INTERNATIONAL MONETARY FUND

# Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework

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In consultation with Legal, Monetary and Capital Markets, Research, and other Departments

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## I. Overview and Introduction[1]

*Emerging markets (EMs) are experiencing a surge in capital inflows, lifting asset prices and growth prospects. While inflows are typically beneficial for receiving countries, inflow surges can carry macroeconomic and financial stability risks. This paper reviews the recent experience of EMs in dealing with capital inflows and suggests a possible framework for IMF policy advice on the spectrum of measures available to policymakers to manage inflows, including macroeconomic policies, prudential measures and capital controls. Illustrative applications of this framework suggest that it may be appropriate for several countries, based on their current circumstances, to consider prudential measures or capital controls in response to capital inflows. The suggested framework is intended to inform staff policy advice to all Fund members with open capital accounts. It forms part of a broader effort to sharpen Fund surveillance, preserve evenhandedness, and foster greater global policy coordination. As indicated in the Supplement to this paper, this broader effort includes the development of "global rules of the game" on macroprudential policies, capital account liberalization, and reserve adequacy, and the preparation of spillover reports assessing spillovers from the five systemic economies—all of which will inform the current and broader framework being developed.*

1. ***A rising tide***. Capital flows to EMs have rebounded with the ebbing of the global financial crisis. The largest recipients are Asian and Latin American EMs, South Africa and Turkey. In several countries, *net* inflows are close to all-time highs, although on a *gross* basis total inflows to EMs have yet to reach their pre-crisis peak. Compared to other waves of inflows, the current episode is characterized by a predominance of volatile portfolio inflows. The shift towards portfolio flows could be structural in nature and imply continued volatility. Gross inflows have reached 6 percent of GDP in only three quarters since the post-crisis trough—it took three years to reach a similar magnitude in the surge that preceded the global crisis. Portfolio inflows account on average for almost one-half of inflows (Brazil and Korea are the top two recipients), much more than in the previous wave. Direct investment and cross-border bank lending are less predominant this time, reflecting lagging economic performance and impaired financial intermediation in advanced economies (AEs) (Section II.A.).

2. ***Drivers***. Improved fundamentals and growth prospects in EMs and loose monetary policy in AEs are among the main pull and push factors behind the recent acceleration of capital flows from advanced to emerging economies. From a structural perspective, the global crisis and the more recent jitters in Europe have exposed balance sheet vulnerabilities in AEs and appear to have triggered a gradual shift in the portfolio allocation of institutional investors toward EMs, many of which are enjoying low debt, proven resilience to shocks, and improved ratings. From a cyclical perspective, the two-speed nature of the ongoing global recovery will

[1] This paper was prepared by a team led by R. Baqir and V. Chensavasdijai, comprising R. Benelli, M. Goretti, R. Llaudes, Y. Miao, T. Miyoshi, J. Noah Ndela, M. Pant, F. Presciuttini, M. Saenz (all SPR), and C. Oner (APD), under the guidance of A. Husain, L. Giorgianni (both SPR), and M. Pradhan (APD). R. Weeks-Brown (LEG), K. Habermeier and A. Kokenyne (MCM), and J. Ostry and A. Ghosh (RES) provided valuable inputs. This paper has also benefited from staff analysis in Ostry et al. (2010 and forthcoming), Eyzaguirre et al. (forthcoming), and IMF Policy Paper 10/116, *How Did Emerging Markets Cope in the Crisis?*, and complements staff work presented in the upcoming World Economic Outlook and Global Financial Stability Report.

likely keep interest rate differentials between EMs and AEs wide for a prolonged period of time. Surging commodity prices are an additional cyclical force pushing capital toward commodity exporters such as Brazil and Peru. In relative terms, more liquid EMs are attracting larger inflows. All things considered, the stage seems set for the ongoing wave of inflows to be both large and persistent, bringing important investment and growth benefits to EMs. However, inflows have tended to reverse suddenly and in a synchronized manner, in the past, causing sharp currency depreciation and severe balance sheet dislocations. While variations in capital flows are a normal cyclical phenomenon, they have been exacerbated by policy imbalances in both AEs and EMs, and by herding behavior in financial markets. EMs therefore face the challenge of absorbing the benefits of capital inflows while limiting the attendant macroeconomic and financial stability risks (Section II.B.).

3. ***Case studies***. The effects of, and policy responses to, the recent episode of inflows are seen through the experience of seven country cases: Brazil, Indonesia, Korea, Peru, South Africa, Thailand, and Turkey (Section III.A-C. and Annexes III to IX). These countries are facing large capital inflows mainly in the form of long-term portfolio debt flows, although commodity exporters continue to enjoy also large direct investment inflows. Despite significant accumulation of international reserves, *real* exchange rates have in most cases appreciated back to pre-crisis levels, although the degree of *nominal* appreciation has been less pronounced and more varied across countries. Surging portfolio inflows helped propel stock and bond prices especially in countries with shallower capital markets. While there are so far limited signs of bubbles, cyclical pressures are emerging, with credit to the private sector picking up strongly in some cases (Figure 1).

**Figure 1. Capital Flows and Policy Responses in Selected EMs**

| | **Magnitude of Net Inflows 1/** Average in the last wave of inflows (Percent of GDP) | **Composition of Net Inflows 1/** Red = Portfolio flows, Orange = Other flows, Green = FDI | **Currency Appreciation** Percent change in the NEER from the trough since the crisis | **Reserve Increase** Increase in percent of GDP from the trough since the crisis | **Monetary Policy** Change in policy rates in the recent wave | **Inflation** Percent y/y, average of last 6 months (average during 2006-08) | | **Real Credit Growth** Percent y/y, average of last 6 months | **Fiscal Policy** Change in cyclically adjusted fiscal stance between 2009-10 | **CFMs 2/** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Brazil** | 6.2 | | 38.4 | 6.0 | | 5.0 | (4.5) | 12.9 | | Yes |
| **Indonesia** | 2.6 | | 19.4 | 7.4 | | 6.2 | (9.8) | 9.2 | | Yes |
| **Korea** | 1.9 | | 17.5 | 10.7 | | 3.3 | (3.2) | 0.4 | | Yes |
| **Peru** | 5.9 | | 5.6 | 9.0 | | 2.1 | (3.2) | 9.3 | | Yes |
| **South Africa** | 6.6 | | 41.4 | 2.6 | | 3.6 | (6.4) | -0.1 | | No |
| **Thailand** | 5.0 | | 9.3 | 22.3 | | 3.1 | (4.1) | 4.3 | | Yes |
| **Turkey** | 6.9 | | 6.5 | 1.7 | | 7.9 | (9.6) | 21.4 | | Yes |

1/ Net inflows are defined as the sum of foreign direct investment, portfolio, and other investment balances. Calculations are made for the last wave of capital inflows (2009Q3- 2010Q2).
2/ Capital Flow Management measures (CFMs) refer to certain administrative, tax, and prudential measures that are part of the policy toolkit to manage inflows (see ¶7).
Sources: IMF IFS, Haver, GDS and Fund staff calculations.

4. ***Macroeconomic policy responses***. On the monetary policy side, most countries have begun clawing back the easier monetary policy stance adopted during the global crisis. That said, countries have refrained from tightening aggressively, despite emerging inflationary pressures, out of fear that a tightening would pull in more capital. Motivated by similar concerns, for example, Turkey has lowered policy rates and offset the domestic expansionary effect by increasing reserve requirements. The fiscal stance has also varied widely across countries. While some countries have started to tighten fiscal policy, with a corresponding

strengthening in the cyclically-adjusted primary balance, most countries have yet to fully unwind the structural loosening adopted during the crisis. Thus, in some countries fiscal policy remains accommodative even though the output gap has closed, implying a procyclical stance (Section III.D.).

5. ***Controls and prudential measures***. The countries under review have generally complemented macroeconomic policy with other measures to manage capital inflows, such as taxes on certain inflows, minimum holding periods, and currency-specific reserve requirements. Recourse to such measures by the countries in question has been motivated by concerns about export competitiveness, financial stability, sterilization costs, and political constraints on fiscal policy. Many of the measures introduced were designed to address specific risks associated with certain types of flows, such as their impact on certain asset markets or their short-term nature, and to guard against the risk of flow reversal. Evidence on the effectiveness of these measures in reducing targeted inflows is so far mixed, though in most cases currency appreciation has slowed or halted around the time of the introduction of the measures. Market participants have expressed concerns about policy and regulatory uncertainty and distortions from measures that go beyond macroeconomic policies. Even so, they consider the measures so far implemented to be "at the margin" and are likely to continue investing in countries where the positive structural story dominates.

6. ***Framework for policy advice on managing inflows***. For countries experiencing a surge in inflows, choosing appropriate responses can be challenging given the uncertainties associated with the causes and effects of the inflows and with possible policy reactions. The variety of policy responses adopted—and their potential multilateral implications—suggests the importance of developing a broadly accepted framework for considering policies to deal with capital inflows. A possible framework, informed by the cross-country experience of EMs reviewed in this paper and complementary analysis by Fund staff, is presented in Box 1 and Section IV. It is intended to be applied to (a) all countries with open capital accounts, and (b) with respect to all countries with partially open capital accounts, to those portions that are open. This framework would signify a first-round articulation of Fund views on appropriate policy responses to manage capital inflows and would inform staff policy advice to relevant members (¶6-7 of the *Supplement* to this paper clarify that this framework aims at consistency and evenhandedness in Fund policy advice to countries and does not create new obligations under Fund surveillance). Over time, this framework could be adjusted based on experience and deeper analysis of the multilateral context in which capital flows arise, and the multilateral consequences of any policy response. The framework could also be supplemented by additional analysis and frameworks addressing capital flows in other contexts (¶3 of the *Supplement* to this paper provides additional information on the broader agenda) as contemplated in last December's Board discussion on *The Fund's Role Regarding Cross-Border Capital Flows (PIN 11/1*, 1/5/11; *The Fund's Role Regarding Cross-Border Capital Flows*, 11/15/10). For instance, capital flows from and between AEs account for the bulk of global flows, and the implications for global and individual country financial stability are being tackled under the broad rubric of the Fund's work on macroprudential policies. For EMs and low-income members, further work focuses on dealing with outflows, progressing towards capital account liberalization, and

assessing reserve adequacy. At a later stage and as clarified further in ¶6-7 of the *Supplement* to this paper, the Executive Board may wish to consider whether—or not—to incorporate this framework into Fund surveillance.

7. ***Nomenclature***. Aside from macroeconomic policies, the toolkit encompasses a broad spectrum of instruments, including administrative, tax, and prudential measures. On one side of the spectrum, measures that affect inflows merit greater scrutiny because they can potentially be used to substitute for appropriate macroeconomic policies and they can have externalities for other countries. It is therefore useful to distinguish within this spectrum those measures that are designed to influence capital inflows, here referred to as *capital flow management measures (CFMs)*. These measures comprise (i) *residency-based CFMs*, often referred to as capital controls, which encompass a variety of measures affecting cross-border financial activity that discriminate on the basis of residency; and (ii) *other CFMs* that do not discriminate on the basis of residency but are nonetheless designed to influence inflows. The latter category would typically include (a) measures, including a subset of prudential measures, that differentiate transactions on the basis of currency (e.g., broad limits on foreign currency borrowings and currency-specific reserve requirements) and (b) other measures (e.g., minimum holding periods and taxes on certain investments) that are typically applied in the nonfinancial sector. Based on this nomenclature, if a measure is not designed to influence capital inflows it would not fall under the CFM umbrella. These *non-CFM* measures do not discriminate by residency and typically, but not always, do not differentiate by currency. Relevant examples are prudential measures designed to ensure the resilience and soundness of financial institutions, such as capital adequacy requirements, loan-to-value ratios, limits on net open foreign exchange positions, and limits on foreign currency mortgages. Non-CFM measures tend to be of a permanent nature, instead of being deployed temporarily in reaction to an inflow surge, like CFMs. As such, non-CFMs would *not* tend to have the same macroeconomic and multilateral effects as CFMs, namely to slow currency appreciation and/or divert capital flows to other countries. As is evident, the classification of a particular measure along the spectrum of measures as CFM or non-CFM requires the exercise of judgment as to whether, in fact, the measure was designed to influence capital flows. This assessment in turn would be based on the totality of circumstances, including whether the measure was introduced or intensified during an inflow surge.

**Box 1. Key Elements of a Possible Policy Framework for Managing Capital Inflows**

- Allow the exchange rate to appreciate when it is undervalued on a multilateral basis.
- Purchase foreign exchange reserves—sterilizing the impact when inflation is a concern—if reserves are not more than adequate from a precautionary perspective.
- Lower policy rates, or tighten fiscal policy to allow space for monetary easing, consistent with inflation objectives and when overheating is not a concern.
- Use capital flow management measures (CFMs as defined in ¶7) if (a) the exchange rate is not undervalued, (b) reserves are in excess of adequate prudential levels or sterilization costs are too high, and (c) the economy is overheating (e.g., the inflation outlook is not benign or credit/asset price booms are developing), precluding monetary policy easing, and there is no scope to tighten fiscal policy.
- Conversely, do not deploy CFMs if the exchange rate is undervalued or as a substitute for necessary policy adjustments, such as addressing procyclicality in fiscal policy. However, CFMs could be used to complement fiscal tightening plans already in place, in light of the lags associated with the macroeconomic impact of fiscal consolidation.
- Give precedence to CFMs that do not discriminate on the basis of residency (e.g., currency-based prudential measures) over residency-based CFMs.
- Ensure the intensity of CFMs, whether or not residency-based, is commensurate to the specific macroeconomic or financial stability concern at hand. Lift CFMs when the risks they were designed to address recede, as CFMs are most appropriate to handle inflows driven by temporary or cyclical factors.
- In designing CFMs, consider country-specific circumstances (e.g., administrative and regulatory capacity, degree of openness of the capital account) and effectiveness/efficiency criteria (e.g., whether inflows are intermediated through regulated institutions).
- Strengthen the institutional framework on an ongoing basis. Prudential and structural measures that do not differentiate on the basis of residency or, typically, currency and are designed to strengthen the ability of the financial sector to cope with financial stability risks and the capacity of the economy to absorb capital inflows can be used at any time and before the necessary macroeconomic policy adjustments have been undertaken, provided they are not assessed to have been designed to influence inflows.

8. ***Policy considerations***. From the perspective of recipient countries, primacy should be given to measures that enable countries to absorb the benefits of inflows, thus putting a premium on structural reforms that, for instance, increase the capacity of domestic capital markets, and on non-CFM prudential measures that enhance the resilience of the financial system. Beyond this, when confronted with surging inflows, the first line of defense is macroeconomic policies—namely allowing the currency to strengthen, accumulating reserves, and/or rebalancing the monetary and fiscal policy mix. Because they can potentially be used to avoid the necessary macroeconomic policy adjustments, CFMs warrant greater scrutiny and they should be used only when appropriate macroeconomic conditions are already in place—when the exchange rate is not undervalued, reserves are more than adequate, and the economy is overheating so that lowering policy rates would not be advisable. If these conditions exist but fiscal policy is procyclical, CFMs could be used to complement fiscal tightening plans that are already in place, in view of the lags associated with the macroeconomic impact of fiscal

consolidation. If CFMs are adopted, residency-based measures should be given lower priority, consistent with the general standard of fairness that Fund members expect from their participation in a multilateral framework (see ¶s 46 and 53). An illustrative application of this framework (Section IV.C.) shows that several countries could qualify for using CFMs based on their current circumstances.

9. ***CFM design***. CFMs should be proportional to the specific macroeconomic or financial stability concern at hand: a blunt CFM that generally bans flows is inappropriate to deal with a sectoral prudential concern, but would be appropriate when currency overvaluation is the relevant concern. CFMs should be designed to maximize their effectiveness and efficiency: a relevant consideration in this regard is whether flows are intermediated through the regulated financial sector (e.g., residency-based CFMs may be more effective than prudential measures in dealing with inflows not intermediated by regulated financial institutions). Also, CFMs are most effective as temporary responses, though the administrative apparatus to cope with future surges might be permanent.

## II. Stylized Facts About Capital Flows

10. **Capital flows to EMs are recovering at a fast pace—in net terms already close to all-time highs** (Figure 2). Strong growth prospects and healthy sovereign and private balance sheets are likely to continue drawing inflows in the future. This will bring important benefits to EMs, promoting investment and growth, and expanding the pool of financing opportunities. At the same time, large inflows may result in sharp, sustained currency appreciation, which can make export sectors uncompetitive (Figure 3). Moreover, with historically volatile portfolio inflows comprising a bigger proportion of total flows this time around, higher inflow volume may be accompanied by increased volatility if past trends continue.[2] Capital flows, especially when investors are leveraged, can suddenly and sharply reverse. Where such reversals come on the back of domestic credit booms, the resulting damage can be protracted. Thus, the current wave of inflows can also bring risks and pose challenges for macroeconomic management.

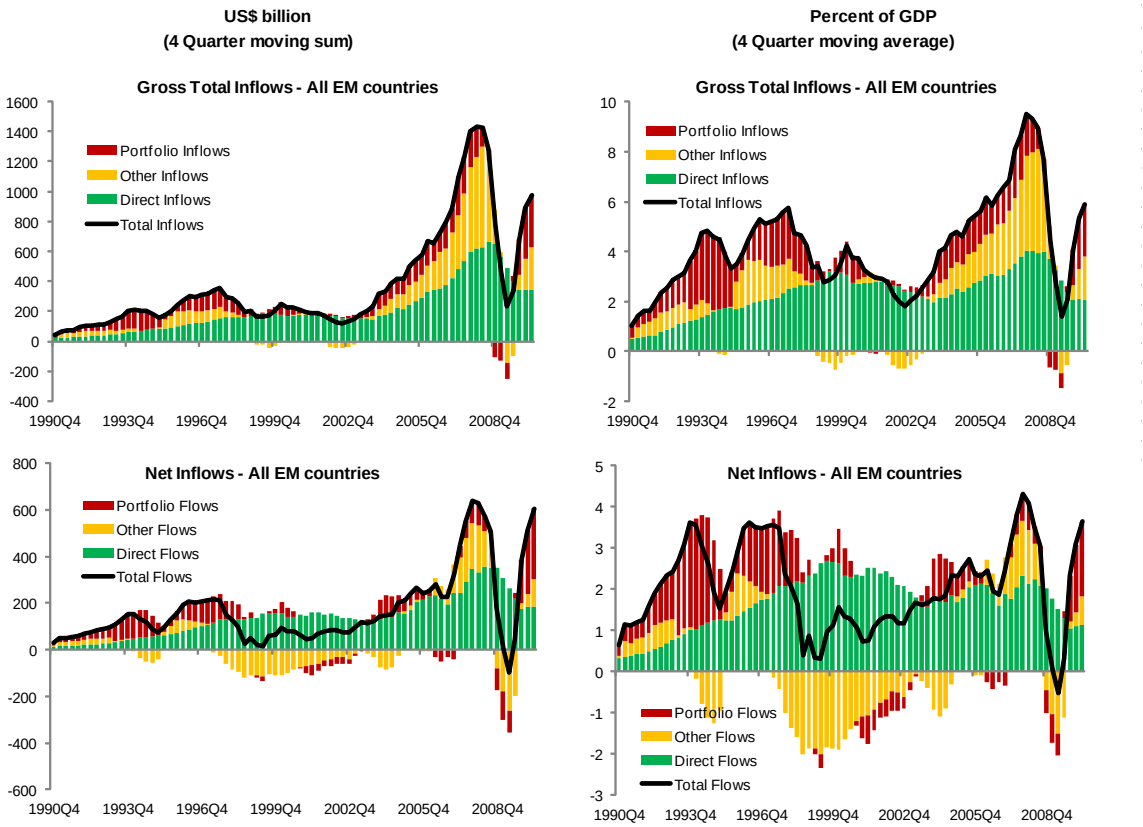
11. **This section focuses on two key questions:** (a) how does the current experience with capital inflows compare to past experiences; and (b) what push and pull factors explain capital flows to EMs. To carry out this analysis, the section begins by defining how past experiences with capital flows are identified. The analysis here is based on *gross* inflows—that is, changes in portfolio and other liabilities of residents to nonresidents and inward direct investment—so as to try to capture the key characteristics in the behavior of foreign capital. The next section that reviews the recent experience of selected countries focuses on *net* inflows—that is, the sum of foreign direct investment, portfolio, and other investment balances—since its primary emphasis is on policy responses in which exchange rate appreciation is an important consideration and exchange rate movements are affected more by net than gross flows.

[2] Anecdotal evidence suggests the share of institutional investors, who are not typically associated with hot money, may have risen in flows to EMs. If sustained, this may imply lower volatility of portfolio flows going forward.

Annex I compares balance of payments data on capital flows to other proxy data sources that are available with a shorter lag and higher frequency.

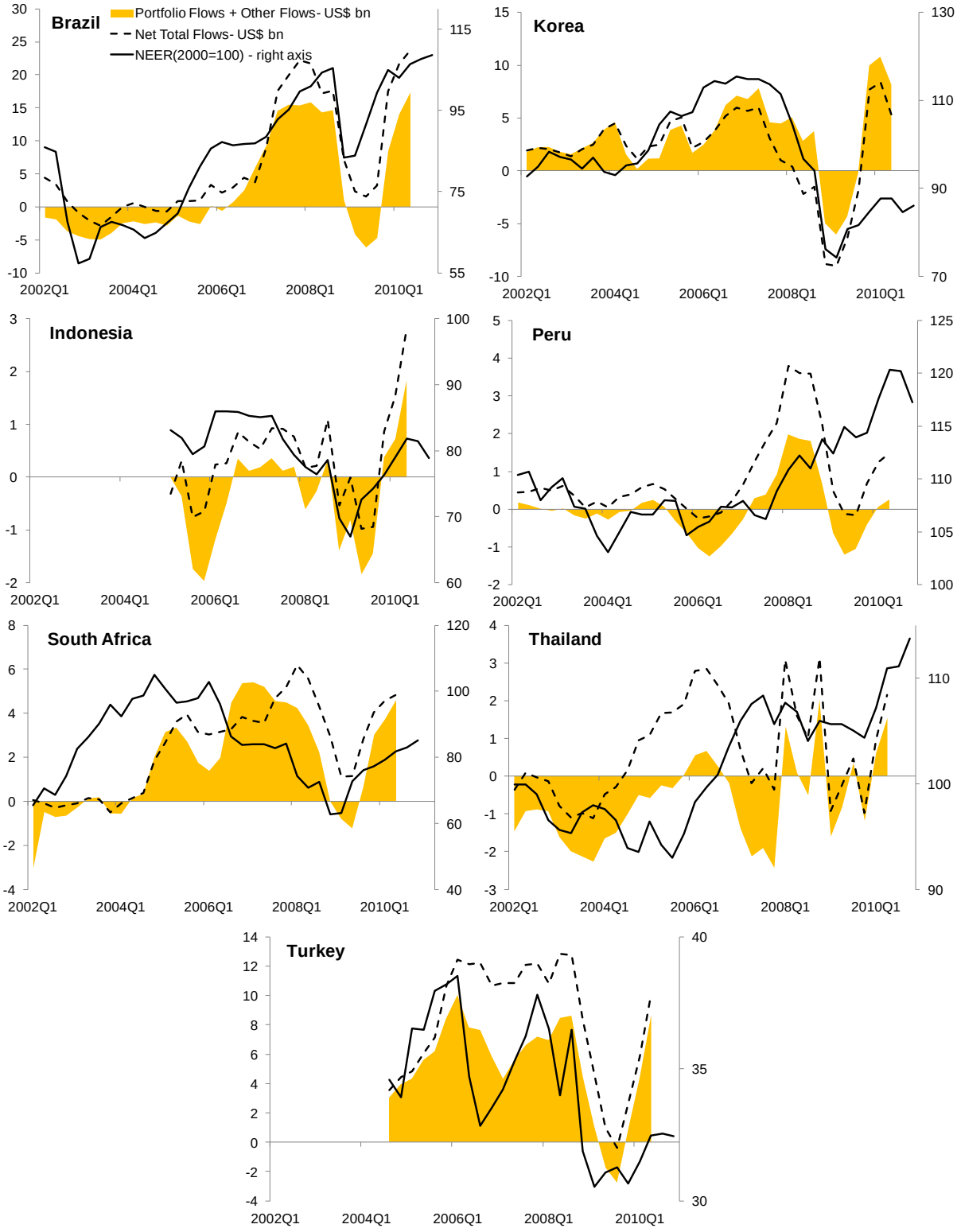
12. **Compared to AEs, EMs are relatively more exposed to fluctuations in global capital flows**. In contrast to AEs, where large inflows and outflows traditionally take place against generally stable net flows, swings in gross inflows to EMs generally result in significant changes in *net* capital flows. The modest size of EM capital markets relative to AEs' also means that a small shift in portfolio allocations from AEs to EMs could easily overwhelm EMs' absorptive capacity. This raises the bar for managing gross capital inflows.

**Figure 2. Gross and Net Capital Inflows**
(In billions of U.S. dollars and in percent of GDP)




Sources: IMF IFS, WEO and Fund staff calculations.
*Gross* inflows are defined as the sum of inward FDI, portfolio liabilities, and other investment liabilities. *Net* inflows are defined as the sum of foreign direct investment, portfolio, and other investment balances.

**Figure 3. Net Inflows and Nominal Effective Exchange Rates in Selected EMs**




Sources: IMF IFS and GDS.

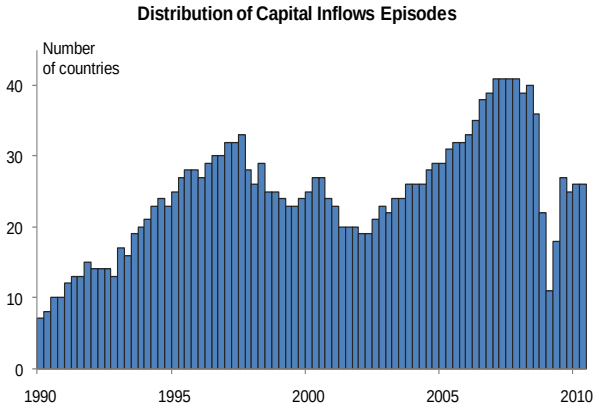
## A. Capital Flows Then and Now

13. **To facilitate the analysis, the following terminology is used to define inflow surges, episodes, and waves**:

- ***Surge***. A surge refers to a quarter or year during which gross inflows significantly exceed their long-run trend and are also large in absolute magnitude. Based on the criteria described in Annex 2, EMs experienced surges in capital inflows 20 percent of the time between 1990Q1 and 2010Q2. Such identified surges cluster in two seven-quarter periods of 1996Q4−1998Q2 and 2006Q4−2008Q2 and in the post crisis period.

- ***Episode***. An episode of capital inflows refers to a prolonged surge. Using the criteria described in Annex 2, the 48 EMs considered in the analysis experienced 125 episodes of large capital inflows in the past two decades, with 26 of them classified as ongoing (text figure).

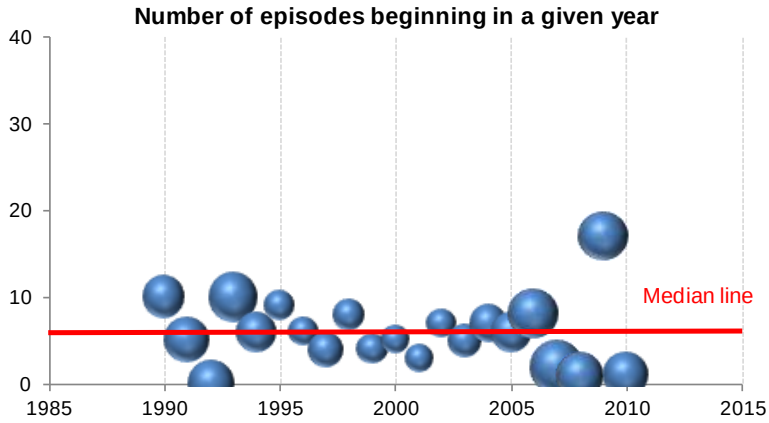
  ***Wave***. A wave of inflows refers to a large number of country episodes occurring at the same time typically reflecting a stock adjustment in investor portfolios. The analysis identifies 3 global waves of capital inflows: 1995Q4−1998Q2, 2006Q4−2008Q2, and the ongoing wave since 2009Q3.



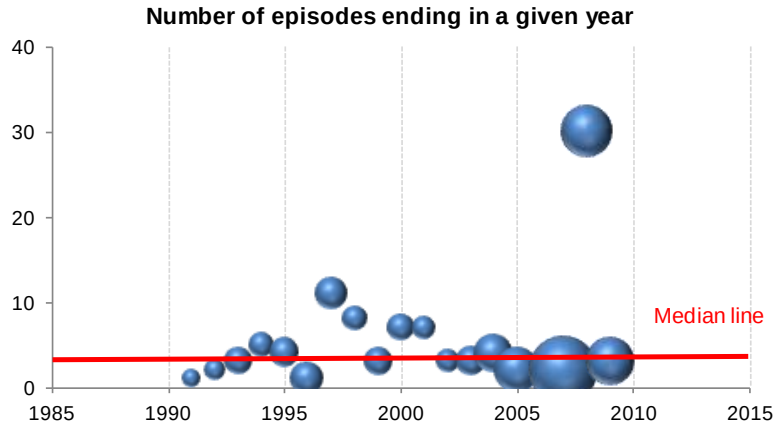

Source: Fund staff calculations

14. **Inflow episodes start at different times for different countries, but often end together** (text figure). That they start at different times likely reflects country-specific circumstances and pull factors.[3] On the other hand they often end together, particularly in 1997−98 and 2008−09, which suggests that the reversal of push factors, such as a rise in global risk aversion, is dominant in ending large capital inflows. Indeed a synchronized retreat of capital from EMs can reinforce itself through contagion across countries and cause distress in the economies from which it recedes. Such abrupt and volatile outflows are indeed one of the main reasons why EMs are concerned about large inflows of capital.

[3] One notable exception is the second half of 2009 where large inflows simultaneously resumed in a confluence of 18 EMs on the backdrop of exceptional easing policies of AEs.



