calvo 1998). Second, the correlation coefficient for overall capital flows tends to be substantially higher than that for portfolio or FDI flows alone. This suggests that it may be important to understand how inflows and outflows correlate not only for a given type of capital but also across types (although the correlations may change in crisis times).

3.4. Determinants of Inflows and Outflows

Stationarity of the Gross Flows Series

Before turning to more a detailed analysis, we examine the stationarity of the series and potential unit root problems. To test for unit roots in our panel data, we use two approaches. First, Table 15 shows the results of applying the Levin-Liu-Chu (LLC)[11] test to detect unit roots in a panel data

[11] See Levin, Lin and Chu (2002).

environment. The LLC can be viewed as a pooled Dickey-Fuller test. Their test is based on the following equation:

$$\Delta y_{i,t} = \alpha_i + \delta_i t + \theta_t + \rho_i y_{i,t-1} + \varsigma_{i,t}$$

where i= 1, 2,…N and t = 1, 2,…T. α_i and θ_t represent two-way fixed effects and a unit-specific time trend. The actual test involves the following null and alternative hypothesis:

$$H_0 : \rho_i = 0$$
$$H_1 : \rho_i = \rho < 0$$

Table 15 (see Table 15b in the appendix for details) shows that apart from being clearly stationary, the gross capital flow series are characterized by a relatively low persistence. A more detailed analysis of gross flows persistence is reserved for future research.

Table 15a LLC Coefficient and the implied Pooled AR(1) Coefficient

	Deterministic	Coefficient (ρ)	AR Coefficient (1-ρ)
Total Private Capital Flows	Constant + Trend	-0.598	0.402
	Constant	-0.276	0.724
Private Capital Inflows	Constant + Trend	-0.624	0.376
	Constant	-0.331	0.669
Private Capital Outflows	Constant + Trend	-0.629	0.371
	Constant	-0.297	0.703
Official Capital Outflows	Constant + Trend	-0.803	0.197
	Constant	-0.693	0.307
Official Capital Inflows	Constant + Trend	-0.842	0.158
	Constant	-0.726	0.274

p-value evaluates the null hypothesis of the series being a non-stationary process. (See Levin, Lin and Chu 2002).

Second, as a robustness exercise, table 16 in the appendix shows the results of applying the Im-Pesaran-Shin (IPS) test for unit roots in panel data.[12] The IPS test extends the LLC framework to allow for heterogeneity in the value of ρ_i under the alternative hypothesis. Under the new null

[12] See Im, Pesaran and Shin (1997).

hypothesis, all series in the panel are nonstationary processes. Under the alternative, a fraction of the series in the panel is assumed to be stationary. In both tests, we individually pick the optimal lag selection using the Hanna-Quinn (HQ) criterion for each country. The results from both tables seem to reject the hypothesis of any of the series following a unit root path. The stationarity of all the series is important in minimizing the potential coefficient bias in the panel regressions shown below. Moreover, it gives us an idea of the average persistence of gross inflows and outflows. Using the LLC coefficients we can find the pooled AR(1) coefficient for each series. While short of a unit root, the persistence of the total flows is relatively high. This is also true for the private gross inflows and outflows, meanwhile their official counterparts seem less persistent.

Fixed Effects Regressions

In order to explore the potential determinants of gross flows, tables 17-18 display results of the following separate regressions based on annual observations of inflows and outflows relative to GDP for developing and OECD countries:

$$\text{Gross Private Inflows}_{it} = \alpha + \mathrm{B}\begin{bmatrix}\text{Gross Private Inflows}\\ \text{Gross Private Outflows}\\ \text{Gross Official Inflows}\\ \text{Gross Official Outflows}\end{bmatrix}_{it-1} + \psi Z_{it-1} + \gamma T_t + \phi T_t^{\,2} + \varepsilon_{it}$$

$$\text{Gross Private Outflows}_{it} = \alpha + \mathrm{B}\begin{bmatrix}\text{Gross Private Inflows}\\ \text{Gross Private Outflows}\\ \text{Gross Official Inflows}\\ \text{Gross Official Outflows}\end{bmatrix}_{it-1} + \psi Z_{it-1} + \gamma T_t + \phi T_t^{\,2} + \varepsilon_{it},$$

where Z is a vector of other variables and T is a time trend. The regressors for developing and OECD countries differ slightly. For both developing and OECD countries, we dropped variables which were insignificant or not reasonably robust (the general-to-specific approach), in the sense

of preserving significance and/or sign across specifications. All right hand side variables are lagged one period. For comparison, tables 19-20 repeat our exact same regressions using the standard inflow and outflow measures on the left and right hand sides. This gives similar results with a few important differences, which we will discuss below. Generally, while the coefficients using the standard measure tend to be smaller, this might be expected since, by construction, our gross flows are larger. Likewise, our R-squared measure tends to be larger because we first selected the right hand side variables according to significance by our measure. While the regressions are not linked to any single theory, the variables we have tested are all established in the literature and our results are roughly consistent with one or more theories of capital flows.

We summarize our main findings below. Unless otherwise stated, we refer to tables 17 and 18 (our measure).

1. There is relatively large and symmetric persistence in inflows and outflows by our measure: one percent of GDP worth of inflows (outflows) in a particular year is associated with at least 0.6 percent of GDP worth of inflows (outflows) the following year in developing countries and, at least, a 0.5 percent of GDP in inflows (outflows) in OECD countries. In addition, consistent with the raw correlation between inflows and outflows found above, in both developing and OECD countries, past inflows (outflows) are positively related to current outflows (inflows), with values ranging from 0.15 to 0.26 percent of GDP. This cross-effect is less than the effect of persistence in each variable itself. In contrast, the standard measure identifies no cross-correlations for either inflows or outflows. Therefore, our measure may give results more consistent with the capital flight literature, according to which inflows (outflows) can prompt or directly 'fuel' outflows (inflows) (Ndikumana and Boyce 2002).

2. For OECD countries, we find no significant relationship between official outflows and private inflows or outflows. However, in developing countries, official outflows are negatively related to

private inflows and outflows. We find no robust relationship between official *inflows* and private capital flows in either direction in either developing or OECD countries. In contrast, when we use the standard measure instead, official outflows become a significant and positive determinant of private outflows from OECD countries and are no longer significant for developing countries.

3. Real GDP per capita is positively related to outflows from developing countries and positively but insignificantly (except in one specification) related to inflows. For OECD countries, we find no evidence linking per capita GDP to outflows and a negative relation to inflows. The findings are similar using the standard measure. The result for developing countries may reflect that, as countries develop, they raise domestic savings and eventually, particularly if financial development is lagging output (Caballero and Farhi 2006), start to export capital. However, foreign investors, who depend less on the domestic financial system, or seek diversification and returns, may supply inflowing capital or intermediate the capital sent out to begin with (Dooley et al. 2004). Alternatively, agents could simply be diversifying. The negative income-inflow relation for OECD countries may reflect the lesser need for foreign capital or diminishing returns as countries develop.

4. Trade openness is positively related to developing country inflows (with significance in two of three regressions), and insignificantly correlated with outflows. Trade openness is negatively related to inflows and (less robustly) to outflows in OECD countries. The results are similar using the standard measure.[13]

[13] Some relation between trade and financial openness may be expected. For example, trade openness could make financial repression more difficult (Aizenman and Noy 2007) or either weaken interest groups who oppose financial development or attract their support (Rajan and Zingales 2003). Portes and Rey (2003) show that trade and financial openness can both be predicted by gravity equations.

5. We find no evidence linking the real effective exchange rate to capital flows for OECD countries. However, for developing countries the real exchange rate tends to be positively related to both inflows and outflows. This could reflect unsustainably high real exchange rates inducing external borrowing and capital flight. Controlling for the level, we observe no effect of real appreciations. Using the standard measure, real appreciations are tightly associated with growing inflows and declining outflows for both country groups.[14] Using either measure, we find no evidence relating inflation to capital flows in developing countries, while inflation is negatively related to OECD outflows.

6. Using either measure, nominal exchange rate volatility lowers developing country inflows, which is consistent with risk aversion or increased default risk for nominal debt. Alternatively, a more volatile exchange rate may proxy a more unstable macro economy or a financial crisis. A higher interest spread tends to raise developing country inflows by our measure but to raise outflows by the standard measure.

7. Using either measure, democracy decreases outflows from OECD countries, which is consistent with democracy, or correlates of democracy, raising returns to capital. The lack of significance for developing countries may reflect that many developing country democratizations over the sample years have occurred in socially polarized environments with weak institutions and have often led to 'illiberal democracy' (Zakaria 1997), populist redistribution or resistance

[14] While the price incentive alone is to buy foreign assets and sell domestic assets, real appreciations in developing countries may reflect economic reforms and real exchange rate procyclicality (Rebelo and Végh 1995), as in Argentina in the early 1990s. If the stabilization is expected to be temporary it, can lead to a consumption boom (Calvo 1987). A real appreciation may also slack borrowing constraints by improving balance sheets (Allen et al. 2002, Schneider and Tornell 2004, Calvo et al. 2004).

from political losers (Acemoglu and Robinson 2000). Indeed, the long-run relationship between democracy and development remains debated (Acemoglu et al 2008). More surprisingly, expropriation risk (Acemoglu and Johnson, 2005) and political instability have no significant effect on capital inflows in either direction for either country group and either gross flows measure - except that political instability is *negatively* related to OECD outflows using the standard measure.[15]

Finally, Tables 21-24 replicate Tables 17-20 except that we do not include the lagged dependent variable on the right hand side. Our findings are robust to this change but some interesting new relationships emerge. Specifically, for our measure, in the OECD regression (Table 21) official outflows are now negatively related to private outflows and official inflows are negatively related to private inflows and positively related to outflows. These results suggest that official flows may be closely linked to private flows. For non-OECD countries (Table 22), official outflows become positively related to private inflows and negatively related to outflows, consistent with a view that the official sector provides collateral to guarantee private inflows in emerging markets (Dooley et al. 2004). Also, real appreciations are now positively related to inflows and negatively

[15] The negative OECD political instability-outflow relationship seems puzzling from a risk perspective. Possibly, while some political changes over the sample years were associated with crises, as in Poland, Czechoslovakia and Hungary in the early transition period or Mexico in 1994, it was associated in others with fairly orderly transitions to democracy in non-crisis times, such as in Spain, Portugal, South Korea, Germany, or Turkey in 1973 and 1983 (Haggard and Kaufman 1995, Kim 2006). Eastern European economies before transition, of course, also were not market-based, so it is unclear how to interpret the change in capital flows.

related to outflows, consistent with the stylized fact of procyclical capital flows and real exchange rates in emerging markets. Lastly, nominal exchange rate volatility and inflation now both promote outflows and decrease inflows, consistent with uncertainty and unsustainable policies (or inflation taxation) discouraging domestic investment.

4. Conclusion

Gross capital flows are an important measure to track in open economies, as the volume and direction of these flows can indicate a wide array of structural conditions or development strategies. These flows can also be used to calculate relative financial integration levels. In this paper, we have developed a new measure of gross capital flows which is more "gross" in nature than the standard measure found in the literature. At the heart of our measure is the interpretation that there is no such thing as negative inflows or outflows Instead, any decrease in foreign liabilities must be seen as an outflow and any decrease in foreign assets as an inflow. Using a global dataset comprising more than one hundred developed, emerging and developing nations, we compare our new measure with the standard measure and a series of de facto and de jure economic integration measures. In brief, the main results are:

- There is a significant deviation between the standard measure and our measure, especially for emerging markets.
- Used as a de facto measure of financial integration, the new measure is at least as correlated with two de jure measures of financial integration and one de facto measure of trade integration as the standard measure.
- We observe traces of persistence in the gross flows series but there is little evidence of unit roots.

- Examining the determinants of gross flows, we find a strong cross correlation between inflows and outflows, not present when using the standard measure.
- We observe asymmetries in the effect of official flows on private flows. In developing countries, while official inflows have no clear effect on private flows, official outflows are negatively related to private inflows and outflows. In contrast, official flows measured the standard way are related only to private outflows from developed countries.
- Finally, some of the determinants of private flows by our measure, such as official flows, exchange rates, or trade openness, may deserve further exploration.

