

External Funding and Long-term Investment

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1. Introduction

In principle, international financial integration should assist emerging and developing economies by fostering consumption smoothing, international risk sharing and efficient capital allocation. Since these economies have lower capital stocks and more volatile output growth than the set of advanced economies, there should be welfare gains from international capital mobility.¹ However, in the other direction, various types of distortions and market frictions mean that external capital flows (especially short-term debt flows) can also introduce new risk factors, such that a fully open financial account may not be optimal.²

In relation to the financing of infrastructure projects, allowing a role for international investors is especially attractive for several reasons. First, large-scale infrastructure projects are lumpy in nature, requiring a temporary period of extraordinarily high investment. Were such projects exclusively financed from domestic resources this would require some combination of crowding out of other investment opportunities and the suppression of consumption levels. By contrast, the aggregate resource constraint can be temporarily relaxed in an open economy, so that consumption can be smoothed and other investment opportunities can be pursued simultaneously with large-scale infrastructure investment (Clarida 1993).

Second, the return on infrastructure investment is especially risky for several reasons. The long-term pay-back period for many infrastructure projects means that investors must operate under a greater degree of uncertainty compared with shorter-term and smaller projects. In addition to direct project risks of various types (including political risks), infrastructure returns will typically be highly correlated with domestic macroeconomic performance. Consequently, infrastructure projects have poor hedging properties for domestic investors. These characteristics mean that it is desirable for a surge in infrastructure investment to be accompanied by foreign equity inflows, which can take the form of foreign investors taking direct equity stakes in infrastructure projects and/or through a more general matching of increased domestic capital risk with increased macro-level international risk sharing.

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1 See Coeurdacier, Rey and Winant (2013) for a benchmark model that jointly examines the contributions of international capital mobility to capital accumulation and risk sharing.

2 See, among many others, Eichengreen (1990), Ostry *et al* (2011) and Brunnermeier and Sannikov (2014).

Third, the superior growth potential of emerging and developing economies and the projected infrastructure shortages in these regions mean that the globally efficient allocation of capital necessarily involves long-term investment funding from the advanced economies (see also Dobbs *et al* (2010)).³

Fourth, the specialised nature of many infrastructure projects means that national investors can face a knowledge gap in the design, building and operation of infrastructure projects (Dobbs *et al* 2013). It follows that it can be more efficient to allow a role for foreign firms in the production of infrastructure, since the embedded expertise gained elsewhere can allow the development of higher-quality infrastructure at lower cost. While the expertise brought by foreign firms could be isolated from the issue of cross-border funding, the fact that these firms have easier access to global funding sources means that there is a natural degree of complementarity between foreign expertise and foreign funding.

Finally, it should be recognised that there are multiple types of interactions between infrastructure investment and international capital flows. While the reasons outlined above explain why international capital flows can be helpful in funding long-term infrastructure projects, the overall state of the external balance sheet (in conjunction with other macrofinancial fundamentals) can be an important factor in determining capital costs for individual infrastructure projects (Dailami and Leipziger 1997). There is also an intertemporal dimension to the extent that improving the infrastructure capital stock improves future productivity levels and thereby makes the economy more attractive for foreign investors (Hoffmann 2003).

Given these considerations, a major goal for national and international policymakers is to identify ways these potential gains from international financial flows can be achieved, while minimising the risks from capital flow volatility. Since the 1997–1998 Asian crisis, many emerging and developing economies have sought to reduce risk exposures by running net external surpluses, accumulating large pools of liquid foreign assets and deterring foreign debt inflows. However, this configuration is costly in terms of the lost opportunities for consumption smoothing, risk sharing and efficient capital allocation. It is possible that a superior risk-return profile could be achieved by the introduction of a set of national and international policy reforms.

In this paper, I explore these themes along a number of fronts. Section 2 reviews some of the relevant research literature. Section 3 describes the current international financial profile of emerging and developing economies, while Section 4 relates cross-country variation in capital flows to a set of macrofinancial fundamentals. The policy reform agenda is discussed in Section 5. Finally, Section 6 concludes.

2. International Financial Flows: Empirical Patterns

Some insights about long-term trends can be obtained by examining the behaviour of average capital flows and/or accumulated stocks of foreign assets and liabilities over sustained periods. In relation to gross positions, Lane and Milesi-Ferretti (2008) find that economies with higher levels of output per capita and more developed domestic financial systems exhibit larger foreign liability

³ As pointed out by Bougheas, Demetriades and Morgenroth (2003), an additional motivation for international backing of infrastructure is that individual economies do not factor in the positive international spillovers from infrastructure improvements (e.g. improvements in energy, transportation and communications networks).

and asset positions (scaled by GDP).⁴ Consistent with that evidence, Lane (2001, 2004) finds that the level of long-term external debt liabilities is strongly correlated with the level of output per capita and trade openness. Among other mechanisms, higher levels of these variables positively affect repayment capability and the degree of pledgeable collateral, thereby relaxing external debt constraints.

Of course, it is difficult to establish lines of causality, since cross-border financial integration may also contribute to higher income levels and a deeper domestic financial system (Kose *et al* 2009; Obstfeld 2009). It is also difficult to disentangle the influence of underlying common factors that may simultaneously affect cross-border financial flows, domestic output per capita and domestic financial development. For instance, Alfaro, Kalemli-Ozcan and Volosovych (2008) highlight the role of institutional quality in driving cross-border equity flows, while institutional quality is also a factor that is surely important in determining domestic income levels and domestic financial development. In related fashion, Hoffmann (2003) shows that capital inflows are positively correlated with various indices of the stock of domestic infrastructure but that these covariation patterns tend to lose significance once the level of output per capita is included as a control variable.