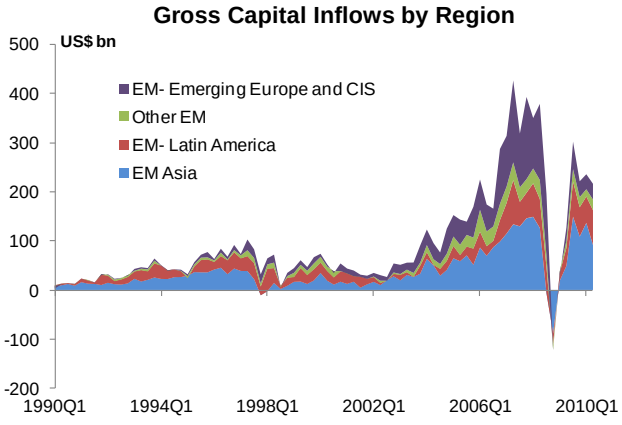

Size of the bubble corresponds to the number of countries with an exchange rate market pressure index larger than the 75th percentile of the whole sample.




Size of the bubble corresponds to previous year's total inflows into EMs.

Source: Fund staff calculations.

15. **The destination of inflows during waves has changed over time**. Prior to 1998, more than one-half of total inflows were destined for Asia; after the Asian financial crisis and especially the entry of many countries in the EU, inflows gravitated relatively more toward emerging Europe and CIS countries, peaking in the eve of the global financial crisis (text figure). The ongoing wave is broad-based across regions except emerging Europe.

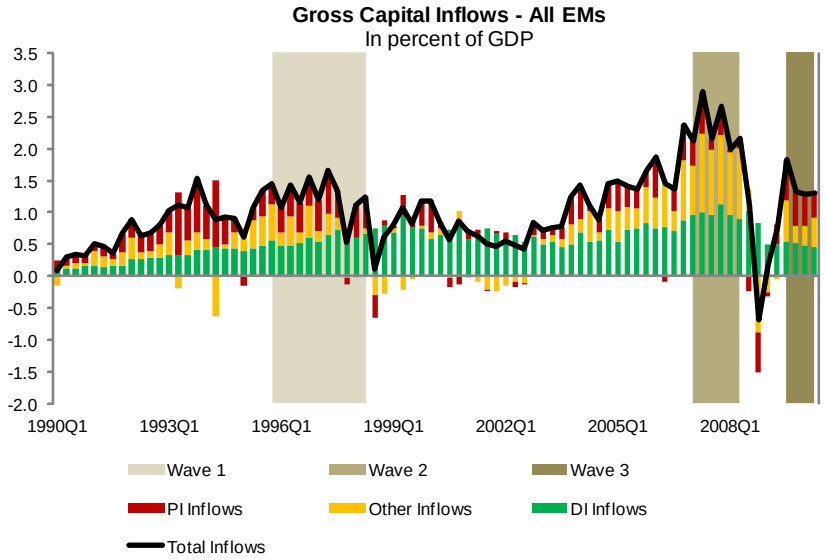



Source: IMF IFS.

16. **The composition of inflows has also changed with each wave**. Foreign direct investment flows accounted for 40 percent of total inflows to EMs during the first wave. During the second wave, other inflows, mostly in the form of bank lending, more than

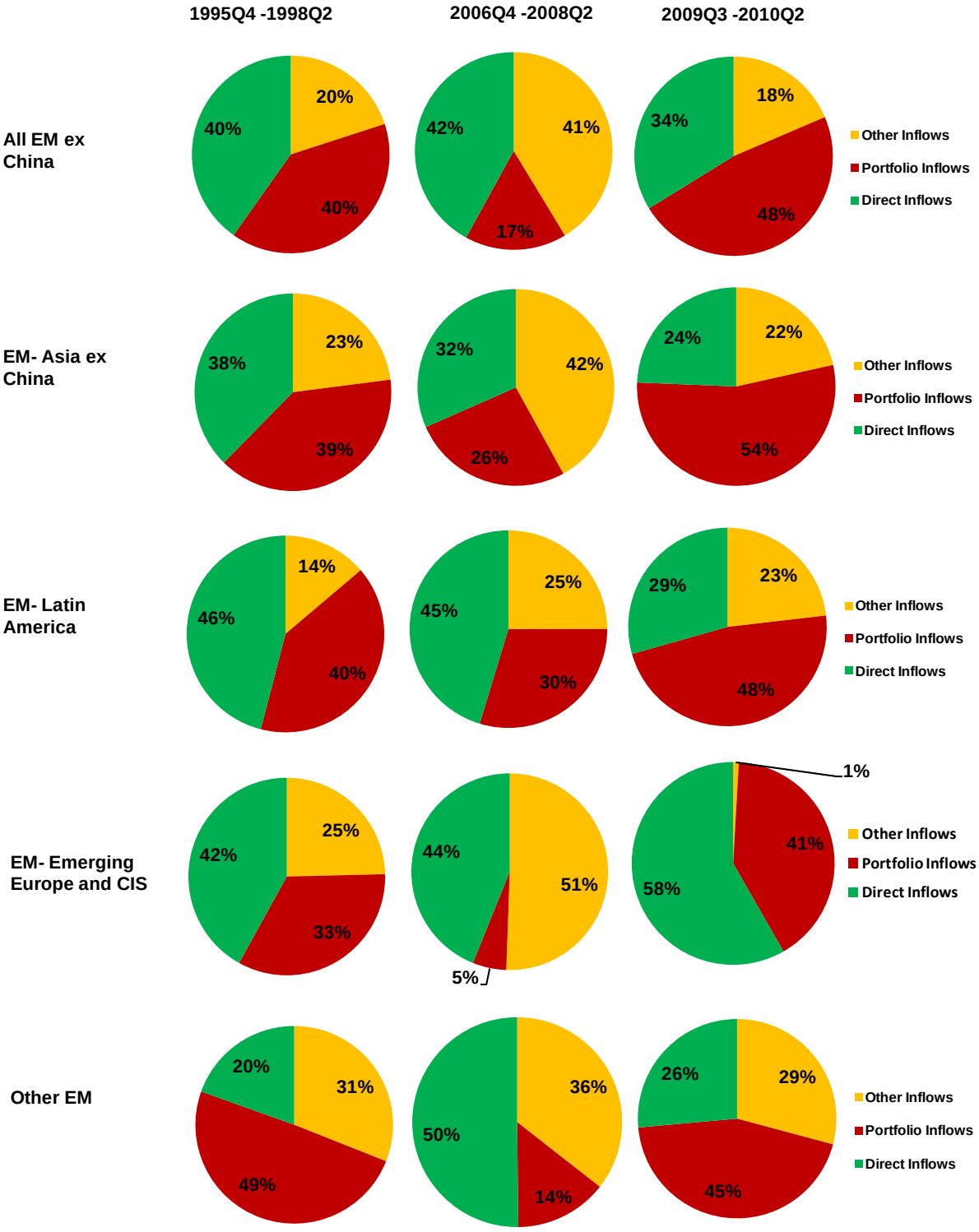
doubled their share from about 20 percent in the previous wave to around 40 percent. For emerging European countries in particular, around one-half of total inflows were in the form of other inflows between 2006Q4 and 2008Q2. For the current wave, portfolio inflows are dominant for EMs accounting for about one-half of total inflows (Figure 4).

17. **The most dramatic change this time around is perhaps the sharp increase in portfolio inflows**. The amount is unprecedented in both absolute dollar term and as a ratio to GDP (text figure). Compared to past episodes of surges, the average pace of portfolio inflows during this ongoing wave (total portfolio inflows over the period in percent of GDP divided by the number of quarters in the episode) more than quadrupled from around 0.3 percent of GDP to 1.2 percent of GDP per quarter. The larger role played by portfolio flows, especially compared to banking flows, could persist in the coming years and likely reflects that international banks that intermediate cross-border flows are still in the process of balance sheet repair.




Sources: IMF IFS, WEO and Fund staff calculations.

**Figure 4. Gross Capital Inflows, by Type of Flows for Each Wave** (percent share)




Sources: IMF IFS and Fund staff calculations.

18. **The duration and magnitude of inflows has risen with each wave** (Table 1). A typical episode lasted about 13 quarters in the 1990s and it went up to around 20 quarters in the 2000s. The average pace of aggregate inflows also rose from slightly below 2 percent of GDP per quarter to around 3.3 percent of GDP per quarter. The combination of longer duration and accelerating pace implies that the cumulative magnitude of capital inflows has also risen; the average cumulative size of an episode rose from 24.3 percent of GDP in the 1990s to 67.8 percent in the late 2000s. The rising magnitude of inflows suggests that if inflows reverse in a synchronized setting, the potential for disruptions in EMs would be greater.

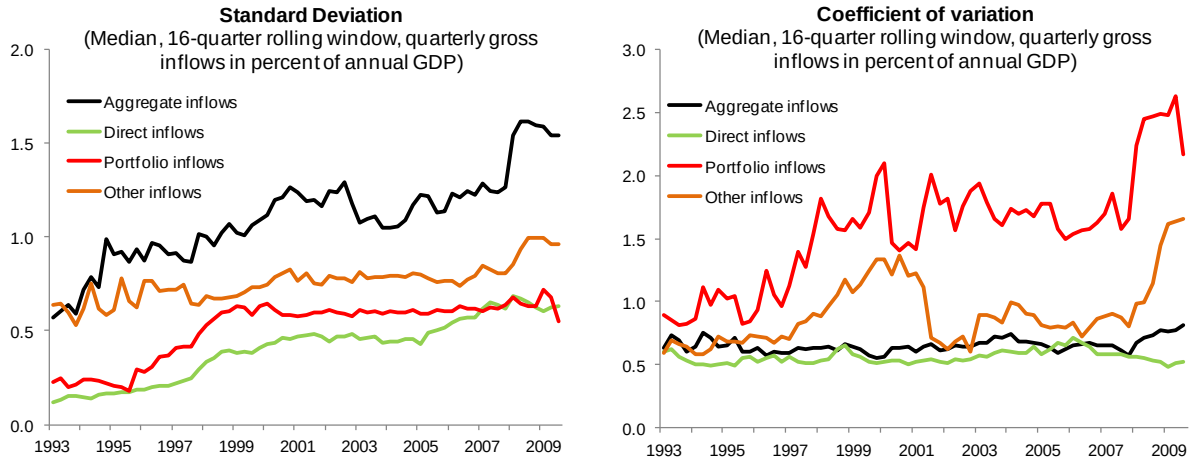
**Table 1. Inflow Episodes: Summary Statistics**

| | Ended During (1990Q1-1998q2) | Ended During (1998Q3-2005Q2 ) | Ended During (2005Q3-2009Q2) | Ongoing (2009Q3-2010Q2) |
|---|---|---|---|---|
| **Number of episodes** | 32 | 30 | 37 | 26 |
| *of which* | 9 in Asia | 15 in Latin America | 15 in Europe | 9 in Latin America |
| **Avg. duration (No. of quarters)** | 12.8 | 20.1 | 20.5 | N.A. |
| **Avg. magnitude (percent of GDP)** | 24.3 | 43.5 | 67.8 | 32.3 |
| *of which portfolio inflows* | 3.9 | 6.3 | 6.9 | 12.4 |
| *of which bank inflows* | 13.8 | 17.3 | 28.3 | 10.6 |
| **Avg. pace (percent of GDP)** | 1.9 | 2.17 | 3.3 | 3.2 |

Sources: IFS, Fund staff calculations.

19. **Portfolio inflows have historically been "hotter" than other types of flows**. The left panel in the text figure shows standard deviations computed for different types of flows over a 16-quarter rolling window. However, standard deviations tend to be higher where the mean is higher. The right hand side shows the coefficient of variation measure of volatility that scales the standard deviation by the corresponding mean. As shown, historically portfolio flows have been more volatile and their volatility has recently risen (a shorter rolling window of 8 quarters gives the same results). Bank flows have historically been less volatile but their volatility rises sharply around crisis times.

**Volatility of Capital Flows: Alternative Measures**




Sources: IMF IFS, Fund staff calculations.

## B. Push and Pull Factors

20. **Capital flows to emerging market countries reflect a combination of factors that affect risk and return tradeoffs**. Such factors are often grouped in public debate into structural and cyclical and push and pull categories, as illustrated by the examples in Table 2. Push factors typically refer to global factors that affect all EMs across the board (such as world interest rates and global risk appetite) while pull factors typically refer to the relative attractiveness of different destinations for investment opportunities (¶2 of the *Supplement* to this paper lists other recent work by IMF staff on push factors). A number of pull factors have proven consistently helpful in attracting capital: market size, the quality of institutions, economic stability, trade openness, and growth potential (Levy-Yeyati, Panizza, and Stein, 2007; IMF, 2007; World Bank, 2009; and WEO (forthcoming)).

**Table 2. Examples of Factors Affecting Capital Inflows to EMs**

| | Cyclical | Structural |
|---|---|---|
| **Push** | - Low US interest rates<br>- Low global risk aversion<br>- Strained AE balance sheets | - International portfolio diversification<br>- Low AE potential growth |
| **Pull** | - High commodity prices<br>- High domestic interest rates<br>- Low domestic inflation | - Improving EM balance sheets<br>- High EM potential growth<br>- Trade openness |

21. **Regression analysis highlights the role played by different factors in explaining capital flows to EMs**. Table 3 shows the results from estimating a fixed effects model for log levels of gross capital flows to EMs.[4] Different combinations of push and pull factors were tried and filtered using both specific-to-general and general-to-specific procedures. The first column shows the results for total inflows while each of the subsequent columns show the results for components of capital flows.

22. **Overall, the fixed effects model fits remarkably well** (text figure). The fitted values are first predicted at the country level and then added up to derive the sum of log predicted values of all 48 EMs. The missing values for 2008Q4−2009Q1 correspond to negative gross capital flows for which log levels of data are treated missing. The main messages from the analysis are the following:

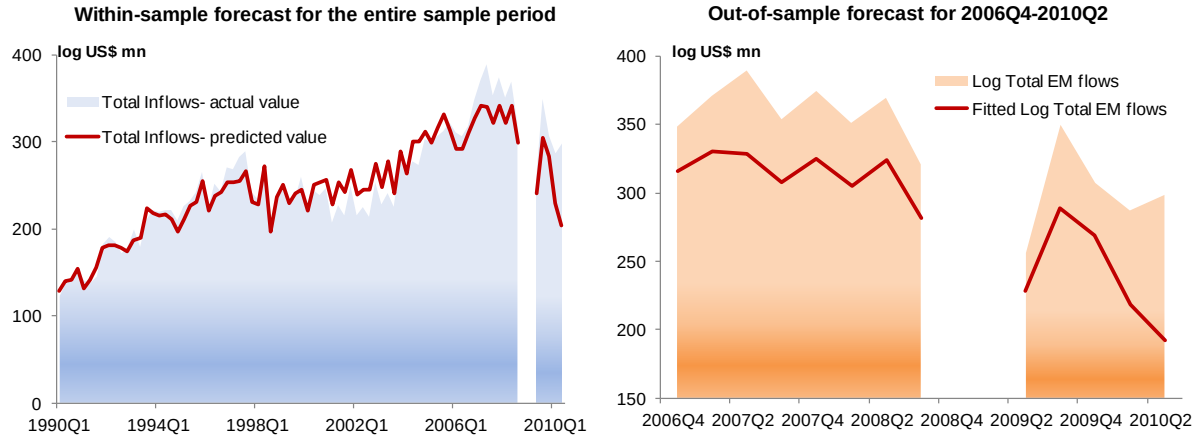
[4] Unit root tests for both aggregate inflows and their components run over the entire sample period reject the null hypothesis that the data contain a unit root. However, the recent global financial crisis appears to present a break in the series; excluding the crisis period, unit root tests do not reject. In this sub-sample, panel cointegration tests between inflows and market size, proxied by the logarithm of GDP, suggest that the series are cointegrated. Given the trending nature of the latter variable and the risk of spurious regression, a pseudo dummy is used as proxy for market size, by taking the logarithm of the value of average GDP for the first and the second decade respectively.

- U.S. interest rates negatively affect total inflows and its components, particularly bond inflows. A yield shock of 100 basis points to the U.S. 10-year Treasury bond is estimated to be associated with, on average, a 31 percent reduction of bond inflows to EMs.[5]

- Global risk aversion affects total inflows and portfolio equity inflows in particular. A 1 percent increase in the VIX is associated with a 0.5 percent drop of portfolio inflows to EMs.

- EMs growth is the most significant pull factor for total inflows, direct, and banking flows. A one percentage point increase in EMs growth is estimated to be associated with, on average, a 4 percent increase in total inflows.

The fitted values tend to underestimate the evolution of inflows during surges—the converse is true for droughts. This finding points to factors other than fundamentals being at play in episodes of surges and droughts.




Source: Fund Staff calculations.

[5] The regression model is log-linear and the coefficient on the U.S. 10-year T-bond is -0.37 (column 4). A unit increase in the yield, i.e., 100 basis points, thus translates into exp (-0.37)-1, or a 31 percent, reduction of the underlying inflows.

**Table 3. Determinants of Capital Inflows: Panel Regression Results**

| | Log million US$ | | | | |
|---|---|---|---|---|---|
| | Total Inflows | Direct Inflows | Equity Inflows | Bond Inflows | Other Inflows |
| | (1) | (2) | (3) | (4) | (5) |
| US 10 yr Treasury bond yield (in percent) | -0.26 *** | -0.36 *** | -0.28 *** | -0.37 ** | -0.13 *** |
| | *(.0375)* | *(.0388)* | *(.0997)* | *(.0713)* | *(.0501)* |
| VIX index (Log) | -0.23 *** | -0.02 | -0.52 *** | 0.01 | -0.08 |
| | *(0.066)* | *(.0772)* | *(.1536)* | *(.2156)* | *(0.094)* |
| Trade openness | 0.70 ** | 0.46 | 0.46 | 0.25 | 0.70 * |
| | *(0.307)* | *(0.323)* | *(0.722)* | *(0.481)* | *(0.381)* |
| Growth (in percent) | 0.04 *** | 0.04 *** | 0.05 *** | 0.04 * | 0.03 *** |
| | *(0.008)* | *(.0094)* | *(.0166)* | *(.0210)* | *(.0092)* |
| Avg. Size (log avg. GDP) | 0.46 *** | 0.60 *** | -0.08 | 0.60 ** | 0.61 *** |
| | *(.1259)* | *(.1549)* | *(.3801)* | *(.2484)* | *(.1494)* |
| Constant | 6.16 *** | 4.83 *** | 7.07 *** | 4.18 ** | 3.75 *** |
| | *(.6441)* | *(.7213)* | *(1.972)* | *(1.622)* | *(.8272)* |
| ***Country dummies*** | *Yes* | *Yes* | *Yes* | *Yes* | *Yes* |
| ***No of Observations*** | *3014* | *3393* | *1658* | *1571* | *2331* |
| ***R-Sq*** | *0.56* | *0.61* | *0.01* | *0.27* | *0.48* |

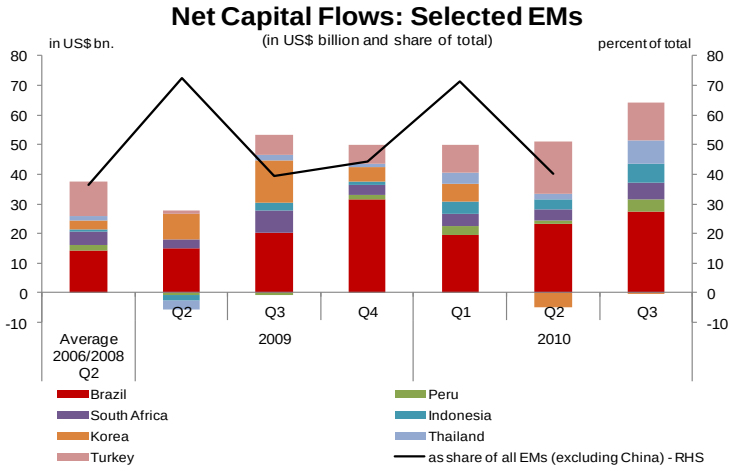
Notes: The table presents panel fixed-effects regressions on factors affecting gross capital inflows and their composition over 48 emerging market economies between 1990Q1 and 2010Q2. Dependent variables are the log level of total inflows and their different components. Trade openness is the sum of exports and imports divided by GDP and average size proxied by the logarithm of average GDP in the first and the second decade of the sample. Inflation is also included in the regression but not significant for most specifications and hence not shown. Robust standard errors in parenthesis.
***, ** & * denote statistical significance at the 1%, 5% and 10% level of confidence.

## III. Selected Country Experiences with Capital Inflows

23. **This section reviews the recent experience with capital inflows in selected emerging market countries**. It assesses the nature and domestic economic consequences of inflows and discusses the policy measures that have been used by countries to respond to inflows and their impact. The countries in this study comprise Brazil, Indonesia, Korea, Peru, South Africa, Thailand, and Turkey (Annexes III-IX). This country selection was based on several considerations including (a) the countries currently experiencing an episode of large capital inflows, (b) relatively large size, and (c) geographic diversity.

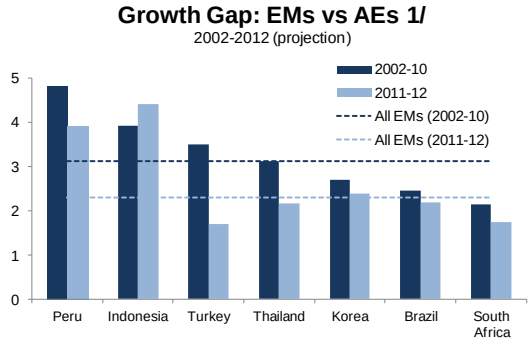
### A. Nature of Capital Inflows

24. **Many large EMs have experienced a surge in capital inflows in the aftermath of the global crisis**. EMs generally weathered the global crisis better than previous crises and better than AEs, though many experienced a sharp slowdown—even a reversal—in capital inflows in late 2008/early 2009 (*How Did Emerging Markets Cope in the Crisis?*). Net capital inflows to all EMs (excluding China) have risen sharply, reaching US$435 billion or about 3½ percent of GDP in total during 2009Q3−2010Q2, over one-half of which is accounted for by the seven EMs in this study. Net capital inflows have already exceeded pre-crisis peaks in many countries (Brazil, Indonesia, Korea, and Thailand), and are approaching pre-crisis highs for the rest (Peru, South Africa, and Turkey) (text figure).




Source: IMF, IFS and staff calculations.
Note: No information available for all countries in 2010 Q3.

25. **The composition of capital inflows has been skewed toward portfolio debt assets** (text figure). In the post-crisis period, many countries have seen sizable flows into local currency debt markets (Brazil, Indonesia, Korea, South Africa, and more recently Thailand). As is the case with EMs in general (Section II), this is most likely due to the wide interest rate differentials, strong growth performance (text figure), and sound fiscal and debt positions relative to AEs, along with improved global risk appetite. Nonresidents' participation in the domestic bond markets is large and increasing (text figure). In Indonesia and Peru, for example, the share of foreign investors' holdings of government securities rose sharply to 20 and 45 percent, respectively. Portfolio debt flows to the corporate sector have been limited in some countries due to underdeveloped corporate bond markets (e.g., Indonesia and Peru). Equity inflows are sizable in Brazil and Korea, but are insignificant in other countries.[6] In Turkey, almost one-half of total inflows to date reflected banks' deposit inflows due to both changes in FX lending regulation and the important intermediary role played by offshore branches,[7] including

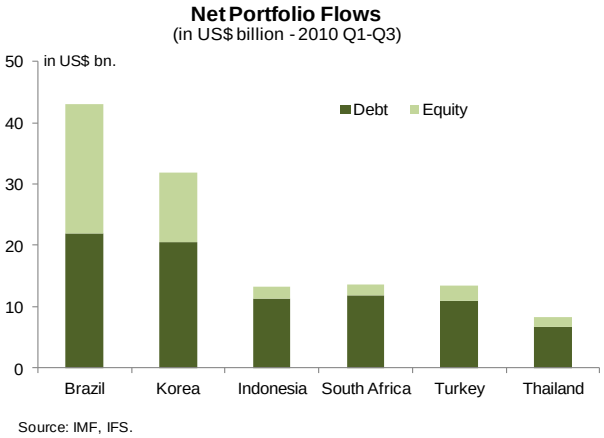



1/ Computed as the difference between each country 's average growth rate and AEs' average growth rate for the period. The EMs' average growth rate excludes China.

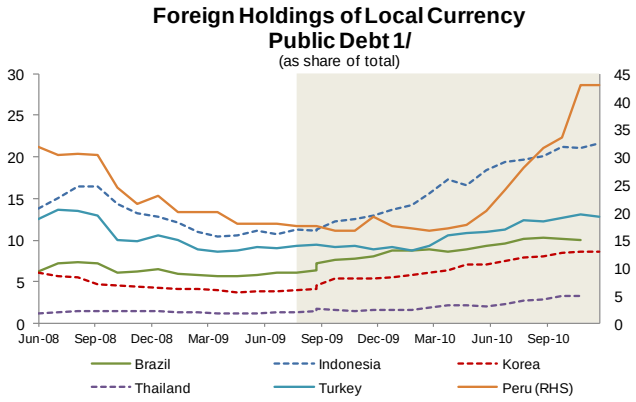
[6]The capitalization of Petrobas, a large state-owned oil company in Brazil, alone accounted for an estimated US$14 billion of total equity inflows in 2010.

[7]In July 2009, onshore lending in FX to domestic unhedged corporates was permitted under certain conditions. This encouraged a shift in Turkish banks' FX credit from their offshore branches to banks' onshore headquarters operations, and as a result, offshore branches have been transferring resources to headquarters through deposit inflows (drawdown of banks' foreign assets abroad).

in currency swap transactions,[8] but flows into government securities have also been notable. FDI has remained subdued and well below pre-crisis peaks in most countries, except in Brazil and Peru where it continued to account for a sizable share of total inflows. Both these countries are large commodity exporters and the stronger outlook for commodity prices may have been a factor in attracting FDI.

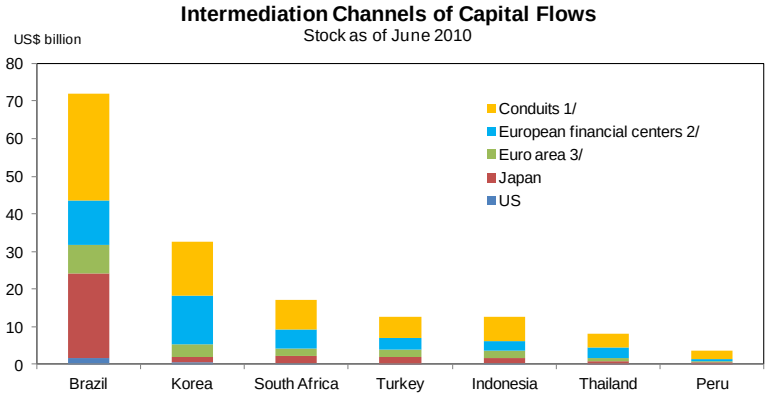



Source: IMF, IFS.




Source: IMF staff calculations.
1/ Shaded area represents most recent wave of capital inflows.

26. **Portfolio debt flows have been concentrated at longer maturities in most countries**. Institutional investors from the United States and Europe such as pension funds and mutual funds—key players in the current rebound in inflows—have tended to enter into longer-term securities, particularly in Brazil, South Africa, and Asian sovereign bond markets. In addition, Brazil remains the largest recipient of funds from Japanese retail investors (text figure). Most of the flows have been intermediated through a few financial centers, mainly Luxembourg, resulting in limited flows coming directly from individual countries.



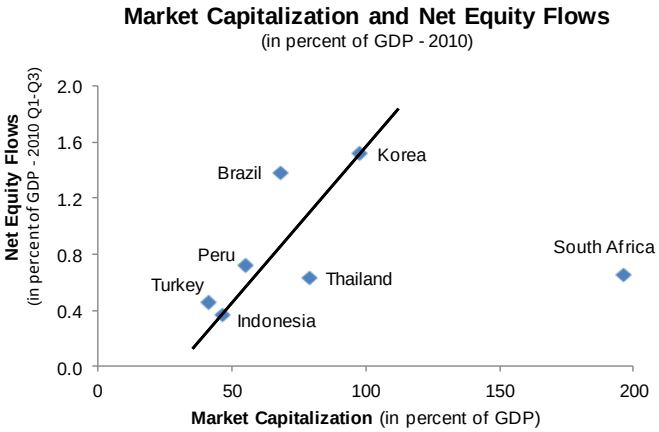

1/ Conduits: Luxembourg, Jersey, Cayman, British Virgin Islands, Bermuda, Bahamas and Lichtenstein
2/ European financial centers: UK, Ireland and Switzerland
3/ Euro area: Austria, France, Germany, Italy, Netherlands and Spain

Source: Lipper. The Lipper database is limited to mutual funds, closed-end funds, ETFs, hedge funds, retirement funds and insurance products. Any of these funds registered in offshore financial centers would be classified under "conduits", rather than in individual countries.

[8] An increase in FX denominated liabilities led to a surge in currency swaps that allowed banks to close their overall net FX positions. Swap counterparties (reportedly hedge funds and international investment banks) are interested in taking a long spot lira position to benefit from relatively high interest rate and currency appreciation.

## B. Drivers of Inflows

27. **Country-specific factors have played an important role in attracting capital inflows**. In deciding where to place their funds, investors have generally favored countries with fewer capital account restrictions; large, well developed and actively traded securities markets; and a transparent regulatory framework. For example, deep and liquid markets, coupled with high nominal and real yields, in Brazil, Korea, and South Africa have been important factors in drawing larger capital flows (text figure). The inclusion of South Africa, and expectations of Korea's inclusion, in major global emerging market indices have also attracted interest from institutional investors to these countries compared to earlier episodes.[9] Moreover, in Indonesia and Turkey, expectations of upgrades to investment status in the near future may have boosted market sentiment. In Peru, positive economic prospects, rising terms of trade, and possibly the granting of investment grade status by major rating agencies stimulated portfolio inflows, although capital markets remain small in size and limited in financial assets. Strong terms of trade resulting from high world metal prices have attracted FDI to the mining sectors in Brazil and Peru.




Source: IMF, IFS and Haver.