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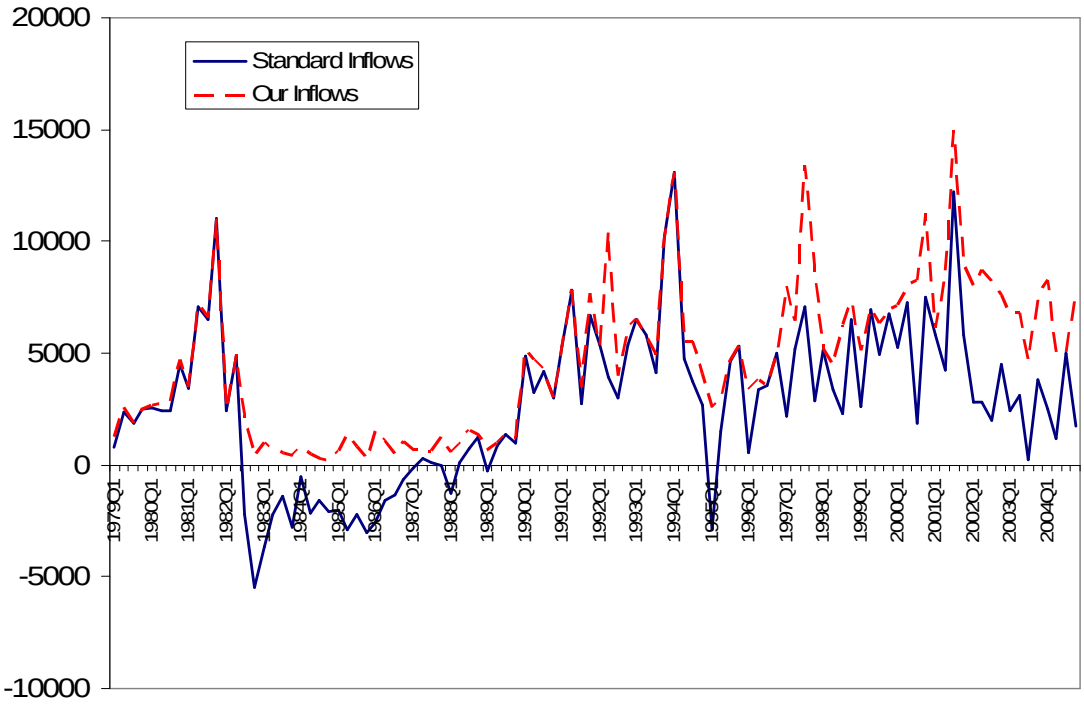
Appendix A: Figures and Tables

Table 2: Correlation Matrix for the New and the Standard measures of Gross Capital Flows for Mexico (1979-2004)

	Standard Gross Inflows	New Gross Outflows
New Gross Inflows	0.826***	0.097
p-value H0: rho=0	(0.000)	(0.326)
t-statistic H0: rho=1	(-3.11)***	
Standard Gross Outflows	0.208**	0.582***
p-value H0: rho=0	(0.034)	(0.000)
t-statistic H0: rho=1		(-5.19)***

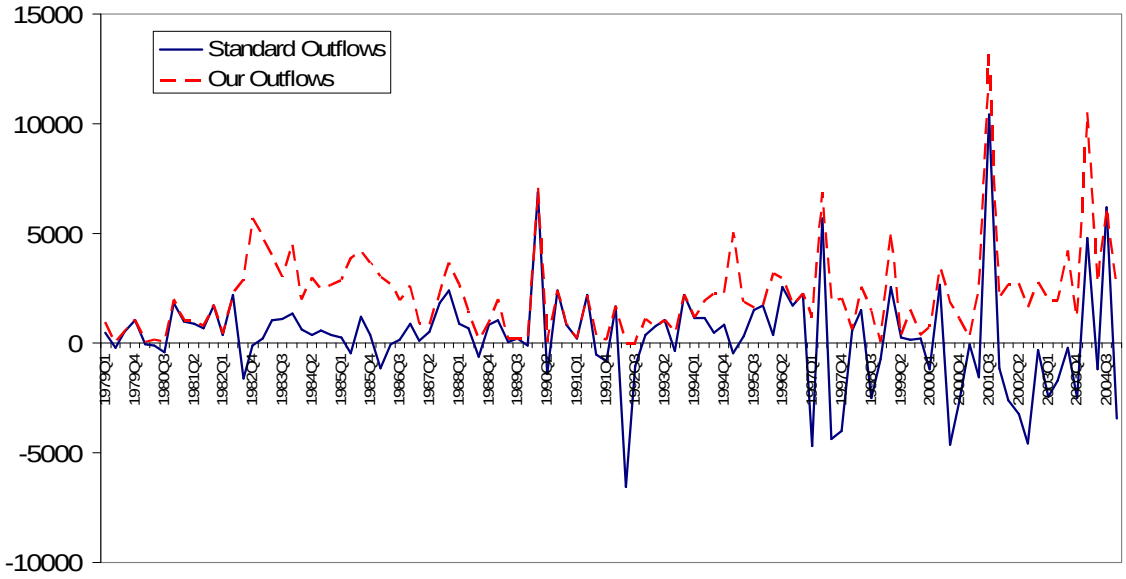
Notes: *significant at 10%, ** significant at 5%, * significant at 1%. t statistic for $H_0 : rho = 1$, $H_1 : rho < 1$ is obtained using $t = \frac{r-1}{\sqrt{(1-r^2)/N-2}}$.

Figure 1a: Graph Comparison of the Standard Measure of Inflows and Our New Measure for Mexico (1979-2004)*



* Quarterly observations in millions of Current US Dollars

Figure 1b: Graph Comparison of the Standard Measure of Outflows and Our New Measure for Mexico (1979-2004) (slightly different scale compared to Figure 1a)



*Quarterly observations in millions of current US Dollars

Table 3: Summary Statistics for Our Measure and the Standard Measure

Variable	Obs	Mean*	Std. Dev.*	Min*	Max*	Variance	Skewness	Kurtosis
Standard Private Outflows	7565	4247.264	18524.56	-118543	477258.3	3.43E+08	9.290435	150.1474
Standard Private Inflows	7565	4084.062	19319.03	-131089	467500.2	7.08E+08	9.796841	152.3019
Standard Total Private Flows	7565	10984.68	39910.5	1.24E-13	942333.9	1.90E+09	9.493928	138.2058
New Private Outflows	7538	7321.335	23362.82	0	494858.4	5.46E+08	7.082822	82.88526
New Private Inflows	7538	7157.55	23431.44	0	485100.3	5.49E+08	7.818339	93.73023
New Total Private Flows	7538	14478.88	46208.65	0	979958.7	2.14E+09	7.400857	88.53682

*Millions of current US dollars, quarterly data for all available countries. For the standard measure, the means of private outflows and inflows add to less than the mean of total flows because while the standard approach does not convert every negative entry on one side of the balance sheet to a plus entry on the other side, like we do, it is customary to convert a negative number for the sum of all assets changes or the sum of all liability changes, should it occur, to a positive number. For example, suppose only an FDI flow of -100 and an equity flow of 50 enter on the asset side and are balanced by an equity liability flow of -50. Then we would count a gross outflow of 50+50 and a gross inflow of 100, for a total gross flow of 200. The standard approach would count an outflow of –(-100+50) and an inflow of –(-50) for a total gross flow of 100.

Figure 2: Frequency Distributions for Our Measure and the Standard Measure

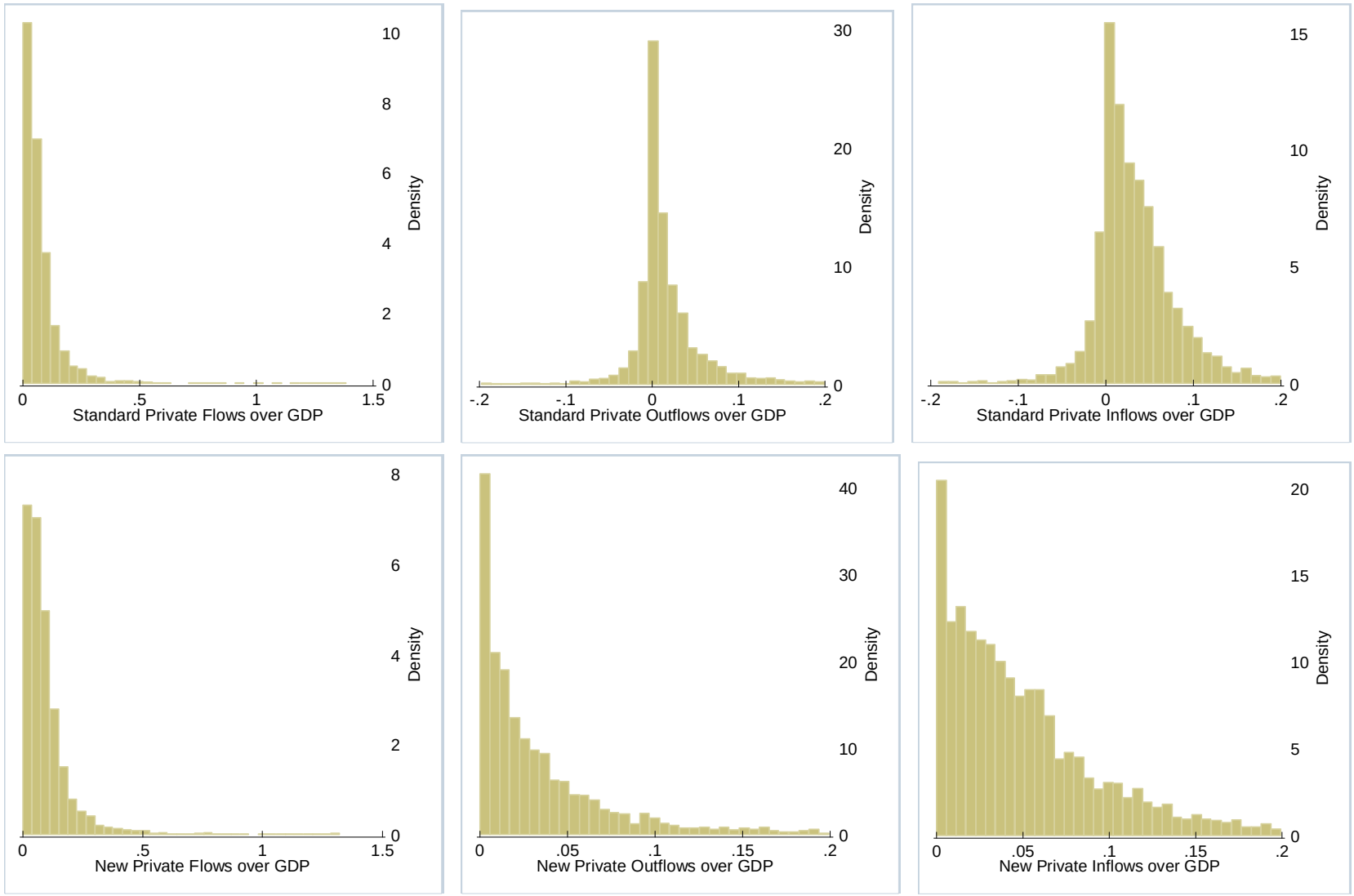


Table 4: Percentiles for Our Measure and the Standard Measure

Percentiles	Standard Private Outflows	Standard Private Inflows	Standard Private total flows	New Private Outflows	New Private Inflows	New Private Total Flows
1%	-6397.8	-10268	2.23112	0.0	0.0	0.0
5%	-569.4	-1026.9	19.36	0.1	2.8	9.5
10%	-120.0	-108.603	45.09	3.4	12.5	31.4
25%	-2.9	2.32939	157.94	35.4	75.2	129.5
50%	43.9	175.18	910.84	344.9	589.7	1017.8
75%	1150.0	1772.352	4758.246	3146.3	3493.4	6705.4
90%	9275.2	8348.703	23020.41	17941.7	15831.0	33931.7
95%	25549.5	21175.16	54157.57	41613.4	37714.4	79618.7
99%	81965.2	78627.06	178479.9	118698.0	109913.2	224118.0

*Millions of current US dollars. Source: IMF BOPS and authors' calculations

Table 5: Sample Correlations between the Standard Measure and our New Measure of Capital Flows

ALL	Total Flows	Private Inflows	Private Outflows	Official Inflows	Official Outflows
Coefficient	0.92	0.83	0.83	0.92	0.70
Significance Level	0	0	0	0	0
Observations	7538	7538	7538	7538	7538
Developing Countries					
Coefficient	0.90	0.71	0.74	0.26	0.41
Significance Level	0	0	0	0	0
Observations	4600	4600	4600	4600	4600
OECD					
Coefficient	0.92	0.82	0.82	0.93	0.73
Significance Level	0	0	0	0	0
Observations	2938	2938	2938	2942	2942
LATAM					
Coefficient	0.78	0.81	0.57	0.46	0.41
Significance Level	0	0	0	0	0
Observations	998	998	998	998	1001
East Asia					
Coefficient	0.88	-0.17	0.22	0.71	0.91
Significance Level	0	0.26	0	0	0
Observations	747	747	747	747	747
East Europe					
Coefficient	0.84	0.88	0.89	0.001	0.33
Significance Level	0	0	0	0.99	0
Observations	801	801	801	801	801

Quarterly observation, official flows include international reserves.

