

This chapter finds that—over the medium term—a more developed domestic financial market increases the volume and helps reduce the volatility of capital flows to emerging markets. Specifically, the estimation results find that, although growth is the primary determinant of the level of capital inflows, equity market liquidity and financial openness also help attract capital inflows. Moreover, financial openness is associated with lower capital inflow volatility. These results, which are consistent with the views expressed by institutional investors, point to the advantages of focusing on the medium-term goal of improving the quality of domestic financial markets. By adopting such a focus, emerging market countries will be in a better position to maximize the benefits of capital inflows while dealing with their potential volatility.

The recent surge in capital flows to emerging market economies has stirred an intense debate about the appropriate policy response to this development. On the one hand, capital inflows are welcome because they encourage investment, help deepen financial intermediation, and, therefore, enhance economic development. However, in large sums over short time spans they can also impose policy challenges relating to upward pressure on the exchange rate, overheating of the economy, and asset price bubbles. They also pose the risk of an abrupt reversal, potentially having negative real economic effects.

This chapter analyzes the domestic determinants of capital inflows, with a view to assessing what actions emerging market countries can take to maximize the benefits of those inflows while minimizing the threat to financial stability. In particular, the chapter examines the influence of domestic financial markets on capital inflows, putting the large capital inflow increases to emerging markets that have occurred since 2002 within a medium-term perspective.

Beginning in 2002, capital flows have been on a strong upward trend worldwide in both

gross and net terms, with flows to emerging markets growing almost sixfold in five years (Figure 3.1).¹ Contrary to the early 1990s, the recent surge of capital flows to emerging markets has coincided with generally stronger economic policies and performance in those markets, including current account surpluses and improved debt management. In terms of composition, bonds and bank loans account for the bulk of the growth in capital flows; for emerging markets, although foreign direct investment (FDI) flows continue to be the single largest and relatively stable part of inflows, the FDI contribution to total inflows has declined as the other components have been rising more rapidly in recent years (Figure 3.2).² As noted in *Global Development Finance*, capital flows to all developing countries have continued to shift in composition from official to private sources, and from debt to equity financing (World Bank, 2007). FDI

¹For a sample of 56 developed and emerging market economies (comprising 81 percent of world capital inflows in 2005), and 41 emerging market economies, respectively.

²The lines between FDI and portfolio investment are becoming increasingly blurred because some portfolio-type inflows show up as FDI. This may partly explain why FDI flows have not always been stable.

Note: This chapter was written by Shinobu Nakagawa and L. Effie Psalida with research assistance provided by Oksana Khadarina. Badi Baltagi provided consultancy support.

Figure 3.1. Total Capital Inflows
(In billions of U.S. dollars)



Source: IMF, *International Financial Statistics* database.

inflows continue to expand, keeping pace with strong GDP growth, while in 2006 portfolio equity flows reached record levels. As financial markets become increasingly integrated, capital inflows are often matched by emerging market outward investment, particularly in Asia but also in Latin America (Box 3.1).

Despite the growth of outward emerging market investment, large capital inflows pose policy challenges to many emerging markets. These flows can be explained both by stronger domestic performance (pull factors) and by global financial factors such as the high liquidity, low volatility, and compressed yields of recent years (push factors).³ However, although there may be cyclical downturns, over the longer term countries will need to cope with rising capital flows, as globalization is likely to proceed apace. The question posed here, therefore, is: What financial policy actions can emerging market countries themselves take to best deal with capital flows over the longer term?

Specifically, this chapter asks whether—in addition to strong macroeconomic fundamentals—a well-functioning domestic financial market increases the level of capital inflows and reduces their volatility. This issue is analyzed in two ways.

First, the chapter identifies and estimates domestic “micro” financial factors that help determine the volume and volatility of capital inflows for a sample of 56 economies over 30 years. Panel regression estimations are used, the results of which are discussed later in the chapter.

This long-term empirical analysis is then augmented by examining the ongoing challenges and risks associated with the recent bout of capital inflows for countries that are at different stages of domestic financial market development. Their financial policy options are discussed by concentrating on five country examples.

The chapter finishes with a discussion of the key results, and draws some policy conclusions.

³See Chapter II of the April 2007 GFSR for a discussion of the supply factors determining capital flows and the broadening and diversification of the international investor base into emerging markets (IMF, 2007a).

Does Domestic Financial Development Help Determine Capital Inflows?

There is an extensive body of applied literature on the growth and investment impact of capital account openness and stock market liberalization, but, contrary to economic theory, the empirical results—derived primarily from cross-country macroeconomic analysis—are ambiguous and inconclusive.⁴ In search of more robust results, recent literature has turned to the use of microeconomic data, although this approach is still at an early stage largely due to data limitations.⁵ Another branch of the applied literature investigates the implications for financial stability of the links between capital flows and “micro” domestic factors such as institutional quality.⁶ This chapter extends the work along this branch of the literature in order to understand the financial and institutional factors that attract capital flows to emerging markets. Further, it assesses the implications for financial stability by examining the links between these factors and the volatility of inflows. The accepted wisdom is that a well-functioning and deep financial system should help attract inflows and provide less incentive for rapid outflows, thereby lowering volatility and mitigating any negative effects on the real economy. Although the common wisdom prevails, few empirical studies verifying these conjectures have been conducted to date.

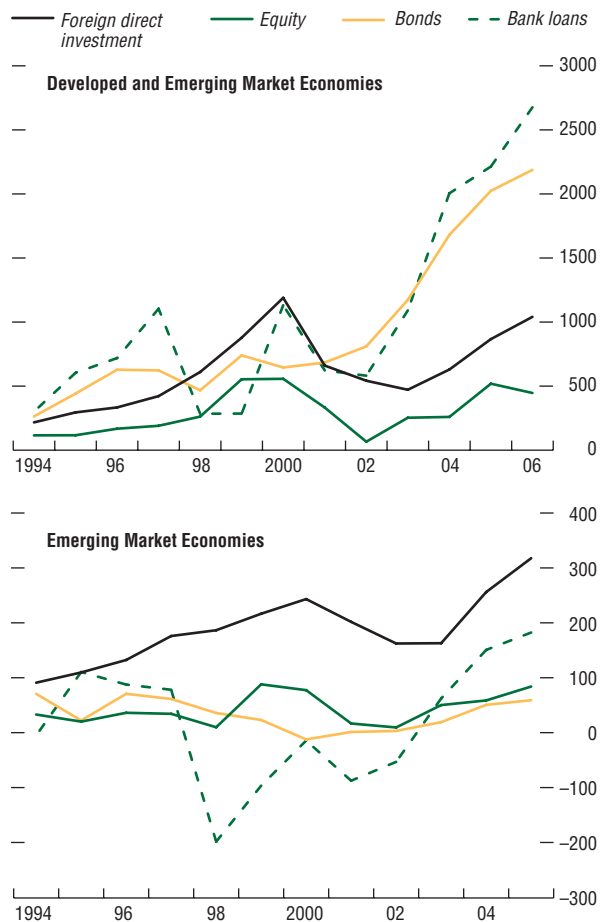
This chapter develops an empirical framework for assessing the determinants of the

⁴See the surveys by Eichengreen (2001) and Prasad and others (2003). The latter note that: “...the literature suggests that there is no strong, robust, and uniform support...that financial globalization per se delivers a higher rate of economic growth” (p. 8). More recently, Henry (2006) finds evidence that opening the capital account leads countries to temporarily invest more and grow faster. See also Edison and others (2004), who provide a review of the literature; and IMF (2007b) on the effects of financial globalization.

⁵See, for example, Smith and Valderrama (2007).

⁶See, for example, Alfaro, Kalemli-Ozcan, and Volosovych (2005).

Figure 3.2. Composition of Capital Inflows
(In billions of U.S. dollars)



Source: IMF, *International Financial Statistics* database.

Box 3.1. Recent Developments with Capital Flows in Emerging Asia and Latin America

Net capital flows to emerging Asia and Latin America are off their highs from a decade ago, even as Central and Eastern Europe are experiencing record net inflows.¹ In 2006, net capital inflows were about 2 percent of GDP in emerging Asia and near zero in Latin America, down from recent highs of about 4 percent. Broad patterns in the respective regions include the following:

- In Asia, gross capital inflows fell dramatically during 1997–98. Since then, gross capital inflows have grown to levels close to their historical highs. However, more recently, gross capital outflows from emerging Asia have increased rapidly, exceeding historical levels

and thus leading to lower net capital inflows. (These broad features mask differences in the region: China and India continue to receive significant net capital inflows, for instance.)

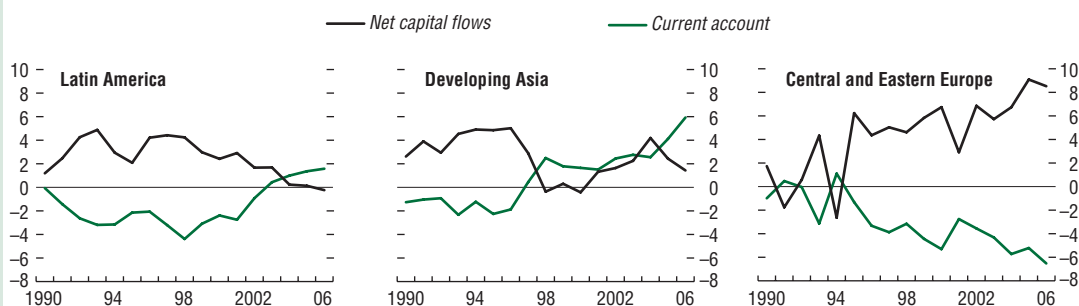
- In Latin America, gross capital inflows declined from 1998 to 2002 but subsequently remained fairly stable until 2006. Gross inflows remained unchanged as purchases of new claims by nonresidents were offset by repayment of public external debt. At the same time, as in Asia, gross outflows from the region increased. Very recently, this pattern has shifted, as gross outflows have declined while a few countries in Latin America—particularly Brazil—have experienced large capital inflows in the first half of 2007.

Even if tentative, the recent increase in gross capital outflows reflects financial globalization, liberalization, and a recycling of current account surpluses, especially in Asia. In both regions, home bias has declined and there has

Note: Roberto Benelli and Leslie Teo prepared this box.

¹Net capital inflows are defined as the sum of gross inflows (nonresident investment in the domestic economy) and gross outflows (resident investment abroad).

Current Account Balances and Net Capital Flows from a Global Perspective (In percent of GDP)



Source: IMF, *World Economic Outlook* database.