28. **Inflows are expected to remain strong and persistent going forward**. Capital flows to EMs are likely to be sustained due to structural factors. The resilience of EMs during the global crisis, coupled with their stronger growth outlook, including sound fiscal fundamentals and banking sectors especially in relation to many AEs, has made them more attractive as an asset class to investors. As a result, it is expected that institutional investors will continue to rebalance their portfolio exposures toward EMs.

## C. Domestic Macroeconomic Implications

29. **Large capital inflows have helped to reduce the cost of capital, but also complicated macroeconomic management**. On the one hand, a lower cost of capital—for both the public and corporate sectors—can fund investment needs and help stimulate

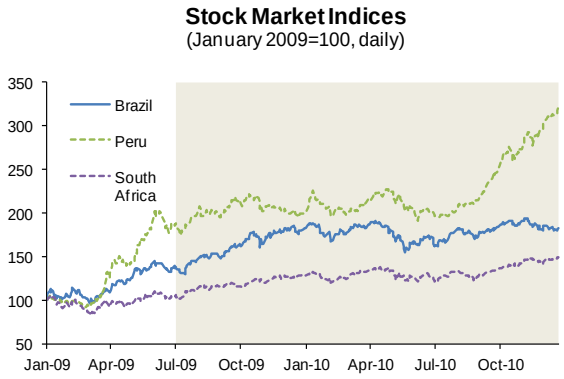
[9] South Africa carries a 10 percent weight in the Global Emerging Markets Local Currency Bond Index (GEMEX), which was designed by the World Bank and created in 2008, prompting investors to readjust portfolios to replicate the index. Korea was expected to be (and subsequently) included in the Citigroup's World Government Bond Index (WGBI), which tracks bonds issued by advanced economies and is used by global financial institutions as a guide to bond investments.

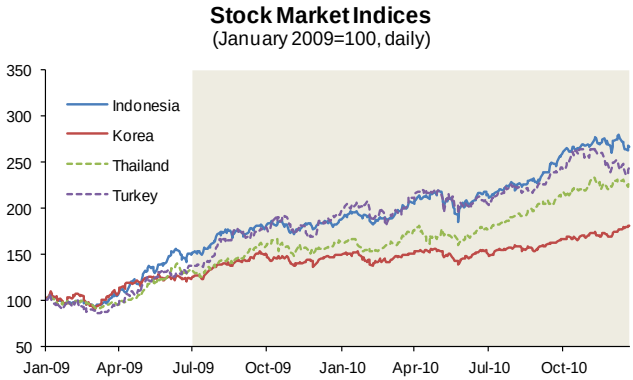
consumption and investment. Capital flows can also promote financial market development by introducing new investment instruments and increasing absorption capacity. However, they may also potentially bring costs. For example, inflows may put upward pressure on exchange rates leading to a loss of competitiveness. They can also possibly complicate monetary management by pushing down long-term bond yields below levels that would prevail given domestic conditions, potentially making interest rate policy less effective, especially when the monetary transmission mechanism is already weak.[10] Lower government borrowing costs can also possibly lead to looser fiscal discipline, although in some countries this may be justified by better debt dynamics.

- In Brazil, large inflows into government bonds have been associated with a compression in longer-term yields against a backdrop of strong economic activity, procyclical fiscal policy, and high real interest rates.
- In Indonesia, with limited bond market liquidity and depth, continued strong portfolio flows into the long end of the yield curve may have reduced the level of term risk premia of government bonds.
- In Thailand, inflows into the bond market, coupled with easy monetary conditions, may have been associated with a flattening of the yield curve.

30. **Inflows can also have an impact on macro-financial stability**. Inflows that are volatile, typically concentrated in short-term maturity instruments, can trigger sharp asset price movements and destabilizing sudden stops or reversals of flows, particularly when risk sentiment shifts. This was the case at the onset of the global crisis in 2008 for Indonesia when SBI holdings by nonresidents fell sharply, and for Korea where massive global deleveraging led to a rapid reversal of banks' short-term debt inflows.

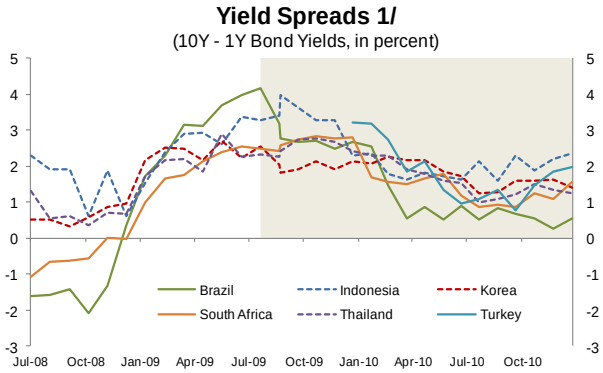
[10] IMF *Regional Economic Outlook: Asia and Pacific* (forthcoming) provides some empirical evidence on the relationship between capital inflows and bond yields.



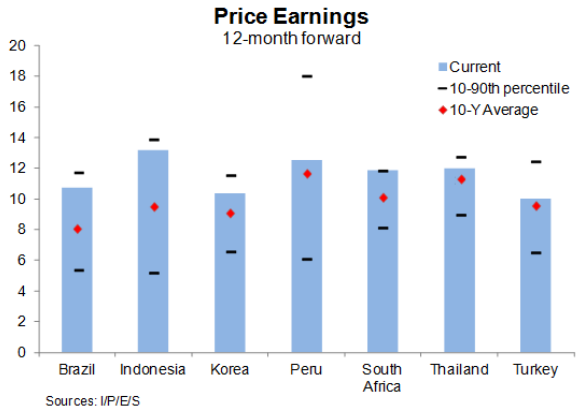

Source: Bloomberg.
1/ Shaded area represents most recent wave of capital inflows.

31. **The recent surge in inflows has helped propel stock and bond prices in some countries**. It is difficult to separate the impact of capital inflows versus, for example, rapidly recovering domestic or external demand on asset prices and domestic cyclical conditions. Stock market indices in Indonesia and Thailand have now reached their highest levels since the Asian crisis, having risen in 2010 by about 40 percent (text figure). Peru's stock market performance was one of the strongest in 2010, with equity prices up 60 percent, but this was dominated by strong performance of commodity-producing companies. Despite large equity inflows, Brazil's stock prices have been fairly flat, reflecting larger absorptive capacity for inflows owing to a string of large corporate IPOs that allowed for increased capitalization without stretching valuation. In fixed income markets, portfolio flows into government securities have lowered public borrowing costs by pushing down longer term bond yields (for example in Brazil, Indonesia, Peru, Thailand, and South Africa; text figure). In Turkey, both prices of equities and government securities reached historical highs during 2010.



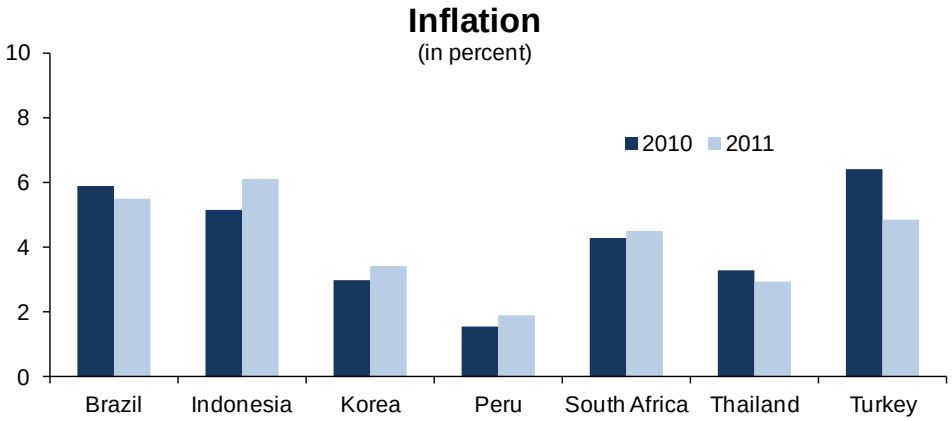

Source: Bloomberg.
1/ Shaded area represents most recent wave of capital inflows.

32. **Clear signs of bubbles are not evident at this stage**. There is yet no strong evidence of equity bubbles in Indonesia or Thailand, where valuations seem on the high side, but are not at exceptionally high levels from a historical perspective (text figure). Property price bubbles are also not an immediate concern for the seven countries, and in fact, in several countries (Korea, South Africa, and Turkey) the property market remains subdued.

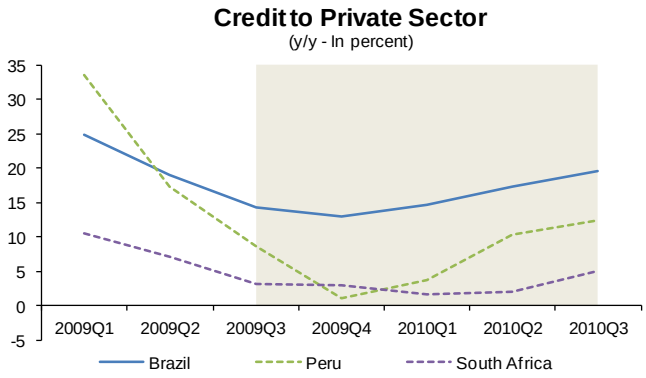


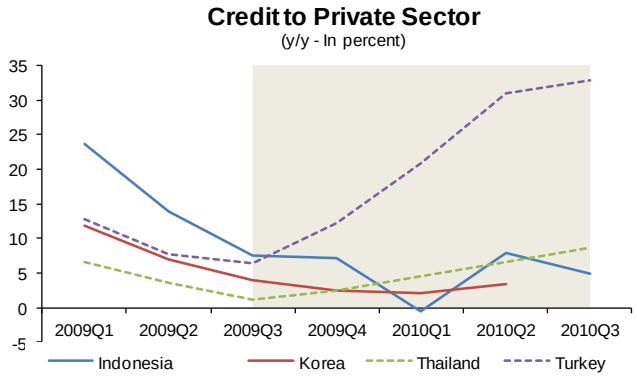

Sources: I/P/E/S

33. **But cyclical pressures are starting to emerge to varying degrees**. Except for South Africa, the output gap is already closed or rapidly closing in all the countries. Brazil, Peru, Indonesia, and to a lesser extent Turkey are showing some initial signs of overheating, with a pickup in credit growth and in some cases inflation—rising above the inflation targets—and inflation expectations worsening. Inflation in Indonesia was driven in part by higher food prices due to strong demand and adverse weather conditions. Indeed, food prices have picked up globally and appear poised to accelerate further in the near term. In Turkey, capital inflows are facilitating bank lending and fueling credit growth. In Brazil, credit growth has been sustained by continued rapid growth in lending by its public banks, while, in Peru, it is partly driven by strong terms of trade and a rebound in domestic demand. In other countries, credit growth does not yet appear to be a concern (text figure).




Source: IMF, WEO.

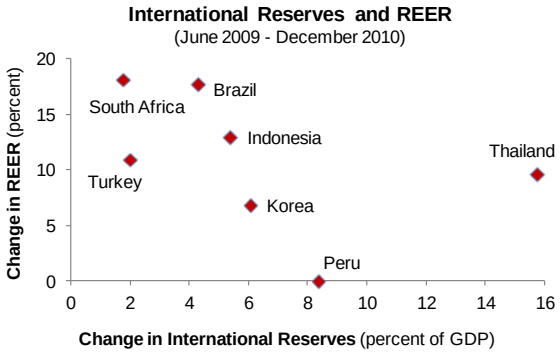


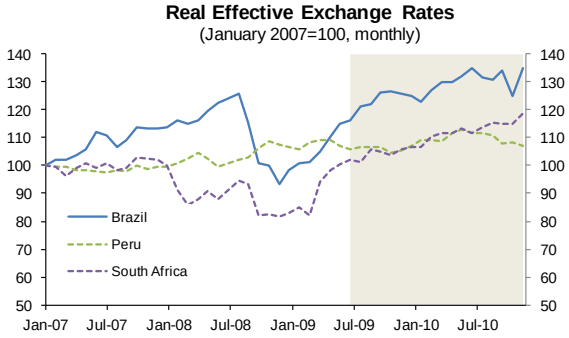

Sources: IMF IFS, CEIC and country authorities.
1/ Shaded area represents most recent wave of capital inflows.

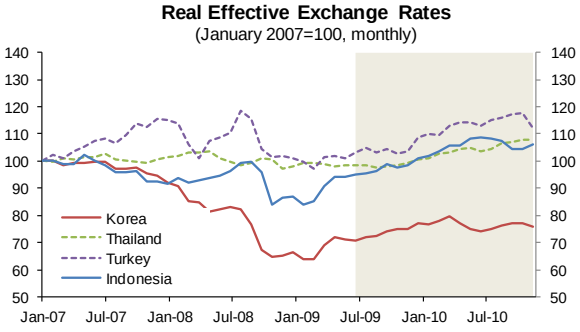
## D. Recent Policy Responses

34. **Countries' willingness to allow the exchange rate to appreciate—and correspondingly the extent of reserve accumulation—has varied widely** (text figure). Only in Thailand have nominal exchange rates appreciated above their pre-crisis highs. In real effective terms, for all countries except Korea, exchange rates have appreciated relative to pre-crisis levels (text figure). In some countries the real exchange rate appears overvalued in relation to medium-term fundamentals.

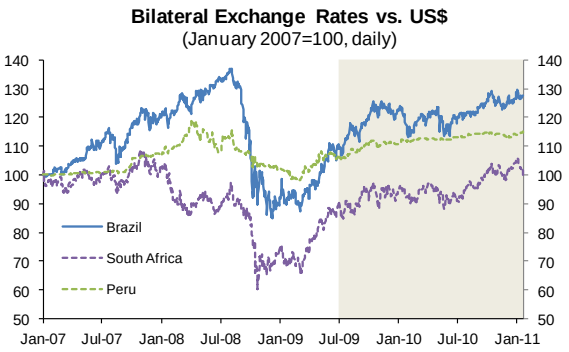


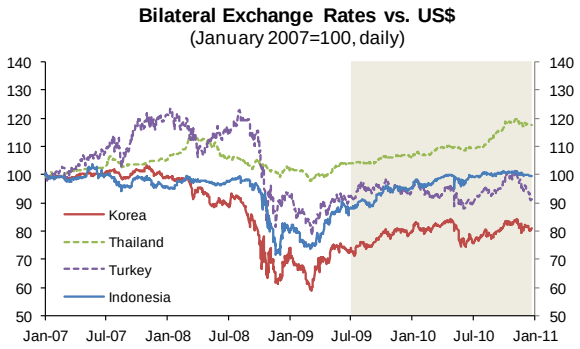

Sources: IMF IFS and INS database.



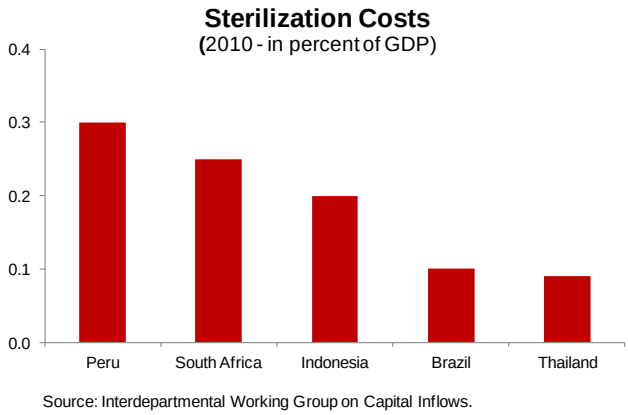

Source: IMF INS database.
1/ Shaded area represents most recent wave of Capital inflows.




Source: Bloomberg.
1/ Shaded area represents most recent wave of Capital inflows.

35. **The degree of sterilized FX interventions has also varied**. These interventions can allow countries to manage exchange rate volatility, while keeping monetary aggregates under control. For Brazil and Peru, this has been a dominant line of response against surging inflows. Sterilized interventions are also an important tool for Indonesia, Peru, and Thailand in smoothing exchange rate volatility and slowing the rate of appreciation at least in the short term. In these countries, reserves are 30-40 percent above their pre-crisis levels, and up by 35-50 percent since the second half of 2009. Sterilization costs are high and increasing for some countries, and can pose a constraint especially where fiscal positions are already weak (text figure). By contrast, while Turkey has not for the most part sterilized its interventions, required reserve ratios have been raised to withdraw liquidity.

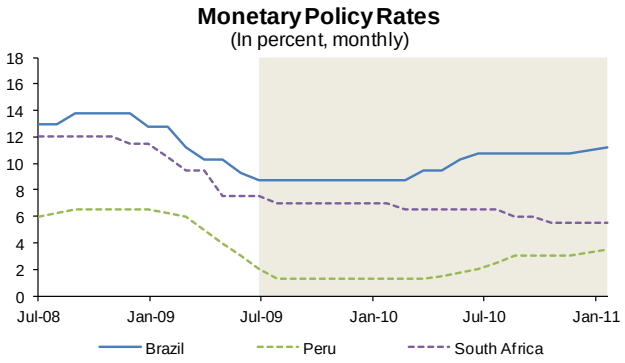


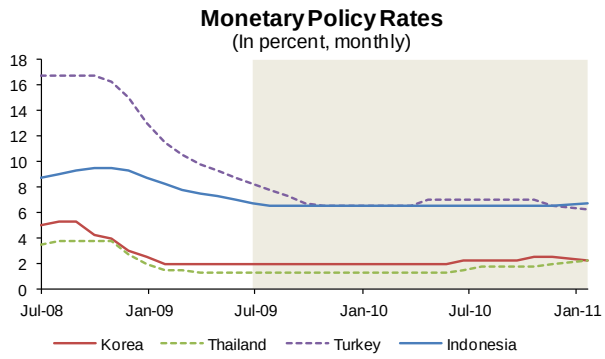
Source: Interdepartmental Working Group on Capital Inflows.

36. **Some countries have continued to lower policy interest rates** (text figure). Policymakers have been reluctant to increase interest rates even where inflation is becoming a concern, for fear of attracting even more inflows, and in several cases have instead adopted quantitative measures, including higher reserve requirements.[11] Two of the seven countries (South Africa and Turkey) have actually cut rates further since the start of the inflow wave in mid-2009. In South Africa, there was room to loosen monetary policy as cyclical conditions remained weak (persistent negative output gap). Turkey drastically reduced the overnight borrowing rate to widen the interest rate corridor with the repo policy rate and generate greater volatility in short-term market rates to stem capital inflows and deter one-way bets by foreign investors. Moreover, it has more recently been pursuing a policy mix of lower policy rates to further curb capital inflows and higher reserve requirements to contain credit growth as inflation is still within target. Since December, it has lowered the policy rate by 75 basis points to a record low level. Meanwhile, despite inflation pressures, Indonesia left policy rates unchanged through January 2011, following a 300 basis point cut during the global crisis. On the other hand, Peru, Korea, and Thailand (where nominal policy rates are somewhat lower than in the other countries), and Brazil began to raise rates in 2010 as output gaps are closing or have closed and inflation risks are surfacing. Already Brazil and Peru have hiked policy rates by 50 and 225 basis points respectively since the beginning of this year (bringing the

[11] The impact of higher interest rates on attracting capital inflows is not always straightforward. Higher rates would, all else being equal, raise the cost of borrowing, lower companies' investment prospects, and therefore reduce flows to equity markets. Increasing policy rates could also dampen flows to bond markets, because investors will face capital losses, and preferences will shift to cash and shorter-term bonds. If investors, however, believe all future rate hikes are priced in, and long-end yields have risen sufficiently, they will hold longer-term bonds.

total increase in Brazil to 250 basis points since April 2010), and also actively raised reserve requirements.

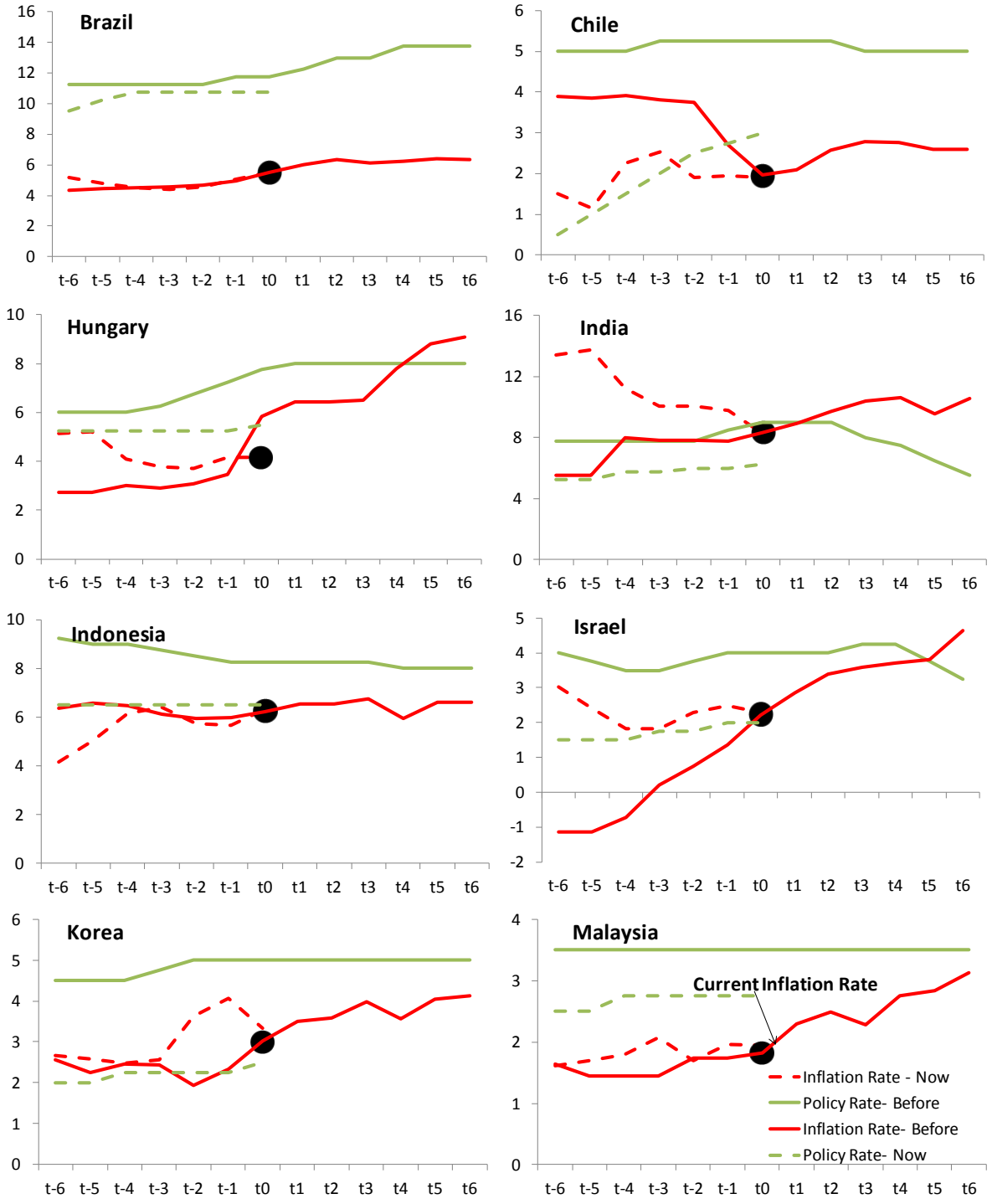



Source: IMF GDS, Datastream and Central Banks.
1/ Shaded area represents most recent wave of capital inflows.

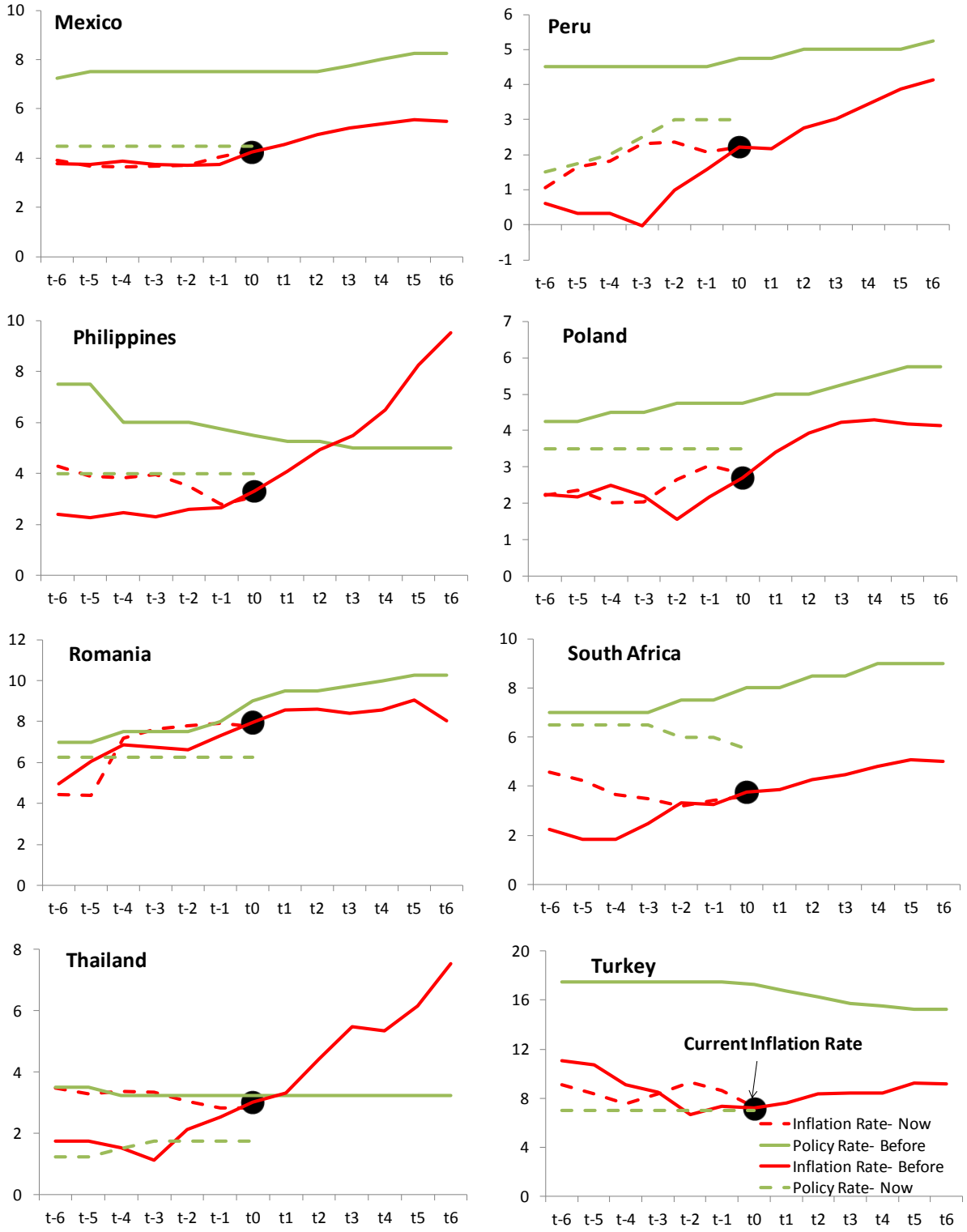
37. **Other emerging markets may also be keeping policy rates lower than "normal."** Figure 5 shows the current inflation and policy rates in a broader sample of EMs (dotted red and green lines) and compares them to policy rates when inflation was last at the same level as today in each country (solid red and green lines). In each case policy rates are now lower than they were in the recent past when inflation was at the same level (that is, in each case the green dotted line is below the green solid line).

**Figure 5. Inflation and Target Policy Interest Rates: A Historical Perspective**
Comparing Current Inflation & Interest Rates with a Past Episode of Similar Inflation Rate (In percent)



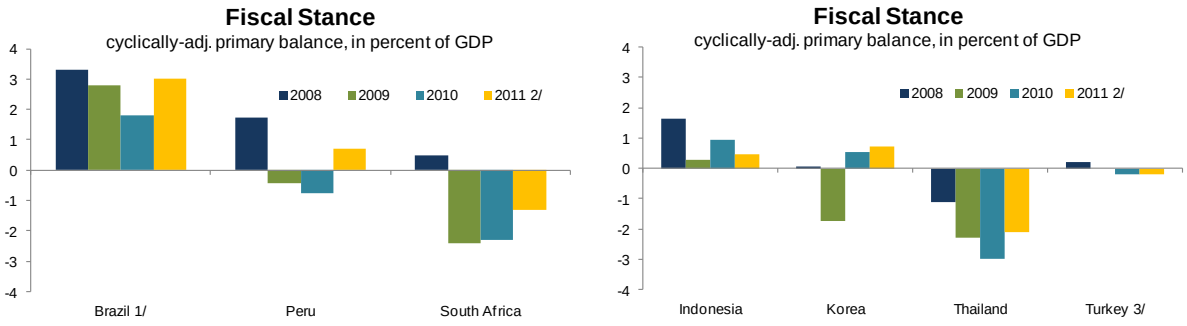

Sources: GDS, Haver and Fund staff calculations.

**Figure 5. Inflation and Target Policy Interest Rates: A Historical Perspective (concluded)**
Comparing Current Inflation & Interest Rates with a Past Episode of Similar Inflation Rate (In percent)




Sources: GDS, Haver and Fund staff calculations.
November 2010 is used as the latest period. The past values used (green lines) differ for each country and depends on when Inflation reached current levels in the past. The (before) dates are as follows. Brazil- 5/2008, Chile- 6/2007, Hungary- 9/2006, India-10/2008, Indonesia- 8/2007, Israel-10/2007, Korea-10/2007, Malaysia-10/2007, Mexico- 3/2008, Peru- 7/2007, Philippines- 11/2007, Poland- 10/2007, Romania- 2/2008, South Africa- 8/2006, Thailand- 11/2007, and Turkey- 9/2007.