Table 6: Fixed Effects Panel Regression of New Measure on Standard Measure

	All	Developing	OECD	LATAM	East Asia	East Europe
Total Flows	0.724	0.77	0.723	0.343	0.36	0.409
Standard Errors	(0.069)***	(0.092)***	(0.072)***	(0.016)***	(0.009)***	(0.020)**
R-squared	0.8073	0.8336	0.8068	0.4237	0.5826	0.4292
Private Inflows	0.715	0.771	0.714	0.717	-0.183	0.781
Standard Errors	(0.103)***	(0.125)***	(0.107)***	(0.043)***	(0.037)***	(0.031)***
R-squared	0.6447	0.6036	0.6458	0.6072	0.0517	0.7586
Private Outflows	0.691	0.752	0.69	0.36	-0.014	0.75
Standard Errors	(0.100)***	(0.145)***	(0.104)***	(0.083)***	-0.014	(0.076)**
R-squared	0.6274	0.5974	0.6283	0.3039	0.0003	0.6151
Official Inflows	0.899	0.158	0.918	0.241	0.839	0.08
Standard Errors	(0.070)***	(0.052)***	(0.060)***	(0.083)**	(0.049)***	-0.121
R-squared	0.8142	0.057	0.8374	0.1449	0.5241	0.0062
Official Outflows	0.606	0.336	0.631	0.332	0.716	0.267
Standard Errors	(0.074)***	(0.040)***	(0.069)***	(0.039)***	(0.010)***	(0.044)**
R-squared	0.4858	0.1553	0.5241	0.1617	0.808	0.0808
Observations	7538	4600	2938	998	747	801
Number of country	111	81	30	16	9	17

Robust standard errors in parentheses, quarterly data for all available countries
*Significant at 10%, **significant at 5%; *** significant at 1%

Table 7: Fixed Effects Panel Regression of Standard Measure on New Measure

	All	Developing	OECD	LATAM	East Asia	East Europe
Total Flows	1.114	1.082	1.115	1.236	1.617	1.049
Standard Errors	(0.041)***	(0.036)***	(0.043)***	(0.159)***	(0.075)***	(0.027)***
R-squared	0.8073	0.8336	0.8068	0.4237	0.5826	0.4292
Private Inflows	0.902	0.782	0.905	0.846	-0.283	0.971
Standard Errors	(0.096)***	(0.216)***	(0.099)***	(0.038)***	(0.077)***	(0.094)***
R-squared	0.6447	0.6036	0.6458	0.6072	0.0517	0.7586
Private Outflows	0.908	0.794	0.911	0.844	-0.024	0.82
Standard Errors	(0.089)***	(0.234)***	(0.092)***	(0.230)***	-0.026	(0.078)***
R-squared	0.6274	0.5974	0.6283	0.3039	0.0003	0.6151
Official Inflows	0.906	0.361	0.912	0.601	0.624	0.077
Standard Errors	(0.053)***	(0.198)*	(0.051)***	(0.067)***	(0.011)***	-0.102
R-squared	0.8142	0.057	0.8374	0.1449	0.5241	0.0062
Official Outflows	0.802	0.462	0.831	0.488	1.128	0.303
Standard Errors	(0.172)***	(0.069)***	(0.178)***	(0.027)***	(0.024)***	(0.038)***
R-squared	0.4858	0.1553	0.5241	0.1617	0.808	0.0808
Observations	7538	4600	2938	998	747	801
Number of country	111	81	30	16	9	17

Robust standard errors in parentheses, quarterly data for all available countries
*Significant at 10%, **significant at 5%; *** significant at 1%

Table 8: Sample correlation between Standard Total Private and Our Total Private Gross Flows to GDP

	All	Developing	OECD	LATAM	East Asia	East Europe
New Versus Standard Measures						
Total Private Flows	0.9213*	0.9312*	0.8811*	0.9278*	0.8444*	0.9375*
Significance	0	0	0	0	0	0
Observations	3786	3027	759	498	257	247

Yearly Data is used for all available countries. All Gross Flows measures are deflated by current price GDP. *significant at 1%

Table 9: Sample correlation for De Facto against de jure Financial and de facto Trade Integration Measures

	All	Developing	OECD	LATAM	East Asia	East Europe
Financial Integration						
New Measure	0.30	0.25	0.42	0.30	0.53	0.60
Significance	0	0	0	0	0	0
Standard Measure	0.28	0.24	0.41	0.30	0.55	0.60
Significance	0	0	0	0	0	0
Observations	3140	2499	641	435	223	109
Capital Openness						
New Measure	0.29	0.25	0.36	0.31	0.37	0.37
Significance	0	0	0	0	0	0
Standard Measure	0.25	0.22	0.31	0.33	0.35	0.15
Significance	0	0	0	0	0	0.157
Observations	3361	2691	670	490	250	90
Trade Openness						
New Measure	0.37	0.41	0.44	0.13	0.67	0.62
Significance	0	0	0	0.0046	0	0
Standard Measure	0.31	0.35	0.35	0.12	0.53	0.56
Significance	0	0	0	0.0066	0	0
Observations	3584	2858	726	490	221	227

Yearly Data is used for all available countries. All Gross Flows measures are deflated by current price GDP. De Jure Financial Openness corresponds to the measure reported by Edwards (2004). De Jure Capital Openness represents the measured calculated by Chinn and Ito (2002). Trade Openness represents the value of Total Exports and Imports over GDP.

Table 10a: Fixed Effects Panel analysis of De Facto against de jure Financial and de facto Trade Integration Measures

	ALL	Developing	OECD	LATAM	East Asia	East Europe
a) Financial Integration						
Standard Gross Private Flows	0.196	0.125	0.585	2.14	0.169	2.027
	(0.050)***	(0.028)***	(0.180)***	(0.592)***	-0.109	(0.661)***
R-squared	0.0256	0.0117	0.1456	0.1207	0.0273	0.2721
New Gross Private Flows	0.222	0.139	0.499	2.267	0.34	1.89
	(0.054)***	(0.035)***	(0.146)***	(0.593)***	-0.204	(0.425)***
R-squared	0.0374	0.015	0.1798	0.1468	0.075	0.345
Observations	3140	2499	641	435	223	109
Number of Country	159	133	26	17	10	16
b) Capital Openness						
Standard Gross Private Flows	1.364	1.023	3.044	9.248	1.033	5.447
	(0.256)***	(0.169)***	(1.212)**	(2.982)***	-0.587	-3.653
R-squared	0.0452	0.0296	0.1332	0.1139	0.0434	0.0602
New Gross Private Flows	1.427	1.045	2.613	8.473	1.304	8.786
	(0.265)***	(0.184)***	(0.949)**	(2.735)***	(0.600)*	(1.821)***
R-squared	0.0575	0.0326	0.1648	0.1198	0.0634	0.2731
Observations	3361	2691	670	490	250	90
Number of Country	149	124	25	17	10	8
c) Trade Openness						
Standard Gross Private Flows	0.31	0.327	0.245	0.36	0.229	0.985
	(0.054)***	(0.068)***	(0.083)***	-0.246	-0.428	(0.452)**
R-squared	0.0595	0.0575	0.0881	0.0196	0.0107	0.0926
New Gross Private Flows	0.318	0.34	0.264	0.4	0.546	1.258
	(0.051)***	(0.070)***	(0.062)***	(0.227)*	-0.692	(0.510)**
R-squared	0.0757	0.0679	0.1654	0.0301	0.0519	0.1892
Observations	3584	2858	726	490	221	227
Number of Country	160	133	27	17	10	16

Yearly Data is used for all available countries. De Jure Financial Openness corresponds to the measure reported by Edwards (2004). De Jure Capital Openness represents the measured calculated by Chinn and Ito (2002). Trade Openness represents the value of Total Exports and Imports over GDP. All Gross Privates flows variables are deflated by current GDP.
*significant at 10%; ** significant at 5%, *** significant at 1%

Table 10b: Sample Correlation between Our Measures of Gross Inflows (Outflows) to GDP and de jure Financial and de facto Trade Integration

	All Countries	Developing	OECD	LATAM	East Asia	East Europe
Financial Integration Measure (2)						
Gross Private Inflows	0.2762***	0.2638***	0.3658***	0.3342***	0.5236***	0.6171***
Gross Private Outflows	0.2844***	0.2071***	0.4526***	0.0628	0.5152***	0.3603***
Observations	3140	2499	641	435	223	109
Capital Openness Measure (1)						
Gross Private Inflows	0.2625***	0.2401***	0.3289***	0.3621***	0.3517***	0.3511***
Gross Private Outflows	0.2986***	0.2311***	0.3802***	0.1206***	0.3682***	0.2156**
Observations	3361	2691	670	490	250	90
Trade Openness (3)						
Gross Private Inflows	0.4209***	0.449***	0.4574***	0.1463***	0.6675***	0.6022***
Gross Private Outflows	0.2781***	0.315***	0.4104***	0.0512	0.655***	0.4028***
Observations	3584	2858	726	490	221	227

Yearly Data is used for all available countries. All Gross Flows measures are deflated by current price GDP. De Jure Financial Openness corresponds to the measure reported by Edwards (2004). De Jure Capital Openness represents the measured calculated by Chinn and Ito (2002). Trade Openness represents the value of Total Exports and Imports over GDP. * significant at 5%

Table 11: Summary Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
New Measure					
Private Inflows	3888	0.09	0.28	0.00	4.98
Private Outflows	3888	0.06	0.20	0.00	4.04
Official Inflows	3888	0.05	0.22	0.00	4.35
Official Outflows	3888	0.04	0.25	0.00	4.86
Standard Measure					
Private Inflows	3869	0.05	0.22	-3.00	4.76
Private Outflows	3859	0.03	0.13	-3.62	2.18
Official Inflows	3884	0.03	0.16	-0.31	4.35
Official Outflows	3880	0.02	0.22	-2.45	4.46
Trade Openness	4682	76.09	44.54	1.53	330.60
Financial Integration	4276	53.97	24.75	0.00	100.00
Capital Integration	4417	-0.04	1.48	-1.71	2.68
Real GDP per Capita	5006	7.52	1.54	3.80	10.78
CPI Inflation	4389	0.15	0.34	-0.24	4.77
Exchange Rate Volatility	5278	0.05	0.13	0.00	2.65
Real Effective Exchange Rate	2891	4.68	0.36	2.74	7.71
Nominal Effective Exchange Rate	5242	-1.82	4.26	-10.13	27.29
Interest Rate Spread	3818	0.08	0.35	-0.12	11.48
Democracy Level	4102	0.00	0.08	-0.11	0.10
Expropriation Risk	4130	-0.03	0.37	-2.12	0.07

Yearly Data, all flows are deflated by nominal GDP**.**

Table 12: Current Cross-Correlations between Gross Inflows and Outflows

Dependent Variable	All	OECD	Developing	LATAM	ASIA
	Outflows	Outflows	Outflows	Outflows	Outflows
Inflows	0.712	0.905	0.587	0.329	0.67
	[0.054]**	[0.044]**	[0.096]**	[0.093]**	[0.119]**
Observations	7188	2930	4258	914	715
R-squared	0.3693	0.6543	0.2383	0.0758	0.2791
	Inflows	Inflows	Inflows	Inflows	Inflows
Outflows	0.517	0.721	0.404	0.216	0.416
	[0.054]**	[0.045]**	[0.086]**	[0.080]*	[0.090]**
Observations	7188	2930	4258	914	715
R-squared	0.3716	0.6549	0.2415	0.08	0.2785
Total Correlation	0.607	0.808	0.487	0.267	0.528

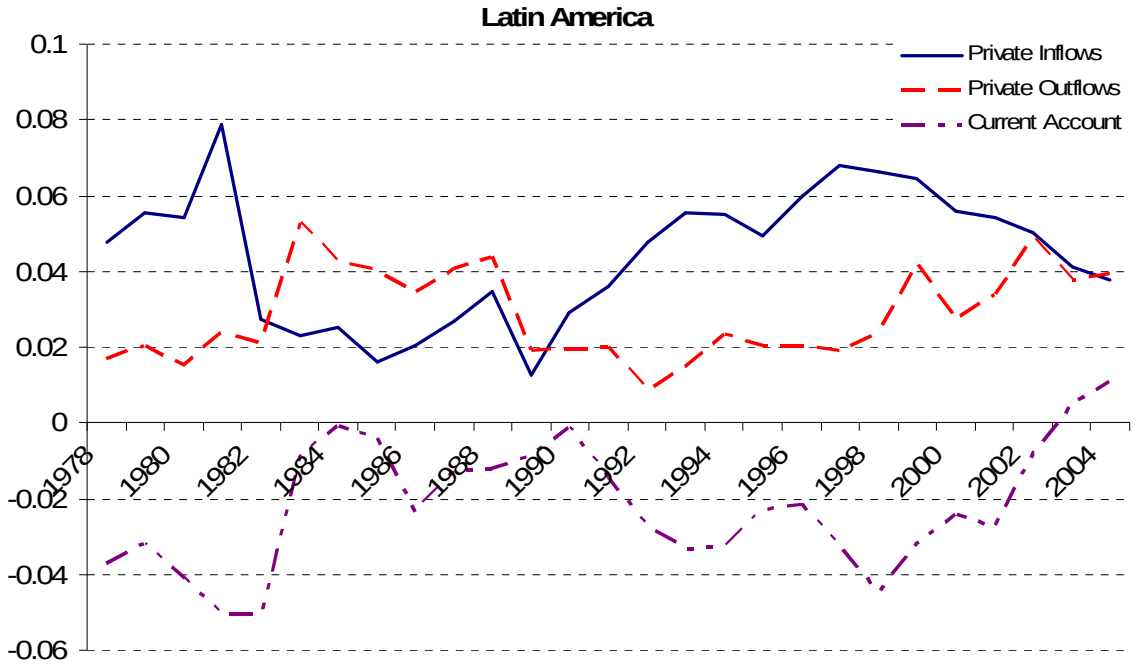
Robust standard errors in parentheses, quarterly data for all available countries
* significant at 5%; ** significant at 1%. All variables are in natural logs.
For Total Correlation we use the correlation between x and y = $\sqrt{(b[x]*b[y])}$
The regressions fitted a fixed-effects models by using the within regression estimator.