The equity-debt mix in the composition of foreign liabilities can also be related to country characteristics. In the cross-section, Faria *et al* (2007) find that larger economies with a better institutional quality score and a higher endowment of natural resources have a greater share of equity (foreign direct investment (FDI) and portfolio) in external liabilities. In addition, these authors find that shifts in the equity share over time can be linked to the degree of financial reform undertaken.

Hale (2007) shows that the funding composition of debt is also affected by macrofinancial fundamentals. In particular, a riskier aggregate external profile (low sovereign credit rating, high ratio of debt servicing to exports, higher real exchange rate or history of debt restructuring) tilts the composition of external debt issuance away from bank loans and investment-grade bond issuance towards speculative-grade bonds.⁵

In relation to patterns in net capital flows, which are especially relevant for the consumption smoothing role of international financial integration, the empirical literature has studied the determinants of net international investment positions and average current account balances. In relation to the former, Lane and Milesi-Ferretti (2002) highlight that the long-term component in the net international investment positions of emerging and developing economies is negatively related to public debt levels (a twin debts pattern) and to the level of output per capita. The negative association with the level of output per capita can be attributed to several possible mechanisms. From an investor perspective, richer emerging economies may have more developed domestic financial systems and may be better credit risks, which provides scope for shorter-term debt instruments to be used. From the perspective of an individual emerging economy, a higher level of income per capita may make it more relaxed about taking on the risks associated with a larger net stock of short-term external liabilities.

4 In addition, these authors find that the level of international financial integration is inversely related to economy size. This is not surprising, since the scope of internal diversification is more limited in smaller economies.

5 Of course, as recently highlighted by Shin (2013), the split between bank loans and bonds will vary over time in line with the cyclical conditions prevailing in the global banking system and international bond markets.

In relation to the behaviour of average current account balances, Lane and Milesi-Ferretti (2012) examine four-year averages over the 1969–2008 period. For the group of emerging and developing economies, the average current account deficit is larger for faster-growing economies and for those economies running larger fiscal deficits (see also Abbas *et al* (2011)). In addition, demographic factors and energy resource endowments affect the current account balance with the expected signs (faster population growth and a higher dependency ratio are associated with more negative current account balances, while higher earnings from oil exports are associated with more positive current account balances).

Moreover, although the linkages between net capital inflows and domestic investment are quite indirect at the aggregate level, Bosworth and Collins (1999), Mody and Murshid (2005) and Pels (2010) find some evidence that net capital inflows can boost the rate of domestic investment, especially for economies with more developed domestic financial systems. To the extent that domestic credit is allocated to fund investment projects, this is also consistent with the positive covariation pattern between net debt inflows and domestic credit that is reported by Lane and McQuade (2014).

Of course, in evaluating the role played by international financial flows, it is necessary to examine volatility as well as time-averaged patterns. In particular, the stock of external debt liabilities is a robust indicator of vulnerability to a financial crisis (Catão and Milesi-Ferretti 2013).⁶ In addition to the direct risks associated with the rolling over of external debt, debt inflows can also indirectly amplify risk exposures through real exchange rate appreciation and domestic credit growth (Jordà, Schularick and Taylor 2011; Gourinchas and Obstfeld 2012; Lane and McQuade 2014). Finally, since shifts in global financial conditions are often the source of a reversal in capital flows, capital flow volatility cannot be avoided just through domestic macrofinancial stabilisation policies (see Forbes and Warnock (2012a, 2012b), Lane and Milesi-Ferretti (2012) and Rey (2013)).

In recognition of these risks, many emerging and developing economies have sought to reduce external vulnerability by reducing net external liabilities, promoting equity-type liabilities over debt-type liabilities, accumulating large stocks of official reserve assets and improving net foreign currency positions (Lane and Milesi-Ferretti 2007; Lane and Shambaugh 2010). In addition, in terms of regulatory policies, economies have adopted a more cautious approach to financial account liberalisation, while also being more ready to adopt tactical-type controls in response to surges of capital inflows (Ostry *et al* 2011; Klein 2012; Forbes, Fratzscher and Straub 2013).

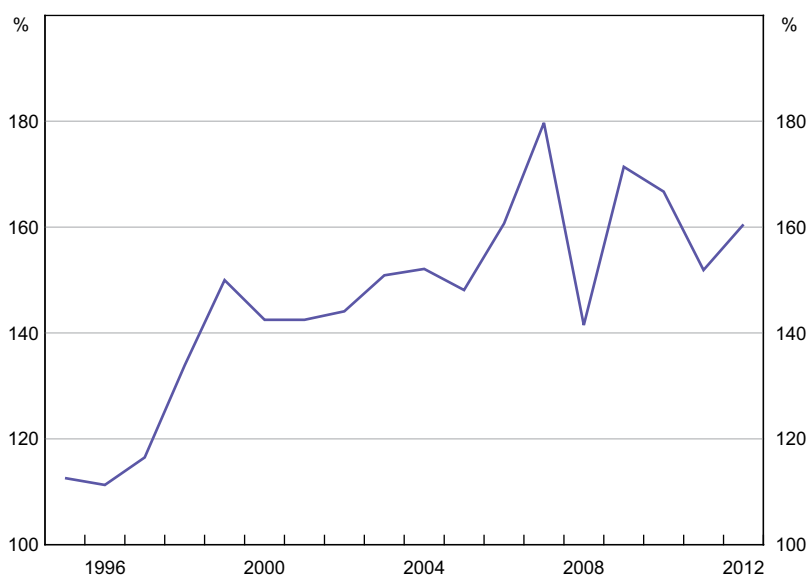
These strategies have reduced international risk exposures and helped these economies to weather the global financial crisis in 2008–2009. That said, it is possible that risk reduction has gone too far relative to the potential gains from a more open approach to international financial integration (see also Dollar and Kraay (2006)). In Sections 3 and 4, I look further at this trade-off.