38. **Fiscal policy response to inflows has been limited in most countries**. In Brazil, fiscal policy remained expansionary up to end-2010, including through subsidized lending by the public development bank, putting pressures on inflation. Similarly, fiscal policy in Turkey is poised to remain expansionary in 2011. On the other hand Peru had a broadly neutral fiscal stance for 2010 as a whole and is expected to tighten the fiscal stance going forward, as is South Africa. Fiscal policy is not expected to play an active role in managing inflows in Indonesia, Korea, and Thailand, apart from the gradual withdrawal of discretionary stimulus introduced during the crisis (text figure). For some countries, adjustments to the cyclically-adjusted balance depicted in the figure—for example, to account for transient revenue and/or quasi-fiscal lending—may be needed to assess the true fiscal stance and the procyclicality of fiscal policy.




Source: IMF staff calculations.
1/ Structural primary balance; does not include policy lending, which rose from 0.1 percent of GDP in 2007 to an average of 3 percent in 2009-2010. For 2011, projections based on the authorities' intended policy objectives.
2/ Staff estimates.
3/ Nonfinancial public sector. For 2011, projections assume the authorities adhere to their Medium-Term Program target.

39. **Capital flow management measures (CFMs) going beyond macroeconomic policy responses, along with other measures, were also used by countries to cope with capital flows and the associated risks** (Table 4).[12] Countries have implemented various types of measures as a complement to macroeconomic policy responses. In each case the measures came on the heels of a rapid period of exchange rate appreciation (Figure 6). Also, in most cases the introduction of these measures broadly coincided with a slowdown or halt in currency appreciation, though it is unclear if that may be attributed to the measures or other factors, including global economic and financial developments. The measures were generally designed to address specific risks associated with certain types of capital flows, in particular related to their impact on certain asset markets or their short-term nature, while leaving the door open for more stable, long-term, and productive capital flows, and guarding against sharp sudden reversals of investment flows. South Africa is the only country among the seven EMs which has introduced only measures relating to outflows.

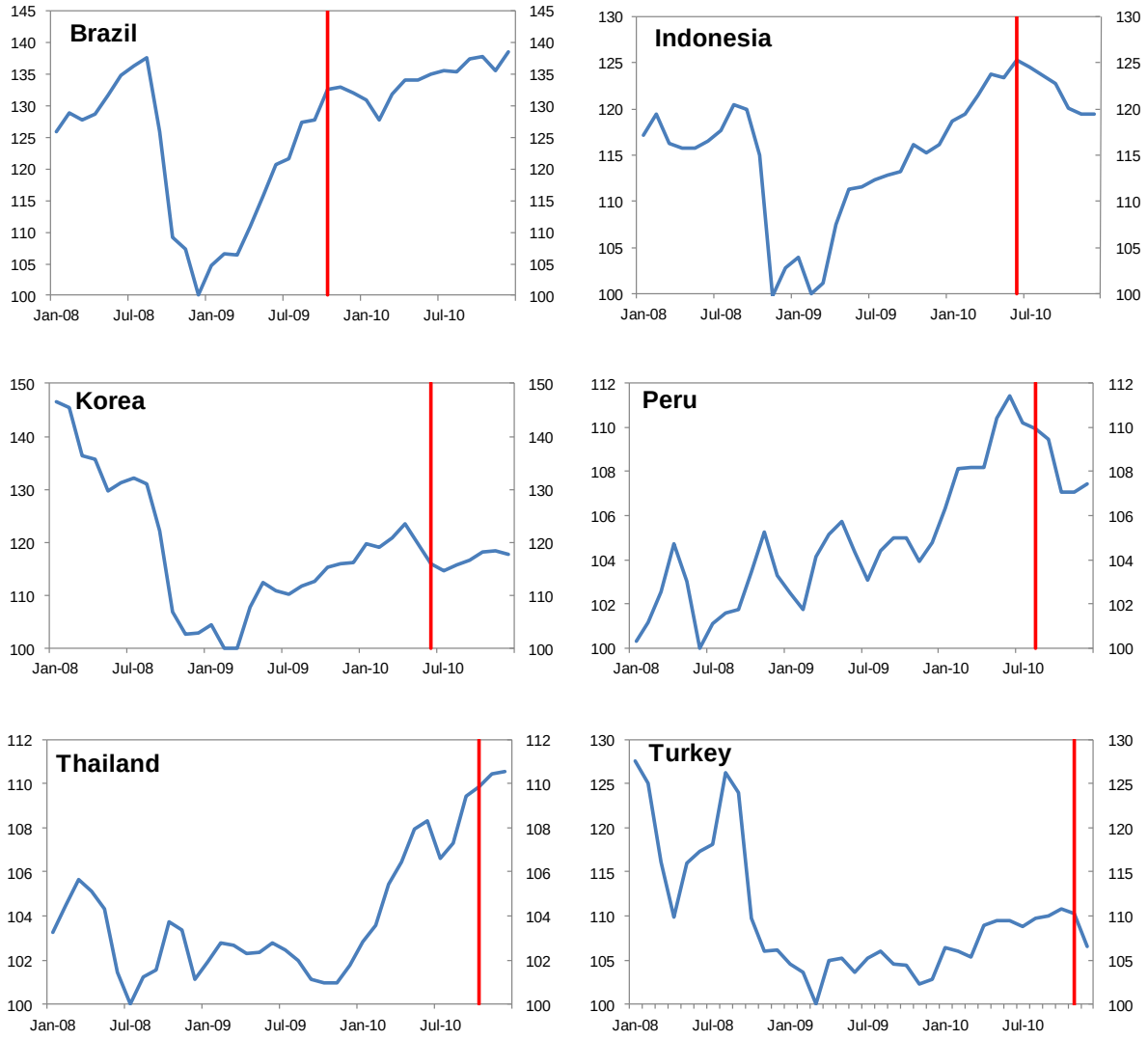
[12] See ¶43-44 for a definition of CFMs.

- In the face of rapid exchange rate appreciation, Brazil reinstated the tax on portfolio inflows (IOFs) in October 2009 to discourage carry trade and increased it twice on debt inflows in October 2010, when it also extended it to cover margin requirements in derivatives transactions. In January 2011, it imposed reserve requirements on banks' short FX positions in the cash market.[13] While Brazil's IOF reduced after-tax returns, its effectiveness in alleviating appreciation pressures has been limited, at least relative to the level of the exchange rate at the time of its introduction (Box 2). This was in part due to the fact that the original design of the IOF provided for a lower tax incidence on currency positions taken by nonresidents via the domestic futures markets. Thus, in response to the tax, nonresidents' positions in these markets increased, matched by an increase in short FX positions in the spot market by resident banks. The recent introduction of a reserve requirement on banks' FX short positions is expected to constrain this channel while reducing potential vulnerabilities in the banking sector, and may intensify the effect of the IOF by effectively raising the incidence of the tax on derivatives transactions.

- Also faced with rapid capital inflows, upward pressure on the exchange rate, and prudential considerations, Peru introduced a wide range of measures. In July 2010, it implemented additional capital requirements for FX credit risk exposure. In August, the fee on nonresident purchase of central bank paper (CDs) was increased to 4 percent which virtually closed this investment option to nonresidents and shifted interest to longer-term government bonds. In September, reserve requirements on deposits were raised, including a 120 percent reserve requirement for nonresidents' deposits in local currency. The highly restrictive reserve requirements and active intervention have helped maintain low exchange rate volatility and restrain credit growth. However, the limits on banks' net FX position are not expected to have much impact, as banks are currently within the limits.

[13] Banks with short spot dollar positions above US$3 billion or Tier I capital will be required to deposit 60 percent of the excess position in reserves at zero remuneration at the central bank.

**Figure 6. Exchange Rates and Use of CFMs in Selected EMs**
Nominal Effective Exchange Rate, Jan 2008−Dec 2010 1/




Sources: GDS and Fund staff calculations.
1/ 100 corresponds to the month in which the NEER reached its low in the global crisis.
The vertical red line indicates introduction of a particular capital flow management measure.

- Indonesia introduced in June 2010 a one-month minimum holding period for central bank paper (SBIs), applied to both primary and secondary market purchases and equally to residents and nonresidents. It also introduced longer tenors for SBIs. The aim was to reduce the volatility of flows involving SBIs, which unlike flows into government bonds have been highly sensitive to global risk aversion and external funding costs. The measures were effective in sharply reducing foreign participation in SBIs initially, as well as dampening market volatility. After a short period, however, foreign ownership of SBIs actually rose above pre-holding period levels. In addition, nonresident investors have also increased their holdings of government bonds, since these are not subject to the holding period requirements. In December 2010, the authorities announced a set of measures including a gradual increase in reserve

requirements on foreign currency deposits, effective March and June 2011, and the re-imposition of a limit on short-term foreign borrowing by banks to 30 percent of capital, effective March 2011.

- Korea introduced in June 2010 ceilings on FX forward positions of banks to lower leverage in the banking system and lengthen the maturity structure of banks' funding, without limiting portfolio debt or equity flows. These measures succeeded in reducing banks' FX derivative positions and related short-term external debt.[14] In January 2011, the authorities re-introduced a withholding tax on foreign purchases of treasury and monetary stabilization bonds. Its impact, however, is expected to be limited as residents of countries that have double taxation treaties with Korea as well as official investors are exempted. The authorities also announced plans to introduce, from the second half of 2011, a "macroprudential stability" levy on non-deposit foreign currency liabilities of banks to reduce short-term foreign exchange inflows.

- Thailand reinstated in October 2010 the withholding tax for state bonds on nonresident individual investors, equalizing the tax regime with resident individual investors.[15] However, the withholding tax for nonresident institutional investors is set higher (15 percent) than for resident counterparts (1 percent). The uncertainty surrounding operational aspects of withholding tax in Thailand dampened inflows, but only temporarily, and inflows have quickly recovered (Box 3). In addition, the withholding tax in Thailand is likely to have limited influence on investor returns and therefore inflows due to the double taxation agreements Thailand has with many countries.

- Turkey in December 2010 reduced the withholding tax rate on bonds issued abroad by Turkish firms, with lower rates for longer maturities.[16] It also halted the remuneration of reserve requirements, while raising ratios across maturities. To moderate credit growth, Turkey raised the levy on the interest from consumer loans, increased the minimum payment amount for credit cards based on credit limit, and introduced limits to loan-to-value (LTV) ratios for all mortgages. Greater interest rate variability, including through lower overnight borrowing rates, helped discourage investors from making one-way bets on the lira. Moreover, the authorities' monetary policy strategy has so far been successful in steepening the yield curve by lowering the short-end. Overall, the central bank and government strategy seems to have been effective at discouraging capital inflows, although it is difficult to draw conclusions given also heightened uncertainty in Europe and the Middle East.

[14] Short-term external debt arises as banks borrow overseas to hedge forward contracts they provide to corporates.

[15] This was a reversal of the 2005 policy to attract more foreign investment.

[16] The measures are aimed to encourage companies to seek financing abroad and promote long-term investment.

- Regulations on capital outflows were eased in Korea, Peru, South Africa, and Thailand, mainly to encourage overseas investment. These have had little impact so far in South Africa and Thailand where previous ceilings were possibly nonbinding. In Peru, the limits on Pension Fund investment overseas were increased four times last year, as investments quickly approached the new limits.

40. **The recent experience suggests mixed evidence on the effectiveness of CFMs and other measures in attenuating inflows**.[17] To the extent that these measures sought to reduce specific types of flows (e.g., short-term and volatile flows) or those associated with specific risks (e.g., banks' FX exposures), they do not appear to have resulted in a wholesale souring of market sentiment and a reduction in all types of flows (including longer-term and stable flows) to the respective countries. At the same time, however, there is mixed evidence that they significantly reduced the targeted inflow, especially on a lasting basis. The evidence is mixed partly because it is difficult to attribute the impact to the measures, including because it is impossible to know the counterfactual. Also, the measures implemented so far were generally deemed to be "at the margin", so perceived returns remained favorable. And where measures may have affected the attractiveness of specific investments, this is likely to be more than offset by the country's fundamentals driving overall inflows. That said, if CFMs or other measures were to result in a change in a country's weight in EM investor indices, the resulting impact on flows could be substantial, as that could prompt significant portfolio rebalancing, especially among institutional investors.

41. **Market perceptions of policy responses played a part in determining their impact**. Market participants have expressed concerns about the policy and regulatory uncertainty and the impact on policymakers' credibility regarding the use or intensification of CFMs, rather than the actual measures themselves or any resultant increase in transactions costs or reduction in returns. The non-discriminatory application of measures to resident and nonresident investors and the absence of restrictions on mobility of flows generally provide reassurances to markets that countries remain receptive to inflows. Clear communication with the markets as to the policy objectives was seen as important in signaling the likely next steps to deal with inflows, and whether these were perceived to be part of a broader and longer term strategy to develop local financial markets and encourage financial integration. In addition, market participants emphasized the need for policymakers to directly address underlying domestic imbalances using macroeconomic tools, before resorting to other measures to deter inflows. Abrupt announcements of policy measures were also seen as creating unnecessary uncertainty in the investment and regulatory environment.

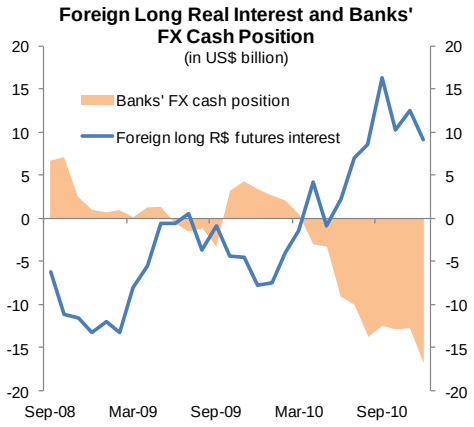
[17] Our finding is consistent with the literature on the effectiveness of capital controls. In their survey, Magud, Reinhart, and Rogoff (2011) find that capital controls seem to make monetary policy more independent, alter the composition of capital flows, and reduce real exchange rate pressures, although the evidence here is more controversial. However, they also find that controls on inflows seem not to reduce the volume of net flows. Based on this, they argue for enhancing the effectiveness of controls by taking into account country-specific characteristics in their design.

### Box 2. The Impact of Brazil's IOF

**IOF**. The Tax on Financial Transactions (*Imposto de Operações Financeiras,* IOF)—originally established in 1993 and used intermittently since then—was re-introduced before the crisis during March-October 2008, brought back with a broader coverage and a higher rate (2 percent) on nonresident portfolio equity and debt inflows in October 2009, and tightened twice (to 6 percent) on nonresident portfolio debt inflows in October 2010 (Annex III). On this date, the tax was also raised to 6 percent (from 0.38 percent) on the margin payments required on derivatives traded in the BM&F Bovespa, including FX futures.

**Impact**. Empirical evidence suggests that the IOF measures did not have a clear, long-lasting effect on the exchange rate—at least relative to its level at the time the various IOF measures were introduced. This may have been due to the fact that the introduction of the IOF did not trigger a significant reduction in nonresidents' positioning in the futures market.

**Composition of flows**. While difficult to distill formal empirical evidence, there is anecdotal evidence that the IOF had some impact in containing short-term/speculative capital inflows, possibly because of the increased uncertainty about other potential measures that it generated. One area where the IOF did seem to have had an important impact on composition is by encouraging inflows into the futures market. More specifically, the IOF's favorable treatment of futures positions (due to the fact that it applies to margin payments rather than notional amounts) is likely to have been a key factor behind the large long *real*/short US$ positions built by nonresident investors in the futures market during 2010. Long *real* positions in the futures market are a form of carry trade whereby an investor funds a long real position by borrowing in foreign currency. These trades are enabled by resident investors—typically banks—which take the other side of nonresident investors' positions, hedge them by undertaking FX borrowing, and in the process earn a spread between the interest rates on their FX borrowing and the domestic FX interest rate implied by FX futures. This mechanism was clearly at work in recent months (text figure), as the growing open *real* positions by nonresident investors was mirrored very closely by banks' short FX cash positions—reaching almost US$17 billion at end-2010, a historically high level.



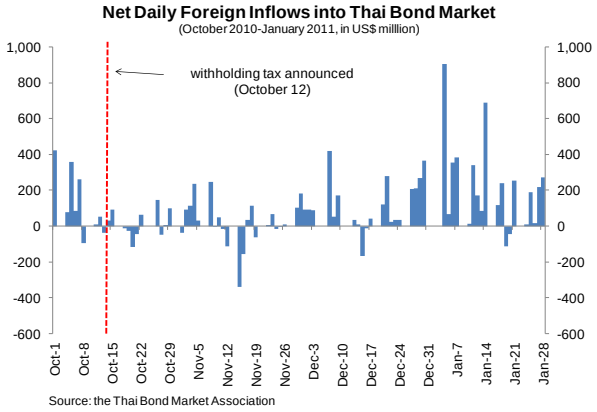

Sources: Central Bank of Brazil and JP Morgan.

**Policy response**. The carry trade delineated above relies on the resident banks' ability to increase their short spot position in the FX market as a hedge to their futures positions. As documented above, banks' short-term FX borrowing increased significantly in the second half of 2010. In response to these developments, the central bank introduced in early January 2011 a 60 percent unremunerated reserve requirement on banks' short-term FX borrowing that exceed US$3 billion or Tier I capital (with a phase-in period of 90 days). In introducing this requirement, the authorities argued that banks or the local currency market could face disruptions following a large shock to the exchange rate (as it happened at end-2008), given the banks' large short-term FX borrowing. The new measure is expected to reduce the return to local banks from providing a "bridge" to nonresident investors investing in the futures market. By affecting its cost, this macroprudential measure is thus expected to affect an important channel for carry trades while reducing potential vulnerabilities in the banking sector.

### Box 3. The Impact of Thailand's Withholding Tax

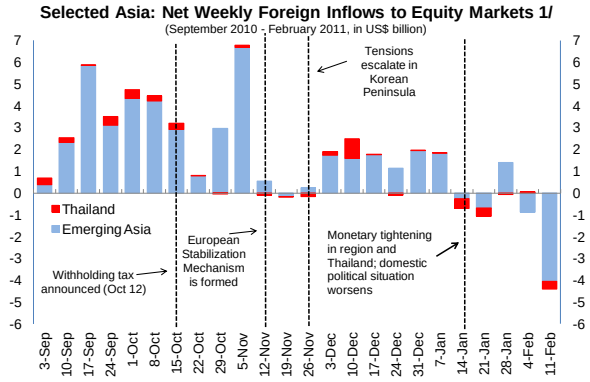
**Background**. Against the backdrop of record-high bond inflows, rumors of an impending capital control surfaced on October 8, 2010, leading to a small outflow. On October 12, the authorities officially announced the re-instatement of a withholding tax on nonresident interest earnings and capital gains that would apply only to state bonds purchased on or after October 13.

**Impact**. Even though the tax applies only to state bonds, when the tax was announced inflows into both bonds and equities halted. This is partly because of the initial uncertainty regarding the collection of the tax, but also to market concerns of further stricter measures to come: Brazil had raised the IOF the previous week, and the media were frequently referring to the unremunerated reserve requirement implemented in Thailand in 2006. Subsequent developments in global and regional markets kept equity inflows to East Asia low through November (funding pressures in Europe, political tensions in the Korean peninsula, and tightening of bank regulations in China). After temporarily stabilizing in December, equity inflows turned once again negative due to monetary tightening in the region and some political tensions in Thailand. On the other hand, bond inflows recovered in December, and remained strong through the first several weeks of 2011.



Source: the Thai Bond Market Association

**Effectiveness**. Overall, the withholding tax appears to have had some impact in slowing portfolio inflows, albeit temporarily. The inflows stopped as soon as rumors of the measure surfaced, but the drying up of inflows to both equities and bonds suggests that its efficacy came from the uncertainty the tax created, rather than the cost it bore to bond investors. Since Thailand has double taxation agreements with over 50 countries, investors from these countries (or investing through institutions registered in these countries) do not bear an additional cost because of the tax.



1 Includes India, Indonesia, Korea, Philippines, Taiwan Province of China, Thailand, and Vietnam in Emerging Asia.

**Table 4. Capital Flow Management (CFM) and Other Measures by Country 1/ (October 2009–January 2011)**

| Country | Measures |
|---|---|
| Brazil | *October 2009* – Introduced a 2 percent tax (IOF) on portfolio equity and debt inflows.<br><br>*October 2010* – (i) IOF tax rate increased to 4 percent for fixed income investments and equity funds (IOF on individual equities left at 2 percent).<br><br>(ii) IOF increased to 6 percent for fixed income investments and extended (at the 6 percent rate) to margin requirements on derivatives transactions.<br><br>(iii) Some loopholes for IOF on margin requirements closed.<br><br>*December 2010* – (i) Raised bank capital requirements for most consumer credit operations with maturities of over 24 months, which apply primarily to car loans.<br><br>(ii) Raised the unremunerated reserve requirements on time deposits from 15 percent to 20 percent. The additional (remunerated) reserve requirement for banks' sight and time deposits were also increased from 8 percent to 12 percent.<br><br>*January 2011* – Imposed reserve requirements for banks' short dollar positions in the cash market, to be implemented over 90 days. |
| Indonesia | *June 2010* – One-month holding period introduced for SBIs. Longer maturity (6 and 9 month) SBIs introduced.<br><br>*November 2010* – Raised reserve requirements on local currency deposits from 5 to 8 percent.<br><br>*December 2010* – Announced the following measures:<br><br>(i) A gradual increase in reserve requirements on foreign currency deposits (from 1 to 8 percent) effective March and June 2011.<br><br>(ii) A re-imposition of a limit on short-term foreign borrowing by banks to 30 percent of capital, effective March 2011. |
| Korea | *June 2010* – (i) The ceiling on resident banks' FX derivatives contracts to be no more than 50 percent and for foreign bank branches no more than 250 percent of their capital in previous month.<br><br>(ii) Banks limited to providing 100 percent of underlying transactions for forward contracts with exporters (previously 125 percent).<br><br>(iii) Resident banks' FX loans and held-to-maturity securities (equal to or more than one-year maturity) must be covered by at least 100 percent of FX borrowing with maturity of more than one year.<br><br>(iv) Foreign currency financing should be operated for overseas use only, with some exceptions for SME manufacturers.<br><br>*December 2010* – Announced plans to introduce a macro-prudential stability levy in the second half of 2011 on banks' non-deposit foreign currency liabilities. Under current plans, the levy would be 20 basis points on short-term (less than a year), 10 basis points on medium-term (1–3 years), and 5 basis points on long-term non-deposit foreign currency liabilities.<br><br>*January 2011* – Re-introduced a 14 percent withholding tax on nonresidents' purchases of treasury and monetary stabilization bonds. |
| Peru | *February 2010* – Changed limits on banks' net FX position to 75 percent of net equity for long position (from 100 percent) and 15 percent of net equity for short position (from 10 percent). |

| Country | Measures |
|---|---|
| | *February to September 2010* – Limits on Pension Funds' investment abroad were increased in steps from 24 to 30 percent.<br><br>*June 2010* – Imposed private pension funds' limit on trading FX at 0.85 percent of assets under management (for daily transactions) and 1.95 percent (over 5-day period).<br><br>*June 2010* – Increased minimum unremunerated reserve requirement on domestic and foreign currency deposits from 6 to 9 percent in steps.<br><br>*July 2010* – Increased marginal reserve requirement on domestic currency deposits from 0 to 25 percent and on foreign currency deposits from 30 to 55 percent.<br><br>*July 2010* – Implemented additional capital requirements for FX credit risk exposure.<br><br>*August 2010* – Increased fee on nonresident purchases of central bank paper to 400 basis points (from 10 basis points).<br><br>*September 2010* – Increased reserve requirements on foreign currency liabilities with maturity less than 2 years to 75 percent (from 50 percent), and those on nonresidents' domestic currency deposits to 120 percent (from 50 percent).<br><br>*October 2010* – The central bank sterilization instrument was shifted from certificates to term-deposit (with access only for financial institutions).<br><br>*December 2010* – Imposed 30 percent capital gains tax on nonresidents' investments in the stock market for transactions through Peruvian broker and 5 percent for transactions through a nonresident broker.<br><br>*December 2010* – A new law for covered bonds for mortgages established a loan-to-value ratio of 80 percent<br><br>*January 2011* – (i) Reduced reserve requirements on foreign currency liabilities to 60 percent.<br><br>(ii) The central bank increased average reserve requirements on both domestic and foreign currency deposits by 25 basis points from their initial levels of 11.8 percent and 35.6 percent, respectively.<br><br>(iii) Reduced the banks' long net FX position to 60 percent of net equity (from 75 percent).<br><br>(iv) The SBS imposed a limit on NDF and other derivatives of the financial system to either 40 percent of assets or PEN 400 million (approximately US$144 million), whichever is the highest. |
| South Africa | *October 2009* – The authorities (i) raised the lifetime limit on individuals investment offshore to R4 million from R2 million per year and (ii) the single discretionary allowance to R750,000 from R500,000.<br><br>*March 2010* – Banks allowed to invest abroad up to 25 percent of non-equity liabilities.<br><br>*October 2010* – The authorities (i) eliminated the 10 percent levy on the capital that South Africans could transfer upon emigration, (ii) raised the limit on individuals investment offshore to R4 million per year from R4 million in a lifetime, (iii) and raised the single discretionary allowance to R1 million from R750,000.<br><br>*December 2010* – Limits that resident institutional investors can invest offshore were raised by 5 percentage points, and now range from 25 to 35 percent depending on the type of institutional investor.<br><br>*January 2011* – The authorities allowed qualifying international headquarter companies to raise and deploy capital offshore without exchange control approval. |

| Country | Measures |
|---|---|
| Thailand | *June 2010* – Raised limits on foreign asset accumulation by residents, including outward FDI.<br><br>*September 2010* – Removed limit on direct overseas investment, relaxed restrictions on lending by Thai firms to nonresident borrowers, and raised cap on offshore property purchase.<br><br>*October 2010* – Reinstated a 15 percent withholding tax on nonresidents' interest earnings and capital gains on new purchases of state bonds.<br><br>*November 2010* – Announced cap on LTV for residential property at 90 percent on condominiums, effective January 2011, and 95 percent on low-rises, effective January 2012 |
| Turkey | *September 2010* - Remuneration of reserve requirements halted.<br><br>*December 2010* – (i) To extend maturities, reduced withholding tax rate on bonds issued abroad by Turkish firms to 7 percent (1-3 years maturity), 3 percent (3-5 years maturity), and zero percent (maturities longer than 5 years).<br><br>(ii) Lira reserve requirement ratio (RRR) differentiated across maturities, ranging from 5 percent for deposits with maturity of at least one year to 8 percent for up to one month. FX RRR kept at pre-crisis level of 11 percent.<br><br>*December 2010* – (i) The Banking Regulation and Supervision Agency (BRSA) introduced limits to LTV ratios (previously reserved for securitized mortgages) for all mortgages, with 75 percent for housing loans and 50 percent for commercial loans.<br><br>(ii) The Resource Utilization Support Fund (RUSF) levy on the interest from consumer loans was raised to 15 percent (from 10 percent).<br><br>(iii) The BRSA increased the minimum payment amount for credit cards based on credit limit.<br><br>*January 2011* – Lira RRR further increased across maturities, ranging from 9 percent for deposits with maturity of up to three months and non-deposit liabilities to 12 percent for demand deposits. RRR for longer term Lira and FX deposits left unchanged. |

Source: Country desks.

1/ Capital Flows Management Measures (CFMs) refer to certain administrative, tax, and prudential measures that are designed to influence (some or all) capital inflows (see ¶43 for details). The table also includes other measures that are designed to increase the capacity of the economy to absorb capital inflows or to strengthen the ability of the financial sector to cope with financial stability risks (see ¶44 for details).

## IV. A Possible Policy Framework for Managing Capital Inflows

42. **As recent country experience highlights, policymakers are concerned about risks associated with surging capital inflows, including excessive currency appreciation, overheating, financial fragility and a sudden reversal of inflows**. While there are reasons to believe that at least part of the higher inflows to EMs is due to structural factors and may be permanent and beneficial, past experience with episodes of capital flow surges to EMs suggests that policymakers' concerns over risks are not misplaced. It is against this backdrop that this section proposes a framework for the appropriate policy response to capital inflows, with a focus on the conditions that should be met before countries consider other measures that go beyond macroeconomic policies. The intended use and institutional status of the proposed framework is explained in Section I. As further clarified in ¶4−7 of the *Supplement* to this paper, this framework is intended to help achieve consistency and evenhandedness in

Fund policy advice to countries and does not create new obligations for members for the purposes of Fund surveillance.