Table 13: Lag Cross-Correlations between Gross Inflows and Outflows

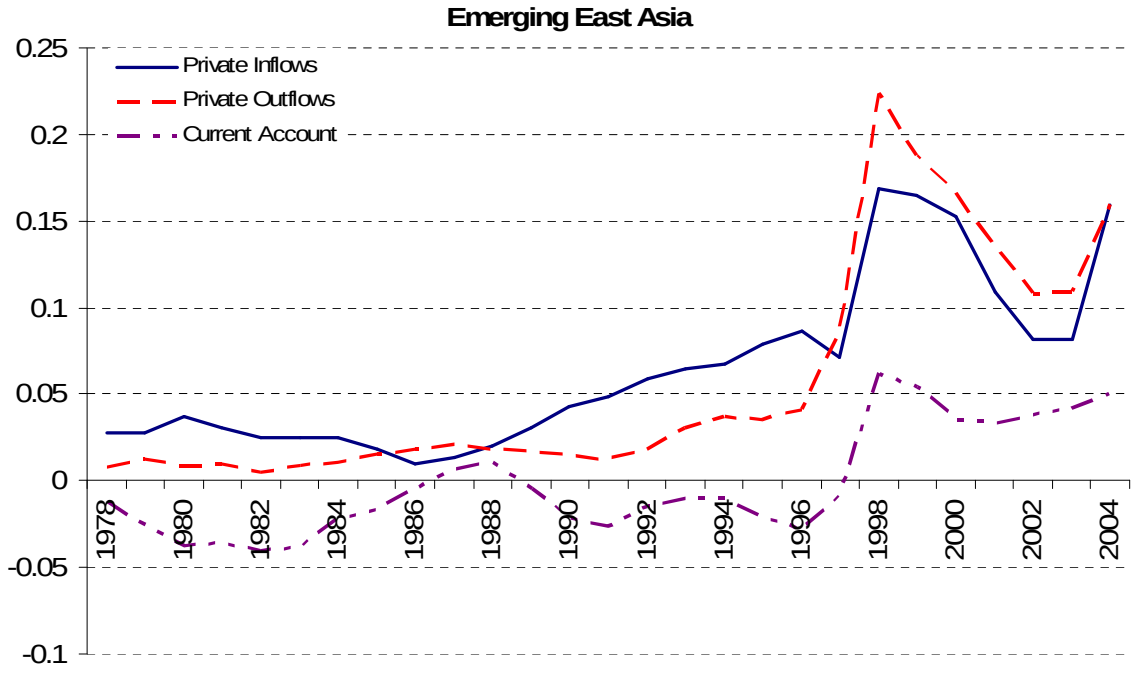
	All		**OECD**		**Developing**		**LATAM**		**EAST ASIA**	
	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows
Lag 1	0.206	0.243	0.229	0.267	0.186	0.223	0.092	0.028	0.102	0.168
	[0.020]**	[0.025]**	[0.024]**	[0.037]**	[0.031]**	[0.033]**	[0.027]**	[0.082]	[0.038]*	[0.038]**
Lag 2	0.181	0.229	0.169	0.199	0.175	0.234	0.062	0.076	0.142	0.232
	[0.020]**	[0.022]**	[0.018]**	[0.023]**	[0.031]**	[0.030]**	[0.035]	[0.065]	[0.037]**	[0.034]**
Lag 3	0.145	0.217	0.175	0.233	0.122	0.2	0.08	0.091	0.086	0.19
	[0.013]**	[0.023]**	[0.018]**	[0.028]**	[0.019]**	[0.032]**	[0.038]	[0.044]	[0.028]*	[0.041]**
Lag 4	0.147	0.206	0.22	0.278	0.111	0.173	0.061	0.325	0.152	0.286
	[0.018]**	[0.022]**	[0.029]**	[0.024]**	[0.024]**	[0.027]**	[0.056]	[0.052]**	[0.044]**	[0.099]*
Obs	6435	6634	2789	2792	3646	3842	805	844	640	672
Countries	109	109	30	30	79	79	16	16	9	9
R2	0.4986	0.4726	0.6863	0.6894	0.3828	0.3555	0.0918	0.1588	0.3345	0.4102

Notes: Robust standard errors in brackets, * significant at 5%; ** significant at 1%. All variables are expressed in natural Logs. Coefficients correspond to a fixed effects panel regression. Quarter dummies were use to eliminate seasonality. Lag (t) variables corresponds to (t) quarters lagged outflows for the regression with inflows as dependent variables and lagged inflows for the regression with outflows as the dependent variable.

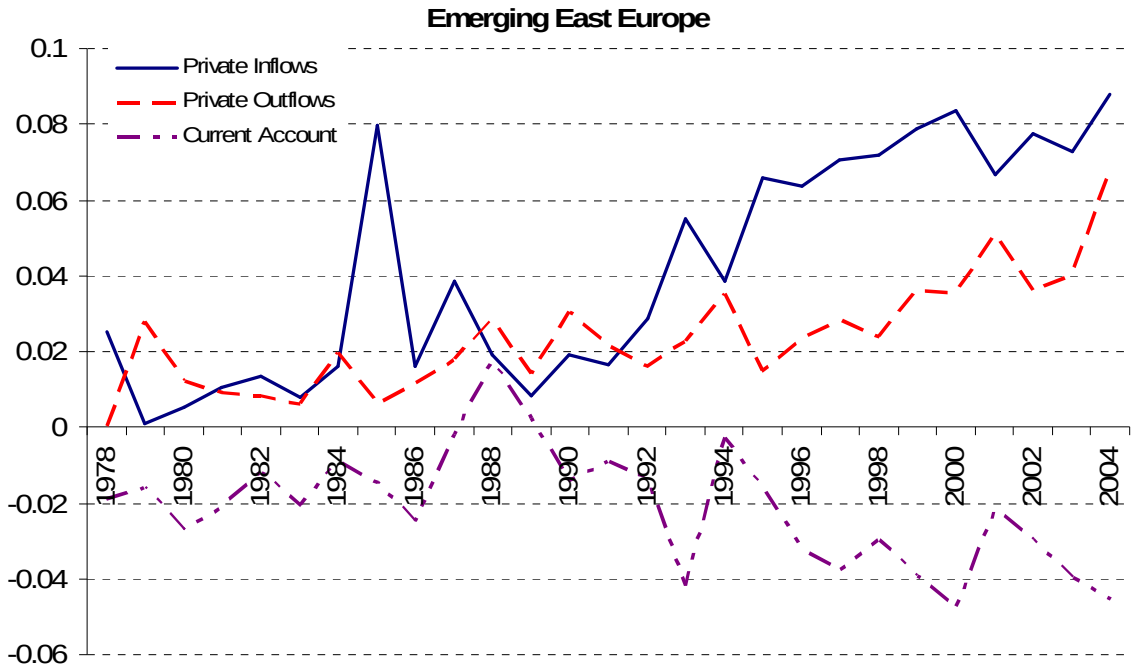
Figure 3: Inflows and Outflows as Percent of GDP by Our Measure. Selected Countries and Regions.



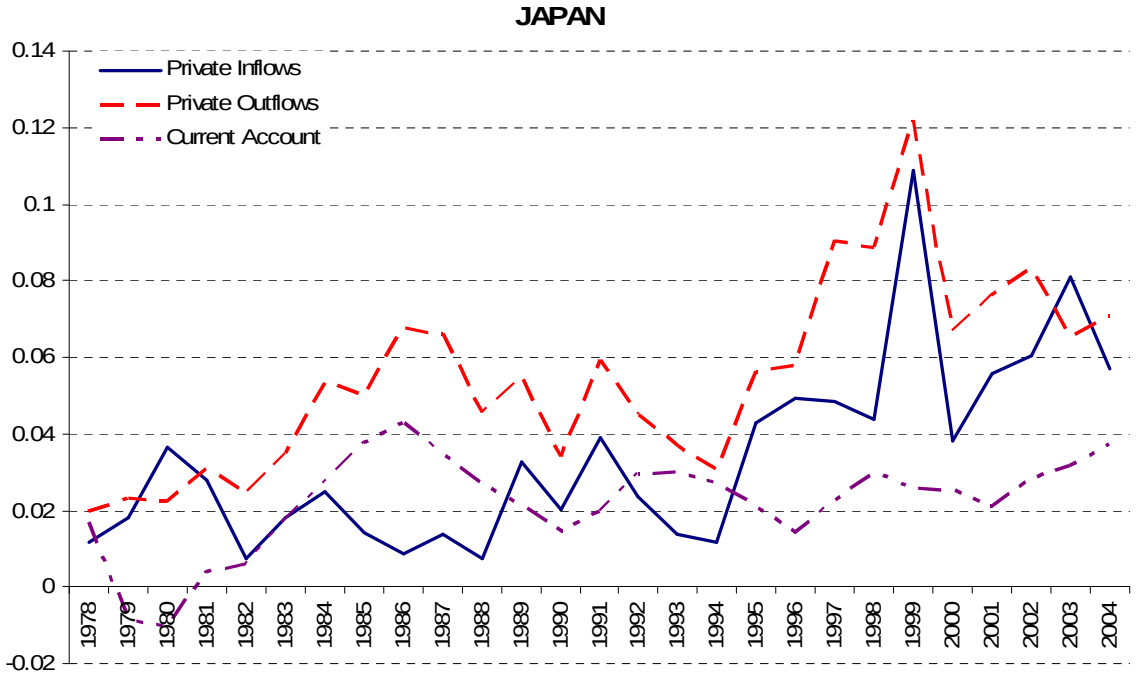
Note: Sample includes Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela. Capital flows to GDP are the country average.

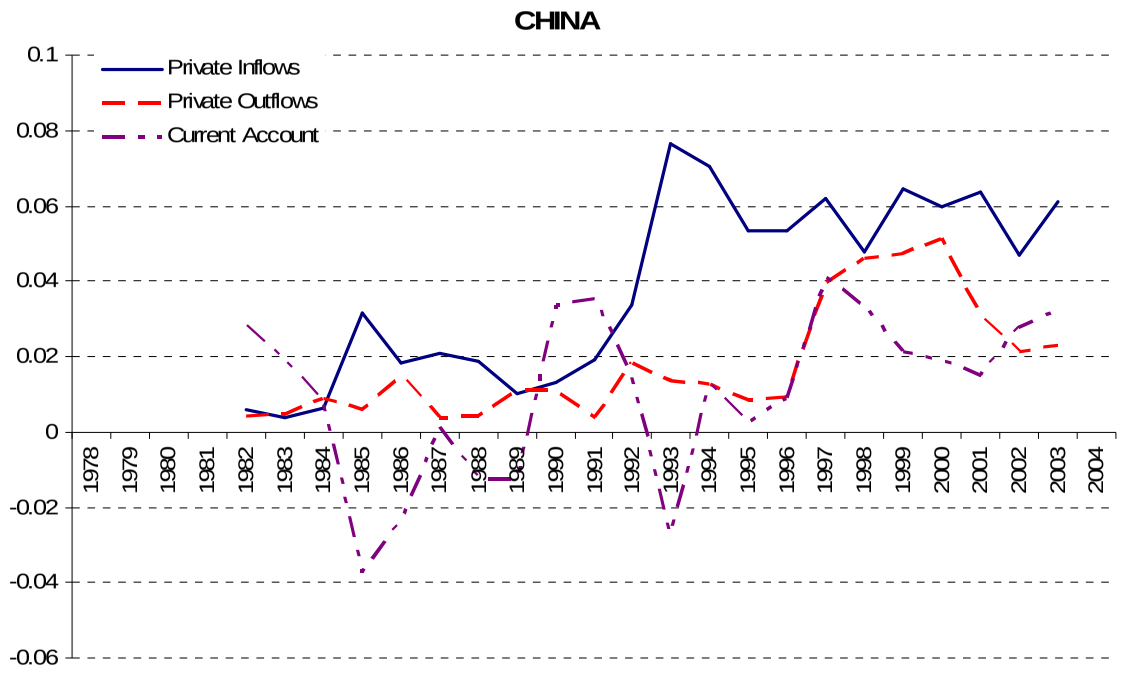


Note: Sample includes China,P.R.: Hong Kong, China, P.R.: Macao, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand . Capital flows to GDP are the country average.