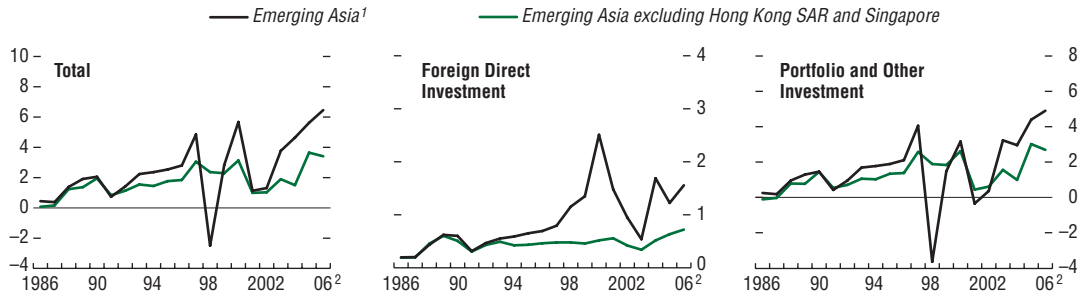
level and volatility of annual capital inflows.⁷ The framework employs a panel specification

⁷In the financial account of the balance of payment statistics, all transactions are recorded on a net change basis (that is, all inflows in a given instrument are netted against all outflows of the same instrument). In this

for 15 developed and 41 emerging market economies. (Annex 3.1 includes a detailed presentation of the data, the specification,

chapter, capital inflows refer to increases in the liabilities of the countries in the group.

Emerging Asia: Gross Capital Outflows
(In percent of GDP)

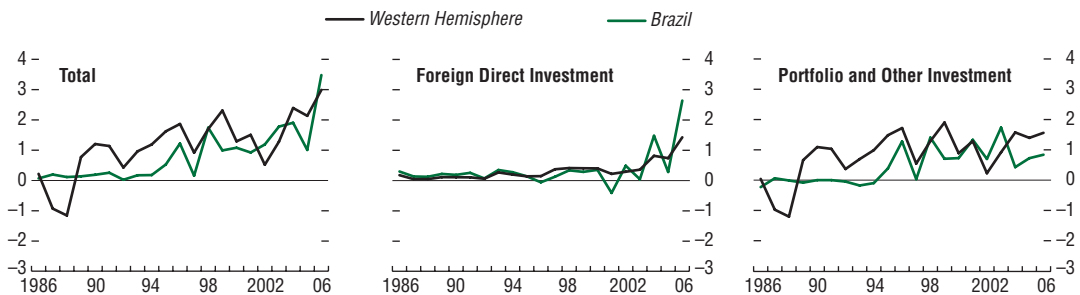


Sources: CEIC Data Company, Ltd.; IMF, *International Financial Statistics* and *World Economic Outlook* databases; and IMF staff estimates.
¹Excludes Hong Kong SAR until 1997.
²Estimate.

been greater international diversification, even if it remains low compared to industrial countries. Reflecting greater economic integration, outward foreign direct investment has been

boosted as more Asian and Latin American firms make foreign acquisitions. One example is the \$17 billion purchase of mining assets in Canada by a Brazilian company in 2006.

Latin America: Gross Capital Outflows
(In percent of GDP)



Sources: IMF, *World Economic Outlook* database; and IMF staff estimates.

and the estimation results). The estimation utilizes two sets of explanatory variables: equity market liquidity and depth (approximated by equity market turnover and capitalization, respectively); and institutional quality indicators that include financial openness, a de facto

measure of corporate governance quality, and accounting standards. We also control for three macroeconomic measures, namely (1) lagged GDP growth as a proxy for domestic growth expectations; (2) a real interest rate spread as a proxy for both risk premia and relative liquidity

Table 3.1. Panel Least-Squares Estimation of the Determinants of Total Capital Inflows

	1977–2006		1998–2006	
	All Countries	Emerging Markets	All Countries	Emerging Markets
Financial Development Indicators				
Equity market turnover	0.127 [0.002]***	0.150 [0.003]***	0.139 [0.003]***	0.216 [0.001]***
Equity market capitalization	0.027 [0.292]	0.020 [0.512]	0.039 [0.312]	0.018 [0.739]
Financial openness	1.647 [0.000]***	1.550 [0.000]***	3.488 [0.000]***	3.164 [0.001]***
Corporate governance quality	30.128 [0.076]*	16.225 [0.290]
Accounting standards	0.019 [0.998]	-10.995 [0.647]
Macroeconomic Factors				
Growth expectation	0.489 [0.000]***	0.404 [0.000]***	0.668 [0.000]***	0.782 [0.000]***
Interest rate differential	0.043 [0.030]**	0.022 [0.248]	0.109 [0.001]***	0.086 [0.004]***
Global liquidity	-0.009 [0.849]	-0.003 [0.948]	0.013 [0.863]	-0.036 [0.353]
Adjusted R ²	0.552	0.510	0.616	0.514

Sources: Bloomberg; Chinn and Ito (2006); Datastream; De Nicolò and others (2006); IMF, *International Financial Statistics* and *World Economic Outlook* databases; Standard and Poor's Emerging Markets Database; and World Federation of Exchanges.

Note: Cross-section fixed-effects estimation. Probability values are in square brackets: *** significant at 1 percent level; ** significant at 5 percent level; and * significant at 10 percent level.

conditions; and (3) a measure of global liquidity conditions.

The estimation results for the full country sample over the 30-year period (1977–2006) suggest that, for a given country, capital inflows increase as market liquidity and financial openness increase. This result is also strong and significant for the emerging market subsample, indicating, for example, that a 1 percent increase in the growth of equity market liquidity relative to GDP is associated, on average, with a 0.15 percent rise in the ratio of capital inflows to GDP (Table 3.1). When estimated for the post-Asian crisis period (1998–2006), equity market liquidity, financial openness, and corporate governance quality indicate an even stronger positive effect on the level of capital inflows for both the full country sample and for emerging markets. As expected, capital inflows increase as economic growth—one of the control variables—strengthens, a result that holds across all country groupings and both sample periods. In view of the potential for feedback effects or reverse causality—i.e., that capital inflows may

influence equity market capitalization—endogeneity is accounted for with a number of statistical techniques to ensure that the parameters were purged of the effects of endogeneity.⁸ The estimation results are consistent with the views expressed during our discussions with institutional investors who invest in emerging markets (Box 3.2).

We also examine the effect of financial market development indicators on the level of the different components of capital flows.⁹ Here, the

⁸We took one-period lags for all the explanatory variables, except for the institutional quality indicators. We also separately utilized two-period lags and performed two-stage least-squares estimations, but the results did not change significantly in either case. To take dynamics into account, we also performed additional estimations under a different specification, which included one-period lags of the dependent variable in the independent variable set for each equation. These results were not significantly different.

⁹Most studies of capital flows only estimate aggregate flows. There are some studies that investigate the composition of flows, although their focus is on the effects of capital controls and sterilized intervention (see, for example, Montiel and Reinhart, 1999).

findings show that, in addition to the aggregate, (1) the levels of total portfolio, FDI, and the “other” component of capital inflows (primarily comprising bank flows) increase as equity market liquidity rises, and (2) portfolio and FDI flows increase with more financial openness.^{10,11}

¹⁰In addition to bank lending, the “other” component of capital inflows includes financial derivatives for many countries, for which these data are not classified separately, as well as money market instruments.

¹¹Corporate governance quality and accounting standards are not included in the pre-1998 sample because these indicators are not available for the earlier years. A dummy variable, which is included in the 1977–2006 estimations and which has a significant positive sign for

More financial openness is associated with lower capital volatility. For both the full country sample and for emerging markets, the results indicate that in a given country there will be a significant reduction in inflow volatility over time (Table 3.2). Although most of the other factors also show a negative relationship with capital volatility, the coefficients are not statistically significant, except for global liquidity, for

the period 1998–2006, implies that there are factors (such as structural changes) that cannot be captured by the explanatory variables in the full-period sample. The accounting standards indicator is not statistically significant.

Box 3.2. Discussions with Investors into Emerging Markets: Do “Micro” Financial Factors Attract International Capital?

Discussions with private financial institutions that invest in emerging markets suggest that the quality of a country’s financial market is a contributing factor in those institutions’ decision making as regards asset allocation.¹ However, the relative importance of such domestic “micro” financial factors as the liquidity and depth of the domestic financial market and institutional quality, including transparency, corporate governance, and market infrastructure, varies across types of investors. As expected, on the whole, long-term investors tend to attach higher importance to such factors than do more active investors.

There are a number of metrics that institutional investors use to determine the adequacy of liquidity when considering whether to enter a market. Some investors assess liquidity in an emerging market by the amount of stocks or bonds they can buy and sell within a day, by how big a position they can take with a minimal effect on price, and by how wide the bid/ask spread is. Metrics include the average daily turn-

over of a particular security, how the market has reacted during past periods of stress, and the proportion of the free float of shares. Another important indicator for fixed-income securities is the liquidity of the repo market, because, without it, trades in the cash market need to be funded, which is a disincentive to investment for some types of investors.²

Other factors in estimating market liquidity are the size of the national economy and whether there is a broad and diversified group of domestic institutional investors, who generally provide a stabilizing force when foreign investors sell. Thus, the implementation of structural reforms (regarding the pension system or the insurance sector, for example) that are likely to strengthen the role of domestic investors plays an important role. Mexico was mentioned as an example where the average duration of bond investments has increased because of the issuance of long-maturity bonds, on the supply side, and due to the growing demand for securities by local institutional

¹This box reports on discussions with a broad range of institutional investors, including hedge funds, mutual funds, investment management companies, and banks.

²Unfortunately, most of these measures reported by investors are focused on individual securities and are not available on an aggregate basis for many of the countries in our sample over a significant time period.

Box 3.2 (concluded)

investors, on the demand side. The Brazilian market's depth is explained in large part by the diversity of domestic investors.

International investors raised the following points regarding the role of institutional quality factors in their asset allocation decisions involving emerging markets:

- **Transparency** is the most important element of institutional quality. Compared with a decade ago, transparency and predictability of information (including timely data) and policies have improved, particularly regarding taxation, accounting standards, and regulations. Together with strengthened macroeconomic fundamentals, this improvement has complemented the “push” factors of global liquidity, and contributed to bringing emerging markets into the mainstream as an asset class.
- In contrast to a decade ago, the recent surge of capital flows can also be partly attributed to improvements in *market infrastructure* in emerging markets across the board. For example, market participants value the sound banking and regulatory system in Brazil and the high level of human capital (e.g., information technology and the knowledge of English) in India.
- Weak *institutional elements* may have a negative influence. For example, although local

currency bonds are sufficiently liquid in a particular emerging markets some investors said they would avoid them because they have serious doubts about the independence of the statistical agency and, hence, the reliability of economic data. Other investors reported a large recent sell-off of stocks amid concerns about corporate governance, including minority shareholders' rights in another market. However, a number of the most active hedge funds noted that they are prepared, in most cases, to participate where there is weak governance, if the asset's price reflects an appropriate risk premium.