43. **The framework distinguishes between (i) macroeconomic policy responses and (ii) measures going beyond them to manage capital inflows, CFMs**. As discussed in more detail below, macroeconomic policy responses consist of allowing the exchange rate to strengthen, accumulating foreign exchange reserves, and using monetary and fiscal policies. CFMs encompass a broad range of administrative, tax, and prudential measures that are designed to influence (some or all) capital flows. As such, CFMs would tend to slow exchange rate appreciation and/or divert capital flows to other countries—that is, carry macroeconomic and multilateral effects. These measures comprise:

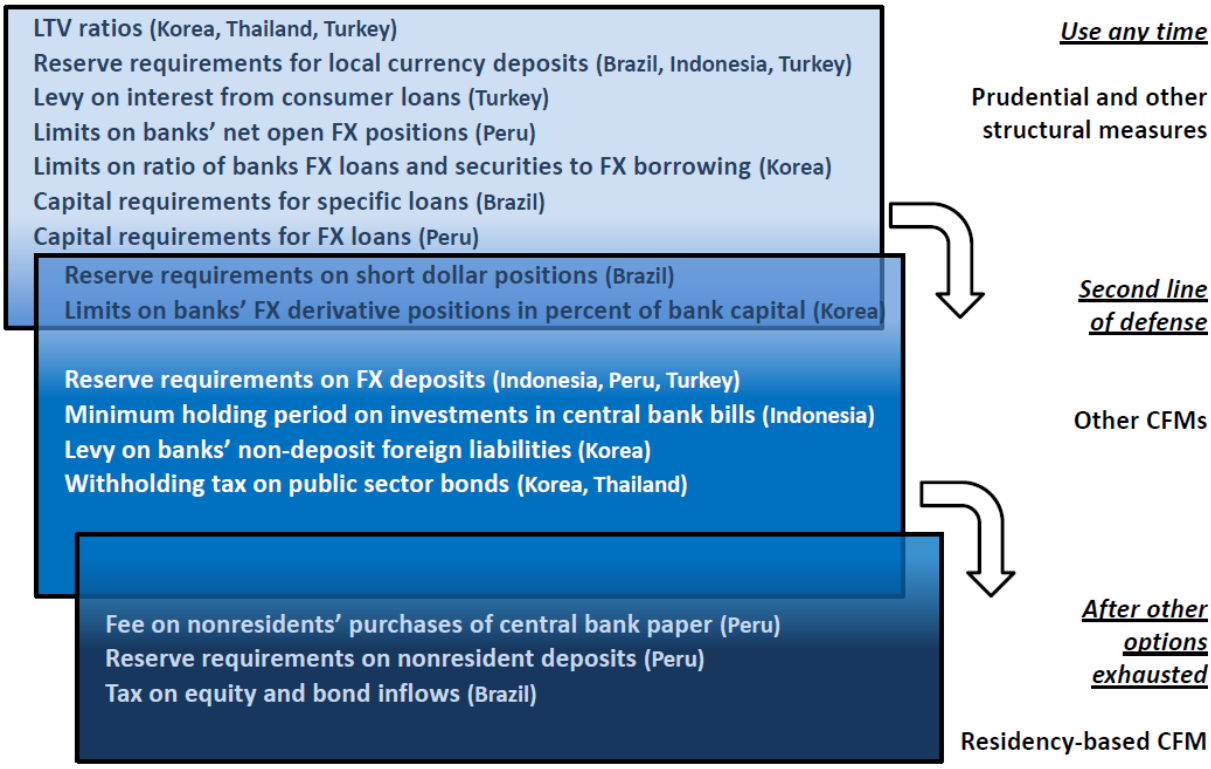
> (i) *residency-based CFMs*, encompassing a variety of measures (including taxes and regulations) affecting cross-border financial activity that discriminate on the basis of residency—these measures are often referred to as capital controls; and
>
> (ii) *other CFMs* that do not discriminate on the basis of residency, but are nonetheless designed to influence flows. The latter category would typically include (a) measures, including a subset of prudential measures, that differentiate transactions on the basis of currency (e.g., broad limits on foreign currency borrowings and currency-specific reserve requirements) and (b) other measures (e.g., minimum holding periods and taxes on certain investments) that are typically applied in the nonfinancial sector.

44. **As implied by the conceptual framework summarized above, CFMs and measures that are not CFMs span a wide spectrum in terms of their impact on inflows**. On one side of the spectrum, CFMs have a substantial impact on inflows and therefore merit greater scrutiny because they can potentially be used to substitute for appropriate macroeconomic policies. Such measures could divert inflows to other countries, thereby implying significant externalities. It is therefore useful to draw a line between CFMs—measures that are designed to influence flows—and structural and prudential policies that are not designed to influence capital inflows, which would not fall under the CFM umbrella and thus not merit greater scrutiny. These *non-CFM* measures do not discriminate by residency and typically, but not always, do not differentiate by currency. Included here are policies designed to strengthen the institutional framework by increasing the capacity of the economy to absorb capital inflows (e.g., measures aiming at developing local bond markets) or ensuring the resilience and soundness of financial institutions (e.g., capital adequacy and loan-to-value ratios, limits on net open foreign exchange positions, and limits on foreign currency mortgages).[18] These non-CFM measures tend to be of a permanent nature, instead of being

[18] A full analysis of the role that prudential policies play in both macroeconomic and financial stability is beyond the scope of this paper. Some of these issues will be taken up further in a forthcoming Board paper on "Macroprudential Policy: An Organizing Framework."

deployed temporarily in reaction to an inflow surge, like CFMs. As such, non-CFMs would *not* tend to have the same macroeconomic and multilateral effects as CFMs, namely to slow currency appreciation and/or divert capital flows to other countries, and could therefore be used any time. As is evident, the classification of a particular measure along the spectrum as CFM or non-CFM requires the exercise of judgment as to whether, in fact, the measure was designed to influence capital flows. While the characteristics of a measure will be a primary indicator, measures that share similar features could, depending on circumstances, fit in different categories. For example, a measure could, on the surface, be considered a non-CFM or a non-residency-based CFM. Therefore, the actual classification of measures would need to be undertaken in view of the totality of country circumstances, including in the context of the entire package of measures that is implemented. This conceptual framework is applied in Figure 7, which contains some illustrative examples of recent measures taken in the seven country cases. The figure also demonstrates that boundaries separating the categories along the spectrum of measures can be porous, and some measures might straddle different categories.

**Figure 7. Recent Use of CFMs and Other Measures 1/**




1/ This classification of measures pertains to recent experiences in particular countries, and is for illustrative purposes. The boundaries separating the various categories in the proposed classification are necessarily porous—similar measures could, depending on circumstances, fit in different categories.

45. **This is a broad framework that is intended to be relevant for (a) all countries with open capital accounts and (b) with respect to all countries with partially open capital accounts, to those portions that are open**.[19] Because it is general, the proposed framework may not fit well all individual country cases—country-specific circumstances will need to be weighed in assessing the appropriateness of the response to inflows. This is particularly important as assessments of currency overvaluation, reserve adequacy, and overheating—which are germane to the choice of the policy response to inflows—are notoriously difficult to make. (See Section IV.C for applications of the proposed framework.)[20]

46. **Giving primacy to macroeconomic policies in responding to inflows accords prominence to external stability considerations, thereby ensuring that countries act in a multilaterally-consistent manner**. Because CFMs could be used to avoid appreciation of undervalued currencies—which would be at odds with the multilateral consistency of stable external positions and, where countries are large enough, may perpetuate global imbalances—the framework emphasizes that CFMs should only be used when appropriate macroeconomic policies are already in place. Similarly, greater scrutiny of CFMs is envisaged under the framework also because their use by one set of countries can divert inflows to other countries that may be less able to absorb them, thus undercutting the external stability of other countries and by extension the medium-run benefits for global growth and welfare from financial integration. Moreover, it is important to be cognizant of the multilateral risks if CFMs were to be broadly and indiscriminately adopted, for example through a process of imitation or diffusion. Thus, this approach is in line with the Fund's mandate to promote systemic stability and the effective operation of the International Monetary System (IMS) by paying attention to policies that are directed at the balance of payments of members. For similar reasons related to the Fund's mandate, even though there is no unambiguous welfare ranking of policy instruments, the framework discourages the use of CFMs that discriminate based on residency over those that do not discriminate on that basis (see ¶53).

47. **The framework's focus on macroeconomic policies of recipient countries does not mean that the onus of policy adjustment from inflow surges rests solely on these countries**. It is well understood that policy actions in AEs carry important spillovers that can complicate policy management for EMs. For example, AEs' monetary policies can affect the size and composition of flows to EMs. Cooperative policy solutions should therefore take precedence as they can achieve better outcomes for the global economy and reduce the need

[19] Countries with open capital accounts for this paper are defined as countries where the main channels of capital inflows are mostly free of controls, i.e., no overall quantitative limits are applied to these inflows and the scope of investors is not limited to specific types of investors.

[20] Recent staff work on assessing reserve adequacy will be presented in a forthcoming Board paper. See Lee et al. (2008) on methodologies for assessing the consistency of exchange rates with medium-run fundamentals and Becker et al. (2007) on assessing reserve adequacy and country insurance issues.

for second best policies. As noted in Section I, other staff work in the pipeline is meant to complement the proposed framework on managing inflows and ensure that staff policy advice addresses all relevant aspects of these issues and applies across the membership. One such example of ongoing work is the preparation of spillover reports, which offer the opportunity to scrutinize those policies of systemic countries that are contributing to the surge of inflows to EMs.

### A. Macroeconomic Policies

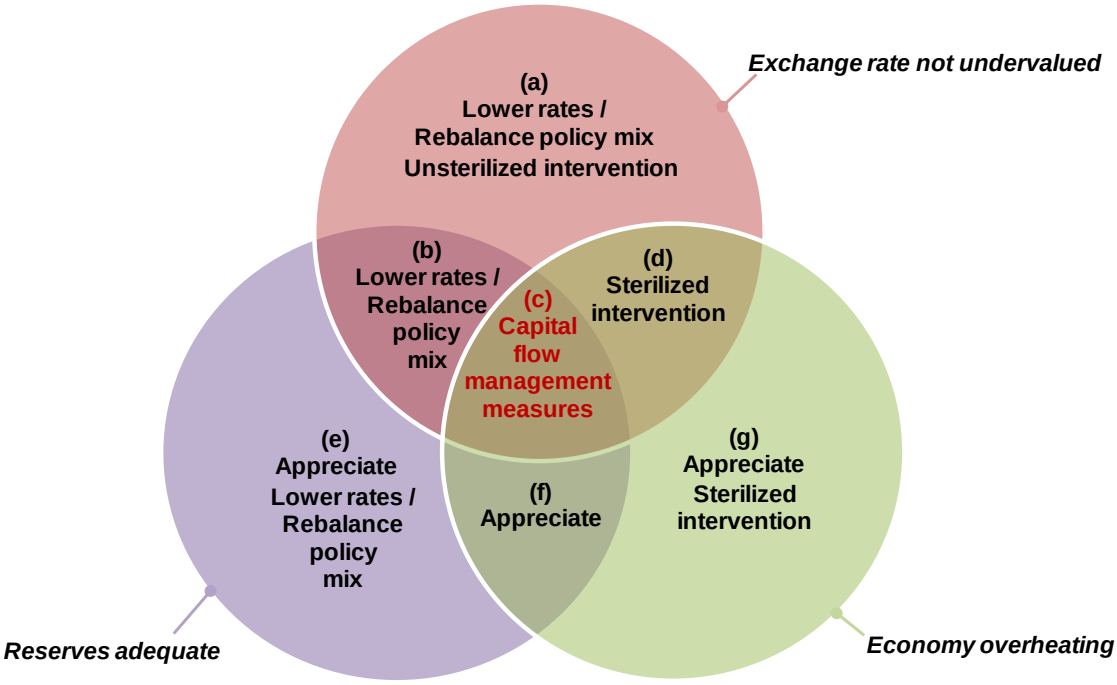
48. **The exchange rate should be allowed to appreciate when it is undervalued on a multilateral basis**. This is especially important at the current global economic juncture since part of the factors driving inflows to emerging markets are structural in nature, reflecting improved private and public sector balance sheets in emerging markets relative to advanced economies. If sustained, such trends would suggest that equilibrium medium-term real exchange rates for EMs are possibly stronger than currently estimated. More generally, a demonstrated commitment to exchange rate flexibility can diminish the role for potentially destabilizing one-way bets by investors.[21] It can also help preserve the credibility of the policy framework in inflation-targeting countries. Nevertheless, a sharp, sustained rise in the currency can create its own problems especially when there is strong evidence that the exchange rate is already overvalued.

49. **Countries with foreign exchange reserves that are not more than adequate from a precautionary perspective can respond to inflows by building reserves**. Intervention can be sterilized where domestic liquidity growth may lead to overheating or be inconsistent with inflation objectives, but sterilization can become counterproductive if inflows are being driven by yield differentials. Countries need to be cautious, however, about intervention: excessive reserve holdings are associated with diminishing marginal benefits and rising costs.

50. **Lowering policy rates or tightening fiscal policy to allow space for monetary easing could offer a more sustained response to deal with inflows**. Any monetary policy easing would need to be consistent with inflation objectives. Moreover, lowering policy rates may not be an option if the economy is already overheating with high or rising inflation or a developing credit or asset price boom. In such cases, rebalancing the monetary-fiscal policy mix could still be a viable option, though it is often difficult in practice for fiscal and monetary authorities to coordinate especially when central banks are independent. If fiscal policy is judged to be procyclical, outright fiscal tightening could also be an option, though this may require a lengthy legislative process and have long lags in implementation—that said, its announcement could have an immediate impact on exchange rate expectations and thus inflows.

[21] While the use of exchange rate policy is limited in countries with fixed exchange rate regimes, the framework does not differentiate the policy hierarchy based on the nature of the exchange rate arrangement.

**Figure 8. Coping with Capital Inflows: Policy Considerations**




Notes: Each circle represents cases where the relevant condition is met. For example, the top most circle ("Exchange rate not undervalued") represents cases where the exchange rate is assessed to be broadly in line with fundamentals or overvalued. The intersection of all three circles (the area marked "c")—where use of capital flow management measures may be appropriate—reflects cases where the exchange rate is not undervalued, reserves are judged to be adequate, and the economy is overheating. Other intersections similarly represent other confluences of factors. For example, the top left intersection (area "b") represents cases where the exchange rate is not undervalued, reserves are judged to be adequate, and the economy is *not* overheating (since the case is outside the "Economy overheating" circle). Areas of no intersection represent cases where one of the circles—but not the other two—is applicable. For example, the bottom right area ("g") represents cases where the economy is overheating, the exchange rate is assessed to be undervalued, and reserves are judged to be inadequate. "Lower rates / Rebalance policy mix" refers to loosening monetary policy; to the extent that fiscal policy is tightened, there would be more room to lower policy rates.

## B. Capital Flow Management Policies

51. **CFMs may be needed to mitigate macroeconomic and financial-stability risks related to inflows under certain conditions**. These include cases where (a) the exchange rate is not undervalued on a multilateral basis in relation to medium-term fundamentals, (b) reserves are in excess of adequate precautionary levels or sterilization costs are excessive, (c) the economy is overheating (where the inflation outlook is not benign or there is a developing credit or asset price boom) precluding monetary easing (Figure 8). In cases where these conditions are met but fiscal policy is procyclical, CFMs could be used to complement fiscal tightening plans that are already in place, in view of the lags associated with the macroeconomic impact of fiscal consolidation. In considering CFMs, policymakers need to be mindful that experience with CFMs has been limited and, as discussed in Section III and the Annexes III-IX, the evidence appears mixed on the extent to which CFMs may have had an impact on reducing inflows.

52. **Targeted CFMs that do not discriminate based on residency can be a second line of defense to address macroeconomic and financial stability risks**. Such measures have the benefit of targeting directly the risk at hand and avoid the burdens associated with measures targeting nonresident investors (discussed below). For example, if the key concern is the creation of vulnerabilities due to inflow of foreign currency denominated capital that amongst other things leads to a sharp currency appreciation, *all* such flows should be targeted (irrespective of the residency of the investor). For banks, these could take the form of currency-specific reserve and liquidity requirements, differentiated risk weights for domestic versus foreign currency loans, and the like. For non-banks (e.g., corporates, leasing companies, etc.), the authorities could impose a differentiated tax treatment of domestic versus foreign currency borrowing. Since such measures do not discriminate by residency, they can also be more effective than residency-based measures as they remove incentives for circumvention from residents acting as nonresidents. But by the same token, currency-based restrictions can be circumvented through the use of derivative transactions.

53. **CFMs that discriminate based on residency could be considered when other options have already been deployed or are infeasible**.[22] For example, residency-based CFMs may be necessary if the existing regulatory perimeter, or the existing capacity of the country's regulatory institutions, does not permit direct targeting of the risk at hand through anything other than a residency-based measure. This prioritization of measures takes into account institutional and political economy concerns flowing from the general standard of fairness that a member expects that its nationals will enjoy as a result of its participation in a multilateral framework. Moreover, ensuring that this protection is extended on the basis of residency rather than, for example, citizenship, is particularly appropriate given the Fund's mandate to promote the effective operation of the IMS, which comprises those official arrangements that control members' balance of payments (which, in turn, is comprised of transactions between residents and nonresidents).[23] Given the Fund's multilateral framework, it would also be important to avoid measures that discriminate *among* Fund members. This

[22] Discrimination for these purposes would be present where (i) a measure explicitly differentiates on the basis of residency (of either the parties or assets involved), (ii) this differentiation treats nonresident transactions less favorably, and (iii) the less favorable treatment is not justified by relevant inherent differences in the nonresident transactions. The criterion in (iii) is a narrow concept that provides flexibility to differentiate between resident and nonresident transactions only where this is necessary to put the two sets of transactions on an equal footing (e.g., special financial requirements for the establishment of branches of foreign banks where needed to put foreign and domestic branches on equal footing given the requirements applicable to domestic banks).

[23] As discussed in the recent paper on the Fund's role in capital flows, comprehensive capital flows guidelines could ultimately be incorporated into Fund surveillance. Such incorporation, which would require a decision by the Executive Board, would be based on the Fund's mandate to undertake bilateral and multilateral surveillance. As recognized in Article IV, the objective of such surveillance is to promote the stability of the system of exchange rates and the effective operation of the IMS. For a more detailed discussion of the IMS, see *The Fund's Mandate—The Legal Framework*, ¶5, 21-22). As noted above and clarified in ¶6 of the *Supplement* to this paper, the proposed framework in this paper is not intended to guide members on the scope of their obligations with respect to Fund surveillance. Its intent is to facilitate consistent and evenhanded policy advice to members.

approach is also consistent with that followed by the Fund with respect to its existing jurisdiction regarding payments and transfers for "current international transactions," which has been defined as transactions between residents and nonresidents, and where Fund approval is not given for restrictions that discriminate among members. Separately, measures that discriminate by residency may also give rise to additional distortions and inefficiencies due to evasion.

54. **The above-notwithstanding, the lower priority accorded to residency-based CFMs does not mean that they are always an inappropriate part of the toolkit**. Indeed, there could be circumstances when CFMs that target a characteristic, such as prudential risk, may be less effective than those targeting residency, for instance, when dealing with inflows not intermediated by regulated financial institutions. Moreover, the intensity of alternative measures may have a bearing on their priority: a limited residency-based CFM may be less distortive than an expansive prudential measure targeting all foreign exchange transactions, which often closely correlate with transactions between residents and nonresidents.

55. **A relevant consideration in designing CFMs is whether flows are primarily being intermediated through regulated financial institutions (RFIs)**. When flows are intermediated through RFIs, prudential measures may be preferred, including because they help address risks in the financial sector. When flows bypass RFIs (either direct flows from abroad, or intermediated through non RFIs), residency-based CFMs are more likely to be indicated because prudential measures would have no traction, although nonprudential CFMs that do not discriminate on a residency basis, if available, may be preferable.

56. **Whether or not discriminatory, the intensity of CFMs should be commensurate with the relevant macroeconomic or financial stability concern**. For example, a blunt measure that discriminates against whole classes of nonresident flows would be inappropriate to deal with a prudential concern in a specific asset class. On the other hand, a broad CFM measure could be more appropriate when exchange rate overvaluation is the key concern.

57. **The design and implementation of CFMs should depend on country-specific circumstances and considerations of effectiveness and efficiency**:[24]

- CFMs should not be considered a permanent solution and should be scaled back when capital inflow pressures ease. This argues, among other things, for not treating taxes on certain inflows as a permanent source of fiscal revenues. If inflows are eventually perceived to be permanent, the exchange rate assessment needs to be revisited and greater reliance placed on macroeconomic policy responses, especially exchange rate appreciation.

[24] Ostry et al. (2011) provides further details on these considerations.

- Price-based measures (e.g. taxes on inflows and URRs) are typically more transparent than administrative measures (measures that are not price-based and that implement ceilings, outright bans, or outright bans for certain capital transactions). The former do not prohibit transactions, but only discourage them by increasing their cost. Which type of measure is preferable will depend on country circumstances.

- The effectiveness of a CFM can be affected by the efficiency and the regulatory framework of the different domestic institutions that are tasked to administer the measures. These considerations, for instance, can weigh in deciding whether a particular CFM is better administered by the tax collection agency (usually the widest coverage), the bank regulator, the securities markets regulator, or other agencies.

- CFMs need to be designed bearing in mind potential further adjustments as the country gains experience with the measure and in response to circumvention. As CFMs tend to raise the cost of capital, relatively small measures may be taken first. Further changes may be introduced after initial experience with the measures. In fact, the effectiveness of the measure may increase if market participants perceive that the initial step signals more to come. This benefit should be, however, weighed against the risk that such an approach may create an adverse market reaction. The ease with which the measure can be subsequently adjusted should therefore be taken into account in designing CFMs.

58. **Finally, the costs of using CFMs should be kept in mind**. While CFMs can be useful, particularly when appropriate macroeconomic policies are in place, they entail costs and distortions even if they are not residency-based.

- Such measures can adversely affect the pace of capital market development in EMs. Markets become more sophisticated as volume grows weakening the effect of broad-based measures that seek to control the volume of inflows. Markets for hedging would, for example, develop only if participants are exposed to volatility.

- Because all CFMs are prone to circumvention, ensuring compliance may require increasing investments in enforcement or administration. The cost of administration is likely to increase over time as the loopholes for circumvention are being closed.

- Active suppression of exchange rate volatility through CFMs can backfire. Investors often discount the profitability of an investment by the historical volatility of the target country's exchange rate (BIS, 2007). Seeking to reduce such volatility raises risk-adjusted returns for investors, making the country even more attractive, at least in the short run.

- There is also the potential for a severe adverse market reaction to the use of CFMs. Their use, or even expectations of their use, could trigger capital outflows and associated market turmoil. CFMs can also affect investor memories and future

willingness to invest. Such severe reactions can often not be anticipated and eventual policy reversals can affect perceptions of policy credibility. This suggests the importance of a well-crafted communications strategy when deploying CFMs.

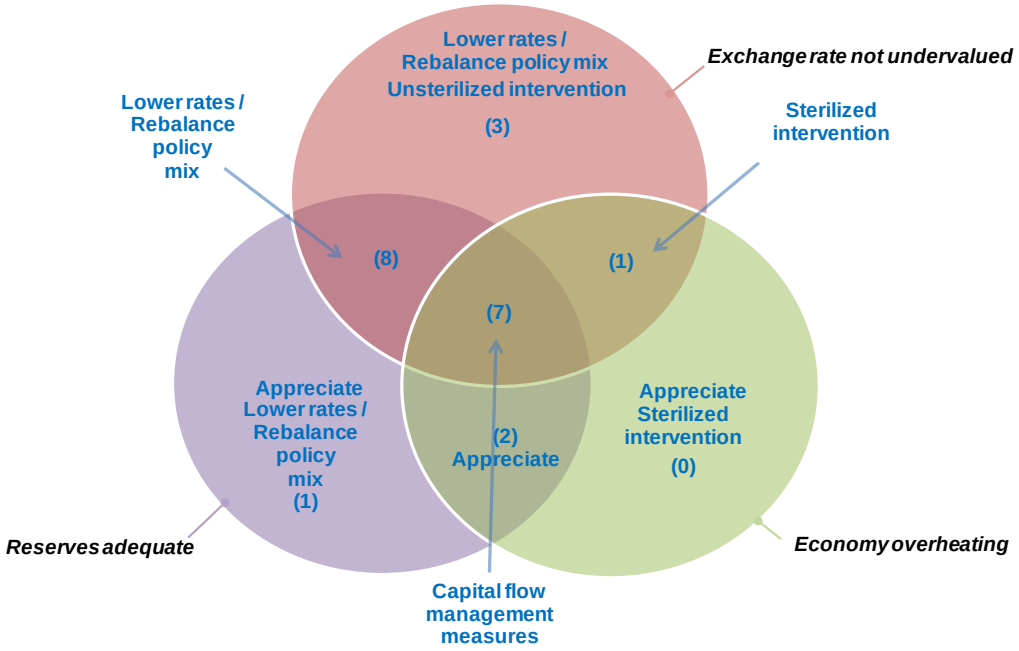
### C. Applying the Framework

59. **This section shows the results from illustrative applications of the framework**. The analysis consists of two parts. In the first, an assessment is made on the three criteria discussed above (exchange rate valuation, reserve adequacy, and economic overheating) using recent desk judgment. In the second part, a similar exercise is performed using consistent numerical thresholds across countries to assess the three criteria instead of desk judgment. This was done because judgment-based assessment was available for only 22 countries that have recently experienced large capital inflows, while the numerical thresholds could be applied to a larger sample of 39 EMs. The latter exercise also permits sensitivity analysis to changes in definitions of the relevant macroeconomic criteria.

60. **The main message from the illustrative analysis is that about one-quarter to one-third of the countries are *currently* likely to meet the criteria to potentially validate the use of CFMs**. In other words, about one-third of each sample of countries constitutes cases where the exchange rate is not undervalued, reserves are in excess of adequate levels, and there are signs of overheating. This conclusion broadly holds in both the judgment- and threshold-based exercises presented below.

61. **The judgment-based analysis indicates that it would be appropriate to consider CFMs in seven of the 22 countries in the sample, and broadly corresponds to the cases where CFMs have been implemented in recent months** (Figure 9). The assessments for each macroeconomic policy criterion are based on country teams' judgment obtained in November 2010 from a survey conducted by the Interdepartmental Working Group on Capital Inflows. Where desks assessed the exchange rate to be overvalued or broadly in line with fundamentals, the exchange rate criterion was considered to have been met. By this measure, 19 countries' exchange rates were judged "not undervalued". The overheating criterion was judged to have been met where desks assessed the output gap to be closed or closing rapidly; 10 cases met this criterion. It may be noted, however, that this does not necessarily mean that the monetary/fiscal policy mix was appropriate in all 10 cases. Indeed, fiscal policy may have been procyclical in some cases. Lastly, country teams assessed the reserve adequacy criterion based on their own judgment on the relevant metrics for their countries, and concluded that 18 countries had adequate reserves. To the extent that desk judgment may have changed since November, or that judgment based on the totality of the macroeconomic policy considerations differs from judgment based on each consideration individually (the survey assessed the latter), the number of countries meeting the second-line of defense criteria for deploying CFMs may well differ from these estimates.

**Figure 9. Policies to Cope with Inflows: Judgment-based Illustrative Exercise**




Note. The Venn diagram illustrates the number of countries indicated in parenthesis which would fall in different policy response buckets depending on an assessment of the three criteria: exchange rate valuation, reserve adequacy, and whether the economy is overheating, based on recent desk judgment.

62. **The thresholds-based exercise indicates that nine of the 39 sample countries potentially met the criteria for using CFMs in late 2010** (Figure 10). Unlike Figure 9 that relied on desk judgment, this exercise applies consistent thresholds across countries to consider each criterion, using data collected for the staff's latest (Fall 2010) Vulnerability Exercise for Emerging Markets (VEE). As noted above, assessment of whether the first-line macroeconomic policy response in a particular country has been adequately deployed to warrant use of CFMs needs to be grounded in country-specific information and circumstances. Nevertheless, to provide a rough measure of how many countries might meet the criteria—thereby giving a sense of their "strictness", including in comparison with the judgment-based assessments—the following common thresholds were used:

- Reserves were judged to be adequate if the ratio of reserves to the sum of short-term debt (residual maturity) and the current account deficit exceeded 100 percent (this is the criterion used in the VEE). In assessing reserve adequacy for a particular country, a different metric may well be more relevant.

- The economy is considered to *not* be overheating when (i) the year-on-year CPI inflation rate averaged less than 3 percent over the last two years, or less than 10 percent in 2010 and declined from the average level of 2009; and (ii) bank credit

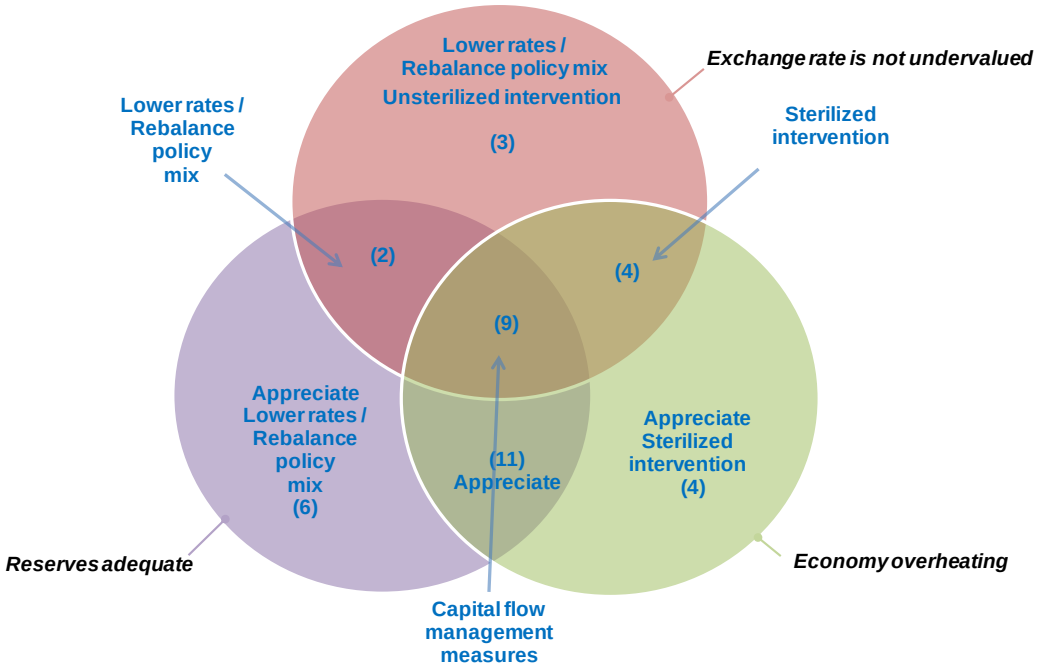
did not rise by more than 5 percent of GDP in the last year. Again, this threshold was used because of the ready availability of the relevant data for all countries in the sample. To assess in particular cases, overheating would be better judged against an estimated output gap and/or by comparing actual inflation against the inflation target.

- The exchange rate assessment was taken from the Fall 2010 round of the VEE. The assessment is based on an average of the CGER estimates where available.[25] The exchange rate was assessed to be not undervalued if the average estimate for misalignment was above zero percent. Again, in specific cases certain exchange rate assessment methodologies may be less relevant than others, so the "average" misalignment estimate may not be the most appropriate.

63. **Because assessments of the macroeconomic criteria are difficult to undertake with precision, the boundaries in the Venn diagram need to be viewed as "thick."** That said, robustness checks using the thresholds-based exercise suggest that the proportion of countries meeting the eligibility criteria is not highly sensitive to moderate changes in the relevant thresholds. For example, if the inflation threshold is changed from 3 percent to 5 percent, the number of countries that meet all three criteria declines to seven (from nine), and the total number of economies assessed to be overheating declines from 28 to 20. Similarly, if the reserves adequacy threshold is increased to 150 percent, the number of countries meeting all three criteria declines to six, and the number with adequate reserves coverage falls to 15 (from 28 under the 100 percent threshold). Lastly, if the exchange rate assessment is based instead on two of the CGER estimates taking a value of at least zero, and no restriction on the third estimate, the number of countries judged not to be undervalued increases to 20 (from 18 in the base case in Figure 10), but the number meeting all three criteria is unchanged.