Note: Sample includes Albania, Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, Czechoslovakia, Estonia, Hungary, Latvia, Moldova, Poland, Romania, Slovak Republic, Slovenia, Turkey, Ukraine. Capital flows to GDP are the country average.

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Private Inflows
Private Outflows
Current Account
0.1
0.08
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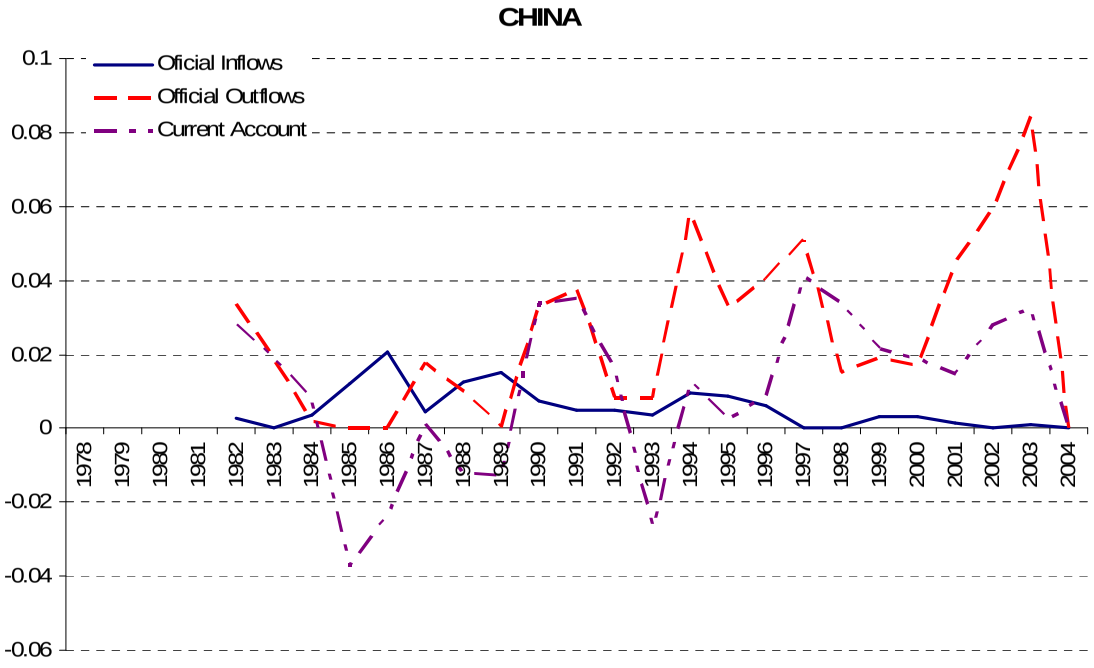
CHINA
Oficial Inflows
Official Outflows
Current Account
0.1
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-0.02
-0.04
-0.06
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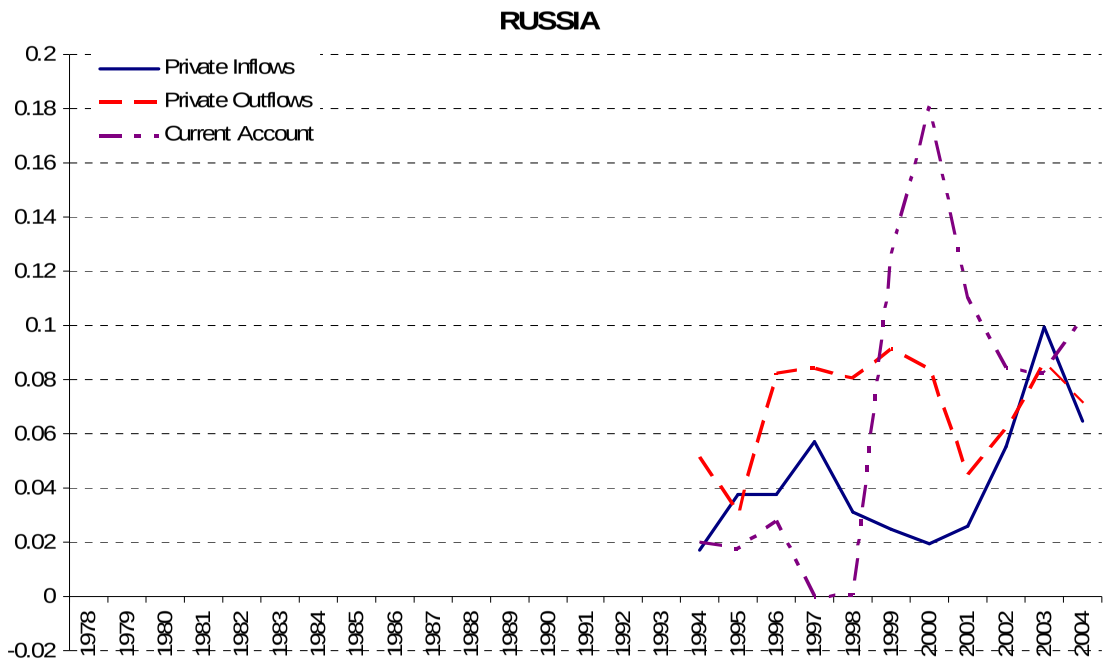
RUSSIA
Private Inflows
Private Outflows
Current Account
0.2
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RUSSIA
Oficial Inflows
Official Outflows
Current Account
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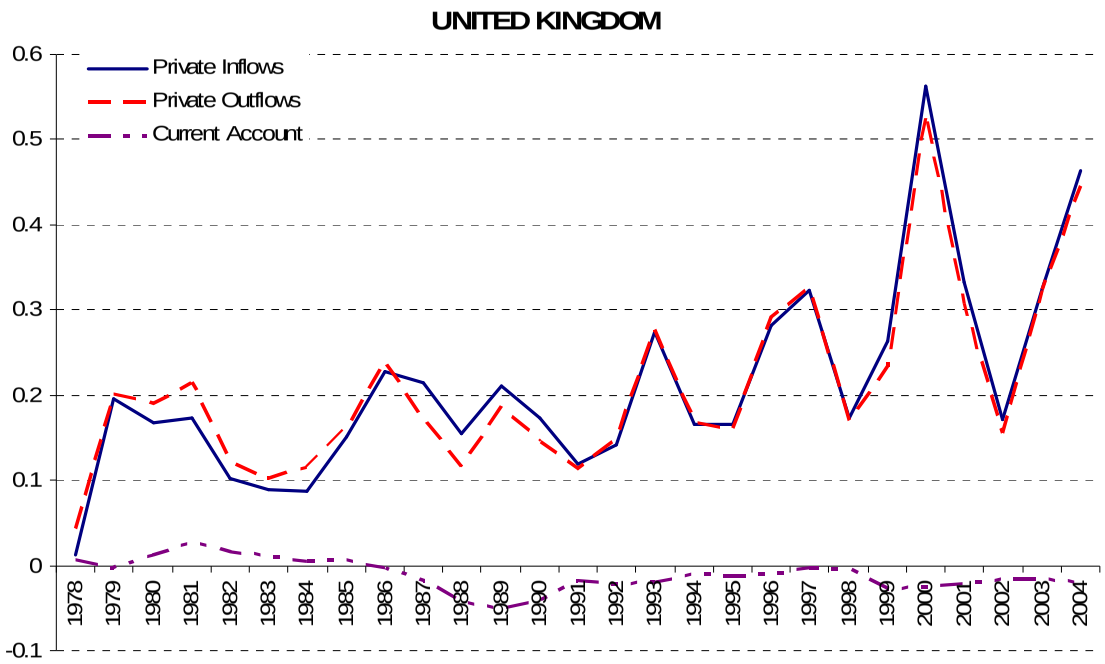
UNITED KINGDOM
Private Inflows
Private Outflows
Current Account
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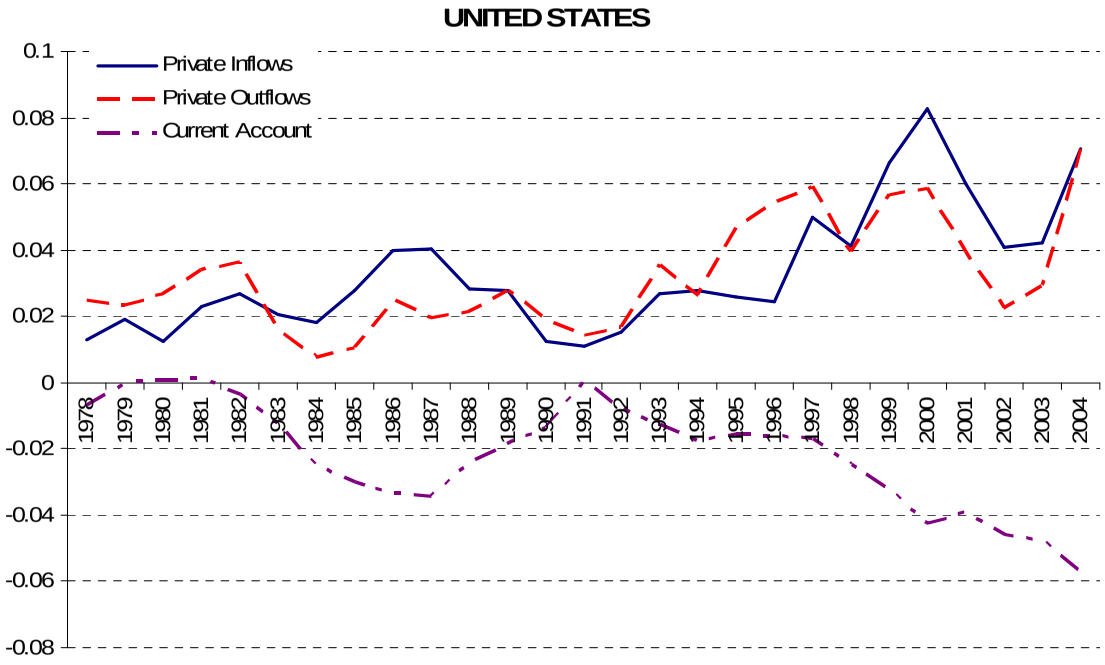
UNITED STATES
Private Inflows
Private Outflows
Current Account
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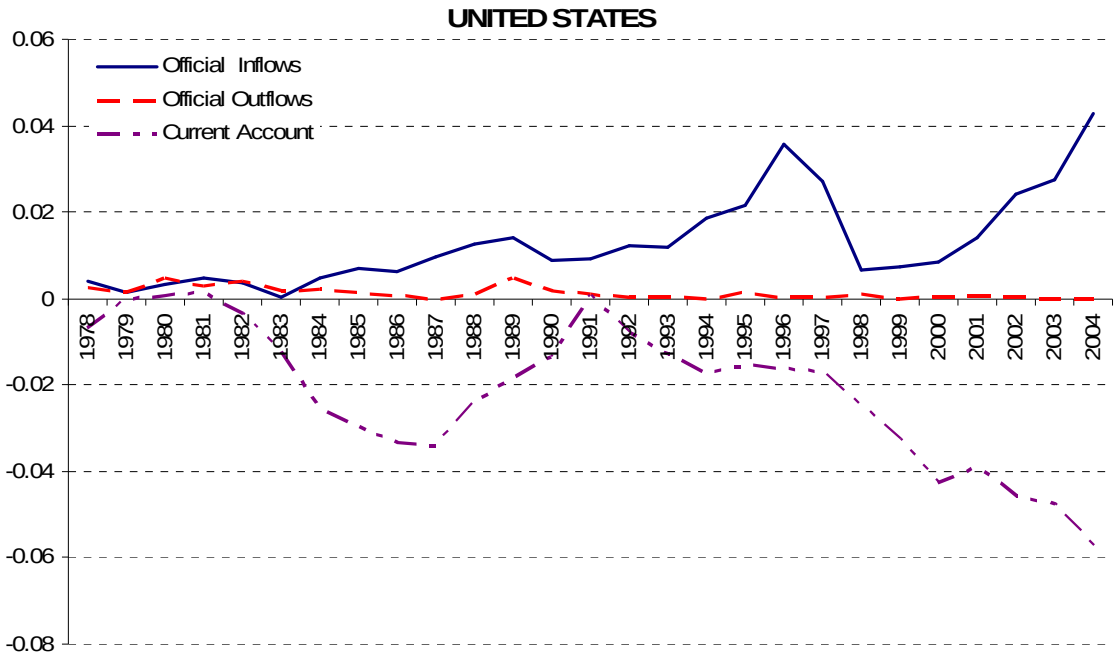
UNITED STATES
Official Inflows
Official Outflows
Current Account
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Table 14: Inflow-Outflow Correlation for Total Private, FDI and PI Gross Flows