Views differed among investors on the effectiveness of restrictions on capital inflows. Some investors thought that, under certain circumstances, restrictions could be effective in the short run. Some noted Malaysia as an example where it was possible to prevent offshore trading of a currency without evasion. Other capital restrictions are only partially effective, such as in cases where a wedge develops between the onshore and offshore rates implied by nondeliverable forwards. Investors find ways to gain exposure to a desired emerging market destination despite restrictions, through the use of new vehicles and instruments (see Chapter 1).

which there is on average a 1 percent increase relative to GDP with a 0.13 percent decline in inflow volatility.¹²

A broader set of indicators of institutional quality was also found to have a negative relationship with capital flow volatility. The panel estimations discussed above are complemented

by plotting a set of six indicators—regulatory quality, rule of law, control of corruption, voice and accountability, political stability, and government effectiveness—against the volatility of capital inflows.¹³ As the scatter diagrams suggest, these metrics exhibit a negative correlation with inflow volatility (Figure 3.3).

¹²There are a number of possible interpretations as to why these coefficients are not statistically significant. It may be due to the computing method for volatility (e.g., the five-year rolling window), or the low frequency of the data (annual), which does not capture the actual speed with which capital flows may change direction, making statistical significance difficult to obtain. Another computation, using the absolute value of capital flows divided by GDP, obtained similar results.

¹³See Kaufmann, Kraay, and Mastruzzi (2007). These indicators are not included in the panel estimations because they show high correlation coefficients with the institutional quality indicators that are already included in the regressions; and are available for only five years, suggesting that statistical significance would be compromised. The panels in Figure 3.3 show values averaged over these years.

Table 3.2. Panel Generalized Method of Moments Estimation of the Determinants of the Standard Deviation of Total Capital Inflows, 1998–2006

	Standard Deviation of Total Capital Inflows/GDP ¹	
	All countries	Emerging markets
Financial Development Indicators		
Equity market turnover	0.003 [0.881]	-0.009 [0.784]
Equity market capitalization	-0.015 [0.441]	-0.014 [0.513]
Financial openness	-2.317 [0.018]**	-3.359 [0.002]***
Corporate governance quality	5.856 [0.704]	16.530 [0.420]
Accounting standards	-2.428 [0.916]	-27.769 [0.395]
Macroeconomic Factors		
Growth expectation	-0.290 [0.196]	-0.133 [0.568]
Interest rate differential	0.009 [0.883]	0.044 [0.469]
Global liquidity	-0.079 [0.083]*	-0.128 [0.053]*
<i>J</i> -statistics ²	8.206 [0.999]	4.614 [0.999]

No. of cross-section countries	33	18
No. of observations ³	254	136
Instrument rank ⁴	49	34

Sources: Bloomberg; Chinn and Ito (2006); Datastream; De Nicolò and others (2006); IMF, *International Financial Statistics* and *World Economic Outlook* databases; Standard and Poor's Emerging Markets Database; and World Federation of Exchanges.

¹Probability values are in square brackets: *** significant at 1 percent level; ** significant at 5 percent level; and * significant at 10 percent level. Cross-section fixed-effects specification with 2SLS instrument weighting matrix.

²Test statistics for the null hypothesis that the over-identifying restrictions are valid.

³Total number of observations based on the unbalanced panel structure.

⁴Lagged values of independent variables are used as instruments.

Challenges Associated with Capital Inflows and Policy Responses: Case Studies

The empirical work presented in the previous section shows that, over the medium term, deeper and more liquid equity markets and better market infrastructure help attract capital inflows, and that capital volatility is reduced as a country becomes financially more open. Improvements in institutional quality are also associated with reductions in volatility. But mar-

ket development takes time and countries that experience a surge in capital flows are searching for ways to address short-term challenges. This section looks at five country examples—Brazil, India, Romania, South Africa, and Vietnam—and considers whether the challenges associated with large capital inflows and the policy responses vary if countries are at different stages of domestic financial market development.¹⁴

By way of background, the degree of financial intermediation varies widely across the five countries. Romania has experienced the highest growth rate in private credit during the past five years, and yet remains the country with the lowest credit-to-GDP as well as broad-money-to-GDP ratios (Table 3.3). Vietnam has had the fastest growth in equity market capitalization, but the ratio of that capitalization to GDP in Vietnam was the lowest of the five countries at end-2006. By comparison, South Africa's market capitalization is higher than that of the United Kingdom or the United States, when normalized by GDP, more than doubling in the past five years from a large base; its equity market is also very liquid, far higher than in the other emerging markets. Despite the different degrees of financial intermediation within the group, in recent years the five countries have all experienced a deepening of their internal financial markets and a rise in their market liquidity.

Key Challenges

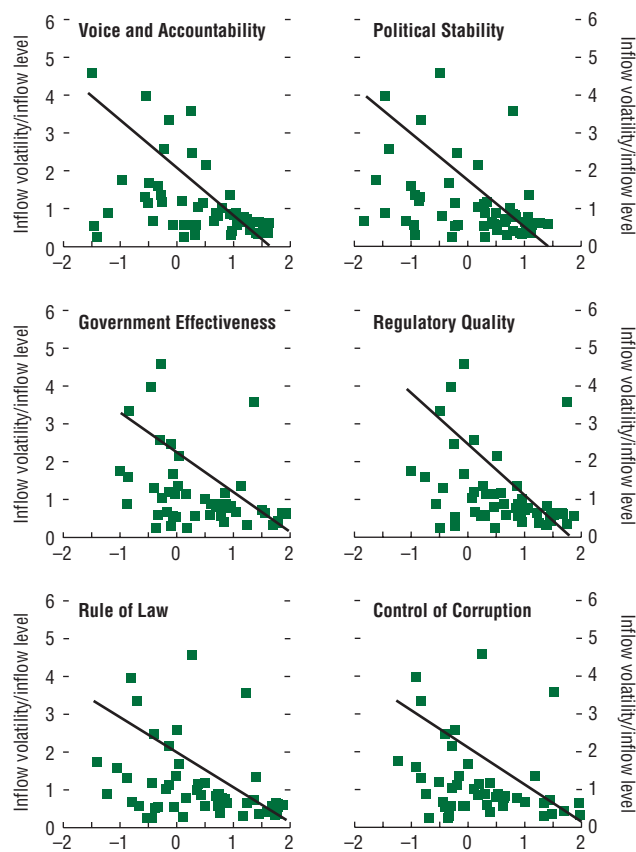
There are three sets of challenges stemming from a surge of capital inflows.

Macroeconomic

Fundamentally, countries could face a conflict of macroeconomic objectives if they attempt to both target a specific exchange rate or band and, at the same time, maintain control over their domestic monetary policy. This results in

¹⁴Annex 3.2 presents more detailed information on the challenges facing these countries and the measures they have undertaken. Annex 3.3 provides stylized facts for a larger group of countries.

Figure 3.3. Market Infrastructure and Volatility of Total Capital Inflows¹



Sources: Kaufmann, Kraay, and Mastruzzi (2007); IMF, *International Financial Statistics*; and IMF staff estimates.

¹The inflow volatility measure is in absolute values.

common challenges, one of which is the upward exchange market pressure exerted as a result of high levels of capital inflows, possibly raising issues of competitiveness. Ignoring the conflicting macroeconomic objectives, the authorities face the dilemma that intervention to counteract pressure on the currency renders it more attractive to further inflows. Sterilization tends to raise yields, which fosters new capital inflows and further appreciation pressure, thus possibly posing a concern about external competitiveness and potentially setting the stage for financial instability. This conflict appears as a result of both portfolio investment (most notably in Brazil, India, and Vietnam) as well as when capital inflows are channeled through the banking system, as in Romania (Annex 3.2). Even if the authorities are able to prevent nominal exchange rate appreciation, the pressure in many cases will still translate into real exchange rate appreciation through higher domestic inflation.¹⁵

Domestic Financial System

How, for example, do countries handle rising credit and—in some cases—foreign exchange risk buoyed by large portfolio inflows and external commercial borrowing? In India, although the banking sector as a whole remains healthy, rapid credit growth poses questions regarding credit quality in some banks. In Vietnam, banks’ exposure to a booming stock market poses a market risk from their own holdings and indirect credit risk through loans to buy equities for their clients should a correction to the stock market occur. In Romania, although financial soundness indicators suggest that banks enjoy adequate capital and liquidity buffers, banks are exposed to indirect foreign exchange risk stemming from rapidly rising unhedged lending to

¹⁵This chapter does not expand on the macroeconomic implications of exchange rate policy, but rather focuses on the financial implications of capital inflow surges and the tools to deal with them. For a look at macroeconomic implications, see the discussion of inflow episodes in Chapter 3 of the October 2007 *World Economic Outlook* (IMF, 2007c).

Table 3.3. Indicators for Selected Countries, 2001 and 2006*(In percent)*

	Real GDP Growth	Inflation Rate	General Government Balance/GDP	External Current Account Balance/GDP	Official Reserves/Short-Term Debt ¹	Broad Money/GDP	Credit to Private Sector/GDP	Equity Market Capitalization/GDP	Equity Market Turnover/GDP
Brazil²									
2001	1.3	6.8	-3.3	-4.2	55.9	24.1	25.1	33.0	11.5
2006	3.7	4.2	-3.0	1.2	125.6	28.0	30.6	66.5	25.8
India³									
2001	3.9	3.8	-9.8	0.3	380.0	59.8	29.7	23.3	52.6
2006	9.7	6.1	-6.0	-1.1	850.0 ⁵	73.2	47.6	92.3	72.0
Romania³									
2001	5.7	30.3	-3.2	-5.5	496.1	25.7	8.7	5.3	0.6
2006	7.7	4.9	-1.7	-10.3	158.8 ⁶	32.4	27.0	26.9	3.5
South Africa²									
2001	2.7	6.5	-1.5	0.3	38.1 ⁷	59.4	66.1	117.9	58.8
2006	5.0	5.0	0.4	-6.5	150.5 ⁷	78.1	83.1	280.2	122.4
Vietnam⁴									
2001	6.9	1.9	-2.8	1.6	261.5	52.1	39.3	0.3	0.2
2006	8.2	7.2	-0.7	-0.4	522.7 ⁶	86.4	71.3	22.7	10.1
<i>Memorandum items:</i>									
Germany²									
2001	1.2	1.9	-2.8	0.0	39.7	68.1	118.2	56.6	75.2
2006	2.8	1.8	-1.6	5.0	39.2	72.4	109.9	56.5	94.5
Japan²									
2001	0.2	-0.8	-6.3	2.1	136.6	130.0	112.9	55.3	44.8
2006	2.2	0.2	4.1	3.9	229.5	140.3	98.0	109.8	139.1
United Kingdom²									
2001	2.4	1.2	0.9	-2.2	1.3	93.8	137.7	150.8	314.9
2006	2.8	2.3	-2.9	-3.7	0.7	114.7	176.1	159.8	319.0
United States²									
2001	0.8	2.8	-0.4	-3.8	...	74.4	177.7	136.5	219.6
2006	2.9	3.2	-2.3	-6.2	1.4	75.5	200.3	148.3	231.2

Sources: IMF, *World Economic Outlook* and *International Financial Statistics*; U.S. Department of the Treasury; and IMF staff reports.¹Ratio for official reserves is to next year's short-term debt, except in 2006 for Japan, the United Kingdom, and the United States, where same-year short-term debt is used.²Independently floating exchange rate.³Managed floating exchange rate.⁴Conventional peg.⁵For India, data are for April–March fiscal years. The figure for 2006 is preliminary.⁶Data for 2006 are preliminary. Short-term external debt plus open forward position.⁷Short-term external debt plus open forward position.

households. In countries such as India, Vietnam, and Romania, as well as other countries in Central and Eastern Europe, where domestic capital markets are not highly developed, there are concerns about asset price inflation (often in both the stock market and in real estate) in combination with credit growth concentration in certain institutions or sectors. Although financial deepening—typically measured as the ratio of private credit to GDP—is a welcome structural development for these countries over the longer term, the immediate concern is whether it

outpaces the speed with which domestic institutions are strengthening.¹⁶ For such countries, in which domestic capital markets are not very liquid or diversified and where a large part of the capital flows is intermediated through the banking system, the challenges tend to be expressed primarily in terms of credit and/or foreign exchange risk.