⁶ Of course, in conducting a risk assessment, it is also important to take into account the maturity of the external debt and whether the debt was used to fund extra consumption or extra investment (especially in productive types of capital). See also Blanchard, Das and Faruqee (2010), Du, Wei and Xie (2013) and Klemm (2013).

3. The International Balance Sheets of Emerging and Developing Economies

This section outlines the current configuration of the international balance sheet for emerging and developing economies. Figure 1 plots the sum of foreign assets and liabilities as a ratio to GDP for an aggregate of 100 emerging and developing economies (as listed in Table A1). This 'IFI ratio' is widely used as an index of the scale of *de facto* international financial integration (Lane and Milesi-Ferretti 2007). While the IFI ratio for this aggregate is far below the values observed for advanced economies, it is important to appreciate that it has trended upwards since the mid 1990s so that the overall level of international financial integration is substantially higher than before the Asian crisis (Lane and Milesi-Ferretti 2008; Lane 2013b).

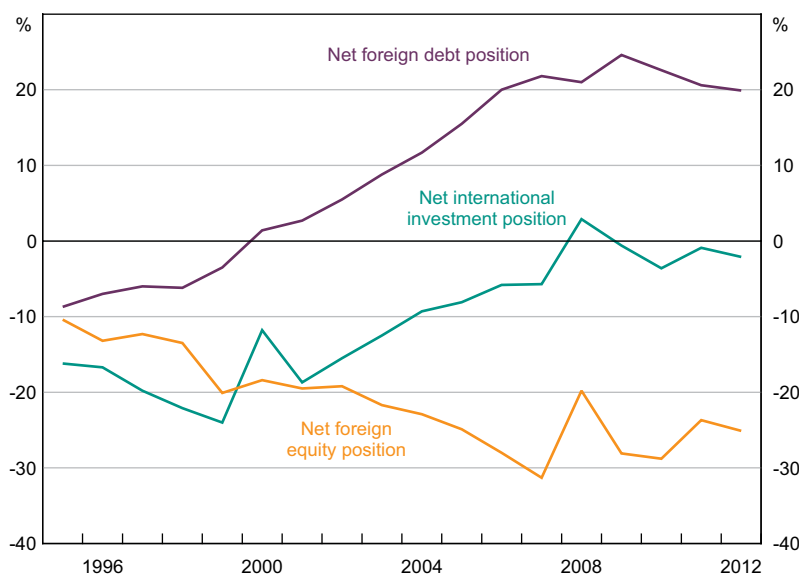
Figure 1: Emerging and Developing Economies' Aggregate International Financial Integration Ratio
Per cent of GDP



Source: updated version of dataset described in Lane and Milesi-Ferretti (2007)

Figure 2 shows that the nature of this group's interaction with the global financial system has shifted over the years. In particular, the net international investment position has sharply increased, which can be attributed to much smaller current account deficits (plus surpluses in many economies) and rapid growth in output. Moreover, these economies now have a positive net foreign debt position, with official reserve assets growing faster than the stock of external debt liabilities. In contrast, the net foreign equity position has become increasingly negative, as equity-type liabilities have shifted domestic macrofinancial risks to foreign investors.

Figure 2: Emerging and Developing Economies' Aggregate Financial Position
Per cent of GDP



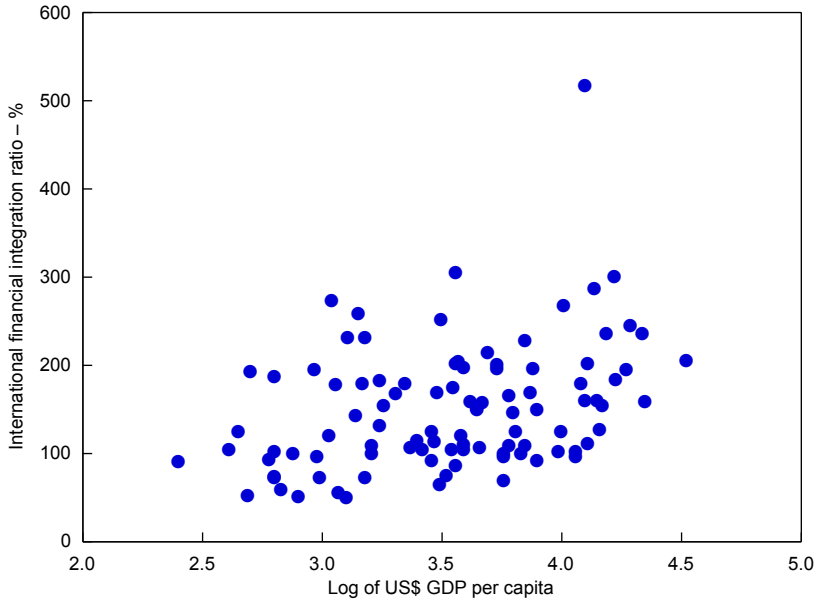
Source: updated version of dataset described in Lane and Milesi-Ferretti (2007)

As documented by Lane and Shambaugh (2010), the net result of these shifts in the international balance sheet is that many emerging and developing economies now have positive net foreign currency positions. This means that a depreciation of the domestic currency should be associated with international valuation gains. This is in sharp contrast to the traditional exposure pattern where high stocks of foreign currency debt liabilities meant that currency depreciations would generate destabilising adverse valuation movements in the international balance sheet.