Country	Totals	Total Private	FDI	PI Private
Developed Countries				
Australia	0.966***	0.966***	0.58***	0.512***
Austria	0.878***	0.88***	0.695***	0.713***
Belgium	0.966***	0.966***	0.877***	0.867***
Belgium-Luxembourg	0.994***	0.993***	0.993***	0.932***
Denmark	0.913***	0.887***	0.945***	0.496***
Finland	0.896***	0.829***	0.606***	0.499***
France	0.932***	0.932***	0.731***	0.713***
Germany	0.911***	0.911***	0.466***	0.568***
Italy	0.771***	0.766***	0.66***	0.324***
Japan	0.878***	0.913***	0.359***	0.258***
Netherlands	0.991***	0.99***	0.811***	0.807***
New Zealand	0.852***	0.579***	0.025	0.466***
Portugal	0.92***	0.919***	0.727***	0.599***
Spain	0.917***	0.917***	0.711***	0.496***
Sweden	0.935***	0.93***	0.372***	0.427***
United Kingdom	0.996***	0.996***	0.374***	0.508***
United States	0.873***	0.85***	0.564***	0.567***
Norway	0.834***	0.821***	0.208**	0.591***
Canada	0.91***	0.909***	0.602***	0.501***
Iceland	0.962***	0.963***	0.415***	0.684***
Ireland	0.985***	0.976***	0.474***	0.959***
Switzerland	0.948***	0.952***	0.315	-0.307
Emerging Asia				
Hong Kong	0.955***	0.95***	0.76***	0.081
India	0.47***	0.386***	0.825***	-0.065
Indonesia	-0.239**	-0.236**	-0.146	-0.105
Korea	0.69***	0.576***	0.678***	0.433***
Malaysia	-0.045	0.087	-0.178	-0.692***
Philippines	0.798***	0.79***	0.148	0.074
Singapore	0.672***	-0.107	0.115	0.015
Thailand	0.3***	0.282***	0.282***	0.007
Latin America				
Argentina	0.676***	0.72***	0.373***	0.196**
Bolivia	0.164	0.121	-0.171	-0.07
Brazil	0.518***	0.514***	0.405***	-0.007
Chile	0.688***	0.686***	0.493***	0.216
Colombia	0.019	0.019	0.112	-0.51***
Costa Rica	0.433**	0.417**	0.644***	0.495***
Ecuador	0.46***	0.46***		
Mexico	0.097	0.045	0.714***	-0.082
Guatemala	0.684***	0.675***	-0.097	-0.086
Nicaragua	0.425***	0.387***		
Panama	0.776***	0.807***	-0.253	-0.446**
Paraguay	-0.323	-0.346	-0.189	-0.325
Peru	0.319***	0.298***	0.015	0.096
Uruguay	0.568**	0.437	-0.661**	-0.177
Venezuela, Rep. Bol.	-0.064	-0.063	0.173	-0.097
East Europe				
Bulgaria	0.31**	0.391***	-0.086	-0.073
Czech Republic	0.556***	0.56***	-0.115	-0.186
Hungary	0.774***	0.774***	0.197	0.297**
Poland	0.414***	0.414***	0.416***	0.309**
Romania	0.29**	0.249*	0.21	-0.04
Russia	0.557***	0.309**	0.761***	0.023
Slovak Republic	0.409***	0.406***	-0.035	0.234
Turkey	0.361***	0.343***	0.547***	0.058

Other Developing				
Albania	0.295*	0.291*		-0.1
Armenia	0.38***	0.38***	0.128	-0.051
Aruba	-0.023	-0.022	-0.218*	*0.024*
Azerbaijan	0.912***	0.912***	0.923***	-0.114
Bangladesh	0.507***	0.488***	0.478***	-0.044
Belarus	-0.123	-0.111	-0.193	-0.156
Bosnia & Herzegovina	-0.102	-0.102	-0.074	
Cambodia	0.738***	0.742***	0.134	
Cameroon	0.281	0.281	-0.374	
Cape Verde	0.27	0.399*	0.103	-0.086
Croatia	0.398***	0.398***	0.286**	0.098
Cyprus	0.951***	0.929***	0.784***	0.457**
Eritrea	-0.032	-0.032		
Estonia	0.924***	0.905***	0.379***	0.7***
Ethiopia	0.242**	0.242**		
Georgia	0.495***	0.525***	0.68***	-0.072
Israel	0.702***	0.7***	0.565***	0.222**
Jordan	0.363***	0.354***	-0.114	0.015
Kazakhstan	0.836***	0.84***	0.031	0.071
Kyrgyz Republic	0.221	0.14	-0.184	-0.092
Lao People's Dem.Rep	-0.172	-0.172		
Latvia	0.899***	0.902***	0.035	-0.202
Lesotho	0.277**	0.277**	-0.071	
Lithuania	0.605***	0.605***	0.003	-0.079
Macedonia, FYR	0.382**	0.373**	0.02	0.311*
Malta	0.991***	0.958***	-0.236	0.179
Mauritius	0.44*	0.469*	-0.15	0.051
Moldova	-0.124	-0.123	-0.098	-0.214
Mozambique	0.162	-0.02		-0.174
Myanmar	0.162*	0.162*		
Namibia	0.258	0.163	-0.507**	-0.742***
Nepal	0.344***	0.051	-0.045	
Netherlands Antilles	-0.081	-0.026	-0.37*	-0.292
Nigeria	-0.242	-0.242		
Pakistan	0.102	-0.026	0.355***	-0.029
Papua New Guinea	0.486***	0.486***	0	0.193**
Seychelles	0.248*	0.248*	-0.2	-0.058
Slovenia	0.688***	0.684***	0.184	0.411***
South Africa	0.88***	0.894***	0.022	0.391***
Sri Lanka	0.681***	0.681***	0.181*	0.923***
Sudan	0.288***	0.288***	-0.05	
Suriname	-0.061	-0.061	-0.369***	0.278***
Tajikistan	0.189	0.235		
Tonga	-0.156	-0.156	-0.043	-0.028
Turkmenistan	0.827***	0.827***		
Uganda	0.693***	0.692***		
Ukraine	0.591***	0.708***	0.059	0.335**
Vanuatu	0.437***	0.375***	-0.301***	-0.07
Vietnam	-0.406**	-0.406**		
Yemen Arab Rep.	0.279*	0.279*	0.142	
Yemen, Republic of	-0.581**	-0.581**	-0.6**	-0.207
Zimbabwe	0.455***	0.455***	-0.242*	

Notes: Pearson Product-Moment Correlation Coefficient,

$$t = \frac{r}{\sqrt{(1-r^2)/N-2}},$$ where t is distributed as a t with N-2 degrees of freedom

Table 15b: Levin-Lin-Chu Test for Panel Unit Roots

	Deterministic	coefficient	t-value	t-star	P > t	Obs	Lags*
Total Private	Constant + Trend	-0.598	-25.141	-5.990	0.000	1990	1.35
Capital Flows	Constant	-0.276	-14.071	-1.363	0.087		
Private	Constant + Trend	-0.624	-26.394	-7.047	0.000	1906	1.28
Capital Inflows	Constant	-0.331	-16.741	-4.129	0.000		
Private	Constant + Trend	-0.629	-26.502	-7.66312	0.000	1907	1.27
Capital Outflows	Constant	-0.297	-15.178	-2.87078	0.002		
Official	Constant + Trend	-0.803	-33.553	-13.269	0.000	1958	0.72
Capital Outflows	Constant	-0.693	-30.053	-16.062	0.000		
Official	Constant + Trend	-0.842	-33.682	-13.932	0.000	1937	0.95
Capital Inflows	Constant	-0.726	-30.304	-15.816	0.000		

p-Value evaluates the Null Hypothesis of the series being a Non-Stationary process
(See LLC, 2001)

Table 16: Im-Pesaran-Shin Test for Panel Unit Roots

	Deterministic	t-bar	Critical 10 %	Critical 5%	Critical 1%	W[t-bar]	P-value	Obs	Lags*
Total Private	Constant + Trend	-2.536	-2.28	-2.31	-2.37	-4.397	0.000	1990	1.35
Capital Flows	Constant	-1.645	-1.64	-1.67	-1.73	-1.626	0.052		
Private	Constant + Trend	-2.684	-2.28	-2.31	-2.37	-5.935	0.000	1906	1.28
Capital Inflows	Constant	-1.954	-1.64	-1.67	-1.73	-4.762	0.000		
Private	Constant + Trend	-2.708	-2.28	-2.31	-2.37	-6.313	0.000	1907	1.27
Capital Outflows	Constant	-1.798	-1.64	-1.67	-1.73	-3.214	0.001		
Official	Constant + Trend	-3.311	-2.28	-2.31	-2.37	-12.83	0.000	1958	0.72
Capital Outflows	Constant	-3.086	-1.64	-1.67	-1.73	-16.504	0.000		
Official	Constant + Trend	-3.315	-2.28	-2.31	-2.37	-12.929	0.000	1937	0.95
Capital Inflows	Constant	-3.134	-1.64	-1.67	-1.73	-16.994	0.000		

p-Value evaluates the Null Hypothesis of the series being a Non-Stationary process
(See IPS, 1997)

Table 17: Determinants of Gross Flows for Industrial Nations (OECD): New Measure

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows
Lagged Gross Private Outflows	0.17408***	0.55701***	0.20165***	0.58343***	0.16847**	0.57960***
	[0.06187]	[0.06703]	[0.07171]	[0.07282]	[0.06146]	[0.07407]
Lagged Gross Private Inflows	0.50247***	0.12575*	0.48024***	0.09418	0.51921***	0.09137
	[0.06373]	[0.06967]	[0.06486]	[0.06451]	[0.06169]	[0.07204]
Lagged Gross Official Outflows	-0.07148	-0.01466	-0.10894	-0.01578	-0.12487	-0.00851
	[0.07307]	[0.06312]	[0.08850]	[0.06451]	[0.09155]	[0.07537]
Lagged Gross Official Inflows	-0.07955	0.0025	-0.10302*	0.00232	-0.0749	-0.01468
	[0.06301]	[0.06214]	[0.06004]	[0.06755]	[0.05929]	[0.06751]
Lagged Real Income Per Capita	-0.05058***	-0.01957	-0.04864***	-0.02127	-0.04730***	-0.01336
	[0.01468]	[0.02173]	[0.01293]	[0.01655]	[0.01277]	[0.01500]
Lagged Trade Openness	-0.07225**	-0.07767**	-0.04437*	-0.04124	-0.03983*	-0.02974
	[0.02669]	[0.03017]	[0.02318]	[0.02482]	[0.02190]	[0.02504]
% Appreciation Of the REER	0.00143	-0.0171				
	[0.01130]	[0.01308]				
Lagged Real Effective Exchange Rate	-0.00587	-0.00174				
	[0.00997]	[0.01084]				
Lagged Interest Rate Spread	-0.02916	-0.0143				
	[0.02136]	[0.02572]				
% Appreciation Of the NER			0.003	-0.00657	-0.00394	-0.00823
			[0.01120]	[0.00986]	[0.01059]	[0.01043]
Lagged Nominal Exchange Rate			0.00169	0.00379*	0.00216	0.00381*
			[0.00125]	[0.00196]	[0.00132]	[0.00195]
Lagged CPI Inflation			-0.00918	-0.0156	-0.0139	-0.01696
			[0.01773]	[0.01632]	[0.01759]	[0.01667]
Lagged Democracy					0.06534	-0.08907**
					[0.06223]	[0.04032]
lagged Political Instability					-0.25794	-0.38141
					[0.58713]	[0.53611]
Time Trend	0.00083	0.00024	0.00079	0.00013	0.001	0.00016
	[0.00070]	[0.00073]	[0.00072]	[0.00065]	[0.00059]	[0.00058]
Quadratic Time Trend	0.00005*	0.00005**	0.00005*	0.00006**	0.00004	0.00005**
	[0.00003]	[0.00002]	[0.00003]	[0.00002]	[0.00002]	[0.00002]
Observations	673	673	647	647	604	604
Number of Countries	26	26	26	26	23	23
Overall R-squared	0.6064	0.6369	0.6036	0.637	0.6205	0.6372