¹⁶See Hilbers and others (2005) for a discussion of rapid credit growth buoyed by strong capital inflows with a focus on Central and Eastern Europe.

External

The external challenges to emerging markets involve an abrupt change in global financial conditions and international investor appetite for risk. South Africa, for example, has experienced high volatility of its exchange rate despite a strong macroeconomic performance and a liquid financial market, as evidenced by the May/June 2006 and February/March 2007 episodes when the rand was one of the most affected emerging market currencies; this was probably also due to the large current account deficit and a weakening of commodity prices. As for Brazil, the composition of inflows means that the risk of a sudden withdrawal is high if international investors adjust their portfolios abruptly, since a large part of the inflows is in the form of short-term portfolio flows. However, with strong macroeconomic performance, including an improved debt composition, a well-supervised financial system, and diversified domestic markets, Brazil's external vulnerability is reduced relative to previous episodes of surges and withdrawals of capital flows.

Financial Policies Adopted by the Authorities

In addition to accumulating foreign assets as a financial safety cushion, the five countries discussed here have undertaken a number of reforms that are designed to reduce external vulnerabilities in the long term. Such structural reforms include strengthening the prudential and regulatory framework and market infrastructure, and facilitating a smooth development of domestic capital markets (Annex 3.2). In South Africa, for example, the authorities relaxed restrictions on outward investment in recent years as the economy moves away from exchange controls and toward a system of prudential-based regulations for institutional investors. Brazil removed withholding taxes on income earned by nonresidents from government securities holdings, which, although still at an early stage, appears to have attracted larger investor participation. In addition, limits on the outward investment of Brazilian institutional

asset funds were loosened. The measures taken in the two countries of the group with the more developed capital markets have had the beneficial effects of further enlarging the investor base and allowing for greater risk diversification, and have the potential to reduce currency and inflow volatility.

Other financial measures have been taken with the more immediate aim of reducing the country's short-term vulnerability stemming from capital inflow surges (and potential withdrawals). Some of these policies have had mixed results, while for others it is too early to draw definitive lessons about their effectiveness, since the capital inflow surge is still unfolding. Measures taken include the following:

- Prudential requirements for bank transactions in foreign currency have been tightened (Brazil). On the other hand, a stricter limit to banks' unhedged foreign currency lending introduced in Romania in 2005 was removed in early 2007 because it was no longer effective.
- Banks' reserve requirements were raised (India, Romania, Vietnam) and differentiated between domestic and foreign currency deposits to encourage a switch to domestic currency lending (Romania). Beginning in 2005, Romania also required the separate classification of unhedged foreign currency loans regardless of their repayment performance. It is unclear whether these measures have slowed the growth of unhedged foreign exchange household credit or reduced the currency mismatch on bank balance sheets in Romania.
- Addressing specifically the containment of rapid credit growth, India boosted the risk weights for high-growth areas, such as real estate, to above Basel norms.
- Vietnam took a series of administrative steps to address banks' exposure to the stock market and to contain the strong equity valuation, including tightening the rules for new bank lending for the purchase of stocks, and reregistration and new reporting requirements for foreign investment funds.

Financial Policy Options¹⁷

There are a number of practices that countries follow to address short-term challenges stemming from capital inflow pressures. These measures can be administrative or market-based, and may include informal official guidance in cases where the weight of the authorities' role relative to that of market forces allows it. Such measures include (1) increasing the cost of central bank credit; (2) raising banks' reserve requirements; (3) varying reserve requirements between domestic and foreign exchange deposits; (4) placing government deposits with the central bank; and (5) introducing taxes to either level out or create a wedge between the yields of domestic and foreign securities. Although market-based measures are preferable to administrative ones, these policies are—either explicitly or implicitly—a tax on the financial system and have the potential to increase interest rates and spur additional inflows. Thus, their cost and potentially distortive side effects ought to be carefully counterbalanced against their effectiveness over time.

As regards prudential measures, they are most effective when they concentrate on what they were intended to achieve, that is, the long-term soundness of the domestic financial system, rather than be stretched to counteract capital inflow pressures. When proposed, their full implications, including possible side effects, need to be carefully considered. Specifically, prudential measures in banking could focus on making sure that banks understand the risks stemming from capital inflows, that the capital structure of banks is appropriate for the type of inflows, and that financial institutions are required to set up proper risk management policies and practices to measure and manage aggregate exposures, including those of offshore exposure of domestic financial institutions. It is important to promote a good understanding of risk among borrowers, in particular for loans in foreign exchange where

exchange rate risk for borrowers can easily translate into credit risk for banks.¹⁸

Prudential measures relating to the capital markets should aim to strengthen corporate governance, including shareholders' rights, listing requirements, and the clearance and settlement system. Margin requirements may be established considering such factors as historical volatility, risks of extreme movements, length of the settlement period, and capital adequacy of brokers. These parameters are most effectively established to promote systemic development and stability in the long run, rather than as a short-term response to capital movements.

Another policy designed to reduce pressures from large capital inflows is the easing of controls on capital outflows. In addition to Brazil, a number of countries—including Chile, China, and Korea—have recently liberalized rules limiting individual or institutional investments abroad. This has led to a rapid increase in portfolio investment outflows, especially in Asia (Box 3.1). It is too early to conclude from the data, however, whether capital outflow liberalization will be effective in relieving inflow pressure over time. More fundamentally, it is difficult to measure the effectiveness of capital outflow liberalization given the possible role of other factors in determining the direction and level of capital flows. There are also indications that in past episodes of capital inflow surges the liberalization of capital outflows was matched by larger inflows (Reinhart and Reinhart, 1998).

In line with the earlier empirical results that suggest that financial openness encourages inflows, capital controls, broadly defined, are usually unhelpful in managing inflows. They pose problems of implementation and circumvention, including governance problems, especially for administrative controls, where one authority possesses the right of discretionary

¹⁷For the purposes of this chapter, the discussion focuses on financial or microeconomic rather than macroeconomic policies.

¹⁸See Enoch and Ötcher-Robe (2007) for a discussion of the use of prudential measures to ensure sound lending practices in cases of rapid credit growth.

decision making.¹⁹ One needs to differentiate between countries that already have capital controls in place (including the accompanying infrastructure and reputation) and delay scheduled liberalization, and countries that impose controls starting from a position of an open capital account regime. In the latter case, capital controls can carry reputational costs, which may be significant if the country meets its financing needs from international capital markets.²⁰

If capital controls are used, they best take the form of market-based controls, and should be used only as a transitional measure to provide breathing space while developing an adequate supervisory and regulatory system or strengthening the regulated financial institutions. Other policy adjustments should be undertaken in parallel, as the effectiveness of capital controls tends to diminish over time.²¹ Eventually, investors find ways to assume exposure to a desired emerging market destination, thus blunting a country's attempts to relieve pressure on the exchange rate (Box 3.3).²² In any case, market-based controls, such as unremunerated reserve requirements, would be preferable to administrative measures.

¹⁹This is particularly problematic where transactions or transfers are subject to prior approval by the foreign exchange authority and there are no clear criteria for granting such approval.

²⁰To regain monetary policy independence and stabilize short-term capital flows, Malaysia introduced a wide range of direct capital and exchange controls in September 1998. These controls were effective, but, five months later, the costs of weakening investor and market confidence prompted the authorities to loosen them in the form of an exit levy system (Ariyoshi and others, 2000).

²¹To limit short-term capital inflows, Chile introduced capital controls in 1991 in the form of a minimum stay requirement and 20 percent unremunerated reserve requirements (URR). These controls were successful in reducing short-term inflows. However, until 1998, when the measures were eliminated, the rate and coverage of the URR were changed several times in an effort to close the channels that developed to circumvent the controls (Ariyoshi and others, 2000).

²²Brazil introduced various controls during 1993–97 to lengthen the maturity and change the composition of capital inflows. Since the cost of circumvention declined relative to investors' incentives, the controls gradually lost effectiveness, resulting in additional alteration of them (Ariyoshi and others, 2000).

Key Results and Conclusions

The key results from the estimations presented in this chapter can be summarized as follows:

- Growth and growth prospects are primary domestic determinants of the level of capital inflows.
- Financial market liquidity and financial openness help attract capital inflows.
- More financial openness is associated with lower capital volatility.
- Volatility of capital inflows is partly driven by external factors, such as global financial liquidity, which are outside the control of emerging markets.
- Institutional quality, as expressed by a number of diverse indicators, matters. Specifically, better corporate governance is associated with a higher level of inflows, and a number of institutional quality and market infrastructure indicators, including regulatory quality and the rule of law, are positively associated with a reduction in the volatility of capital inflows.

These results—indicating that the quality of the domestic financial market raises the level and helps reduce the volatility of capital inflows—lend empirical support to conventional wisdom and are consistent with what we learned from discussions with private sector institutional investors, as well as with the findings from the five country examples.

Since the surge in capital inflows is still unfolding, it is hard to draw definitive conclusions on the effectiveness of current financial policies in dealing with the present surges (and possible withdrawals) of capital flows. However, even after the current cycle changes direction, the long-term trend toward increased financial integration is such that countries will need to put themselves in a situation that will make it possible to live with the potential volatility of capital flows. The chapter has provided some clues concerning the longer-term financial policies that will aid countries in this endeavor.

Box 3.3. How Investors Gain Exposure to an Emerging Market in the Presence of Capital Controls: The Case of India

Strong economic performance has increasingly attracted the attention of international investors to India. But direct access to the domestic fixed-income, foreign exchange, and equity markets by international investors is either restricted, through the qualified foreign institutional investor (FII) program, or closed altogether. Several factors constrain investors from entering the Indian market directly. For instance, foreign investors are subject to limits in their holdings of corporate and government securities, cannot participate in the interbank market, and do not have access to local currency instruments for purposes of speculation. In addition, although a level playing field for all investors is welcome, the relatively high withholding and other taxes and the hurdles for opening and operating a domestic settlement account are administratively burdensome for many foreign investors.