[25] In the VEE, estimates for misalignments are based on CGER. In cases where CGER estimates are not available, misalignment is measured as the deviation of the real exchange rate from its long-run average, or on the basis of desk estimates.

**Figure 10. Policies to Cope with Inflows: Threshold-based Illustrative Exercise**




Note. The Venn diagram illustrates the number of countries indicated in parenthesis which would fall in different policy response buckets depending on an assessment of the three criteria: exchange rate valuation, reserve adequacy, and whether the economy is overheating, based on numerical thresholds.

## V. Issues for Discussion

- Do Executive Directors support the framework for managing large-scale capital inflows?
- Do Directors support the proposed elements that should be taken into consideration in the design of CFMs?
- What other operational aspects do Directors consider important to facilitate the application of the framework?

## ANNEX I. HIGH FREQUENCY PROXIES FOR CAPITAL FLOWS DATA[26]

1. **Lack of up-to-date data is an important constraint to analysis on capital flows**. One of the most widely used sources of cross-country data on capital flows is Balance of Payment Statistics collected by the Fund's Statistics Department. However, such data typically become available with a 3-6 month lag, are many times not available at a monthly frequency and sometimes not even quarterly. This constrains the ability of policy makers to assess the effects of capital flows and calibrate the appropriate policy responses.

2. **For more up-to-date analysis, analysts often use proxies for capital inflows that are available on a more timely basis**. Two such proxies often used include (a) weekly EM mutual fund flows data published by Emerging Portfolio Fund Research (EPFR) and (b) a proxy for net capital flows computed from the difference between monthly change in international reserves and the trade balance (referred to as "capital flows tracker").

- EPFR provides daily, weekly, and monthly information on equity and bond fund flows to EMs and covers funds registered for sale in several major market jurisdictions and offshore domiciles including Australia, Austria, Canada, Channel Islands, France, Germany, Hong Kong SAR, Luxembourg, Switzerland, United Kingdom, United States, and others. However, this information is a subset of all portfolio flows to EMs; it covers only one class, albeit important, of institutional investors and does not cover all EM destinations of flows.

- The capital flows tracker provides a more up to date proxy for net capital flows since reserves and trade balance data are typically available at a higher frequency and with a smaller lag than BOP data. However, it is likely to show differences from capital flows measures from BOP data where services, transfers, and income balances may be a significant part of the total BOP. This measure also does not control for valuation and other changes that affect the reported stock of reserves.

3. **A comparison of these proxies with BOP data shows that they work well for aggregate EM flows, but may not capture developments in particular regions and countries**.

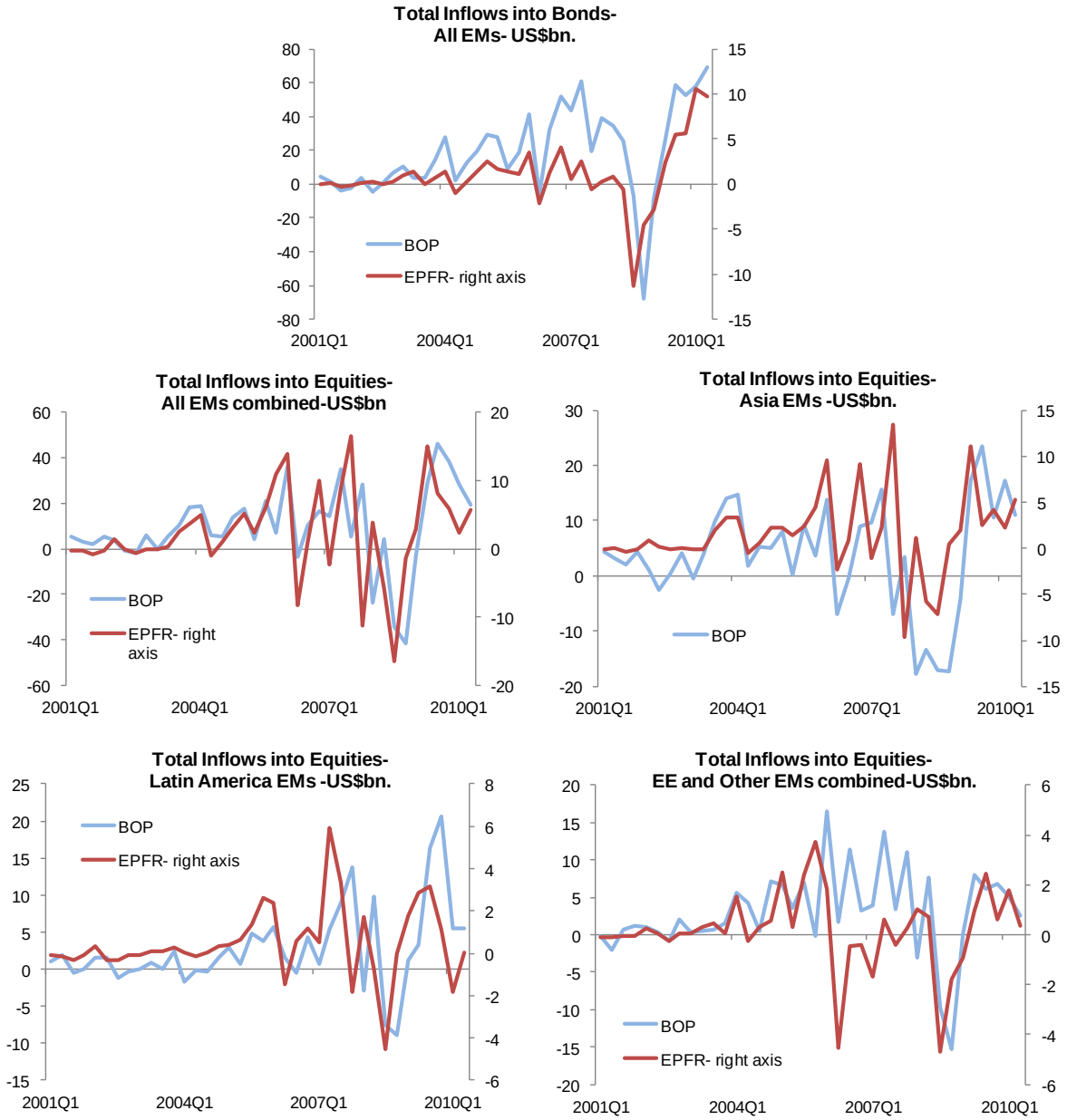
- Figure 1 shows a comparison between EPFR and BOP data. As expected, the magnitudes for EPFR reported flows are much smaller than the capital flows recorded in the BOP. For EMs as a whole, EPFR reported flows cover around a third of BOP reported portfolio equity inflows and around a fifth of BOP reported portfolio bond inflows. Importantly though, the trend in EPFR data is a leading indicator of BOP recorded capital flows for most time periods, although there can be important

[26] Prepared by Malika Pant (SPR).

differences for some periods for some regions (e.g. Emerging Europe and Other EMs in 2005−07).

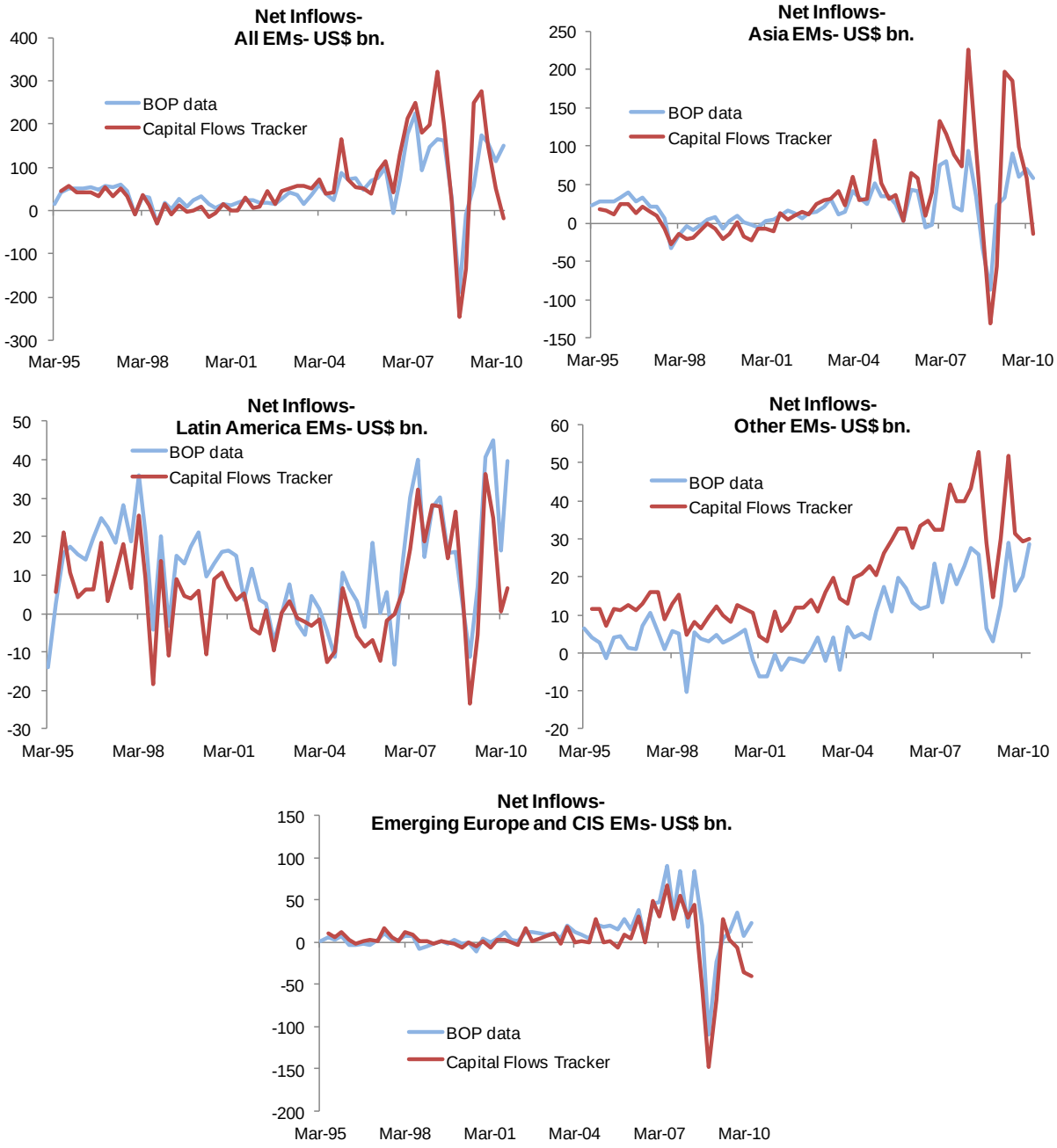
- Similarly, Figure 2 shows a comparison between the capital flows tracker and BOP data. The tracker works well for flows to EMs taken as a whole and for most regions in terms of trends. In terms of magnitudes it works well for most regions but less well for some (e.g. Other EMs).

**Figure 1. Comparison of BOP and EPFR Data**




Sources: IMF IFS, EPFR database and Fund staff calculations.

**Figure 2. Comparison of BOP and Capital Flows Tracker**




Sources: IMF IFS, Haver and Fund staff calculations.

## ANNEX II. IDENTIFYING EPISODES OF LARGE CAPITAL INFLOWS[27]

1. **As noted in the introduction of the paper, rapidly rising inflows pose tough challenges for macroeconomic management in emerging markets**. This annex describes how episodes of rapidly rising capital inflows are identified. Quarterly data of gross capital inflows (credit (inflows) minus debit (outflows) from the liabilities side of the BOP), were retrieved from the IFS database. The series excludes flows such as remittances, IMF lending, and official transfers that are not market based or return driven.[28]

2. **To facilitate discussion, this paper distinguishes between a *surge* and an *episode* of large capital inflows**. A surge refers to a single year (or quarter) of large inflows while an episode refers to a drawn-out period of large capital inflows: for a particular country, an episode consists of a string of surges. Surges are the building blocks of episodes and thus have to be detected first.

3. **A surge of capital inflows is defined to occur when inflows in a given period significantly exceed their long run trend (by one standard deviation) and are large in absolute magnitude (larger than 1.5 percent of annual GDP)**. The country-specific trend is calculated by applying an H-P filter with a smoothing parameter of 1600 for quarterly gross capital inflows data. IMF (2007, 2010a) used similar approaches and criteria in identifying surges in capital inflows.

4. **Based on the two criteria, emerging markets experienced surges in capital inflows 20 percent of the time between 1990Q1 and 2010Q2.** This corresponds to 718 incidents of surges out of the 3632 observations available from a sample of 48 emerging markets for 1990Q1−2010Q2. The surges are unevenly distributed across time, clustering in two seven-quarter periods of 1996Q4−1998Q2 and 2006Q4−2008Q2. In 2007Q4, 26 EMs witnessed gross capital inflows significantly larger than their trend. No surge was identified in 2009Q1 after the outbreak of the global financial crisis. Despite such dramatic turnarounds, surges of inflows appear to have become more frequent over time (text figure).

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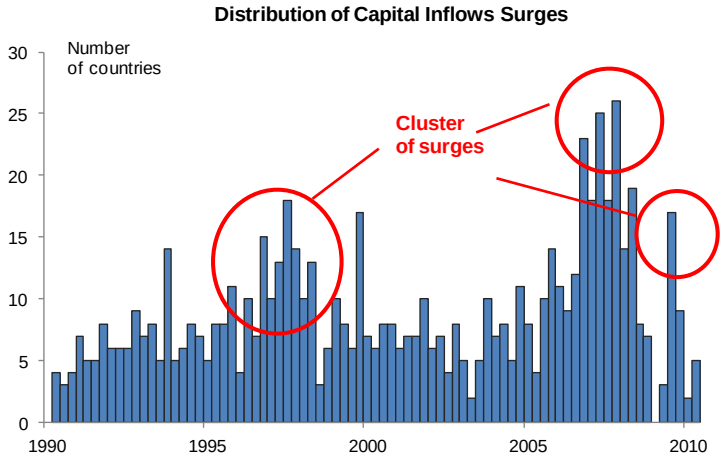
[27] Prepared by Yanliang Miao (SPR).

[28] The 48 EMs in the sample are divided into four regional groups: 10 in Asia, 15 each in Latin America and emerging Europe and CIS, and eight in other EMs. Asia includes China, India, Indonesia, Korea, Malaysia, Pakistan, The Philippines, Sri Lanka, Thailand, and Vietnam; Latin America includes Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Mexico, Paraguay, Peru, Uruguay, and Venezuela; Emerging Europe and CIS includes Armenia, Bulgaria, Bosnia & Herzegovina, Croatia, Czech Republic, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Romania, Russia, Serbia, and Ukraine; and Other EMs include Egypt, Israel, Jordan, Lebanon, Morocco, South Africa, Tunisia, and Turkey. This list includes some economies, such as the Czech Republic, which are now classified as advanced economies in the *World Economic Outlook* but were classified as emerging markets at the beginning of the time period used in the empirical work.




Source: Fund staff calculations.

5. **An episode of capital inflows is a string of quarters containing capital inflow surges**. The most straightforward case is when identified surges are continuous; an episode then simply connects the contiguous surges. Two adjacent episodes, if separated by four quarters or less, are further combined to form one continuous episode as long as capital inflows in all intermediate quarters remain positive. A minimum duration of four quarters is required for a period to be identified as an episode of large inflows. Using these criteria, the 48 emerging markets in the sample experienced 158 episodes of capital inflows over the past 20 years.

6. **Applying these rules too stringently, however, may lead to overidentification of episodes**. Certain continuous periods of large flows may be rendered fragmented simply because two adjacent surges are not close enough to bridge the continuous and large inflows. To overcome this undesirable overidentification of episodes, we complement the mechanical rule with a set of ad hoc criteria. We define the end of an episode as the peak of cumulative inflows, that is, the point at which gross inflows turn negative. The main difficulty, however, lies in pinning down the exact starting quarter of an episode. We use the following criterion in fine-tuning whether a period adjacent to only one surge should be included: the size of inflows normally should not be below one percent of GDP unless there is a salient change of pace of inflows such as from deep negative territories to positive inflows.

7. **On the basis of these criteria combined, emerging markets experienced 125 episodes of large capital inflows, with 26 of them classified as ongoing** (text table). The episodes are rather unevenly distributed across regions and countries. EMs in Latin America and emerging Europe often experienced three to four episodes of large inflows in the past 20 years, while Asian and other EMs had less frequent alternations of inflows and outflows.

## List of Gross Capital Inflows Episodes

| Country | Duration | Country | Duration | Country | Duration |
|---|---|---|---|---|---|
| Argentina | 1991Q4 - 00Q3 | Guatemala | 1990Q3 - 93Q1 | Philippines | 1990Q2 - 93Q1 |
| Argentina | 2006Q1 - 08Q2 | Guatemala | 1993Q3 - 94Q4 | Philippines | 1993Q3 - 97Q3 |
| Argentina | 2010Q1 - ongoing | Guatemala | 1998Q3 - 04Q2 | Philippines | 2006Q3 - 07Q4 |
| Armenia | 1994Q2 - 95Q4 | Guatemala | 2005Q2 - 08Q4 | Poland | 1997Q1 - 01Q1 |
| Armenia | 1996Q2 - 01Q1 | Hungary | 1993Q1 - 95Q4 | Poland | 2003Q4 - 08Q3 |
| Armenia | 2002Q3 - 08Q4 | Hungary | 1996Q3 - 01Q4 | Poland | 2009Q2 - ongoing |
| Armenia | 2009Q2 - ongoing | Hungary | 2002Q2 - 09Q1 | Romania | 1991Q2 - 92Q3 |
| Bosnia & Herzegovi | 1998Q1 - 04Q1 | India | 2004Q4 - 08Q3 | Romania | 1993Q1 - 97Q4 |
| Bosnia & Herzegovi | 2004Q3 - 09Q3 | India | 2009Q2 - ongoing | Romania | 1998Q2 - 99Q1 |
| Brazil | 1993Q3 - 97Q3 | Indonesia | 1995Q2 - 97Q3 | Romania | 2000Q2 - 08Q4 |
| Brazil | 1999Q2 - 02Q2 | Indonesia | 2009Q3 - ongoing | Romania | 2009Q3 - ongoing |
| Brazil | 2006Q3 - 08Q3 | Israel | 1994Q2 - 01Q2 | Russia | 1997Q2 - 98Q2 |
| Brazil | 2009Q2 - ongoing | Israel | 2003Q4 - ongoing | Russia | 2002Q4 - 08Q3 |
| Bulgaria | 1998Q4 - 08Q4 | Jamaica | 1990Q1 - 98Q4 | Serbia | 2007Q1 - ongoing |
| Chile | 1991Q4 - 01Q1 | Jamaica | 2000Q1 - ongoing | South Africa | 1995Q1 - 00Q3 |
| Chile | 2001Q3 - 08Q3 | Jordan | 1990Q3 - 91Q4 | South Africa | 2004Q1 - 08Q3 |
| Chile | 2009Q1 - ongoing | Jordan | 1994Q3 - 95Q4 | South Africa | 2009Q2 - ongoing |
| China | 1993Q1 - 98Q2 | Jordan | 1999Q1 - 02Q4 | Sri Lanka | 1990Q1 - 97Q4 |
| China | 2002Q3 - 08Q2 | Jordan | 2004Q2 - 07Q4 | Thailand | 1990Q1 - 97Q1 |
| China | 2009Q3 - ongoing | Jordan | 2008Q2 - 09Q3 | Thailand | 2004Q3 - 08Q3 |
| Colombia | 1996Q1 - 99Q1 | Kazakhstan | 1995Q1 - 08Q4 | Thailand | 2009Q2 - ongoing |
| Colombia | 1999Q4 - 02Q1 | Korea | 1994Q2 - 97Q3 | Tunisia | 1990Q1 - 94Q4 |
| Colombia | 2005Q3 - ongoing | Korea | 2003Q2 - 08Q3 | Tunisia | 2001Q1 - 04Q4 |
| Costa Rica | 2004Q3 - 08Q4 | Korea | 2009Q2 - ongoing | Tunisia | 2006Q1 - 08Q3 |
| Costa Rica | 2009Q3 - ongoing | Latvia | 1993Q1 - 00Q4 | Turkey | 1995Q3 - 98Q2 |
| Croatia | 1996Q2 - 97Q4 | Latvia | 2001Q2 - 08Q3 | Turkey | 1999Q3 - 00Q3 |
| Croatia | 1998Q2 - 08Q4 | Lebanon | 2002Q1 - 04Q4 | Turkey | 2002Q4 - 08Q3 |
| Czech Republic | 1995Q1 - 97Q4 | Lebanon | 2005Q2 - ongoing | Turkey | 2009Q3 - ongoing |
| Czech Republic | 1998Q2 - 05Q4 | Lithuania | 1993Q2 - 01Q4 | Ukraine | 1994Q1 - 95Q2 |
| Czech Republic | 2006Q2 - 08Q3 | Lithuania | 2003Q3 - 08Q4 | Ukraine | 1997Q1 - 98Q2 |
| Czech Republic | 2009Q2 - ongoing | Malaysia | 1991Q1 - 93Q4 | Ukraine | 2003Q2 - 08Q4 |
| Dominican Republic | 1998Q1 - 03Q4 | Malaysia | 1995Q1 - 98Q2 | Ukraine | 2009Q3 - ongoing |
| Dominican Republic | 2005Q1 - 08Q4 | Malaysia | 2004Q1 - 05Q3 | Uruguay | 1994Q1 - 97Q4 |
| Ecuador | 1990Q1 - 92Q4 | Malaysia | 2009Q3 - ongoing | Uruguay | 2000Q2 - 01Q1 |
| Ecuador | 1995Q2 - 96Q3 | Mexico | 1990Q1 - 94Q3 | Uruguay | 2006Q3 - ongoing |
| Ecuador | 1997Q3 - 98Q4 | Mexico | 1995Q3 - 03Q2 | Venezuela | 1991Q1 - 94Q1 |
| Egypt | 2005Q1 - 08Q2 | Mexico | 2007Q1 - 08Q3 | Venezuela | 1996Q4 - 97Q3 |
| El Salvador | 1995Q1 - 00Q1 | Mexico | 2009Q3 - ongoing | Venezuela | 1998Q1 - 00Q2 |
| El Salvador | 2000Q3 - 03Q4 | Morocco | 1990Q1 - 94Q4 | Vietnam | 1996Q1 - 00Q4 |
| El Salvador | 2006Q2 - 08Q4 | Pakistan | 2005Q4 - 08Q2 | Vietnam | 2002Q3 - ongoing |
| Estonia | 1993Q1 - 99Q2 | Peru | 1993Q4 - 98Q3 | | |
| Estonia | 2000Q2 - 08Q4 | Peru | 2006Q4 - 08Q3 | | |
| | | Peru | 2009Q3 - ongoing | | |

Source: Fund staff calculations.

## ANNEX III. BRAZIL[29]

### A. Background and Drivers of Flows

1. **Deep capital markets and high interest rates make Brazil one of investors' preferred destinations for capital flows into EMs**. Cyclical factors—namely, strong economic growth in the aftermath of the global crisis—have reinforced structural factors (exemplified by very high interest rates by international standards), resulting in large capital inflows and strong appreciation pressures. During the first eleven months of 2010, gross capital inflows (defined as nonresidents' net direct investment plus portfolio investment and other flows) amounted to close to US$141 billion (6.8 percent of 2010 GDP), compared with US$92 billion in 2009 as a whole. Brazil has dominated capital inflows to Latin America, attracting a large share of global equity issuance in 2010, due in part to the record Petrobras issue (worth a total US$70 billion of which about US$14 billion was subscribed by foreign investors) in the third quarter. In addition to FDI and equity flows, fixed income inflows have also been steady during 2010, reflecting to a large extent "real money" flows as well as retail flows (especially from Japan), while external corporate bond issuance has risen to near record highs.

2. **The overall macroeconomic policy stance has reinforced pull factors in an economy with traditionally high interest rates**. Fiscal policy has remained expansionary, and the structural primary balance deteriorated in 2010 by 1 percent of GDP over 2009 despite the strong recovery. With inflation rates drifting higher, procyclical fiscal policy has raised the burden on monetary policy. The Central Bank of Brazil (BCB) has hiked rates by 250 basis points to 11.25 percent since April 2010, while intervening in large amounts. Intervention in the FX spot market reached US$41 billion in 2010, pushing reserves to a historic high of US$287 billion (17 months of imports; 600 percent of short-term debt) at end-2010. Recently, the BCB has also resumed intervention in the forward FX market. Despite this rapid pace of intervention, the currency has appreciated significantly in the post-crisis period: since its bottom reached in December 2008, the exchange rate (measured as the U.S. dollar price of one unit of domestic currency) has appreciated around 50 percent, with most of the rebound taking place in the first stages of the recovery. Staff estimates suggest that the *real* is significantly overvalued in real terms.

### B. Impact of Inflows

3. **Beyond their macroeconomic implications, especially on the exchange rate, large capital inflows do not seem to have had a large impact on domestic asset markets**. While the equity market received large inflows in 2010, stock market valuations were mostly flat during the year, reflecting an increase in the supply of shares to the public and a large rally in

[29] Prepared by Roberto Benelli (SPR).

the earlier phase of the recovery. Bank credit grew rapidly during 2010, but this was in part a reflection of policy decisions—43 percent of credit expansion in 2010 came from public banks— and banks generally did not rely on external funding for their credit expansion[30]. Rapid credit growth has in turn sustained a rapid rise in property prices that continue in certain urban areas but, based on anecdotal evidence, this phenomenon appears so far circumscribed and not linked to capital inflows.

## C. Policy Responses

4. **Capital inflows have touched various aspects of the policy framework**. As noted above, the BCB has engaged in large-scale intervention operations to prevent even more exchange rate appreciation. Beginning in December 2010, the BCB started tightening some prudential and regulatory measures.[31] In announcing them, the BCB explicitly pointed out that, because of their expected impact on credit growth and economic activity, these measures will lessen the burden on monetary policy to contain rising inflationary pressures and thus help moderate pull factors.

5. **A tax on inflows (*Imposto de Operações Financeiras*, IOF) has played a central part in the response to large capital inflows during the post-crisis recovery**. The IOF, originally established in 1993 and used intermittently since then, has been in recent years a key tool for managing capital inflows. Before the crisis, it was applied to fixed income inflows (with a 1.5 percent rate) during the period between March and October 2008 at the peak of the pre-crisis capital inflow surge. With the resumption of inflows after the trough of the crisis, the tax was re-introduced on October 19, 2009, with a higher rate (2 percent) and broader coverage—the tax base was extended to include equity inflows in addition to portfolio fixed income. The rate on fixed income inflows was subsequently raised to 4 percent on October 4, 2010, and to 6 percent on October 18, 2010. On this date, the tax was also raised to 6 percent (from 0.38 percent) on the margin payments required on derivatives

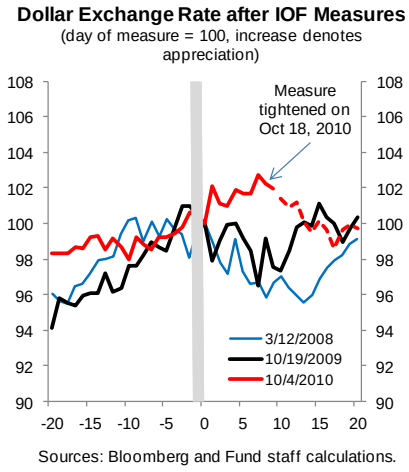
[30] More recently, however, small and medium size banks have been active issuing external debt to finance new lending.

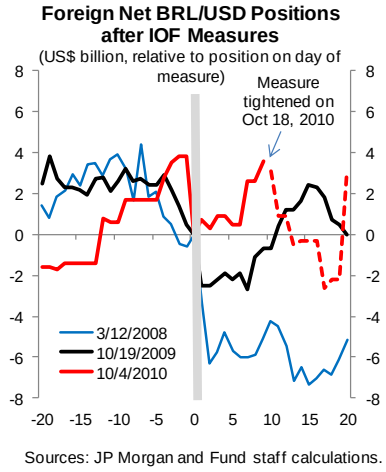
[31] These included: (i) an increase in capital requirements for most consumer credit operations with maturities of over 24 months (primarily car loans); (ii) an increase in unremunerated reserve requirements on time deposits from 15 percent to 20 percent; and (iii) an increase in the additional (remunerated) reserve requirement on sight and time deposits from 8 percent to 12 percent.

traded in the BM&F Bovespa, including FX futures.[32] Because the tax on derivatives transactions applied only to actual margin payments rather than on notional amounts, currency positions taken in the domestic futures markets received a favorable tax treatment compared with positions in the underlying cash markets. [33] This feature had important implications, as discussed below.