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

Table 18: Determinants of Gross flows for Developing Nations (Non-OECD): New Measure

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows
Lagged Gross Private Outflows	0.23354***	0.72486***	0.20421***	0.69898***	0.22954***	0.69293***
	[0.07983]	[0.08308]	[0.07351]	[0.08153]	[0.07603]	[0.08329]
Lagged Gross Private Inflows	0.62169***	0.15132***	0.68238***	0.17926***	0.69995***	0.21295***
	[0.04419]	[0.03561]	[0.05887]	[0.04028]	[0.07294]	[0.04832]
Lagged Gross Official Outflows	-0.06611**	-0.06050**	-0.07313**	-0.06283**	-0.05468	-0.05926*
	[0.03075]	[0.02970]	[0.03600]	[0.02763]	[0.03509]	[0.03241]
Lagged Gross Official Inflows	0.03019	-0.02815	0.03519	-0.02149	0.02363	-0.02868
	[0.03591]	[0.02515]	[0.04421]	[0.02941]	[0.04948]	[0.03181]
Lagged Trade Openness	0.03565	0.01633	0.05988**	0.01539	0.05712*	-0.00069
	[0.02226]	[0.01856]	[0.02963]	[0.01992]	[0.03025]	[0.02366]
Lagged Real Effective Exchange Rate	0.00789**	0.00892**	0.00723	0.01432***	0.00765	0.01242**
	[0.00378]	[0.00438]	[0.00465]	[0.00519]	[0.00477]	[0.00561]
% Appreciation Of the REER	0.00404	0.00434	-0.00375	0.0073	-0.00564	0.00796
	[0.00582]	[0.00553]	[0.00586]	[0.00745]	[0.00740]	[0.00839]
Lagged Real Income Per Capita	0.01489*	0.01858**	0.01225	0.02891***	0.00228	0.03518**
	[0.00776]	[0.00733]	[0.01120]	[0.01016]	[0.01265]	[0.01419]
Lagged CPI Inflation	-0.00255	-0.00059				
	[0.00190]	[0.00198]				
Lagged Nominal Exchange Volatility			-0.03079***	-0.01006	-0.03592***	-0.00336
			[0.00856]	[0.01107]	[0.01077]	[0.01502]
Lagged Interest Rate Spread			0.00309***	0.00272	0.00182	0.00015
			[0.00113]	[0.00183]	[0.00415]	[0.00424]
Lagged Democracy					0.09688	-0.03148
					[0.06423]	[0.04191]
Political Instability					-0.82593	0.02161
					[0.61449]	[0.71210]
Lagged Expropriation Risk					0.0014	-0.00025
					[0.00342]	[0.00395]
Time Trend	0.00454***	0.00125	0.00467***	0.00288*	0.00503***	0.0025
	[0.00106]	[0.00161]	[0.00113]	[0.00161]	[0.00121]	[0.00195]
Quadratic Time Trend	-0.00009***	-0.00002	-0.00009***	-0.00005	-0.00011***	-0.00004
	[0.00002]	[0.00004]	[0.00003]	[0.00004]	[0.00003]	[0.00004]
Observations	1317	1317	1145	1145	887	887
Number of Countries	72	72	69	69	50	50
Overall R-squared	0.7318	0.7074	0.7214	0.6561	0.7353	0.6574

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

Table 19: Determinants of Gross flows for Industrial Nations (OECD): Standard Measure

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	**Inflows**	**Outflows**	**Inflows**	**Outflows**	**Inflows**	**Outflows**
Lagged Gross Private Outflows	0.0479	0.44052***	0.05165	0.42882***	0.01714	0.42725***
	[0.05766]	[0.05302]	[0.06114]	[0.06134]	[0.05461]	[0.06622]
Lagged Gross Private Inflows	0.44056***	0.04373	0.44462***	0.04588	0.47249***	0.03948
	[0.06191]	[0.04842]	[0.06217]	[0.04512]	[0.05922]	[0.05008]
Lagged Gross Official Outflows	0.0265	0.17973**	0.03718	0.19639**	0.00186	0.18838*
	[0.06297]	[0.06890]	[0.07652]	[0.08128]	[0.09441]	[0.09646]
Lagged Gross Official Inflows	-0.1133	-0.04169	-0.14280**	-0.06893	-0.10482	-0.07819
	[0.06924]	[0.05562]	[0.06838]	[0.05352]	[0.06394]	[0.05261]
Lagged Real Income Per Capita	-0.04693**	-0.01726	-0.04181***	-0.01857	-0.03842**	-0.00749
	[0.01797]	[0.02420]	[0.01393]	[0.02122]	[0.01659]	[0.01928]
Lagged Trade Openness	-0.06846*	-0.05745	-0.06278*	-0.05269	-0.05086	-0.03535
	[0.03576]	[0.03658]	[0.03192]	[0.03384]	[0.03284]	[0.03436]
% Appreciation Of the REER	0.07068**	-0.02705				
	[0.02721]	[0.02509]				
Lagged Real Effective Exchange Rate	0.00863	-0.0023				
	[0.01509]	[0.01476]				
Lagged Interest Rate Spread	-0.03672	-0.01142				
	[0.02430]	[0.03149]				
% Appreciation Of the NER			0.01389	-0.02188	0.00793	-0.02677*
			[0.01754]	[0.01434]	[0.01883]	[0.01466]
Lagged Nominal Exchange Rate			0.00024	0.00188	0.00062	0.00198*
			[0.00112]	[0.00114]	[0.00089]	[0.00108]
Lagged CPI Inflation			-0.00429	-0.01375	-0.00521	-0.0154
			[0.01370]	[0.01160]	[0.01360]	[0.01030]
Lagged Democracy					0.04369	-0.10280**
					[0.05725]	[0.04438]
lagged Political Instability					-0.22134	-0.86557**
					[0.85013]	[0.37882]
Time Trend	0.00061	-0.00018	0.00055	-0.00001	0.00077	0.00002
	[0.00064]	[0.00074]	[0.00077]	[0.00078]	[0.00065]	[0.00070]
Quadratic Time Trend	0.00005*	0.00006**	0.00004	0.00005*	0.00003	0.00004*
	[0.00002]	[0.00002]	[0.00003]	[0.00003]	[0.00002]	[0.00002]
Observations	681	681	647	647	604	604
Number of Countries	26	26	26	26	23	23
Overall R-squared	0.3647	0.3837	0.3328	0.351	0.331	0.3491

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

Table 20: Determinants of Gross flows for Developing Nations (non-OECD): Standard Measure

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows
Lagged Gross Private Outflows	0.22934*	0.68143***	0.21343*	0.67839***	0.32479***	0.77624***
	[0.12688]	[0.14204]	[0.12322]	[0.14480]	[0.10842]	[0.10880]
Lagged Gross Private Inflows	0.49812***	0.0377	0.54733***	0.0491	0.53626***	0.06704
	[0.07402]	[0.06185]	[0.06453]	[0.05119]	[0.07112]	[0.05861]
Lagged Gross Official Outflows	-0.00525	0.00863	-0.02991	0.00993	-0.03687	-0.00152
	[0.01526]	[0.01427]	[0.03462]	[0.01566]	[0.03928]	[0.00949]
Lagged Gross Official Inflows	0.01886	-0.02574	-0.02393	-0.00695	-0.02304	-0.00153
	[0.03414]	[0.03218]	[0.05356]	[0.03580]	[0.06195]	[0.04160]
Lagged Trade Openness	0.02245	0.00842	0.06042	0.01295	0.08205*	0.01299
	[0.02654]	[0.02444]	[0.04258]	[0.02550]	[0.04585]	[0.02476]
Lagged Real Effective Exchange Rate	0.00945**	0.00413	0.00935	0.01108**	0.00952	0.00988**
	[0.00470]	[0.00431]	[0.00566]	[0.00490]	[0.00577]	[0.00470]
% Appreciation Of the REER	0.03055***	-0.01091***	0.03097***	-0.02203***	0.03122***	-0.01643**
	[0.01100]	[0.00401]	[0.01081]	[0.00609]	[0.01102]	[0.00636]
Lagged Real Income Per Capita	0.02025*	0.02215**	0.01536	0.03677**	-0.0096	0.02656**
	[0.01197]	[0.00999]	[0.01582]	[0.01429]	[0.01664]	[0.01187]
Lagged CPI Inflation	-0.00261	0.00206				
	[0.00214]	[0.00206]				
Lagged Nominal Exchange Volatility			-0.01528	-0.00475	-0.02815**	-0.00137
			[0.00985]	[0.00945]	[0.01263]	[0.01274]
Lagged Interest Rate Spread			0.00258	0.00454**	0.00676	0.00446
			[0.00197]	[0.00184]	[0.00560]	[0.00532]
Lagged Democracy					0.0479	-0.04373
					[0.07436]	[0.02818]
Political Instability					-0.52217	0.0114
					[0.49769]	[0.50674]
Lagged Expropriation Risk					0.0019	0
					[0.00283]	[0.00313]
Time Trend	0.00312***	-0.00038	0.00268**	0.00136	0.00312**	0.00098
	[0.00116]	[0.00166]	[0.00112]	[0.00139]	[0.00119]	[0.00156]
Quadratic Time Trend	-0.00005**	0.00002	-0.00005*	-0.00002	-0.00006**	-0.00001
	[0.00003]	[0.00004]	[0.00002]	[0.00003]	[0.00003]	[0.00003]
Observations	1357	1357	1180	1180	921	921
Number of Countries	72	72	69	69	50	50
Overall R-squared	0.4561	0.5115	0.4778	0.5523	0.5394	0.6884

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

Table 21: Determinants of Gross flows for Industrial Nations (OECD): New Measure. Lagged Dependent Variable Excluded as Regressor.

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows
Lagged Gross Private Outflows	0.60267***		0.60849***		0.61515***	
	[0.10142]		[0.10158]		[0.10559]	
Lagged Gross Private Inflows		0.58341***		0.55552***		0.56270***
		[0.09351]		[0.09091]		[0.09330]
Lagged Gross Official Outflows	0.08966	-0.18215*	0.03253	-0.17070*	0.0004	-0.12725
	[0.10104]	[0.09373]	[0.11858]	[0.09190]	[0.12381]	[0.10574]
Lagged Gross Official Inflows	-0.36924***	0.34348***	-0.38609***	0.34161***	-0.38503***	0.32684***
	[0.08411]	[0.07870]	[0.07770]	[0.08292]	[0.08378]	[0.08707]
Lagged Real Income Per Capita	-0.04856**	-0.03079	-0.06003***	-0.01834	-0.06603***	-0.00068
	[0.01767]	[0.02885]	[0.01596]	[0.02024]	[0.02036]	[0.01775]
Lagged Trade Openness	-0.03906	-0.11136***	-0.02164	-0.05076	-0.02747	-0.02415
	[0.03496]	[0.03857]	[0.03626]	[0.03053]	[0.03540]	[0.02947]
% Appreciation Of the REER	-0.00137	-0.01811				
	[0.01413]	[0.01490]				
Lagged Real Effective Exchange Rate	0.01689	-0.02670*				
	[0.01243]	[0.01445]				
Lagged Interest Rate Spread	-0.03225	-0.01424				
	[0.02289]	[0.04017]				
% Appreciation Of the NER			0.00389	-0.01387	-0.00444	-0.01256
			[0.01304]	[0.01217]	[0.01281]	[0.01179]
Lagged Nominal Exchange Rate			0.00255	0.00521**	0.00291	0.00528**
			[0.00153]	[0.00217]	[0.00184]	[0.00190]
Lagged CPI Inflation			-0.02072	-0.00311	-0.02747	-0.00181
			[0.02194]	[0.02058]	[0.02217]	[0.01949]
Lagged Democracy					0.10566	-0.16018**
					[0.10797]	[0.06140]
lagged Political Instability					-0.58152	-0.3774
					[1.19817]	[0.74031]
Time Trend	0.00083	0.00004	0.00092	-0.00022	0.00142*	-0.00051
	[0.00096]	[0.00095]	[0.00091]	[0.00092]	[0.00081]	[0.00087]
Quadratic Time Trend	0.00005	0.00007***	0.00005*	0.00008***	0.00004	0.00008***
	[0.00003]	[0.00002]	[0.00003]	[0.00003]	[0.00003]	[0.00003]
Observations	673	673	647	647	604	604
Number of Countries	26	26	26	26	23	23
Overall R-squared	0.5663	0.5912	0.5643	0.5839	0.5769	0.5884

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

Table 22: Determinants of Gross flows for Developing Nations (non-OECD): New Measure. Lagged Dependent Variable Excluded as Regressor.