Many international investors are able to acquire exposure to Indian markets while avoiding India's regime of restrictions on foreign participation through an increasing number of channels, particularly as derivatives markets have grown. For example, there is a large and relatively liquid offshore market for India's interest rates along the full yield curve—up to 10 years.

The growth of derivatives-related and other transactions opens numerous two-way channels for investors who see India as a desired destination:

- Foreign investors, including hedge funds, can gain entry into the Indian equity market through the purchase of participatory notes

Note: The main contributors to this box are Rebecca McCaughrin and Tao Sun.

offered by registered FIIs. These notes allow offshore participants to gain exposure to Indian equities without registering as an FII.

- The onshore rupee forward market is only available for hedging commercial transactions. Hence, to express an outright currency or interest rate view, foreign investors transact through the nondeliverable forwards and interest rate swaps markets. Liquidity in these markets is provided by foreign banks and offshore Indian accounts.
- A borrowing channel for Indian corporates via foreign currency convertible bonds (FCCBs) gets packaged into structured credit products, such as credit-linked notes and collateralized debt obligations. As a rule, Indian subsidiaries offshore purchase the credit portion, while hedge funds, proprietary desks of investment banks, and other international investors prefer the equity option. Indian corporates indicate that access to low-cost financing through FCCBs is worth this minor dilution in their equity stake. More generally, the credit default market in Indian credits is reasonably active, with offshore subsidiaries of Indian banks providing insurance to international investors, in some cases through structured products. In sum, there are opportunities to gain exposure to Indian credit risk offshore.
- Given the existing restrictions on portfolio ownership by foreign investors, private sector participants can take an increasingly more direct ownership avenue through private equity direct investments. In this context, private equity accounts for a growing share of inflows, much of it targeting real estate-related investments. This development often makes it difficult to distinguish between foreign direct and portfolio investment.

In addition to strong macroeconomic fundamentals, including sound fiscal policy and more flexible exchange rates, countries will be better equipped to live with potential capital flow volatility if they either possess or demonstrate

progress toward achieving the following long-term structural characteristics:

- Deep and liquid equity markets within a well-regulated system; and
- Strong institutional quality across a broad

range of indicators, including corporate governance, accounting standards, the rule of law, and control of corruption.

Analysis has demonstrated the importance of transparency in relation to both policies (macroeconomic and microfinancial) and data. When this transparency is combined with a strong self-assessment of macro and financial vulnerabilities and with sound risk management systems within financial institutions and the public sector, it improves the ability of countries to deal with capital flows. Private institutional investors have repeatedly expressed the importance of timely and accurate data, as well as a predictable and transparent way of communicating with the investor base, as factors that contribute to the effective management of capital flows.

It is difficult to draw blanket recommendations beyond the ones noted above because policy challenges associated with capital inflows cannot and should not be uniform. Countries differ in their exchange rate regime and the type of capital inflows they experience, and therefore in the challenges they face. They differ also in the depth and diversification of their financial markets and their institutional and regulatory development, which means that they have a different menu of policy options at their disposal.

There are, however, some general guidelines as regards financial sector policies that are aimed at alleviating the pressures arising from large capital inflows:

- Loosening or eliminating restrictions on residents' capital outflows is a tool that can ease pressures from large capital inflows. Outward investment will also lead to internationalization of capital across emerging markets and, therefore, can be a welcome means of risk diversification. More experience will show whether this policy will have a lasting effect.
- Supervisory and prudential measures have a key role to play in addressing the health and stability of the financial system. Ideally, however, they are best used to address prudential considerations such as rapid credit growth or unhedged foreign exchange exposures; that

is, to ensure the soundness of the domestic financial system, rather than as a response designed to alleviate pressures stemming from capital inflow surges. A well-supervised financial system will help provide safeguards that will permit capital flows to enter and exit the financial system without endangering financial stability.

- Capital controls should be used only as a last resort and as part of a package of macroeconomic and prudential measures. They may be able to throw sand in the gears of a surge of short-term speculative inflows under certain circumstances, especially if the infrastructure is already in place. In addition to the challenge of effectiveness, there are reputational costs to be considered. Moreover, the effectiveness of controls can either be circumvented from the start or diminish over time, as financial instruments will likely be found to circumvent them.

Ultimately, however, it is the quality of its domestic financial market—in addition to strong macroeconomic performance—that will put an emerging market in a position to maximize to the fullest extent the benefits of capital inflows and best deal with their potential volatility. Short-term measures intended for an immediate relief of pressure from large capital inflows may have uncertain effectiveness or unintended side effects, or be a distraction from the long-term goal of raising the quality of the domestic market—including depth and liquidity, market infrastructure, supervision, and institutions.

The increasing integration of financial markets—across countries and sectors—witnessed in the past decade has both long-term and cyclical elements. However, even after the current cycle turns, the underlying financial globalization trend is likely to point to continued financial integration, which will affect both advanced and newly arriving emerging markets. Countries, therefore, are best served if their primary response to large capital inflows today is to pursue the longer-term goal of developing their financial markets and building up a resilience to capital volatility rather than making

short-term responses to inflow surges. Countries will be better off if flows can both enter and exit freely without disrupting domestic financial stability and the real economy.

Annex 3.1. Estimation Specification and Results

A panel specification is employed to estimate the factors that determine the level of capital inflows for a sample of 56 countries, using an annual sample from 1975 to 2006.²³ The dependent variables used in the estimations comprise total capital flows and four main components, namely portfolio equity, portfolio bonds, FDI, and an “other” category that consists primarily of bank lending and includes financial derivatives for most of the countries that do not report these under a separate category, as well as money market instruments. The variables are normalized by nominal GDP. Total inflows and each of its components are modeled as a function of a set of financial development variables, as well as two macroeconomic measures aiming to control for the effect that these variables may have.

The panel regressions are run on a sample of the following 56 countries:

- *15 developed economies:* Australia, Belgium, Canada, France, Germany, Greece, Italy, Japan, the Netherlands, New Zealand, Spain, Sweden, Switzerland, United Kingdom, and United States.
- *12 emerging market economies—Asia:* China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand, and Vietnam.
- *20 emerging market economies—Europe, Middle East, and Africa:* Algeria, Bulgaria, Côte d’Ivoire, Croatia, Czech Republic, Estonia, Hungary, Israel, Jordan, Latvia, Lithuania, Morocco, Nigeria, Poland, Romania, Russia, Saudi Arabia, Slovenia, South Africa, and Turkey.

²³Due to the unbalanced structure of the panel data, some countries are dropped from the sample in the estimations.

- *Nine emerging market economies—Latin America:* Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Panama, Peru, and Venezuela.

We consider two types of factors: macroeconomic factors and financial development indicators.

Macroeconomic Factors

(1) Spread: real interest rate differential measured as the difference between the domestic one-year treasury bill rate and the world rate, calculated as the real GDP-weighted average of each country’s one-year rate;

(2) Growth: adaptive expectation for growth measured as real GDP growth rate in the previous year; and

(3) Global liquidity: changes in the sum of money supply (M1) and official reserves in the euro area, Japan, and the United States, a common general proxy for global liquidity.

Financial Development Indicators

(1) Changes in equity market capitalization and equity market turnover, each normalized by nominal GDP;²⁴

(2) Financial openness, as reported in Chinn and Ito (2006), which codifies the tabulation of restrictions on cross-border financial transactions reported by the IMF’s *Annual Report on Exchange Arrangements and Exchange Restrictions* as an index to measure a country’s degree of capital account openness;

(3) Corporate governance quality: a de facto, as opposed to de jure, index comprising a simple average of three indicators constructed from accounting and market data for samples of nonfinancial companies listed in stock markets (De Nicolò, Laeven, and Ueda, 2006); and

(4) Accounting standards: a measure of the amount of accounting information that firms disclose (De Nicolò, Laeven, and Ueda, 2006).

²⁴The sources for these data are the World Federation of Exchanges, Datastream, and Standard and Poor’s Emerging Markets Database.

We also performed panel estimations that included in the specification credit market depth (approximated by the change in private credit outstanding normalized by nominal GDP) as an explanatory variable for the level and volatility of capital inflows. However, in most cases, this variable showed the opposite sign and was often not significant. A possible explanation is that domestic bank credit to the private sector works as a substitute for capital inflows, including external bank borrowing, since well-functioning domestic credit markets may raise domestic savings and reduce the need for financing from international markets.

The same specification employed to estimate the factors that determine the level of capital flows is also used for estimating the volatility of inflows measured by their standard deviation computed using a five-year rolling window, also divided by nominal GDP.²⁵ The generalized method of moments (GMM) estimation is employed with lagged values for independent variables as instruments.²⁶ To avoid the use

²⁵See Box 2.5 in the April 2007 GFSR for a similar approach (IMF, 2007a).

²⁶Since the test results of our volatility measures for serial correlation are mixed, with weakly significant results in some cases, we do not employ lagged values of

of nonstationary variables and to maintain a relatively large sample, the estimation is limited to the volatility of total capital inflows, which follows a stationary process in the full country sample.

Unit root tests were performed for both panel and individual unit roots. Two tests—Levin, Lin, and Chu (2002), and Breitung (2000)—were conducted to test for the existence of a common unit root process. Three additional tests—Im, Pesaran, and Shin (2003), and Fisher-type tests using the Augmented Dickey-Fuller and the Phillips-Perron tests (Maddala and Wu, 1999; and Choi, 2001)—were conducted to test for unit roots in individual series. The tests indicate that most variables follow a stationary process. Exceptions are for the volatility of portfolio equity, portfolio bonds, and FDI. Similar results hold for the subperiod 1998–2006.

The tables that follow show the descriptive statistics for the variables used in the panel regressions (Table 3.4), and the level estimation results for the 30-year period covering the full country sample and emerging markets (Tables 3.5 and 3.6), and, similarly, for the period 1998–2006 (Tables 3.7. and 3.8.).

dependent variables as instruments, since this would be an improper use of instruments in the GMM framework.