## D. Policy Effectiveness

6. **Empirical evidence suggests that the IOF measures did not have a clear, long-lasting effect on the exchange rate**—at least relative to its level at the time the various IOF measures were introduced—although they may have eased appreciation pressures when compared with other commodity currencies. This was apparent from the behavior of the exchange rate in the aftermath of the three episodes when the IOF was introduced or tightened, in March 2008, October 2009, and October 2010 (text figure). During the first two IOF episodes (March 2008 and October 2009) there was an initial depreciation in the exchange rate, which was however rapidly reversed; in the latest episode (October 2010), only after the tax rate was hiked for a second time (to 6 percent) was there a reversal in appreciation pressure—but again this was short-lived. Broadly similar conclusions can be drawn when the *real* response is set against the behavior of currencies in other EMs countries during the same period. This may have been due to the

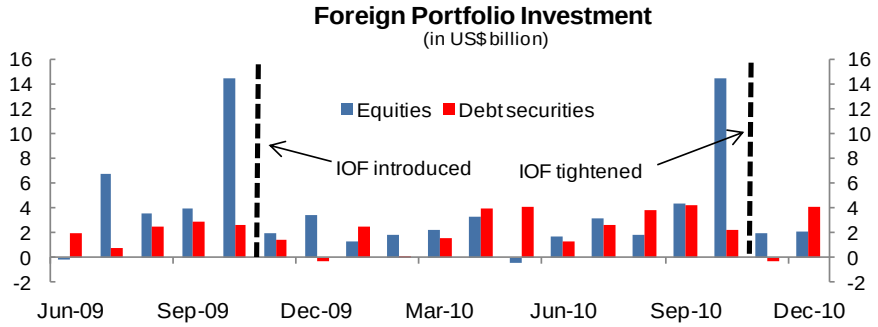



[32] Some limitations were also introduced on the ability of foreign investors to shift investment from equity to fixed income investment within their "2689 accounts" (investment accounts for foreign investors), closing a loophole that allowed foreign investors to avoid the higher tax on fixed income investments by shifting funds across different accounts. Moreover, foreign investors in the futures markets were no longer allowed to meet their margin requirements via locally borrowed securities or guarantees from local banks, which allowed them to avoid payment of the tax. More recently (December 16), the tax on inflows into investment funds (*Fundos mutuos de investimento*) and to finance long-term infrastructure investments was lowered to 2 percent and foreign investors exempted from the income tax on these investments (previously 15 percent).

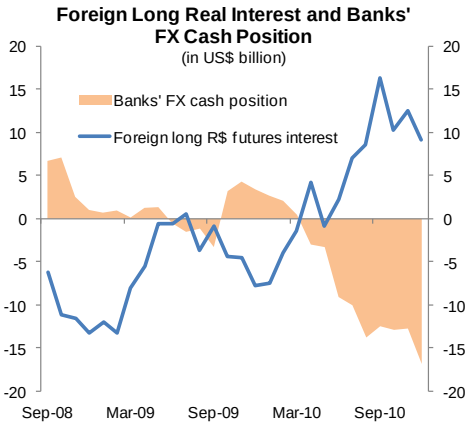
[33] Brazil has a large domestic derivatives market, with most of the trading concentrated in interest-rate and currency-based derivatives. The markets for both currency and interest rate derivatives are liquid out to maturities of two years or more. In addition, there is an active offshore market in nondeliverable currency forwards in the Brazilian *real*, centered on banks located in New York.

fact that the introduction of the IOF did not trigger a significant reduction in nonresidents' positioning in the futures market. With regard to other asset markets, the IOF may have had some impact on local currency debt markets, as the entire local nominal yield curve shifted upwards following its tightening in October 2010. Moreover, despite the IOF relatively less penalizing the investments held for longer periods, adjustment may have been more pronounced at the long-end of the curve, where nonresident investors are more active. This suggests that, at the very least, the tax may have had low incidence on nonresident investors, as higher yields have offset the tax. Market participants have also expressed concerns that the IOF could reduce liquidity in the longer end of the yield curve and in the interest rate swap market.




Source: Central Bank of Brazil

7. **The IOF may have had an impact on the composition of inflows**. While difficult to distill formal empirical evidence—owing to the short samples, the difficulty of constructing a counterfactual scenario, and other concomitant factors at play—there is anecdotal evidence that the IOF had some impact in containing short-term or speculative capital inflows, possibly because of the increased uncertainty about other potential measures that it generated. One area where the IOF did seem to have had an impact on flow composition is by encouraging inflows into the futures market. More specifically, the IOF's favorable treatment of futures positions noted above is likely to have contributed to the buildup of the large long *real*/short US$ positions by nonresident investors in the futures market during 2010. Long *real* positions in the futures market are a form of carry trade whereby an investor funds a long *real* position by borrowing in foreign currency (Annex Box). These trades are enabled by resident investors—typically banks—which take the other side of nonresident investors' positions, hedge them by undertaking FX borrowing, and in the process earn a spread between the interest rates on their FX borrowing and the domestic FX interest rate implied by FX futures. This mechanism was clearly at work in recent months (text figure), as the growing open *real* positions by




Sources: Central Bank of Brazil and JP Morgan.

nonresident investors was mirrored very closely by banks' short FX cash positions—reaching almost US$17 billion at end-2010, a historically high level.

8. **The IOF has recently been complemented by macro-prudential measures**. The carry trade delineated above relies on the resident banks' ability to increase their short spot position in the FX market (that is, to borrow in FX) as a hedge to their positions in the futures market. As documented above, banks' short FX positions increased significantly in the second half of 2010. In response to these developments, the BCB introduced in early January 2011 a 60 percent non-remunerated reserve requirement on banks' short FX position in the spot market that exceed US$3 billion or Tier I capital (with a phase-in period of 90 days). In introducing this requirement, the authorities argued that they were concerned that banks or the local currency market could face disruptions following a large shock to the exchange rate (as it happened at end-2008), given the banks' large short FX positions. The new measure is expected to reduce the return to local banks from providing a "bridge" to nonresident investors investing in the futures market. By affecting its cost, this measure is thus expected to affect an important channel for carry trades that was left open in the original design of the IOF while reducing potential vulnerabilities in the banking sector. This measure has many similarities, both in terms of design and goals, with the macro-prudential measure aimed at limiting external indebtedness linked to carry trades introduced in Korea in June 2010.

**Box A. The Mechanisms of Carry Trade in the Futures Market**

This box describes the steps involved by a nonresident investor's carry trade in the domestic futures market and the related hedging operations by a resident counterparty. To extent that this counterparty, typically a resident bank, hedges its currency risk in the underlying cash market, this trade results in the same balance-of-payments pressure that would arise were the carry trade conducted directly in the cash market (for example, by purchasing domestic bonds). This mechanism relies critically on the resident counterparty' ability to take the nonresidents' opposite position in the domestic futures market and hedge the resulting currency risk via FX borrowing (not subject to the IOF). The resident counterparty thus provides liquidity to the nonresident investors' trade and earns a (risk-free) arbitrage profit proportional to the spread between the domestic dollar rate implied by domestic futures market (the *cupom cambial*) and the offshore dollar rate paid on external borrowing (typically, the Libor rate plus a spread). The detailed steps are described below and depicted in Box Figure.

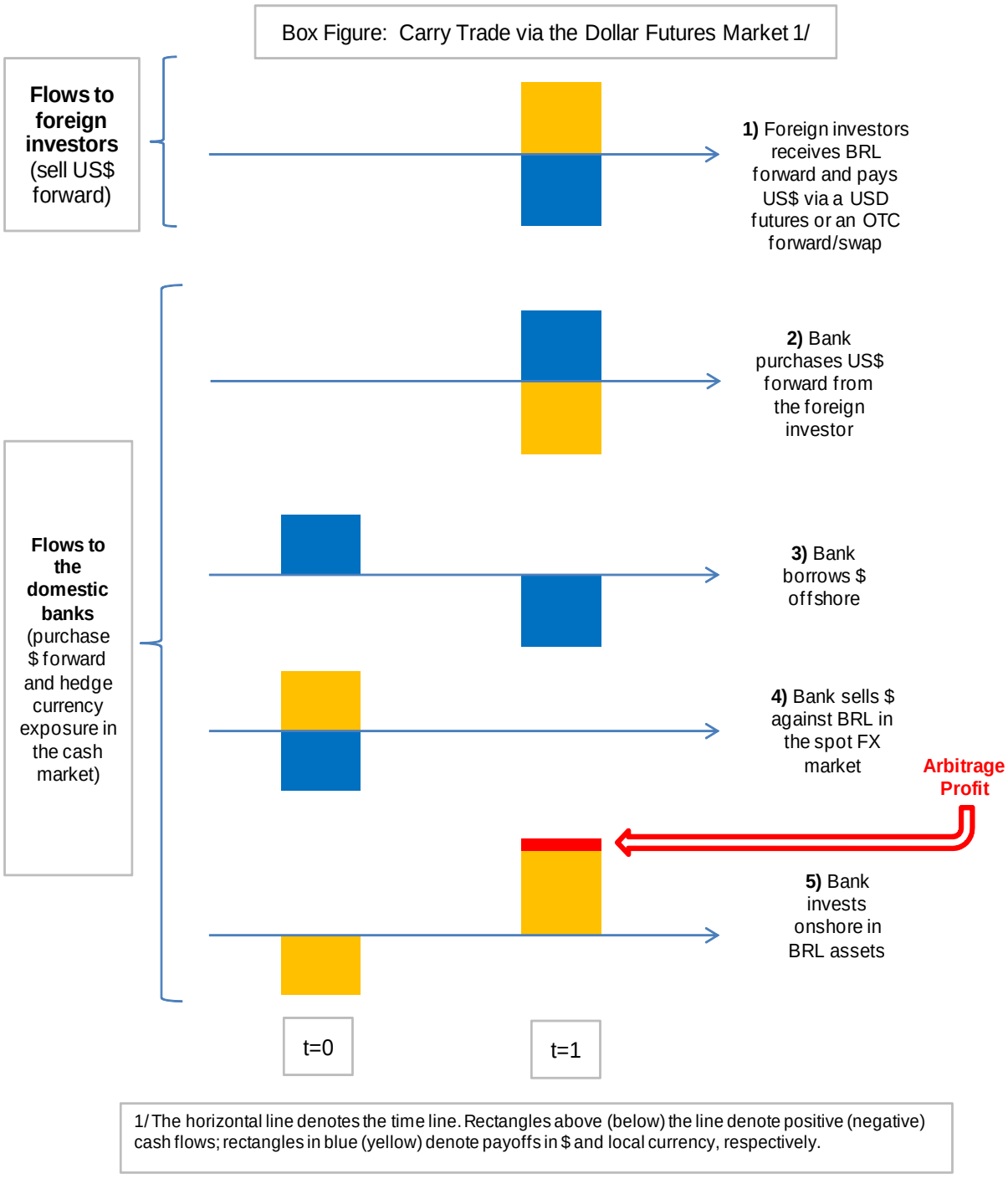
- The chain of trades is initiated by a nonresident investor who sells a US$ futures contract in the domestic futures market (**step 1** in Box Figure). That is, at maturity the nonresident investor pays the current market value of one dollar to the buyer of the contract and receives the agreed price in *reais* (settlement in the futures market takes place in local currency).

- The nonresident investor's counterparty is a resident investor, i.e. a local bank, who agrees to receive the value of US$ at maturity against a payment in *reais* (**step 2**).

- The local bank could choose to maintain its short *reais* position, or could choose to hedge its currency exposure. This could be done by borrowing US$ offshore (**step 3**), e.g. by drawing on its available credit lines. Because the resulting US$ liability at maturity matches the obligation to receive US$ on the US$ futures contract, the bank is hedged against currency risk (i.e. zero net position).

- External borrowing by the bank is recorded in the balance of payments as a capital inflow (**step 4**). If the central bank chooses to intervene, then the bank sells the proceeds from external borrowing into the spot FX market.

- By investing the *reais* proceeding from selling U.S. dollars on the spot market at the domestic interest rate, the bank is able to earn an arbitrage profit whenever the *cupom cambial* is higher than the interest rate paid on its external borrowing (**step 5**). The only risk that is potentially left on the bank is counterparty risk on the futures contract, which is limited by margin payments on those trades that take place in the domestic futures market.

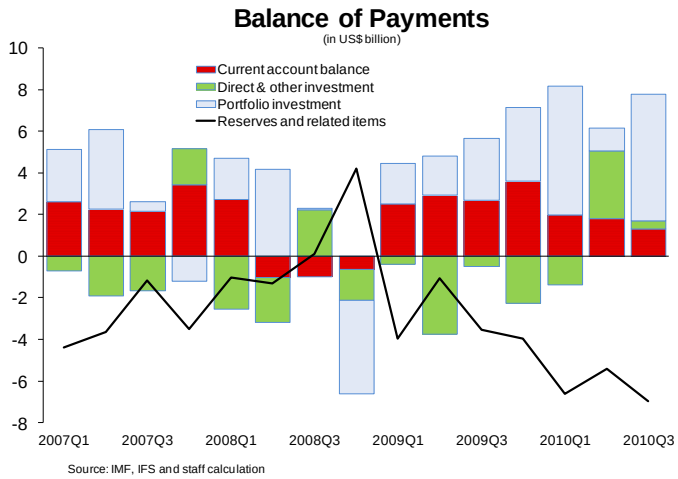



1/ The horizontal line denotes the time line. Rectangles above (below) the line denote positive (negative) cash flows; rectangles in blue (yellow) denote payoffs in $ and local currency, respectively.

# ANNEX IV. INDONESIA[34]

## A. Trends in Flows

1. **Push and pull factors have resulted in a steady stream of foreign capital flows to Indonesia**. Net foreign inflows into Indonesia have been positive since Q3 of 2009, and continue to accelerate. Despite 300 basis points of monetary easing during the global financial crisis, with policy rates at 6.50 percent, Indonesia has one of the highest rate environments in Asia, as well as relatively robust macroeconomic fundamentals; both attractive pull factors. Abundant global liquidity and concerns about growth in developed markets have been push factors for capital into the region.




2. **Since the crisis, the bulk of the inflows have come through portfolio investment, primarily into government notes and bills as well as central bank bills (SBIs)**. Foreign ownership of government notes topped historic highs earlier this year, and has continued to climb, reaching 29 percent of securities outstanding at end-November 2010. There were sell-offs during May and October-November 2010 driven mostly by retrenchments in global risk appetite associated with developments in European markets. However, during both episodes the selling was concentrated in foreign holdings of SBIs, with investors approximately halving their holdings in May, with a 25 percent reduction during the most recent episode. Nevertheless, during 2010 increase in foreign holdings of government securities and SBIs totaled Rp. 98 trillion, while net issuance was only Rp. 4 trillion. Illustrating the volatility inherent in portfolio flows, January 2011 witnessed net outflows from both bond and equity markets due to weaker global sentiment towards emerging markets as well as investors' concerns that the central bank had been slow to react to rising inflation in Indonesia.

3. **SBI holdings have historically been the most sensitive portfolio assets to shifts in global risk appetite, resulting in capital flow volatility**. SBIs have been a convenient vehicle for offshore investors to engage in carry trades and also to arbitrage onshore versus offshore interest rates. Shifts in these positions contribute to severe bouts of spot market

[34] Prepared by Laura Lipscomb with the mission led by Mahmood Pradhan and also comprising Sanjaya Panth, Joseph Di Censo (all APD), and Roberto Benelli (SPR). This note was updated by Geoffrey Heenan (APD).

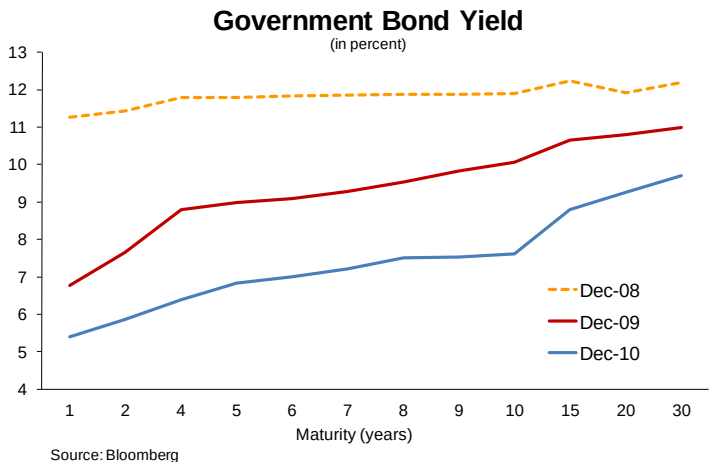
volatility, which is a concern for the authorities and has largely been managed with foreign exchange market intervention.

4. **During the recent influx, Indonesia has been benefiting from inflows from buy-and-hold type real money investment funds**. Banks suggest that Indonesia's incorporation into major global local market indices, as well as the optimism that it will be included in investment grade indices in the next year or so, is driving this trend. Year-to-date global emerging market funds have accounted for the largest portion of real money investor inflows into Indonesia, followed by funds with a regional mandate, as well as broad global funds. Real money investors reportedly gravitate to government securities in Indonesia. The size of the local equity market is generally deemed insufficient to be of interest to large global funds, and corporate bond markets are relatively small and lack liquidity. The largest proportion of nonresident investor inflows into government securities post the 2008 crisis has gone into maturities greater than five years, helping to flatten the yield curve.

### B. How Foreign Investor Flows Affect Local Capital Market Dynamics

5. **The large portfolio inflows into Indonesia over the last several quarters have been a relatively steady source of long-term financing**. As noted above, flows into government bonds have been into longer maturity notes, and the holdings have been relatively steady in periods of market disruption. The decline in government bond yields across the coupon curve is attributable in part to these flows, with a dramatic drop seen since the end of 2008, and a further drop since the end of 2009.

6. **In contrast, portfolio flows into central bank bills have been highly volatile**. SBI holdings fell sharply during the 2008 crisis and again in May of this year. A definitive breakdown of the type of foreign investor holding central bank bills versus government bills and notes is not available, but the apparent sensitivity of holdings to global risk aversion and international dollar funding costs suggests that SBIs have been affected by leveraged investor holdings. Anecdotal reports from major offshore banks suggest that the way these instruments have been used by foreign investors explains why these holdings have tended to be highly volatile.




7. **An arbitrage opportunity arises when the Indonesian rupiah (IDR) interest rate implied by the nondeliverable forwards (NDF) market falls below the onshore IDR interest rate (such as an SBI rate)**. To capture this arbitrage, traders can borrow IDR

offshore (at the low interest rate) and lend onshore (at the higher rate), while doing the opposite in dollars.[35] In order to do this they take a short IDR position in the NDF market (which means they effectively borrow IDR offshore, and do the opposite in dollars). They then buy IDR (and sell dollars) in the spot market, and invest in SBIs (which means they lend IDR onshore). By doing so, they earn the onshore IDR interest rate minus the offshore IDR interest rate, and do not take any exchange rate risk. These trades effectively transmit appreciation pressures from speculative trades in the offshore market to the onshore market. However, these positions, as well as open carry trades, are subject to quick reversal when risk appetite wanes (with 2008 a dramatic example).

## C. Authorities' Actions to Mitigate Effects of Capital Flow Volatility on Domestic Markets

8. **Sharp shifts in foreign investor demand for IDR and holdings of SBIs complicate Bank Indonesia (BI)'s monetary management**. Reserve accumulation over the last several quarters has added to the need for large resident liquidity draining operations (e.g., SBI issuance). Historically, this phenomenon has contributed to a vicious circle.[36] BI's weekly draining auctions of primarily one-month SBIs added to the attractiveness of carry trades and onshore/offshore arbitrage, because (i) the one-month tenor of SBI's matched the most commonly traded tenor of NDF contracts, and (ii) weekly auctions facilitated price discovery and SBI market liquidity, furthering their facility for short-term trading.

9. **One response BI has used to mitigate pressures of offshore activity on onshore markets has been to intervene, not just in the spot market, but also through FX swaps**. BI can simply intervene in the spot market and accumulate the dollars that arbitragers are selling when they get into the onshore/offshore arbitrage trade, mitigating spot market volatility. Or, at times, BI may find it more effective to alleviate appreciation pressures through intervening with FX swaps. To do this, BI (i) buys IDR and sells dollars in the spot market; and (ii) at the same time, sells IDR and buys dollars in the forward market.

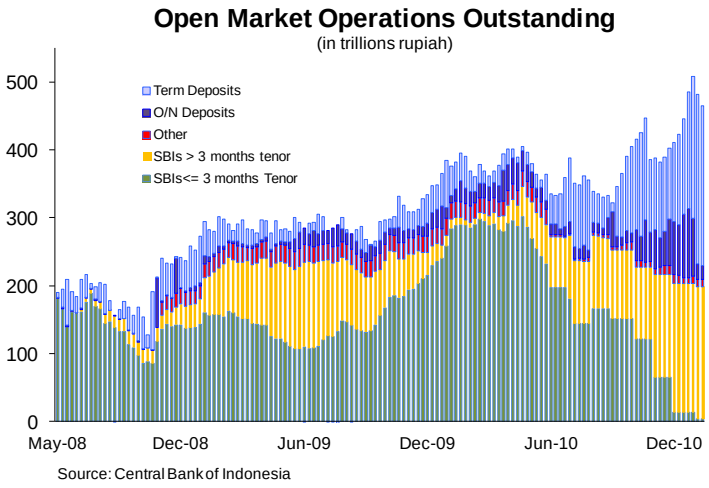
[35] A variety of players would be able to engage in onshore/offshore arbitrage opportunities. Any nonresident investor can invest in onshore securities by setting up an account with an onshore custodian and properly documenting and reporting trading activity. Mostly likely entities doing so would be market making banks in Singapore that need to offset their NDF positions, giving them enough incentive to go through the onshore red tape. Indonesian multinationals can do NDF onshore arbitrage but Singapore banks deemed such flows from corporates as smaller than what they see for the Philippine peso and Indian rupee.

[36] The balance sheet effects of SBIs are also a concern. SBIs comprise the largest portion of the liability side of BI's balances sheet. SBI bills are used to drain liquidity, with the size of outstanding bill portfolio partially attributable to the liquidity overhang in the market following the Asian financial crisis. The cost of maintaining this portfolio is an ongoing concern in terms of central bank capitalization. The stock of outstanding SBI's is about equal to the stock of the outstanding government bills and notes.

10. **Over 2010 BI also made policy changes that may mitigate capital flow volatility. On June 16, BI introduced a package of measures it described as improving its monetary management.[37] The main measure was the introduction of a one-month holding p**eriod requirement for SBIs, applied to both primary and secondary market purchases and both nonresident and resident investors. BI also announced its intention to introduce nine and 12-month SBIs, in a move to shift a greater portion of its liquidity draining operations to longer tenors. BI has moved away from weekly to monthly SBI auctions and discontinued issuance of one- and three-month tenors, limiting recent auctions to also six- and nine-month tenors. It also has been offering nonmarketable term deposits to banks of up to four months maturity as an alternative sterilization instrument. These shifts in monetary management serve to decrease the availability of instruments most attractive for facilitating carry and arbitrage plays.

## D. Effects of Recently Announced Measures and Prospects for Additional Measures

11. **At the time of their introduction, BI's June 2010 measures were viewed by market participants as well targeted to address specific issues of monetary management in Indonesian markets**. They also thought the intent and functioning of the measures was well explained to market participants, and they did not see the measures as an indication of likely additional initiatives to deter capital inflows.

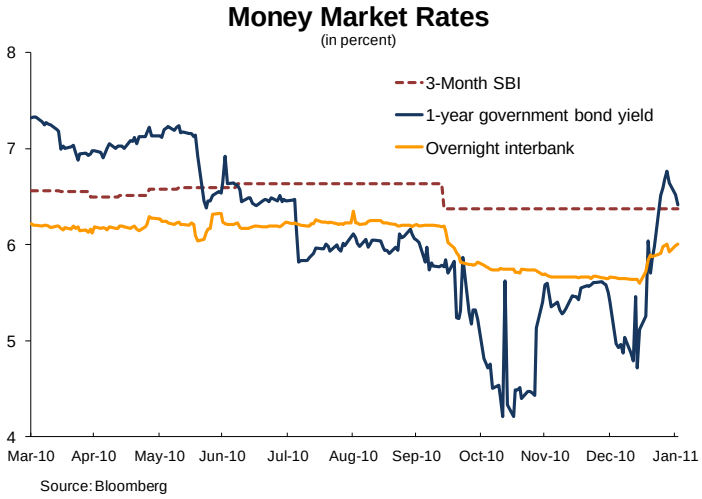



12. **Since the announcement of the measures in June 2010, it is difficult to detect a significant deterrent to foreign investor inflows into SBIs**. The announcement of the holding period was made immediately following a large liquidation of foreign holdings in May. Foreign holdings of SBIs as a percent of the outstanding stock peaked at 32 percent in October, and have since slipped to 27 percent, but remain above pre-holding period levels. NDF market pricing also does not indicate the measures have created a bigger wedge between onshore versus offshore interest rates, with this difference widening only marginally

[37] See Bank Indonesia (2010).

since the announcement and remains near the historical average for this differential prior to the announcement of the measures.[38]

13. **Banks noted that both foreign and domestic investors had increasingly purchased Ministry of Finance bills (SPNs)**. These bills are not subject to the one-month holding period, and as a result, interest rates on 12-month SPNs have fallen below yields on three and six month SBIs, and have fallen even more than 150 basis points below the policy rate. Outstanding issuance of SPNs is a small fraction of the issuance of SBIs, so these bills could be benefiting from a scarcity premium as well as a liquidity premium.[39] It is unlikely that foreign investors will be able to use 12-month SPNs quite as effectively as they had used one-month SBIs for short-term carry and arbitrage trades, because of the longer tenor, and the lower amount outstanding.




14. **Major onshore banks suggested that the change in net open position (NOP) regulations would also likely dampen spot market volatility and improve onshore money markets**. Prior to July 1, 2010, banks' NOP limits in foreign exchange were 20 percent, applied both on- and off-balance sheet and in real time. The June 16 measures eliminated the on-balance sheet NOP limit, but imposed an overall NOP limit at 20 percent of capital, within 30 minute windows. The 30-minute window allows for increased opportunity for trading to maintain positions within the limit. In addition, banks will be able to engage in foreign exchange swaps to meet the overall position limits. For example, a bank with an excess dollar position and a short IDR position (perhaps from offering a customer FX hedge), would be able to sell dollars in the spot market for rupiah, and buy back the dollars at the forward date in exchange for rupiah (effectively obtaining rupiah funding by using dollar liquidity).

[38] The continued foreign investor interest in SBIs is particularly interesting, given that they are now only eligible to buy "aged" securities. Initially onshore bond custodians had thought that the holding period on SBIs would greatly diminish foreign investor participation in the SBI market. Dealers who bid at SBI auctions on behalf of foreign investors are now required to hold the securities for one-month before the securities can be sold on to foreign investors. As a result, foreign investors can only buy "aged" SBIs, such as 6-month bills with 5-months left to maturity. Large custodians had thought that banks would not find it profitable to hold inventories of SBIs on their balance sheets with the intent of selling them to foreign investors after one-month.

[39] As of end-2010, outstanding issuance of SBIs was Rp 200 trillion, while that of SPNs was Rp 30 trillion.

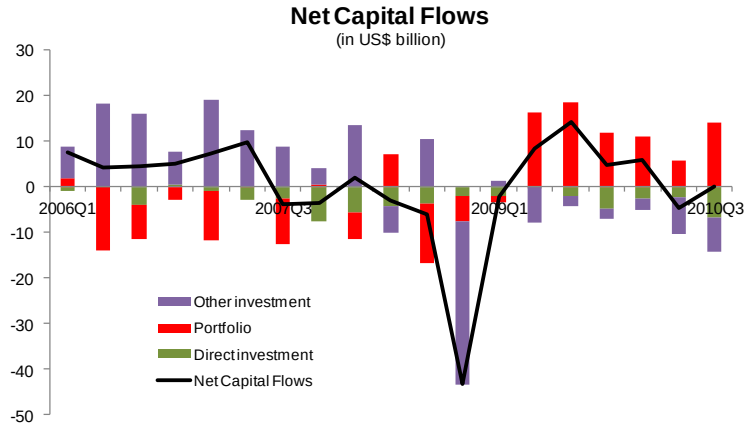
15. **In December 2010, BI announced additional measures it planned to impose to address the risks posed by continuing inflows**. These included raising the reserve requirement on foreign currency deposits and re-imposing a limit on short-term foreign borrowings of banks to 30 percent of capital. This limit had been removed in 2008 in response to bank funding pressures during the global financial crisis. The government has announced it will direct state-owned banks and enterprises to purchase government securities to support the bond market if outflows cause disorderly market conditions.

# ANNEX V. KOREA[40]

## A. Nature and Drivers of the Inflows

1. **As a small open economy with an open capital account, Korea has an economy particularly vulnerable to volatile capital flows**. In addition to the conventional channel of portfolio flows into its deep and liquid local markets, the bank borrowing channel has posed a particular challenge. The banking system has been heavily reliant on wholesale funding—including from abroad—and prone to the procyclical building up of leverage that creates persistent vulnerabilities to changes in global funding conditions. In the years leading up to the abrupt collapse of Lehman Brothers and the subsequent global liquidity squeeze, for example, Korea experienced a large build-up in short term external debt intermediated by the banking system. This build up of debt was driven in part by speculative demand for currency forward contracts by the corporate sector on expectations of appreciation of the won, as well as arbitraging of interest rate differentials on- and off-shore.

2. **In the aftermath of the global liquidity squeeze of late 2008, Korea suffered a massive "sudden stop" of short term external bank debt, in addition to outflows from local equity and bonds markets**. Onshore banks and foreign bank branches (FBBs) were unable to roll over their maturing short term external liabilities as global banks cut credit lines in order to shore up liquidity. The Korean authorities reacted promptly by providing foreign exchange liquidity to banks using Korea's official reserves and the swap lines from the U.S. Federal Reserve, averting a disorderly deleveraging in the banking system and the corporate sector. During this epsiode, Korea's reserves fell by US$64 billion and the stock market declined by 70 percent in just a few months.




Source: IMF, IFS and staff calculation.

3. **After the depth of the global liquidity squeeze passed, the composition of capital flows into Korea changed markedly**. The resumption of inflows was led by portfolio flows into both debt and equity markets, driven by both pull and push factors. Push factors included the decline in global risk aversion, low interest rates and abundant liquidity in advanced economies, and lower and less certain growth prospects in these economies. At the same time

[40] Prepared by Burcu Aydin (APD) and Manrique Saenz (SPR).

Korea's quick economic recovery and sound economic fundamentals have been clear pull factors underpinning this new episode of capital inflows into Korea. Short-term bank debt, however, remains lower than in the pre-crisis period, due to a number of factors, including the policy responses discussed below.