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	**Inflows**	**Outflows**	**Inflows**	**Outflows**	**Inflows**	**Outflows**
Lagged Gross Private Outflows	0.63927***		0.65707***		0.70589***	
	[0.16935]		[0.15858]		[0.17921]	
Lagged Gross Private Inflows		0.60213***		0.58958***		0.64769***
		[0.19757]		[0.18228]		[0.19551]
Lagged Gross Official Outflows	0.04306	-0.15149**	0.09522*	-0.13932**	0.12095**	-0.14786*
	[0.05451]	[0.07200]	[0.05667]	[0.06196]	[0.05917]	[0.07679]
Lagged Gross Official Inflows	0.00766	0.01817	0.03745	0.00319	0.0297	-0.00766
	[0.05349]	[0.03023]	[0.06977]	[0.04280]	[0.07704]	[0.04176]
Lagged Trade Openness	0.05989	0.05857	0.11121**	0.04195	0.12935**	0.00434
	[0.03929]	[0.04251]	[0.05177]	[0.03977]	[0.05285]	[0.04333]
Lagged Real Effective Exchange Rate	0.01718**	0.01378	0.01631*	0.02677**	0.01716*	0.02257**
	[0.00695]	[0.00842]	[0.00836]	[0.01101]	[0.00890]	[0.01085]
% Appreciation Of the REER	0.01651*	-0.02404***	0.01771*	-0.02628**	0.0178	-0.02615*
	[0.00854]	[0.00847]	[0.00991]	[0.01205]	[0.01205]	[0.01349]
Lagged Real Income Per Capita	0.03277**	0.03308*	0.03112	0.05874**	0.00254	0.07485**
	[0.01387]	[0.01671]	[0.02081]	[0.02571]	[0.02651]	[0.03686]
Lagged CPI Inflation	-0.01098**	0.01165***				
	[0.00420]	[0.00403]				
Lagged Nominal Exchange Volatility			-0.06343***	0.03901***	-0.07610***	0.05312***
			[0.01566]	[0.01100]	[0.01903]	[0.01329]
Lagged Interest Rate Spread			0.00607***	-0.00018	0.0016	-0.00139
			[0.00181]	[0.00162]	[0.00585]	[0.00342]
Lagged Democracy					0.16907	-0.12317
					[0.13820]	[0.11697]
Political Instability					-1.04527	0.51432
					[0.67644]	[0.87401]
Lagged Expropriation Risk					-0.00105	0.00144
					[0.00492]	[0.00736]
Time Trend	0.00593***	0.0001	0.00507**	0.00383	0.00601**	0.00241
	[0.00202]	[0.00287]	[0.00236]	[0.00309]	[0.00253]	[0.00350]
Quadratic Time Trend	-0.00011**	0.00002	-0.00009*	-0.00006	-0.00012**	-0.00002
	[0.00004]	[0.00007]	[0.00005]	[0.00007]	[0.00005]	[0.00008]
Observations	1317	1317	1145	1145	887	887
Number of Countries	72	72	69	69	50	50
Overall R-squared	0.4906	0.4645	0.4728	0.5086	0.5068	0.5496

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

Table 23: Determinants of Gross flows for Industrial Nations (OECD): Standard Measure. Lagged Dependent Variable Excluded as Regressor.

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	Inflows	Outflows	Inflows	Outflows	Inflows	Outflows
Lagged Gross Private Outflows	0.44046***		0.45244***		0.44545***	
	[0.06116]		[0.06790]		[0.06390]	
Lagged Gross Private Inflows		0.39177***		0.37086***		0.36989***
		[0.03189]		[0.03586]		[0.03667]
Lagged Gross Official Outflows	0.20256**	-0.00201	0.21843**	0.03145	0.18371*	0.03411
	[0.07503]	[0.09368]	[0.08556]	[0.10609]	[0.10537]	[0.12247]
Lagged Gross Official Inflows	-0.36127***	0.18395**	-0.38919***	0.12897**	-0.35893***	0.11382*
	[0.04939]	[0.06998]	[0.04762]	[0.05777]	[0.05525]	[0.05745]
Lagged Real Income Per Capita	-0.04051*	-0.02358	-0.04874***	-0.01511	-0.05181**	0.00241
	[0.01990]	[0.03178]	[0.01695]	[0.02519]	[0.02146]	[0.02298]
Lagged Trade Openness	-0.03394	-0.08452*	-0.04124	-0.06684*	-0.03982	-0.03854
	[0.04159]	[0.04428]	[0.03732]	[0.03895]	[0.03918]	[0.03899]
% Appreciation Of the REER	0.05886**	-0.0125				
	[0.02765]	[0.02831]				
Lagged Real Effective Exchange Rate	0.02909	-0.01731				
	[0.01793]	[0.01754]				
Lagged Interest Rate Spread	-0.04217*	-0.00738				
	[0.02230]	[0.04214]				
% Appreciation Of the NER			0.00532	-0.01625	0.00026	-0.02227
			[0.01747]	[0.01649]	[0.01934]	[0.01643]
Lagged Nominal Exchange Rate			0.00048	0.00240*	0.0009	0.00247*
			[0.00129]	[0.00137]	[0.00106]	[0.00138]
Lagged CPI Inflation			-0.02387	0.00486	-0.02592*	0.00338
			[0.01424]	[0.01559]	[0.01396]	[0.01377]
Lagged Democracy					0.07599	-0.14562**
					[0.09064]	[0.06354]
lagged Political Instability					-1.10956	-0.33242
					[1.24097]	[0.48310]
Time Trend	0.00059	-0.00031	0.00065	-0.00017	0.00117	-0.00038
	[0.00084]	[0.00098]	[0.00092]	[0.00100]	[0.00081]	[0.00095]
Quadratic Time Trend	0.00004	0.00007***	0.00004	0.00006*	0.00002	0.00006*
	[0.00003]	[0.00003]	[0.00003]	[0.00003]	[0.00003]	[0.00003]
Observations	681	681	647	647	604	604
Number of Countries	26	26	26	26	23	23
Overall R-squared	0.3228	0.3431	0.2862	0.3085	0.2788	0.3079

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

Table 24: Determinants of Gross flows. Developing Nations (non-OECD): Standard Measure. Lagged Dependent Variable Excluded as Regressor.

Specification	1	1	2	2	3	3
Determinants of Gross Private Inflows	**Inflows**	**Outflows**	**Inflows**	**Outflows**	**Inflows**	**Outflows**
Lagged Gross Private Outflows	0.59988***		0.63975***		0.76538***	
	[0.20714]		[0.19151]		[0.18091]	
Lagged Gross Private Inflows		0.42437*		0.41552**		0.48843**
		[0.22218]		[0.20639]		[0.21875]
Lagged Gross Official Outflows	0.02775	-0.02906	-0.00282	-0.01495	-0.01605	-0.02209
	[0.02764]	[0.02595]	[0.03564]	[0.02080]	[0.03786]	[0.02344]
Lagged Gross Official Inflows	0.0022	-0.01896	-0.0534	0.00135	-0.05914	0.01657
	[0.04056]	[0.04240]	[0.07089]	[0.04092]	[0.08285]	[0.05034]
Lagged Trade Openness	0.03848	0.03772	0.10769*	0.0209	0.15065**	-0.00688
	[0.04128]	[0.05339]	[0.06225]	[0.04809]	[0.06245]	[0.04608]
Lagged Real Effective Exchange Rate	0.01874**	0.0029	0.014	0.01868*	0.01379	0.01791
	[0.00760]	[0.00729]	[0.00883]	[0.01094]	[0.00880]	[0.01093]
% Appreciation Of the REER	0.03927***	-0.01948**	0.02860**	-0.02124***	0.02554**	-0.01176
	[0.01178]	[0.00778]	[0.01109]	[0.00786]	[0.01102]	[0.00827]
Lagged Real Income Per Capita	0.03343*	0.03637*	0.02633	0.06705**	-0.01442	0.07880*
	[0.01719]	[0.01914]	[0.02304]	[0.02964]	[0.02780]	[0.03955]
Lagged CPI Inflation	-0.00907**	0.00938*				
	[0.00361]	[0.00486]				
Lagged Nominal Exchange Volatility			-0.05936***	0.03660*	-0.07970***	0.05466**
			[0.01457]	[0.01900]	[0.01821]	[0.02400]
Lagged Interest Rate Spread			0.00730***	0.00075	0.01157**	-0.00101
			[0.00209]	[0.00188]	[0.00492]	[0.00596]
Lagged Democracy					0.10619	-0.15153
					[0.13183]	[0.10190]
Political Instability					-0.68893	0.06394
					[0.59984]	[0.48980]
Lagged Expropriation Risk					-0.00122	0.0024
					[0.00463]	[0.00570]
Time Trend	0.00432**	-0.00196	0.00299	0.002	0.00435*	0.00047
	[0.00178]	[0.00273]	[0.00201]	[0.00270]	[0.00218]	[0.00299]
Quadratic Time Trend	-0.00007*	0.00005	-0.00005	-0.00003	-0.00009*	0.00002
	[0.00004]	[0.00006]	[0.00004]	[0.00006]	[0.00005]	[0.00006]
Observations	1357	1357	1180	1180	921	921
Number of Countries	72	72	69	69	50	50
Overall R-squared	0.3406	0.2979	0.3476	0.3497	0.4232	0.4514

Notes: Fixed effects regressions. Yearly observations. All flows are deflated by Current GDP.

APENDIX B: DATA DEFINITIONS

Total Private Capital Flows: Includes flows in equity, debt, foreign direct investment, derivatives, and other investment (loans, currency, trade credits and other).

Long Term Private Flows: FDI: Foreign Direct Investment is direct investment flows

Short Term Flows (Hot Money): PI: Portfolio Investment is equity and portfolio debt flows

Official Capital Flows: Capital flows with origin in the Monetary Authority or Government

Gross capital flows by our measure

Outflows: Sum of all positive increases in foreign assets and all decreases on foreign liabilities

Inflows: Sum of all positive increases in foreign liabilities and all decreases in foreign assets

Gross capital flows by the standard measure

Outflows: Sum of all positive and negative changes in foreign assets

Inflows: Sum of all positive and negative changes in foreign liabilities

Trade Openness (TO): Trade openness is the sum of merchandise exports and imports divided by the value of GDP, all in current U.S. dollars

Stock of Reserves: Total stock of International reserves minus gold. The measure is deflated by the nominal GDP.

Money Supply (M2): This is a measure of domestic financial liquidity. By definition M2 is comprised of physical currency circulating in the economy + demand deposits + time

deposits, savings deposits, and non-institutional money-market funds. The measure is deflated by nominal GDP

Economic Risk and Financial Risk: Provides the risk scores (High Risk= Low Score) for all of the underlying components that made up the economic risk ratings for all countries monitored by ICRG since 1984 (through the present). The components of the ICRG Economic Risk Rating are GDP per head of population, real annual GDP growth, annual inflation rate, budget balance as a percentage of GDP, and current account balance as a percentage of GDP. The components of the ICRG Financial Risk Rating are Foreign Debt as a % of GDP, Exchange Rate Stability, Debt Service as a % of Exports of Goods & Services (XGS), Current Account as a % of XGS, and International Liquidity.
Please visit ICRG at:
http://www.prsgroup.com/ICRG_methodology.aspx#EconRiskRating for the weights and more information on the creation of both Indexes
Nominal Exchange Rate Volatility: We calculate the nominal exchange rate volatility as the standard deviation of the US-Domestic nominal exchange rate. The standard deviation is calculated over the 12 month period per year (one observation per year)

Financial Openness: Sebastian Edwards index based on Dennis Quinn's (2003) index of capital mobility. This index goes from 1 to 100, with higher values denoting a higher degree of financial integration. Se Edwards (2004), Quinn (2003)

Capital Account Openness: This Index is based on the four binary dummy variables reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). These variables are to provide information on the extent and nature of the restrictions on external accounts for a wide cross-section of countries. High value proxies for high capital account openness.
See: http://web.pdx.edu/~ito/Readme_kaopen108.pdf and Chinn and Ito (2002) for a description of the construction of this index.

Interest Rate Spreads: Spreads between domestic nominal rates on short term notes (normally treasury notes or money market rates) and the US 3 month treasury bills.

Inflation: Domestic CPI Inflation.

Democracy: Polity IV combined democracy and autocracy score (the "polity2" variable) ranging -10 to 10, available from http://www.systemicpeace.org/polity/polity4.htm

Political instability: square of the annual change in the combined Polity IV democracy and autocracy score.

REER: Real Effective Exchange Rate. Trade weighted average of multilateral exchange rates. An increase in this measure represents a real appreciation of the domestic currency.