Table 3.4. Descriptive Statistics for Variables Used in Panel Regressions, 1975–2006

	Mean	Median	Standard Deviation	Skewness	Kurtosis	Observations ¹
Dependent Variables²						
Level						
Total capital inflows	6.336	4.276	18.439	-0.504	126.707	1,502
Portfolio securities	1.327	0.254	3.207	2.954	43.176	1,470
Equity	0.417	0.000	1.616	12.184	242.222	1,482
Bonds	0.899	0.028	2.602	2.092	60.527	1,486
Foreign direct investment	2.192	1.110	3.237	2.965	19.351	1,506
Other ³	2.821	1.628	16.832	-0.558	148.527	1,512
Volatility ⁴						
Total capital inflows	4.761	2.562	11.514	9.151	98.941	1,279
Portfolio securities	1.143	0.628	1.796	4.668	34.551	1,250
Equity	0.472	0.175	1.049	9.765	147.276	1,262
Bonds	0.905	0.423	1.493	5.013	40.978	1,266
Foreign direct investment	1.024	0.516	1.384	3.329	20.172	1,282
Other ³	3.950	1.845	11.010	9.353	101.662	1,288
Independent Variables						
Macroeconomic factors						
Interest rate differential ⁵	2.955	0.643	17.106	3.884	32.608	1,168
Growth expectation ⁶	3.560	3.808	4.196	-0.722	5.580	1,668
Global liquidity ⁷	9.269	7.505	8.128	0.380	2.494	1,736
Financial development indicators						
Equity market capitalization ⁸	6.007	2.674	20.948	1.405	30.046	1,196
Equity market turnover ⁸	5.476	0.766	23.666	2.425	28.604	968
Financial openness ⁹	0.571	-0.062	1.650	0.056	1.403	1,474
Corporate governance quality ¹⁰	0.612	0.615	0.076	-0.619	4.495	420
Accounting standards ¹⁰	0.843	0.850	0.041	-1.010	5.362	427

Sources: Bloomberg; Chinn and Ito (2006); Datastream; De Nicolò and others (2006); IMF, *International Financial Statistics* and *World Economic Outlook* databases; Standard and Poor's Emerging Markets Database; and World Federation of Exchanges.

¹Numbers are different due to differences in time-series and cross-sectional data availabilities for individual countries.

²Nominal GDP ratios (in percent).

³Consists mainly of bank loans.

⁴The standard deviation of each capital inflow component computed using a five-year rolling window.

⁵One-year real interest rate minus the world rate constructed by the real GDP-weighted average of each rate (in percent).

⁶Measured by the real GDP growth rate in the previous year (i.e., an adaptive expectation).

⁷Growth rate of M1 and official reserves in the euro area, Japan, and the United States.

⁸Changes in stock market capitalization and turnover, respectively, divided by nominal GDP (in percent).

⁹The indicator computed by Chinn and Ito (2006).

¹⁰The indicators computed by De Nicolò, Laeven, and Ueda (2006).

Table 3.5. Fixed-Effects Panel Least-Squares Estimation of the Determinants of Capital Inflows (All Countries, Full Sample)

	Capital Inflows/GDP ¹					
	Total	Total portfolio	Portfolio equity	Portfolio bonds	Foreign direct investment	Other ²
Macroeconomic Factors						
Interest rate differential	0.043 [0.030]**	-0.009 [0.448]	-0.003 [0.705]	-0.005 [0.441]	0.021 [0.004]***	0.031 [0.106]
Growth expectation	0.489 [0.000]***	-0.027 [0.749]	-0.034 [0.471]	0.006 [0.940]	0.109 [0.000]***	0.406 [0.001]***
Global liquidity	-0.009 [0.849]	0.002 [0.914]	-0.004 [0.596]	0.006 [0.732]	-0.035 [0.010]**	0.025 [0.452]
Financial Development Indicators						
Equity market capitalization	0.027 [0.292]	0.002 [0.764]	0.004 [0.642]	-0.002 [0.703]	0.019 [0.039]**	0.007 [0.789]
Equity market turnover	0.127 [0.002]***	0.018 [0.002]***	0.014 [0.013]**	0.004 [0.369]	0.018 [0.000]***	0.091 [0.013]**
Financial openness	1.647 [0.000]***	0.680 [0.000]***	0.087 [0.075]*	0.590 [0.000]***	0.435 [0.000]***	0.537 [0.037]**
Other Factors						
Constant	2.294 [0.010]***	0.979 [0.145]	0.528 [0.126]	0.454 [0.459]	1.470 [0.000]***	-0.198 [0.818]
Dummy for 1998–2006	1.870 [0.008]***	1.034 [0.006]***	0.292 [0.034]**	0.745 [0.031]**	1.232 [0.000]***	-0.297 [0.577]
Adjusted R²	0.552	0.306	0.239	0.317	0.662	0.418
Time-series sample (annual)	1977–2006	1977–2006	1977–2006	1977–2006	1977–2006	1977–2006
No. of cross-section countries	47	47	47	47	47	47
No. of observations ³	672	665	672	665	672	672

Sources: Bloomberg; Chinn and Ito (2006); Datastream; De Nicolò and others (2006); IMF, *International Financial Statistics* and *World Economic Outlook* databases; Standard and Poor's Emerging Markets Database; and World Federation of Exchanges.

¹In percent. Probability values are in square brackets (*** significant at 1 percent level; ** significant at 5 percent level; and * significant at 10 percent level). White-type cross-section standard errors and covariance with degree of freedom corrected for robust estimators.

²Consists mainly of bank loans.

³Total number of observations based on the unbalanced panel structure.

Table 3.6. Fixed-Effects Panel Least-Squares Estimation of the Determinants of Capital Inflows (Emerging Market Economies, Full Sample)

	Capital Inflows/GDP ¹					
	Total	Total portfolio	Portfolio equity	Portfolio bonds	Foreign direct investment	Other ²
Macroeconomic Factors						
Interest rate differential	0.022 [0.248]	-0.023 [0.057]*	-0.011 [0.313]	-0.012 [0.072]*	0.020 [0.010]***	0.025 [0.244]
Growth expectation	0.404 [0.000]***	-0.115 [0.236]	-0.061 [0.275]	-0.055 [0.535]	0.093 [0.002]***	0.421 [0.008]***
Global liquidity	-0.003 [0.948]	-0.007 [0.656]	0.007 [0.442]	-0.014 [0.254]	-0.028 [0.054]*	0.032 [0.415]
Financial Development Indicators						
Equity market capitalization	0.020 [0.512]	0.000 [0.972]	0.001 [0.953]	0.000 [0.980]	0.021 [0.072]*	0.000 [0.985]
Equity market turnover	0.150 [0.003]***	0.020 [0.017]**	0.017 [0.008]***	0.002 [0.616]	0.018 [0.001]***	0.113 [0.010]***
Financial openness	1.550 [0.000]***	0.483 [0.001]***	0.006 [0.921]	0.475 [0.000]***	0.510 [0.000]***	0.559 [0.027]**
Other Factors						
Constant	3.440 [0.001]***	2.200 [0.013]**	0.839 [0.107]	1.354 [0.088]*	1.827 [0.000]***	-0.522 [0.670]
Dummy for 1998–2006	-1.260 [0.062]*	-0.760 [0.107]	-0.066 [0.791]	-0.676 [0.110]	1.141 [0.000]***	-1.679 [0.013]**
Adjusted R²	0.510	0.129	0.274	0.040	0.730	0.350
Time-series sample (annual)	1977–2006	1977–2006	1977–2006	1977–2006	1977–2006	1977–2006
No. of cross-section countries	32	32	32	32	32	32
No. of observations ³	460	453	460	453	460	460

Sources: Bloomberg; Chinn and Ito (2006); Datastream; De Nicolò and others (2006); IMF, *International Financial Statistics* and *World Economic Outlook* databases; Standard and Poor's Emerging Markets Database; and World Federation of Exchanges.

¹In percent. Probability values are in square brackets (***) significant at 1 percent level; ** significant at 5 percent level; and * significant at 10 percent level). White-type cross-section standard errors and covariance with degree of freedom corrected for robust estimators.

²Consists mainly of bank loans.

³Total number of observations based on the unbalanced panel structure.

Table 3.7. Fixed-Effects Panel Least-Squares Estimation of the Determinants of Capital Inflows (All Countries, 1998–2006)

	Capital Inflows/GDP ¹					
	Total	Total portfolio	Portfolio equity	Portfolio bonds	Foreign direct investment	Other ²
Macroeconomic Factors						
Interest rate differential	0.109 [0.001]***	-0.027 [0.405]	-0.014 [0.648]	-0.013 [0.154]	0.033 [0.084]*	0.103 [0.056]*
Growth expectation	0.668 [0.000]***	-0.064 [0.667]	-0.099 [0.496]	0.035 [0.435]	0.175 [0.046]**	0.552 [0.016]**
Global liquidity	0.013 [0.863]	0.036 [0.198]	0.001 [0.955]	0.036 [0.037]**	-0.060 [0.006]***	0.010 [0.785]
Financial Development Indicators						
Equity market capitalization	0.039 [0.312]	0.008 [0.500]	0.009 [0.460]	-0.001 [0.858]	0.023 [0.052]*	0.008 [0.815]
Equity market turnover	0.139 [0.003]***	0.017 [0.003]***	0.016 [0.030]**	0.001 [0.908]	0.020 [0.000]***	0.103 [0.025]**
Financial openness	3.488 [0.000]***	0.977 [0.002]***	0.387 [0.101]	0.559 [0.132]	1.143 [0.005]***	1.427 [0.038]**
Corporate governance quality	30.128 [0.076]*	-9.562 [0.170]	-11.948 [0.041]**	2.443 [0.257]	-0.849 [0.895]	40.026 [0.000]***
Accounting standards	0.019 [0.998]	3.103 [0.772]	2.788 [0.760]	0.224 [0.975]	-12.126 [0.008]***	8.194 [0.569]
Other Factors						
Constant	-17.696 [0.247]	5.278 [0.494]	6.019 [0.275]	-0.654 [0.915]	12.635 [0.064]*	-34.578 [0.001]***
Adjusted R²	0.616	0.485	0.221	0.607	0.653	0.469
Time-series sample (annual)	1998–2006	1998–2006	1998–2006	1998–2006	1998–2006	1998–2006
No. of cross-section countries	34	34	34	34	34	34
No. of observations ³	277	272	277	272	277	277

Sources: Bloomberg; Chinn and Ito (2006); Datastream; De Nicolò and others (2006); IMF, *International Financial Statistics* and *World Economic Outlook* databases; Standard and Poor's Emerging Markets Database; and World Federation of Exchanges.

¹In percent. Probability values are in square brackets (*** significant at 1 percent level; ** significant at 5 percent level; and * significant at 10 percent level). White-type cross-section standard errors and covariance with degree of freedom corrected for robust estimators.

²Consists mainly of bank loans.

³Total number of observations based on the unbalanced panel structure.