Of course, there is significant cross-country variation within the aggregate group. Figure 3 plots the 2012 IFI ratio against (log) GDP per capita for the individual economies in the sample. The relation with output per capita is clearly positive: richer economies tend to exhibit higher stocks of cross-border assets and liabilities. The net international investment position also covaries positively with GDP per capita in this sample (Figure 4). One reason for this is that very low-income economies have greater access to concessional types of funding. Finally, while net foreign equity positions are positively correlated with net foreign debt positions, there is considerable heterogeneity in funding patterns within this group (Figure 5).⁷

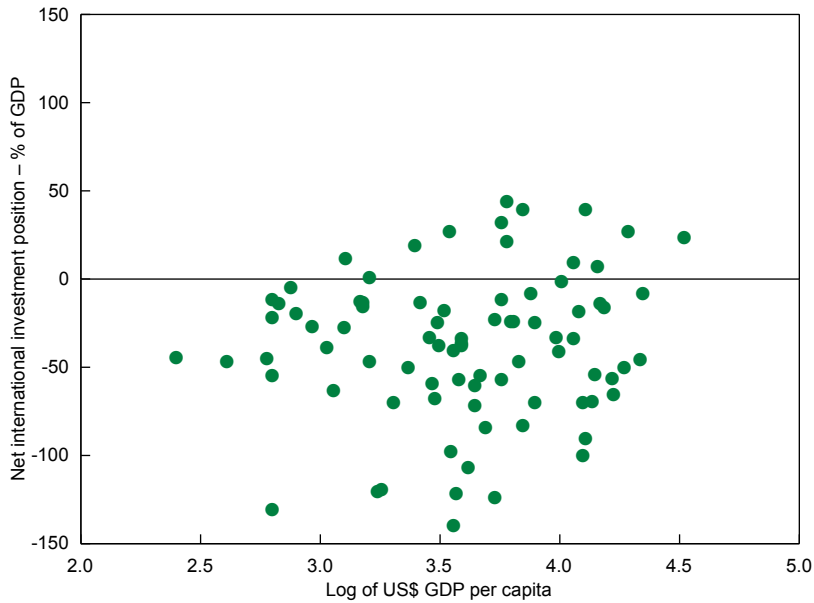
⁷ Both net foreign debt and net foreign equity positions are positively correlated with output per capita (the correlation is stronger for the former than for the latter).

Figure 3: International Financial Integration Ratio against Output per Capita
2012



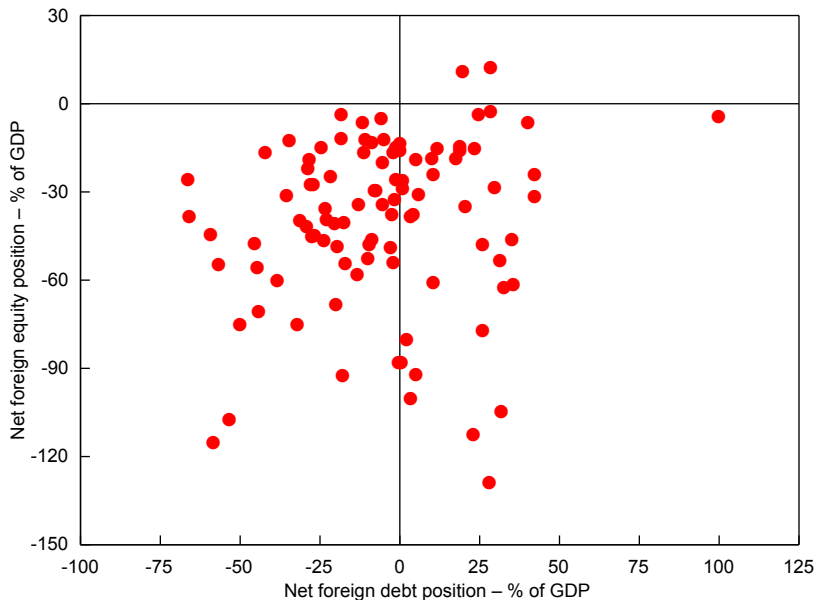
Source: updated version of dataset described in Lane and Milesi-Ferretti (2007)

Figure 4: Net International Investment Position against Output per Capita
2012



Source: updated version of dataset described in Lane and Milesi-Ferretti (2007)

**Figure 5: Net Foreign Equity Position against Net Foreign Debt Position
2012**



Source: updated version of dataset described in Lane and Milesi-Ferretti (2007)

Taken together, Figures 1–5 show that the international financial integration of the group of emerging and developing economies has climbed since the mid 1990s but that the underlying composition is quite skewed, with a contraction in the scale of aggregate net capital flows to these economies and a marked relative aversion to net debt inflows. While the current configuration can be rationalised as a risk mitigation strategy, it may be quite expensive in terms of lost opportunities to exploit international financial flows in the funding of infrastructure projects more fully.