Table 3.8. Fixed-Effects Panel Least-Squares Estimation of the Determinants of Capital Inflows (Emerging Market Economies, 1998–2006)

	Capital Inflows/GDP ¹					
	Total	Total portfolio	Portfolio equity	Portfolio bonds	Foreign direct investment	Other ²
Macroeconomic Factors						
Interest rate differential	0.086	-0.036	-0.030	-0.005	0.033	0.089
	[0.004]***	[0.367]	[0.446]	[0.610]	[0.073]*	[0.130]
Growth expectation	0.782	-0.065	-0.126	0.059	0.158	0.690
	[0.000]***	[0.699]	[0.465]	[0.029]**	[0.046]**	[0.021]**
Global liquidity	-0.036	0.028	0.031	-0.003	-0.055	-0.009
	[0.353]	[0.350]	[0.203]	[0.765]	[0.003]***	[0.831]
Financial Development Indicators						
Equity market capitalization	0.018	0.003	0.003	0.001	0.028	-0.013
	[0.739]	[0.843]	[0.885]	[0.839]	[0.078]*	[0.767]
Equity market turnover	0.216	0.031	0.024	0.006	0.021	0.165
	[0.001]***	[0.008]***	[0.025]**	[0.106]	[0.001]***	[0.003]***
Financial openness	3.164	1.155	0.219	0.900	1.112	0.993
	[0.001]***	[0.001]***	[0.497]	[0.000]***	[0.007]***	[0.226]
Corporate governance quality	16.225	-20.619	-14.584	-5.793	-1.227	36.792
	[0.290]	[0.001]***	[0.018]**	[0.004]***	[0.846]	[0.002]***
Accounting standards	-10.995	2.825	-5.631	8.098	-17.868	4.257
	[0.647]	[0.862]	[0.724]	[0.132]	[0.043]**	[0.784]
Other Factors						
Constant	-1.778	11.322	14.959	-3.463	18.646	-31.190
	[0.914]	[0.325]	[0.188]	[0.500]	[0.004]***	[0.006]***
Adjusted R²	0.514	0.220	0.259	0.137	0.768	0.369
Time-series sample (annual)	1998–2006	1998–2006	1998–2006	1998–2006	1998–2006	1998–2006
No. of cross-section countries	19	19	19	19	19	19
No. of observations ³	151	146	151	146	151	151

Sources: Bloomberg; Chinn and Ito (2006); Datastream; De Nicolò and others (2006); IMF, *International Financial Statistics* and *World Economic Outlook* databases; Standard and Poor's Emerging Markets Database; and World Federation of Exchanges.

¹In percent. Probability values are in square brackets (*** significant at 1 percent level; ** significant at 5 percent level; and * significant at 10 percent level). White-type cross-section standard errors and covariance with degree of freedom corrected for robust estimators.

²Consists mainly of bank loans.

³Total number of observations based on the unbalanced panel structure.

Annex 3.2. Experiences with Recent Capital Inflows: Brazil, India, Romania, South Africa, and Vietnam

Country	Type of Recent Inflows: Policy Framework and Financial System	Challenges Associated with Inflows		Policies Adopted by the Authorities
		Macroeconomic	Financial	
Brazil	<p>Capital inflows exceeded \$40 billion during the four quarters through March 2007, compared with negative inflows (i.e., net repayments of liabilities) and outward investment by Brazilian firms during previous quarters. In addition to continued strong FDI inflows, record levels of portfolio inflows—in both equity and debt—are expected in 2007. Foreign investors purchased about two-thirds of Brazilian equity initial public offerings in 2006 and this trend is expected to continue. Short-term inflows have surged as double-digit nominal interest rates and strong economic fundamentals make Brazil an attractive carry-trade destination.</p> <p>Both exchange rate and capital account regulations have been liberalized gradually since the early 1990s. However, this process has often not been followed by complementary changes in the overall legislation, which remains complex and ambiguous. For instance, the government still can reintroduce controls on foreign exchange outflows—registration requirements and tax legislation allow for discretionary control over cross-border financial flows.</p> <p>Compared with other emerging markets, the financial system is diversified and one of the largest, with a sophisticated derivatives market. It is well regulated and supervised, and, owing to restructuring, has become more streamlined and efficient. Institutionally, the financial sector, dominated by banks, is concentrated: at end-2006, the 10 largest banks accounted for 72 percent of the banking sector's assets. The nonbank financial sector has grown rapidly, from a relatively low base. Assets managed by investment funds, in particular, have increased sharply, from 22 percent of GDP in 2002 to 34 percent in 2006. Activity on the stock market has also increased, but many large companies still prefer to list in New York.</p>	<p>The real appreciated by 5¼ percent in nominal effective terms in the first four months of 2007—more than most other emerging market currencies. In real effective terms, it has appreciated by nearly 40 percent since 2004. Notwithstanding the appreciating currency, following lackluster performance last year, export volume growth has picked up in recent months, but competitiveness could still be adversely affected.</p> <p>Yields continue to attract foreign investors, fostering appreciation pressures on the real.</p> <p>Sterilizing with the sale of real government securities could raise the national debt through higher interest costs.</p>	<p>There are risks of a rapid reversal of portfolio inflows should international risk appetite change abruptly.</p>	<p>The exchange rate regime is an independent float, but the authorities have intervened heavily over the past few months in the spot and forward markets.</p> <p>Policy interest rates have been cut significantly (by a cumulative 825 basis points since September 2005).</p> <p>A significant number of reforms, undertaken especially since the crises of the 1990s, have strengthened the financial sector's prudential and regulatory framework. The authorities undertake stress tests on exchange, credit, and interest-rate risk on a regular basis.</p> <p>Prudential requirements for bank transactions in foreign currency were tightened in June 2007.</p> <p>Regulatory restrictions on residents' capital outflows were loosened by allowing mutual funds and other investment funds to invest abroad up to 20 and 10 percent of assets, respectively.</p> <p>In early 2007, tariffs were raised on selected imports to the maximum allowed under World Trade Organization rules. Furthermore, subsidized credit lines and tax credits have been extended to exporters in traditional sectors affected by the appreciation of the currency, although these incentives remain small in scale.</p>

India

<p>Capital inflows have surged in recent years to almost 5 percent of GDP. In 2006–07 capital inflows included loans, portfolio bonds, and FDI, notwithstanding the concomitant pickup in outward investment by Indian corporates. Inflows have also reflected an increase in cross-border hedging transactions. Portfolio equity inflows have picked up more recently, in part reflecting large initial public offerings in the first quarter of 2007.</p>	<p>Liquidity conditions remain loose, although some tightening is expected following the lifting of the ceiling on absorption under the reverse repo window, expected to keep the interbank overnight rate higher than its recent lows.</p>	<p>Rapid credit growth poses concerns regarding credit quality in some banks, although the banking sector as a whole remains healthy.</p>	<p>Gradually tightened monetary policy by raising the key policy rates several times since September 2004.</p>
<p>Although gross FDI inflows are poised to exceed portfolio inflows in 2007 for the first time, they remain low relative to many other emerging market economies (Poirson, 2007). While the equity market has deepened, including foreign participation of more than 20 percent of total trading, some segments of other markets, such as the money and corporate securities markets, are illiquid. Recent progress in pension reform is a step toward deepening capital markets and broadening the institutional investor base.</p>	<p>The rupee has appreciated rapidly, although competitiveness does not seem to be a problem to date. Sustained competitiveness, however, will require enhanced infrastructure, lower import tariffs, and an improved business climate (Purfield, 2006).</p>	<p>There is a potential credit or foreign exchange risk associated with rapidly rising corporate credit from abroad and uncertainties over the degree of hedging, although the liquidity/leverage ratios remain comfortable.</p>	<p>The Reserve Bank of India is reported to have intervened in the foreign exchange market to slow the pace of rupee appreciation every month since November 2006, thus partially interfering with sterilization.</p>
			<p>Recently, conducted a series of increases in the reserve requirement ratio by a total of 1 percent in four consecutive months aimed at absorbing excess liquidity in the system.</p>
			<p>Raised the ceiling for issuance of market sterilization bonds.</p>
			<p>Raised general provisioning requirements and boosted risk weights on high-growth areas, such as real estate, to above Basel norms to contain rapid credit growth.</p>
			<p>Gradual liberalization of capital flows continues. Although there are controls, including procedural hurdles and approval requirements, recent reforms include liberalization of overseas investments/FDI in some sectors and relaxation of controls on external commercial borrowing. A roadmap to capital account convertibility (the Tarapore report), produced by a committee of external experts established by the Reserve Bank of India, presents a hierarchy of preferences for liberalizing capital inflows; rupee-denominated debt in preference to foreign currency debt; medium- and long-term debt to short-term debt; and direct investment to portfolio flows.</p>
			<p>The Reserve Bank of India has initiated banking reforms aimed at increasing public sector banks' autonomy and expanding foreign banks' presence by allowing foreign banks since 2005 to establish subsidiaries (they currently account for about 7 percent of total assets of the banking system).</p>

Annex 3.2 (continued)

Country	Type of Recent Inflows: Policy Framework and Financial System		Challenges Associated with Inflows		Policies Adopted by the Authorities
			Macroeconomic	Financial	
Romania	<p>Strong capital inflows have financed a widening current account deficit and have led to marked appreciation of the leu, raising concerns about the potential loss of competitiveness. Capital inflows have increased markedly since 2004 with the opening of the capital account and with prospects of European Union membership. Nondebt-creating inflows are estimated to have covered 91 percent of the current account deficit in 2006, although this coverage is expected to be lower in 2007 as privatization inflows are expected to decline.</p> <p>In the absence of well-developed capital markets, capital inflows have been channeled predominantly through the banking system. High spreads between domestic and foreign interest rates elicited rapid credit growth, increasing vulnerabilities in the banking sector through indirect foreign exchange risk and a potentially deteriorating loan portfolio. Private sector external borrowing increased by 28 percent from 2005 to 2006, reaching 11 percent of GDP.</p>	<p>Widening current account deficit driven by domestic demand.</p> <p>Government's budget under pressure (pressing expenditure needs, wage increases in the public sector, low revenue ratio, recently approved sharp pension increases), which may add to the economy overheating.</p> <p>Monetary policy faces a dilemma as tightening would foster new capital inflows and exchange rate appreciation, thus raising concerns about external competitiveness.</p> <p>Overheating housing market; asset price increases.</p>	<p>Financial soundness indicators suggest that the banking sector enjoys adequate capital and liquidity buffers.</p> <p>Significant bank exposure to indirect foreign exchange risk (unhedged consumer lending is reported to be one of the highest in the region).</p> <p>Credit risk may be a concern. Increasing competition may have led banks to target less creditworthy customers. Despite the favorable operating environment, the nonperforming loan ratio has remained broadly unchanged (8 percent on a gross basis, including loss, doubtful, and substandard; moreover, classification criteria and provisioning requirements are conservative). The loan-loss provision coverage ratio is low due to the use of collateral as a mitigating factor, but collateral recovery may prove difficult during times of stress.</p> <p>Vulnerable to world interest rate movements and shifts in global risk appetite.</p>	<p>Inflation targeting was introduced in 2005 after abolishing restrictions on short-term capital inflows; the monetary authority is still in the process of establishing its prioritization of inflation targeting over exchange rate policy, in the eyes of financial markets.</p> <p>Several changes to the level and base of banks' reserve requirements were implemented to encourage a switch away from foreign currency lending (currently, reserve requirements are 40 and 20 percent on foreign currency and domestic liabilities, respectively).</p> <p>Limits to household lending were tightened, with a debt-service ceiling relating to the net monthly income of the borrower (August 2005), but eliminated in March 2007. A requirement for a 25 percent down payment for mortgage loans was also eliminated.</p> <p>A limit was introduced to banks' unhedged foreign currency lending to three times their own capital. This limit, established in September 2005, was removed at the beginning of 2007 because it lost effectiveness. The limit had a short-term impact of an increased demand for leu loans.</p> <p>In 2005, banks were required to classify unhedged foreign currency lending as "watch" regardless of the loans' repayment performance.</p> <p>Cross-country cooperation has been enhanced (memoranda of understanding have been signed with foreign regulatory and supervisory authorities of countries with a bank presence in Romania).</p>	

South Africa	<p>In recent years, South Africa received significant amounts of net capital inflows—primarily portfolio—turning from negative levels in 2001 to over 8 percent of GDP in 2006, of which portfolio equity investment accounted for almost 5 percent of GDP.</p> <p>Since 1995, exchange controls on nonresidents have been eliminated and capital transactions by residents have been relaxed, with the main remaining restrictions on the latter comprising certain controls on FDI, ceilings on portfolio outflows for institutional investors, a prohibition of portfolio outflows by corporations, and ceilings on individuals' offshore investments. The banking system is deep, and the insurance sector has the highest penetration (in terms of premia to GDP) among emerging markets, close to the UK level. The banking sector is adequately capitalized and profitable, with high asset growth and low levels of nonperforming assets. Local capital markets, including derivatives, are well developed, and securitization is growing rapidly, albeit from a low base.</p>	<p>Despite strong fundamentals, including low external debt and a solid financial system, the external current account deficit has been widening in the last few years, largely reflecting strong domestic demand. It reached 6.5 percent of GDP in 2006 and is projected to remain at that level in 2007 and to decline gradually in subsequent years.</p>	<p>While household sector debt rose markedly, household debt service remains moderate at about 9 percent of disposable income as of March 2007, although potential pockets of weakness might be hidden in these average figures. Nonperforming loan rates are low at present.</p>	<p>The fiscal position is strong, which helps to strengthen the country's resilience to shocks and sudden stops, and supports financial market confidence.</p>
	<p>Despite strong macroeconomic performance, vulnerabilities exist, as evidenced by the February/March 2007 and May/June 2006 turbulence when the rand was one of the most affected emerging market currencies. Inflows of capital, however, did not appear to be significantly affected. The official "growth diagnostics" exercise carried out by the government lists exchange rate volatility as a constraint on economic growth in South Africa. However, the official position on this matter is to reduce volatility by strengthening international reserves and continuing to pursue sound macroeconomic policies.</p>	<p>Vulnerable to world interest rate movements and shifts in global risk appetite. Vulnerable to commodity price declines.</p>	<p>Monetary policy tightened in late 2006 and again in mid-2007, in response to a deterioration of the inflation outlook.</p>	<p>Limits on outward FDI have been relaxed in recent years. The authorities' strategy is to move away from outward exchange controls toward a system of prudential regulations for institutional investors.</p>

Annex 3.2 (concluded)

Country	Type of Recent Inflows: Policy Framework and Financial System	Challenges Associated with Inflows		Policies Adopted by the Authorities
		Macroeconomic	Financial	
Vietnam	<p>Total portfolio inflows—comprised primarily of portfolio equity—were estimated at \$1.9 billion in 2006, with foreign investors accounting for as much as 30 to 50 percent of daily equity trading. This has led to an unprecedented boom of the stock market, whose index rose by 145 percent in 2006, and by another 25 percent through July 27, 2007.</p> <p>The banking system is dominated by a few state-owned banks, especially for foreign exchange transactions, and the nonbank financial sector is at an early stage of development. The Bank for Foreign Trade handles 30 to 40 percent of foreign exchange transactions. Growing confidence in the dong and the local banking system, coupled with capital inflows, led to an annual 31 percent deposit increase in the past few years and a rapid growth of bank credit. The capital market regulatory and supervisory structure, trading infrastructure, and information systems are at early stages of development. The bond market is fragmented and the secondary market is inactive, as most investors buy and hold to maturity.</p>	<p>Monetary policy could lead to extensive intervention in support of the de facto peg to the U.S. dollar. If such policy were to become untenable, allowing the dong to appreciate could pose competitiveness issues for the export sector.</p> <p>Wealth effect of the stock market boom could lead to a consumption or investment-led import surge and reemergence of a large current account deficit.</p>	<p>Indicators point to a large overvaluation of the stock market. The price-earnings ratio of the largest 20 listed firms—accounting for 99 percent of market capitalization—is estimated at 30.</p> <p>Large bank exposure to the stock market poses a significant credit risk.</p> <p>Vulnerable to world interest rate movements and shifts in global risk appetite.</p>	<p>The authorities have followed a policy mix of extensive reserve accumulation toward comfortably meeting balance of payments needs in the event of a portfolio inflow reversal accompanied by sterilization operations and a recent move toward a more flexible exchange rate regime.</p> <p>Steps were taken recently to tighten stock market regulation and supervision, with plans to further strengthen prudential requirements in the future.</p> <p>The rules for new bank lending for the purchase of stocks were tightened to limit potential spillover effects from a stock market correction to the banking system.</p> <p>Securities companies and investment fund managers have been requested to provide information on their recent stock market operations.</p> <p>Representative offices of foreign investment funds are required to reregister with the State Securities Commission.</p>

Note: L. Effie Psalida prepared this annex with input from Turgut Kisinbay, Annamaria Kokenyine, Gillian Nkhata, Seiichi Shimizu, Judit Vadasz, and area departments.

Annex 3.3. Experiences with Recent Capital Inflows: Selected Countries

Country	Exchange Rate Regime (de facto)	Predominant Types of Capital Inflows ¹	Challenges Associated with Capital Inflows	Policies Adopted by the Authorities
China	Crawling peg	Foreign direct investment (FDI) Portfolio equity	Rapid credit growth Inflation pressures	Monetary tightening by raising the benchmark lending rate and reserve requirements ratio Administrative controls and lending guidance to restrain credit growth Gradual liberalization of exchange controls (market reforms, liberalization of capital outflows)
Colombia	Managed floating with no predetermined path for the exchange rate	Bank lending FDI Portfolio equity	Inflation pressures Appreciation pressures Rapid growth of domestic demand	Capital controls (unremunerated reserve requirements) Foreign exchange intervention
Egypt	Conventional fixed peg (against U.S. dollar)	FDI Portfolio equity and bonds Workers' remittances (broad concept)	Appreciation pressures Inflation pressures	Monetary tightening by raising policy rate Interventions against exchange rate appreciation Structural reforms, including privatization to attract FDI
Hungary	Pegged exchange rate with horizontal bands	FDI Portfolio bond (sovereign) Bank lending (short-term)	Inflation pressures Appreciation pressures Rapid credit growth (household credits and foreign currency loans) Risk of flow reversals due to global external factors	Fiscal consolidation Strengthening inflation targeting Administrative measures to increase borrowers' awareness of exchange rate risk
Iceland	Independently floating	Portfolio bond (banks issuing)	Inflation pressure Risk of flow reversal (sudden depreciation)	Monetary tightening by raising policy rate
Indonesia	Managed floating with no predetermined path for the exchange rate	FDI Portfolio bond Portfolio equity	Risk of flow reversal due to global factors	Monetary tightening by rising policy rates Authorities sought swap agreements with China and Japan under the Chiang Mai Initiative
Kazakhstan	Managed floating with no predetermined path for the exchange rate	Total inflows (energy export revenues) Bank lending FDI	Appreciation pressures Rapid credit growth	Monetary tightening Prudential measures to limit bank borrowing and credit boom

Annex 3.3. (continued)

Country	Exchange Rate Regime (de facto)	Predominant Types of Capital Inflows ¹	Challenges Associated with Capital Inflows	Policies Adopted by the Authorities
Korea	Independently floating	FDI Financial derivatives	Rapid credit growth to households and small and medium-sized enterprise (SME) sector (with decline in corporate profitability, especially SMEs)	Macroeconomic/monetary policy measures Liberalization of outflows Move to risk-based supervision
New Zealand	Independently floating	Portfolio bond (domestic banks and corporates)	Inflation pressures (medium-term) Risk of flow reversal (sudden depreciation)	Monetary tightening by raising policy rate Foreign exchange interventions (June 2007, for the first time since 1985)
Pakistan	Conventional fixed peg (against U.S. dollar)	FDI Portfolio bond (sovereign)	Inflation pressures Rapid credit growth Risk of flow reversals due to global external factors	Reserve accumulation
Peru	Managed floating with no predetermined path for the exchange rate	FDI Portfolio equity	Appreciation pressures Risk of flow reversals due to global external factors	Reserve accumulation Fiscal consolidation Strengthening prudential framework
Philippines	Independently floating	Workers' remittances (broad concept) FDI	Appreciation pressures (loss of competitiveness) Inadequate financial sector risk management	Reserve accumulation Shift toward domestic budget financing Liberalization of foreign exchange system
Poland	Independently floating	FDI Portfolio bond Portfolio equity Bank lending	Appreciation pressures Inflation pressures Rapid credit growth in both domestic and foreign currency Risk of flow reversals due to global external factors	Fiscal tightening (European Union convergence) Free float of currency Liberalization of capital account Strengthening regulatory and prudential framework in line with EU accession requirements Tightening risk management and disclosure standards related to foreign-currency-denominated lending

Annex 3.3. (concluded)

Country	Exchange Rate Regime (de facto)	Predominant Types of Capital Inflows ¹	Challenges Associated with Capital Inflows	Policies Adopted by the Authorities
Russia	Managed floating with no predetermined path for the exchange rate	Total inflows (energy export revenues) Bank lending (corporates), including carry trade FDI	Inflation pressures Appreciation pressures Rapid credit growth Asset price boom	Monetary tightening Increased exchange rate flexibility Partial capital account liberalization, including elimination of special accounts and unremunerated reserve requirements to control capital flows Strengthening prudential regulation and supervision
Thailand	Managed floating with no predetermined path for the exchange rate	FDI Portfolio Bank-related flows	Appreciation pressures (concerns over competitiveness) and volatility	Interventions on the foreign exchange market and moral suasion Introduction of capital controls in the form of unremunerated reserve requirements Partial liberalization of outflows
Turkey	Independently floating	Portfolio bond Portfolio equity Bank lending FDI	Appreciation pressures Rapid credit growth Corporate exchange rate risk exposure	Allow currency to appreciate Raise capital adequacy ratio Increase provisioning requirements Measures introduced to improve liquidity management
Uruguay	Managed floating with no predetermined path for the exchange rate	Portfolio bond Portfolio equity	Appreciation pressures	Interventions in the foreign exchange market to build up reserves and slow down appreciation

Note: Annamaria Kokenyne, Turgut Kisinbay, Gillian Nkhata, Seiichi Shimizu, and Judit Vadasz prepared this annex.

¹Capital inflows are noted according to the broad balance of payments classification.

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