Finally, Figures 3–5 also highlight the diversity in international financial patterns within the group of emerging and developing economies. In the next section, I examine more closely the cross-country variation in international financial flows among this group.

4. International Financial Flows: 2003–2012

This section presents new evidence on the behaviour of average capital flows over 2003–2012. I ask a series of questions about the behaviour of capital flows to a group of 99 emerging and developing economies. Since our primary focus is on medium-term behaviour, I examine the cross-sectional variation in average capital flows over the 2003–2012 period. The general specification for the econometric analysis is given by:

$$FINFLOW_i = \alpha + \beta X_i + \sigma Z_i + \theta NIIP_i + \varepsilon_i. \quad (1)$$

The variable $FINFLOW_i$ denotes one of three categories of international financial flows, expressed as a ratio to GDP, that are explained below.⁸ The predetermined variables, X_i , are measured in 2002 and Z_i denotes a set of contemporaneous variables. The variable $NIIP_i$ is the initial net international investment position measured in 2002 as a ratio to GDP, which allows for stock-flow interactions in some specifications. While stock-flow interactions can be important, a downside of including this variable is that it is likely to be affected by the predetermined variables, giving rise to possible interpretation problems.

The selection of predetermined variables is in line with the prior literature on international financial integration and international capital flows (see, among many others, Lane and Milesi-Ferretti (2008, 2012)). I include the level of GDP per capita as a general development indicator.⁹ I also include country size (as measured by population), since scale effects may be an important correlate of capital flows relative to GDP. In addition, I include a measure of the importance of the natural resource sector (the ratio of natural resource rents to GDP), since a large endowment of natural resources provides a motivation for intertemporal smoothing and may be especially attractive as a sectoral destination for international investors. I also include an indicator of domestic financial development (the ratio of domestic credit to GDP), since there are complementarities between domestic financial trade and international financial trade.

Since the inclusion of contemporaneous variables raises obvious endogeneity issues, I only examine three variables: the population growth rate, the GDP growth rate and the fiscal balance.¹⁰ The rate of population growth serves as a proxy for the role of demographic factors in determining capital flows (see, among many others, Higgins (1998)). The output growth rate is included to control for the effect of general macroeconomic performance on capital flows, while the fiscal balance is included as a control for the relation between fiscal imbalances and external imbalances (see also Abbas *et al* 2011).¹¹

In terms of international financial flows, I examine a range of variables. First I focus on aggregate net financial flows, as reflected in the current account balance, CAB . Following Alfaro, Kalemli-Ozcan and Volosovych (2013), I also examine an adjusted current account balance, $PCAB$, that strips away the component of the current account balance that is financed by official development finance, which is relevant for the low-income economies in my sample. The results of these regressions are presented in Table 1.

8 In some benchmark models, it is not obvious that capital flows should be scaled by GDP. However, in the presence of adjustment costs and/or where the level of output is a proxy for the level of available collateral, expressing capital flows as a ratio to GDP is sensible (Lane 2001, 2004).

9 Many indicators are correlated with GDP per capita in the country cross-section. These include measures of institutional quality and also indices of financial account liberalisation. In view of the collinearity across many such variables, I opt to include GDP per capita as a general indicator of the level of development.

10 While it is plausible that the population growth rate is exogenous to capital flows, this is less likely for the output growth rate and the fiscal balance. Since it is not obvious that strong and valid instruments exist for these variables, I focus on OLS estimates. The inclusion of these variables is intended to control for omitted variable bias.

11 I also explored two other contemporaneous variables: the level of remittances and the rate of real exchange rate appreciation. Remittances are potentially relevant, in view of their importance as a cross-border resource transfer for low-income economies. While there is a strong correlation between remittances and the level of the overall current account balance, the current account net of remittances and the overall current account are also highly correlated and show a similar sensitivity to the list of regressors that I examine. While the rate of real exchange rate appreciation can affect the behaviour of both domestic and foreign investors, it turns out that the cross-sectional correlation between capital flows and the rate of real exchange rate appreciation is typically close to zero across the different specifications. This is not too surprising, given that real exchange rate appreciation can increase capital inflows in some models but decrease capital inflows in other models.

Table 1: Current Account Balance
OLS estimates, 2003–2012

Explanatory variable	Dependent variable					
	CAB			PCAB		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-53.2*** (7.0)	-54.2*** (7.8)	-39.4*** (8.6)	-15.3** (6.8)	-16.9** (7.3)	-8.2 (8.4)
$GDP-PC_{02}$	0.05*** (0.008)	0.05*** (0.008)	0.037*** (0.009)	0.013* (0.008)	0.014* (0.008)	0.005 (0.009)
$SIZE_{02}$	0.02*** (0.003)	0.02*** (0.004)	0.015*** (0.003)	0.004 (0.003)	0.005 (0.003)	0.004 (0.003)
$NATRES_{02}$	0.23*** (0.05)	0.17*** (0.06)	0.22*** (0.06)	0.16*** (0.05)	0.08 (0.06)	0.10* (0.58)
$FINDEV_{02}$	-0.001 (0.007)	0.001 (0.007)	0.001 (0.006)	0.001 (0.006)	0.001 (0.005)	0.001 (0.006)
$POPGROW_{03-12}$	1.84** (0.71)	1.72*** (0.71)	1.4** (0.68)	2.7*** (0.69)	2.5*** (0.66)	2.3*** (0.66)
$GROWTH_{03-12}$		0.38 (0.34)	0.26 (0.32)		0.49 (0.31)	0.42 (0.31)
$FBAL_{03-12}$		0.29 (0.21)	0.34* (0.2)		0.52*** (0.19)	0.55*** (0.19)
$NIIP_{02}$			0.032*** (0.01)			0.019** (0.009)
R^2	0.52	0.54	0.59	0.29	0.36	0.39
No of obs	99	99	99	99	99	99

Notes: ***, ** and * denote significance at 1, 5 and 10 per cent level, respectively; standard errors in parentheses; Mauritania excluded from estimation sample due to missing data; $GDP-PC_{02}$ is (log) GDP per capita in 2002, $SIZE_{02}$ is (log) population in 2002, $NATRES_{02}$ is ratio of natural resource rents to GDP in 2002, $FINDEV_{02}$ is ratio of domestic credit to GDP in 2002, $POPGROW_{03-12}$ is rate of population growth over 2003–2012, $GROWTH_{03-12}$ is growth rate of real GDP per capita over 2003–2012, $FBAL_{03-12}$ is average fiscal balance over 2003–2012, $NIIP_{02}$ is net international investment position in 2002

Sources: Feenstra, Inklaar and Timmer (2013); IMF; World Bank

Second, I turn to international debt flows. I initially study gross debt inflows, $DEBT$, and an alternative measure, $PDEBT$, that strips out the impact of debt forgiveness. I then look at net debt flows by first subtracting non-reserve international debt flows from $PDEBT$ to obtain $NPDEBT$, and secondly also subtracting official reserve outflows to obtain $NPDEBTALL$. Finally, I also examine the stock of foreign portfolio debt liabilities as the dependent variable, which is derived from the positions reported to the International Monetary Fund (IMF) for the Coordinated Portfolio Investment Survey (CPIS), and is denoted $CPISDEBT$. There are pros and cons to each of these individual debt measures, so it is useful to examine them jointly.¹² The results from these regressions are presented in Table 2.

¹² In a future draft, I also plan to look at external liabilities to Bank for International Settlements reporting banks.

Finally, I examine international equity flows in Table 3. I look at FDI inflows (*FDI*), portfolio equity inflows (*PEQ*) and the stock of foreign portfolio equity liabilities (*CPISPEQ*), which are again derived from the positions of CPIS reporting economies.¹³

The results when the total current account balance is the dependent variable are reported in Table 1 in columns (1)–(3). Some clear patterns are evident: the current account balance tends to be more positive in those economies that have higher levels of output per capita, are larger in size, have larger natural resource endowments or faster rates of population growth. The latter result is contrary to expectations, given that faster population growth should be associated with higher public and private investment needs (Higgins 1998).

When the adjusted current account balance, *PCAB*, is the dependent variable (columns (4)–(6)), output per capita and country size lose statistical significance. This can be attributed to the fact that poorer and smaller economies have greater access to official development assistance. In contrast, the fiscal balance gains in significance, with a twin deficits pattern applying to the aid-adjusted current account balance.

Finally, columns (3) and (6) show a statistically significant positive relation between the average current account balance and the initial net international investment position. A positive covariation pattern indicates strong persistence in the pattern of net capital flows: economies that accumulated larger net international investment positions up to 2002 also tended to run more positive current account balances over 2003–2012. Since this result applies despite the inclusion of a number of standard controls in the X_t set, it suggests that there are omitted variables or unobserved factors that contribute to the persistent differences in net international financial flows across this sample of economies.

The results for international debt flows are presented in Table 2. The evidence in columns (1) and (3) is that gross debt inflows are positively related to the level of GDP per capita; this also holds for the stock of portfolio debt liabilities in columns (9)–(10). However, this is not evident for the measures of net debt inflows in columns (5)–(8). In contrast, the results indicate that net debt inflows can be related to the fiscal balance: those economies running larger fiscal deficits tend to have higher net debt inflows. As in Table 1, the results for population growth are surprising, with faster population growth associated with lower debt inflows.

Finally, Table 2 shows a significantly positive relation between the initial net international investment position and gross or net debt inflows. This suggests that economies with strong macrofinancial fundamentals (as proxied by *NIIPI*) are more attractive as a destination for debt inflows and/or that these economies are more willing to absorb debt inflows.

13 I do not focus on FDI outflows or portfolio equity outflows, given that flows in these categories are quite small for many economies in our sample.

Table 2: International Debt Flows
OLS estimates, 2003–2012

Explanatory variable	Dependent variable									
	DEBT	PDEBT	NPDEBT	NPDEBTALL	CPISDEBT	DEBT	PDEBT	NPDEBT	NPDEBTALL	CPISDEBT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	-12.2* (6.2)	3.5 (6.5)	-24.0*** (7.3)	-0.15 (7.0)	-2.9 (6.0)	10.1 (6.6)	-0.43 (6.7)	11.2 (7.5)	-24.8*** (6.4)	-22.4*** (7.5)
GDP-PC ₀₂	0.018*** (0.006)	0.002 (0.007)	0.03*** (0.008)	0.007 (0.007)	0.005 (0.006)	-0.008 (0.007)	-0.002 (0.007)	-0.01 (0.008)	0.04*** (0.007)	0.04*** (0.008)
SIZE ₀₂	-0.001 (0.0028)	-0.004 (0.0026)	0.001 (0.003)	-0.003 (0.003)	0.001 (0.003)	-0.002 (0.003)	0.003 (0.003)	0.001 (0.003)	0.003 (0.003)	0.003 (0.003)
NATRES ₀₂	-0.09* (0.05)	-0.04 (0.04)	-0.05 (0.06)	0.03 (0.05)	-0.02 (0.05)	0.02 (0.05)	0.01 (0.05)	0.04 (0.05)	-0.02 (0.05)	-0.01 (0.05)
FINDEV ₀₂	0.002 (0.005)	0.002 (0.005)	0.002 (0.006)	0.002 (0.005)	0.004 (0.04)	-0.004 (0.04)	0.004 (0.005)	0.004 (0.005)	0.006 (0.005)	0.006 (0.005)
POPGR ₀₃₋₁₂	-0.8 (0.56)	-1.1** (0.51)	-1.3* (0.67)	-1.8*** (0.56)	-1.7*** (0.55)	-2.0*** (0.52)	-1.6*** (0.61)	-1.9*** (0.59)	0.36 (0.58)	0.31 (0.59)
GROWTH ₀₃₋₁₂	0.54** (0.27)	0.41* (0.24)	0.62* (0.32)	0.42 (0.26)	-0.17 (0.26)	-0.28 (0.24)	-0.38 (0.29)	-0.48* (0.28)	-0.45 (0.28)	-0.47* (0.28)
FBAL ₀₃₋₁₂	-0.03 (0.17)	0.01 (0.15)	-0.23 (0.2)	-0.16 (0.16)	-0.61*** (0.16)	-0.58*** (0.15)	-0.96*** (0.18)	-0.92*** (0.17)	-0.11 (0.17)	-0.11 (0.17)
NIP ₀₂		0.034*** (0.007)		0.051*** (0.008)		0.028*** (0.008)		0.025*** (0.008)		0.005 (0.01)
R ²	0.23	0.38	0.35	0.56	0.36	0.45	0.4	0.45	0.46	0.47
No of obs	99	99	99	99	99	99	99	99	99	99

Notes: *** and * denote significance at 1, 5 and 10 per cent level, respectively; standard errors in parentheses; Mauritania excluded from estimation sample due to missing data; explanatory variables are defined in Table 1

Sources: Feenstra *et al* (2013); IMF; World Bank

This pattern also applies in relation to portfolio equity inflows (but not for FDI inflows) in Table 3. In addition, both FDI and portfolio equity inflows are positively related to the level of GDP per capita, output growth and the fiscal balance, and negatively related to country size and the natural resource endowment.

Table 3: International Equity Flows
OLS estimates, 2003–2012

Explanatory variable	Dependent variable					
	FDI		PEQ		CPISPEQ	
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-2.8 (4.7)	-3.1 (5.5)	-3.5*** (1.1)	-1.4 (1.2)	-68.7*** (14.8)	-33.9** (15.9)
$GDP-PC_{02}$	0.009* (0.005)	0.009 (0.006)	0.004*** (0.001)	0.002 (0.001)	0.08*** (0.002)	0.05*** (0.016)
$SIZE_{02}$	-0.008*** (0.002)	-0.008*** (0.002)	-0.001* (0.0005)	0.0006 (0.00005)	0.002** (0.007)	0.006 (0.006)
$NATRES_{02}$	-0.08** (0.04)	-0.08** (0.04)	-0.02** (0.01)	-0.01 (0.01)	-0.24** (0.12)	-0.13 (0.11)
$FINDEV_{02}$	-0.005 (0.004)	-0.005 (0.004)	-0.001 (0.001)	-0.001 (0.008)	-0.001 (0.001)	-0.001 (0.001)
$POPGROW_{03-12}$	-0.04 (0.43)	-0.04 (0.44)	-0.15 (0.1)	0.11 (0.09)	3.9*** (1.3)	3.2** (1.3)
$GROWTH_{03-12}$	0.68*** (0.2)	0.68*** (0.2)	0.08* (0.05)	0.06 (0.04)	0.47 (0.64)	0.18 (0.59)
$FBAL_{03-12}$	0.34*** (0.13)	0.34*** (0.13)	0.06** (0.03)	0.06** (0.03)	0.85** (0.39)	0.95** (0.36)
$NIIP_{02}$		-0.001 (0.01)		0.004*** (0.001)		0.073*** (0.017)
R^2	0.3	0.3	0.2	0.29	0.3	0.41
No of obs	99	99	99	99	99	99

Notes: ***, ** and * denote significance at 1, 5 and 10 per cent level, respectively; standard errors in parentheses; Mauritania excluded from estimation sample due to missing data; explanatory variables are defined in Table 1

Sources: Feentsra *et al* (2013); IMF; World Bank

Finally, the stock of portfolio equity liabilities is positively associated with the level of output per capita in columns (5)–(6) of Table 3. The regression evidence suggests that the stock of portfolio equity liabilities is also higher for large economies (in contrast with the pattern for FDI inflows) and economies with smaller natural resource endowments, faster population growth and stronger macrofinancial fundamentals (i.e. more positive fiscal balance and more positive net international investment position).

Taken together, the evidence in Tables 1–3 show some systematic patterns in the behaviour of average international financial flows across the set of emerging and developing economies. These patterns provide some clues about the likely evolution of flows for individual economies in response to shifts in the predetermined variables and contemporaneous variables. At the same time, it is important to emphasise that Tables 1–3 capture ‘local’ variation within the emerging and developing group; the broader question about the appropriate scale and composition of flows between the advanced economies and this group of economies is not addressed within this framework.

Keeping in mind the empirical patterns described in Sections 3 and 4, I next turn to a discussion of the policy agenda in relation to international financial flows.

5. Policy Issues

The improvement of the long-term funding environment for infrastructure projects involves policy reforms along many fronts (World Bank 2013; World Bank Group 2014). In general terms, policies that increase the availability of cross-border finance should also support infrastructure investment (both directly in relation to the funding of infrastructure projects and indirectly in relation to the broader dynamics of capital flows). This will be particularly relevant if the policy framework does not discriminate against foreign investors (Stulz 2005).

In terms of the specific contribution that can be obtained by improving the policy framework in relation to international capital flows, the policy objective is to attain the potential benefits from international financial integration without endangering domestic macrofinancial stability (Canuto and Ghosh 2013; G30 Working Group 2013). While a risk-minimising strategy is to deter capital inflows until the domestic financial system (i.e. banking systems, securities markets and investment institutions) is sufficiently mature, an excessively closed domestic system may not develop as quickly in the absence of the competition that can be provided by the entry of foreign institutions. In related fashion, an overly gradualist approach runs the risk of regulatory capture by domestic financial interests (Kose *et al* 2009).

For these reasons, it may be preferable to embrace a more open approach to international financial integration, in combination with a proactive approach to managing the risks associated with volatile capital flows. The preservation of macrofinancial stability in the face of capital flow volatility is a multi-dimensional policy challenge. The appropriate combination of monetary, exchange rate, fiscal and macroprudential policies, capital flow management and structural reforms will vary across economies and regions and across time (Lane 2003, 2013a).

While there has been considerable attention paid to the interaction of monetary and financial stability policies and to capital flow management policies, the role of prudent fiscal policy has been relatively less studied. Two core principles apply. First, maintaining a sufficiently robust public balance sheet (comprising a safe level of public debt and sufficient liquid assets that can be made available during rainy-day episodes) is required if fiscal policy is to respond countercyclically in the event of an adverse shock. Second, the impact of external imbalances and domestic credit expansion on government revenues means that the cyclical assessment of the fiscal stance should incorporate the financial cycle as well as the fiscal cycle (Borio, Disyatat and Juselius 2013; Benetrix and Lane 2014). Since the maintenance of fiscal discipline during good times has proven

problematic for many political systems, institutional reforms such as numerical fiscal rules and formal input from an independent fiscal council may prove helpful (Lane 2003, 2013a).

In addition to the primary role of the domestic macrofinancial policy framework, international financial institutions, such as the IMF, can provide an additional backstop in relation to foreign currency funding.¹⁴ While various types of precautionary credit lines are currently offered, the take-up of such international insurance schemes remains quite limited, as is the availability of international currency swap lines to the central banks of emerging and developing economies. Further progress in developing international safety nets is an important component in ensuring that cross-border financial flows can make a positive contribution to funding long-term investment in emerging and developing economies (see also Farhi, Gourinchas and Rey (2011)). In addition, international financial institutions can also help to mitigate the riskiness of debt flows by promoting the expansion of local currency debt markets and the issuance of state-contingent types of debt (Rogoff 1999).

6. Conclusions

This paper has provided an overview of the current configuration of international financial flows to emerging and developing economies. It has argued that international funding can (in principle) play a beneficial role in facilitating a higher rate of long-term investment in this group of economies, both directly and indirectly, by relaxing the aggregate resource constraint facing these economies. These benefits take the form of consumption smoothing, efficient capital allocation and risk diversification.

The risks associated with capital flow volatility constitute the main barrier to reaping these benefits. This paper has outlined the steps taken by emerging and developing economies to mitigate these risks over the last 15 years, including running more positive current account balances, switching the composition of foreign liabilities from debt to equity and accumulating liquid official reserve assets. However, it is possible that this strategy has gone too far and that these economies should consider allowing a greater role for international debt inflows.

The main policy challenge is that a more open approach to international debt inflows should be accompanied by a proactive and resilient macrofinancial policy framework at domestic and international levels. The rate of success in designing and implementing the policy infrastructure determines the optimal speed of ramping up international debt inflows.

¹⁴ Of course, international financial institutions are also important as direct providers of infrastructure finance and as a catalyst for private sector funding (Chelsky, Morel and Kabir 2013). I do not dwell on this wider set of issues in this paper.

Appendix A: Sample Composition

Table A1: Economy Sample

AL	EE	LS	RO
AM	EG	LT	RU
AO	ET	LV	RW
AR	FJ	MA	SD
AZ	GE	MD	SG
BA	GH	MG	SI
BD	GM	MK	SK
BF	GT	ML	SN
BG	GY	MN	ST
BJ	HK	MR	SV
BO	HN	MV	SZ
BR	HR	MW	TH
BT	HU	MX	TJ
BW	ID	MY	TN
BY	IL	MZ	TO
CL	IN	NA	TT
CM	JM	NE	TZ
CN	JO	NG	UA
CO	KE	NI	UG
CR	KG	PE	UY
CV	KH	PG	VE
CZ	KR	PH	VN
DJ	KZ	PK	VU
DO	LA	PL	ZA
EC	LK	PY	ZM

Note: See Glossary for a listing of country codes

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