## B. Policy Responses in the Aftermath of the Sudden Stop

4. **The policy responses of the Korean authorities are driven by two key considerations: (i) Persistent inflows could increase vulnerabilities in the financial sector, fuel asset market bubbles, and lead to rapid exchange rate appreciation and (ii) the inflows may turn into a destabilizing "sudden stop" as experienced in 1997 and 2008**. The policy responses were therefore mainly aimed at reducing Korea's vulnerabilities from a build-up of leverage, financed by overseas borrowing by banks, throughout the cycle and not motivated by the prospects for immediate inflows per se. These measures, implemented in several stages, aimed at limiting banks' short-term foreign exchange exposure to sustainable levels, strengthening the soundness of banks' foreign exchange liquidity management, and enhancing their capacity to deal with capital flows:

- The first set of comprehensive measures, in November 2009, introduced stronger foreign currency liquidity standards to reduce the maturity mismatch of banks' foreign currency assets and liabilities and to improve the quality of their liquid assets, and imposed a 125 percent cap (relative to underlying export revenues) on forward foreign exchange contracts between banks and exporters. Banks were also directed to reduce their wholesale *won* (KRW) funding through a 100 percent loan-to-deposit ratio over time. Banks would therefore in the future not be able to fund their lending to households or corporates using wholesale financing and would have to rely primarily on deposits for such loans. Last, tougher capital requirements were imposed on financial bank holding companies to absorb potential losses.

- In June 2010, measures were taken zeroing in on short-term external bank debt. The authorities introduced ceilings on foreign derivatives positions of banks as a ratio to their capital, to reduce the short-term external debt that resulted from banks' provision of forward contracts to corporates. The objective was to reduce the leverage of banks through this channel and to guard against the abrupt withdrawal of capital, especially by foreign bank branches. In addition, the 2009 measures were further strengthened. New measures were introduced to limit foreign currency bank loans to prevent excessive foreign currency leverage in the corporate sector. Financial institutions were also required to further reduce their foreign exchange asset/liability maturity mismatches. Finally, the ratio of forward contracts to underlying export revenues was further reduced to 100 percent.

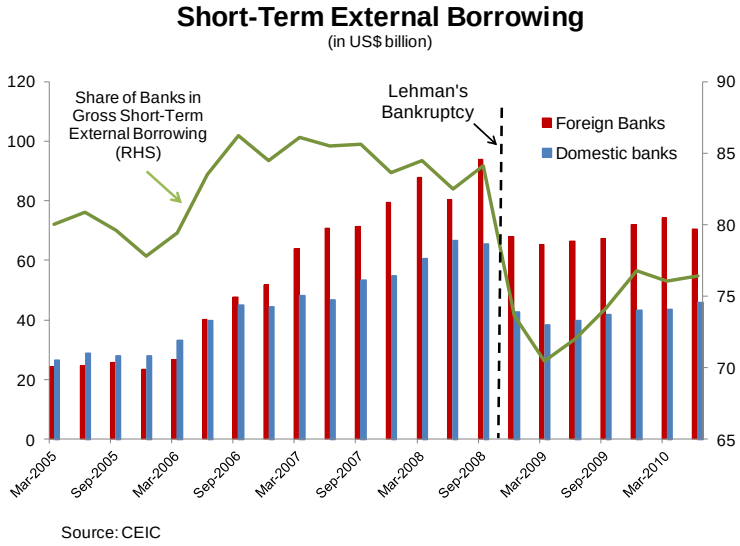
- In late 2010, the authorities announced plans to introduce macroprudential stability levy, in the second half of 2011, on (initially banks') non-deposit foreign exchange liabilities. Under current plans, the charges would range between 5 and 20 basis points, with higher

charges applying to shorter term non-core liabilities. Once the legislation is implemented, these charges can be adjusted to reflect market conditions.

- In January 2011, the authorities re-introduced a withholding tax on foreign purchases of treasury and monetary stabilization bonds, bringing it back in line with the tax on resident purchases of bonds. Foreign corporations and nonresidents will be subject to the withholding tax, but those who are based in countries which have double taxation treaties with Korea and official investors will be exempt from it.[41]

## C. Policy Effectiveness

5. **The measures aimed at the banking system vulnerabilities appear to have succeeded in preventing banks' external debt from returning to pre-crisis levels**. In particular, the limits on forward contracts relative to underlying commercial transactions, and ratios on derivatives to bank capital, appear to have contributed to a sizable reduction in outstanding external short-term debt of banks. However, the decline in demand for currency forwards from shipbuilders, due to a smaller order book post-crisis, has also been a contributory factor. Moreover, the measures to limit forward contracts between banks and corporates apply only to onshore entities, allowing corporates to engage in contracts off-shore using nondeliverable forward contracts (NDFs). Offshore banks would still able to offset their short KRW positions resulting from the NDFs by investing in the onshore government bond market.



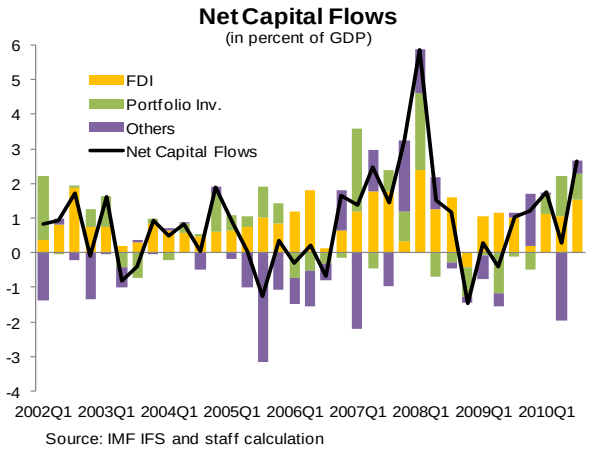
Source: CEIC

6. **The impact of the new measures on capital inflows is likely to be marginal**. Even with the imposition of the withholding tax as of early 2011, the impact on portfolio debt flows is likely to be limited for reasons elaborated above. Moreover, the macroprudential stability levy is also likely to have a minimal impact, given the relatively low magnitude of the levy as being currently discussed.

[41] Korea has double-taxation treaties with more than 70 countries.

## ANNEX VI. PERU[42]

1. **Peru has attracted strong capital inflows that represented approximately 7 percent of GDP in 2010**. Although the bulk of these flows are dedicated to the real side of the economy in the form of FDI, a recent spike in debt portfolio flows has caused concern among the authorities that large capital inflows could fuel domestic credit and asset price booms, and create vulnerabilities in the economy.




2. **Peru's high and sustained economic growth has attracted foreign investment**. Underlying factors include strong terms of trade and robust domestic demand growth mainly driven by private sector investment. In addition to the fact that Peru is an important producer of gold and copper, the extraordinary performance of the Peruvian economy is based on strong economic fundamentals and a solid track record of prudent macroeconomic policy during the current decade. The country grew at an average 6.3 percent since 2002—50 percent above its peers—and it was among the few countries in the world with positive growth during 2009. Partly reflecting these achievements, the country was granted investment grade by Fitch and S&P, and Moody's in 2008 and 2009 respectively.

3. **In addition to these "pull factors", easy external financing conditions have also played a role**. Ample international liquidity (a "push factor") has led investors to search for opportunities in EMs with higher growth prospects and/or interest rate differential with respect to AMs. Peru's higher credit rating, good economic prospects and, to a lesser extent, positive interest rate differentials led to strong performance in financial assets, which was reflected in compression of spreads on external debt. Furthermore, foreign investors have been increasing substantially their holdings of medium- and long-term government domestic debt (about 45 percent of total outstanding)

4. **Peru's supply of financial assets is limited in comparison to regional peers**. The fixed income market, mostly public debt, is less developed than others in the region and fairly illiquid as pension funds hold the bulk of these instruments and have followed a buy-

[42] Prepared by Federico G. Presciuttini (SPR).

and-hold strategy. The stock market has had few new listing/IPOs, and is dominated by commodity-producing companies (about two-thirds). [43]

**Comparing Size of Tradable Assets Across Latin America, 2009 1/**
(as a share of GDP)

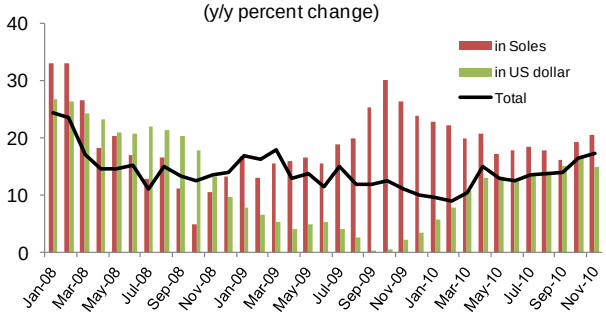
| | Equity Market | Domestic Public Sector Debt |
|---|---|---|
| **Peru** | **54.1** | **6.5** |
| Brazil | 75.4 | 45.0 |
| Chile | 120.3 | 16.8 |
| Colombia | 53.5 | 17.9 |
| Mexico | 28.7 | 33.1 |

1/ See Article IV Staff Report, Appendix 5 (April 2010).
Sources: Haver Analytics, Bloomberg, National Authorities and staff estimates.

## A. Policy Responses to Capital Inflows

5. **The central bank has intervened heavily in the FX market to limit exchange rate volatility, as the authorities remained concerned about its impact on still dollarized private sector balance sheets**. Despite a persistent downward trend, financial dollarization remains elevated (as of October 2010, deposit and credit dollarization remains at 47 and 44 percent, respectively). Peru has successfully pursued market-driven financial de-dollarization during the last decade thanks to macroeconomic stability, prudential policies to better reflect currency risks, and the development of the capital market in soles.[44] The central bank has sufficient international reserves to deal with short-term pressures: Reserves were around US$44 billion at end-2010, exceeding total external debt of US$39.1 billion, total domestic currency stock of US$27 billion, and amounting to 120 percent of short term external debt and foreign exchange deposits.

**Credit to Private Sector**
(y/y percent change)




Source: Central Bank and IMF staff estimates

6. **The authorities have started to tighten the policy stance and calibrated the policy mix in light of strong domestic demand dynamics**. The fiscal stimulus was designated to face down automatically. Credit growth was growing

[43] In addition, there is neither an interbank repo market nor an interest rate swap curve, though it has a local NDF market through which foreign investors get exposure to local currency. The most liquid maturities are 1-2 month contracts. The CDS market is also illiquid, even in the 5Y maturity, leading foreign investors to get exposure through the government's cash bond market. Global Depository Notes (GDNs) allow foreign investors to purchase all currency-denominated bonds in dollars, allowing them reduce transaction costs (0.2 percent fee of face value).

[44] See Garcia-Escribano (2010).

at 20 percent (y/y) in recent months, albeit at a much slower pace than in a boom before the crisis (close to 40 percent). Since early 2010, the policy rate has been increased by 225 basis points up to 3.25 percent and the cyclically-adjusted primary balance is expected to improve from -0.8 percent of GDP in 2010 to 0.7 percent of GDP in 2011.

7. **The authorities have also actively used reserve requirements and other measures to manage liquidity and extend maturity of FX liabilities with the aim to strengthen financial stability**.

- *Deposit reserve requirements*: a) minimum unremunerated reserve requirements in domestic and foreign currencies have increased from 6 percent to 9 percent (step-increases) since June 2010, b) marginal reserve requirements in domestic currency have increased from 0 to 25 percent (step increases) since July 2010 and in foreign currency from 30 to 55 percent since June 2010, and c) average reserve requirements on both domestic and foreign currency deposits were increased by 25 basis points from 11.8 percent and 35.6 percent, respectively, in January 2011.

- *Reserve requirements on foreign currency liabilities with maturity less than two years*: the rate went from 60 percent in January 2010 to 35 percent in June 2010. Then it was increased in steps to 75 percent in September 2010. In January 2011, the reserve requirements on foreign currency liabilities were reduced to 60 percent.

### B. Prudential and Other Measures

8. **In addition to these policy responses, the central bank adopted additional measures to achieve a combination of goals**. The objectives for the measures listed below have varied by the measure and have included reducing FX volatility, enhancing financial stability, developing capital markets, managing inflows amongst other objects.

- In February 2010, limits on banks' net FX position were changed: a) long net FX positions reduced to 75 percent of net equity from 100 percent, b) short net FX positions raised to 15 percent of net equity from 10 percent. In January 2011, the long net FX position was reduced to 60 percent of net equity.

- Limits on pension funds' investment abroad were increased in steps since February from 24 percent to 30 percent (in September 2010).[45]

- In June 2010, private pension funds' limit on trading FX imposed at 0.85 percent of assets under management (for daily transactions) and 1.95 percent of assets under management (over 5-day period).

[45] The main purpose of these measures is to reduce the tension between growing demand of assets by pension funds and lack of new equity and debt issuance in the domestic market, which put pressure on asset prices.

- In July 2010, additional capital requirements for FX credit risk exposure were implemented.

- In December 2010, a new law for covered bonds for mortgages established a loan-to-value ratio of 80 percent.

- In January 2011, the Superintendency of Banks and Insurance imposed a limit on NDF and other derivatives of the financial system to either 40 percent of assets or PEN 400 million (US$144 million), whichever is the highest.

9. **Furthermore, the central bank has limited the array of instruments to channel short-term flows from nonresidents**. The main measure was the increase (in August 2010) of the fee on nonresidents' purchases of central bank certificates of deposits (CDs) from 10 to 400 basis points, as well as the increase (in September 2010) of reserve requirements for domestic currency deposits in financial institutions to 120 percent (increasing from 35 percent in June 2010). In October 2010, the central bank sterilization instrument was shifted from a tradable instrument (CDs) to a non-tradable instrument (term deposits) which limits access only to financial institutions.

## C. Effectiveness of the Measures

10. **The main aim of central bank's intervention was to limit FX volatility**. This would help reduce the possibility of a negative impact on balance sheets from destabilizing outflows (and consequent exchange rate overshooting), which in turn could also have an impact on macroeconomic stability. The nominal exchange rate has been among the most stable in the region. The authorities have intervened heavily in the market and sterilized the intervention to maintain the overnight rate in line with the policy rate, limiting appreciation spikes and volatility.[46] Measures implemented to limit carry trade operations have been effective. Carry trade operations were done mainly by purchasing central bank short-term paper and through short term deposits in local currency at local banks.

11. **The application of reserve requirements, not only to deposits but also to FX liabilities, helped stabilize credit growth**. Credit growth declined from 40 percent before the crisis to 20 percent during 2010. Besides, the measures also helped in extending the maturity of FX liabilities in the financial system. However, the authorities are aware that these measures have their own limitations as they can lead to financial circumvention.

12. **Measures implemented with the purpose of limiting foreign investors' exposure to local-currency-denominated assets were partially effective**. Investors shifted from

[46] The sterilization costs have been 0.3 percent of GDP. The Central Bank currently has operating profits to cover these costs.

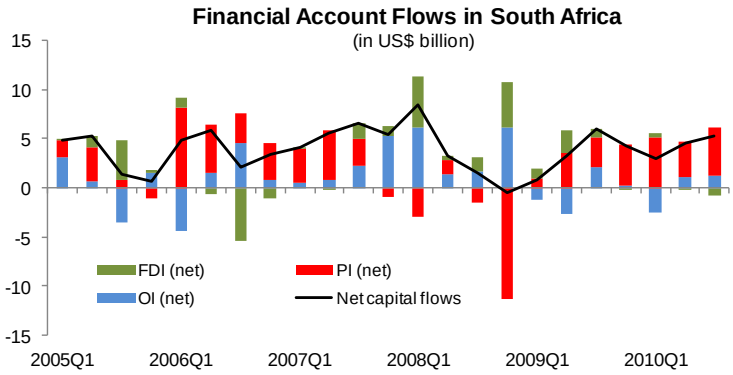
short- to longer-term government bonds following the increase of the fee on central bank CDs, thus the measures did not discourage the flows to debt markets. Overall, the imposition of reserve requirements for financial institutions on nonresident deposits as well as the shift of sterilization instruments from CDs to time deposits closed a window for nonresidents to gain exposure to short-term central bank paper.

# ANNEX VII. SOUTH AFRICA[47]

## A. Macroeconomic Context and Recent Trends in Capital Flows

1. **South Africa's recovery from the crisis has been modest in relation to other emerging market economies**. While the growth downturn experienced during the crisis was shallower than in other emerging markets, South Africa has been slow to come out from the global financial crisis. Indeed, South Africa's recovery has been much more similar to that of advanced economies (AEs). In this context, output growth is projected to be in the order of 2.8 percent in 2010 and 3.4 percent in 2011, compared to projected growth in emerging and other developing economies of 7.1 percent and 6.5 percent over the same period.[48] These tepid developments are characterized by a substantial amount of job losses, much deeper than those experienced by peer economies. As a result, a nontrivial output gap is projected through at least 2012—three years after the end of the recession.

2. **Nonetheless, similar to other EMs, South Africa has been the recipient of a substantial amount of capital flows**. Net capital flows into South Africa increased to around US$5.3 billion in 2010Q3, around 5.8 percent of GDP, from around US$3 billion at the beginning of the year. This follows the upward trend observed since the trough of the crisis, though flows still remain somewhat below pre-crisis levels. While flows were more diverse in nature prior to the crisis, inward capital flows in 2010 have mainly occurred in the form of portfolio investment, with FDI and other flows remaining moderate over this period.




Source: IMF, IFS and staff calculation

3. **Both push and pull factors can explain the resurgence in portfolio flows over the past year**. Fragile growth developments in AEs coupled with more accommodative fiscal and monetary policies aimed at supporting growth have boosted global liquidity and have led to flows into higher-yielding EMs assets. In addition, South Africa has benefitted from a number of country-specific factors that have led to South Africa receiving a large share of these flows. These include: (i) very deep and liquid financial markets that allow foreign

[47] Prepared by Ricardo Llaudes (SPR).

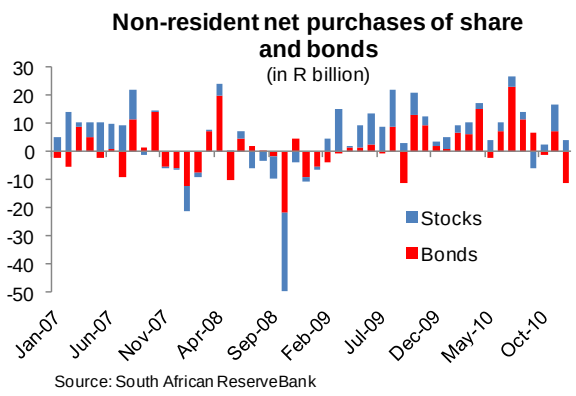
[48] January 2011 WEO update.

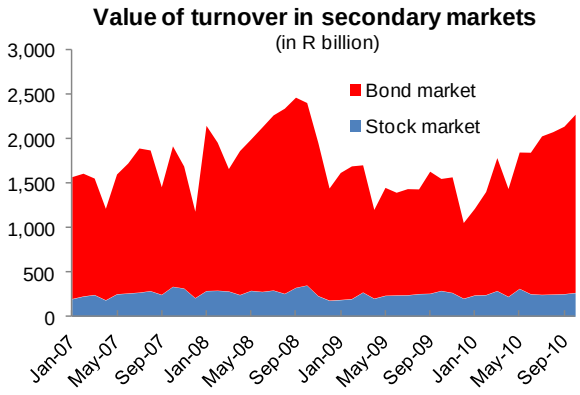
investors to easily enter and leave; (ii) moderate public debt ratios and large sovereign debt issuance in the last two years to fund countercyclical fiscal policy; (iii) high real and nominal yields; (iv) a disinflationary trend supported by the appreciation in the rand; and (v) a very long and large easing cycle that took place late in relation to other EMs and that has brought policy rates to all-time lows.

4. **Increased appetite for South African assets can also be explained by a rebalancing in portfolio exposures by foreign investors**. Historically, foreign investors have tended to be underweight in South Africa both in bonds and equities. However, the characteristics of South Africa's markets described above and the introduction of South Africa in major indices[49] has boosted South Africa's participation in global portfolios as investors attempt to replicate the composition of these indices. Indeed, "real money" investors such as pension funds and mutual funds have been among the main contributors to the observed surge in inflows. These investors have tended to enter into long-term bonds whereas banks and other investors are buying more short-dated paper. Participation in the domestic bond market has also been boosted by the fact that foreign debt issuance by the sovereign is relatively limited: sovereign foreign exchange issuance only takes place for strategic reasons (based on FX commitments by the sovereign) and to maintain South Africa in the market.

5. **In 2010, portfolio flows have been concentrated on the sovereign bond market, mostly at the longer end of bond maturity spectrum**. Nonresidents' participation in South Africa's domestic bond market has increased significantly over 2010, with cumulative flows through October amounting to R74.4 billion versus R4.1 billion during the same period of 2009. The recent deceleration in bond inflows (outflows in October) can be explained by investors' profit-taking with the perceived end of the monetary policy easing cycle and by a rebooking of risks in the wake of Europe's sovereign crisis. On the other hand, net flows into equities have remained restrained, amounting to R21.7 billion through October 2010, against R70.7 billion in the same period of 2009. This rebalancing in flows has been driven by a search for yield in a context of a soft growth outlook in South Africa. In parallel to this surge into domestic bonds, the turnover in the secondary bond market has jumped by R15.4 trillion in 2010, dwarfing the value of stocks traded in the stock market.

[49] The creation of the Global Emerging Markets Local Currency Bond index (GEMEX) in 2008, where South Africa carries a 10 percent weight, has been mentioned as one of the factors contributing to South Africa's increased standing in global portfolios.



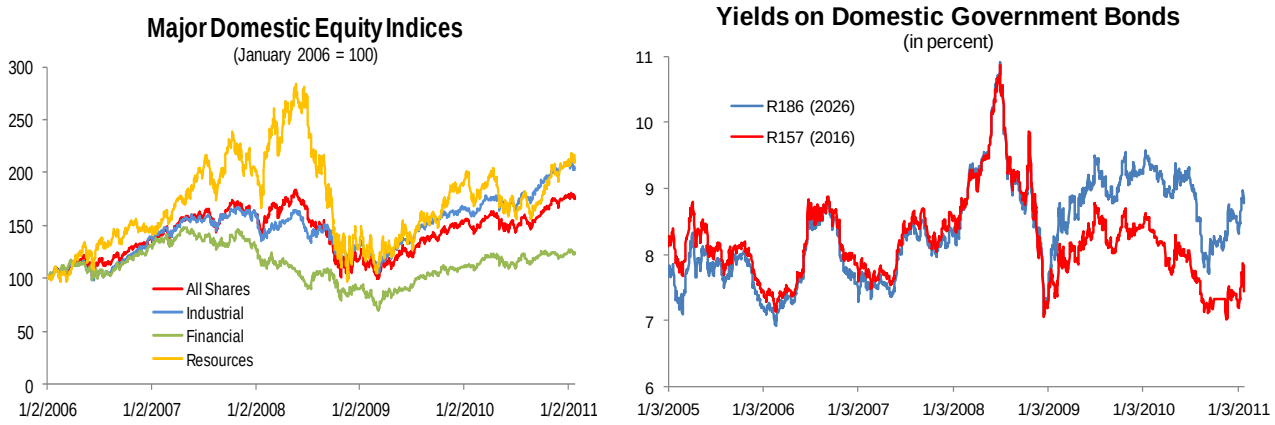

6. **Going forward, capital flows into South Africa are expected to remain strong, though their composition may change**. With accommodative policies in AEs expected to remain in place in the near future, capital is expected to continue to flow into EMs, including South Africa. However, the nature of these flows into South Africa may change, with equity flows becoming more important. A number of developments in the bond market may contribute to this shift: (i) bond investors may be reaching exposure limits in South Africa; (ii) bonds becoming more expensive after the rally in yields; (iii) inflation bottoming out with no further rate cuts in the horizon; and (iv) rand no longer a one-way bet. Similarly, equities may become more attractive if a rebound in global growth boosts natural resources prices, driving commodity money in South Africa.

7. **Banks and corporates are typically funded domestically, limiting their balance sheet exposure to potentially volatile external flows**. Ample liquidity in the corporate sector together with subdued investment activity have reduced corporates' borrowing needs. Furthermore, corporate foreign exchange transactions are subject to exchange control regulations that limit corporate offshore borrowing and FX exposure. Similarly, banks largely rely on wholesale deposits from resident institutional investors as a major source of funding. As a result, only around 5 percent of total bank liabilities are denominated in foreign currency.

## B. Macroeconomic and Capital Market Impact

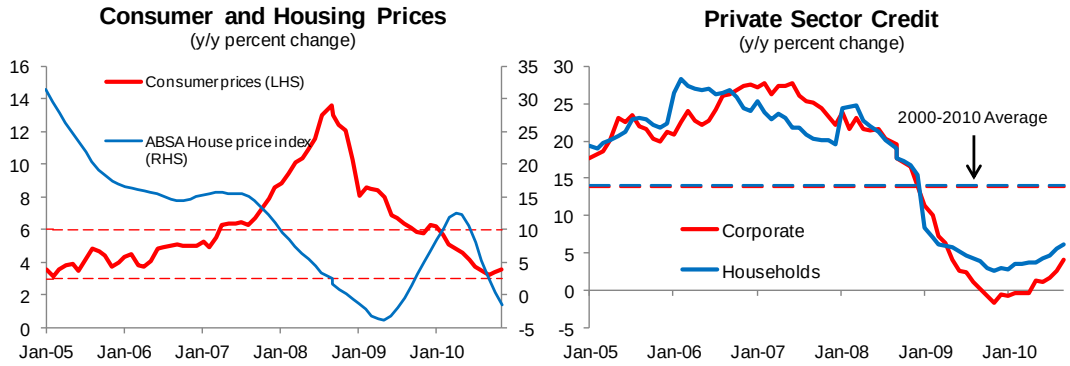
8. **Capital flows have triggered a considerable appreciation of the rand, above that seen in other EMs**. Since late 2008, the rand has appreciated by more than 45 percent against the U.S. dollar, and is 8 percent more appreciated (in nominal effective terms) than before the failure of Lehman Brothers. In real effective terms, the rand is assessed to be some 0-20 percent overvalued, raising concerns that the strength of the rand may be already impacting negatively South Africa's external competitiveness and dampening growth prospects. The appreciation of the rand against the U.S. dollar is also sizable when compared to other EMs, even those also experiencing a surge in inflows.

9. **External inflows have also contributed to a rise in equity prices and to a decline in long-term bond yields**. Following the collapse in equity prices in the wake of Lehman's failure, stock markets in South Africa have rebounded and are, for the most part, back at pre-Lehman levels. Stock markets have surged by around 50 percent since the beginning of 2009, though gains have been moderate in 2010. Sizable nonresident participation in the domestic bond market, mostly at the longer end of the maturity spectrum, has led to a substantial decline in long-term bond yields, lowering the cost of financing for the government and reducing the cost of capital for corporates.




Source: Bloomberg

10. **On the other hand, there are no signs of economic overheating as price and credit developments remain contained**. Supported by the rand appreciation and a deceleration in administrative price inflation, consumer price inflation has continued to decline over 2010, remaining now near the bottom of the inflation targeting band. However, there may be incipient signs that inflation may have bottomed out as suggested by the uptick in headline inflation over the recent months, largely on account of adjustments in administrative and oil prices. After experiencing a recovery in the second half of 2009, house price growth has moved again into negative territory, inching closer to the price declines seen during the crisis. Similarly, the recovery in credit growth has remained subdued over 2010, owing to uncertain labor market conditions and conservative behavior by corporates.

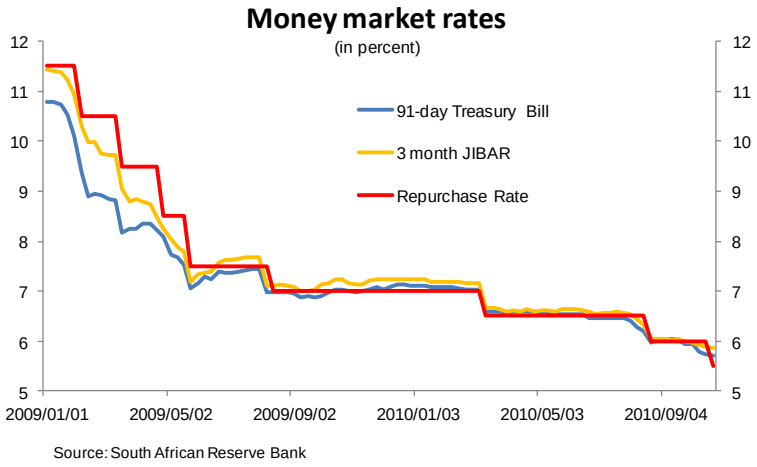



Source: South African Reserve Bank

## C. Authorities' Policy Responses to Capital Flows

11. **The authorities' draft document, New Growth Pact, seeks to explicitly bring about a more competitive exchange rate**. In this draft document the authorities are considering altering the macroeconomic policy mix to achieve a more depreciated real exchange rate. This would entail a looser monetary policy coupled with a tighter fiscal policy supported by measures to contain inflationary pressures and boost competitiveness. This framework would imply: (i) a monetary policy stance that will attempt to support a more competitive exchange rate and reduced investment costs through lower real rates; (ii) greater reserve accumulation to counter the appreciation of the rand; (iii) greater restraint in fiscal policy; and (iv) wage measures to contain inflationary pressures.

12. **Monetary policy has remained accommodative, bringing policy rates to all time lows**. Since late 2008, the South African Reserve Bank (SARB) has cut its policy rate by a cumulative 650 basis points. The most recent cut was in November when the SARB lowered the policy rate to 5.5 percent, its lowest level since its introduction in 1998. However, with signs that inflation may have bottomed out, the room for additional cuts has now narrowed. Thus far, lower policy rates have not managed to successfully stem the appreciation of the rand. Furthermore, markets' anticipation of additional rates cuts could result in additional capital flowing in.



Source: South African Reserve Bank

13. **The authorities have stepped up foreign exchange intervention, though impact on the exchange rate is not expected to be significant**. Through August, foreign exchange intervention was fairly modest (leading to reserve accumulation of around US$500 million per month) and without a perceptible impact on the path of the exchange rate. Given South Africa's deep and liquid foreign exchange markets, with a turnover of some US$12 billion per day and a large number of transactions taking place offshore, the authorities believe that, to influence the exchange rate, foreign exchange interventions would have to be relatively large and thus costly. Since August 2010, the authorities have stepped up the pace of foreign exchange intervention, which has been sterilized mainly through swaps. As a result, the sterilized intervention has resulted in a long forward position (US$4.1 billion by December 2010), but had no immediate impact on reserve accumulation. Over time, it is expected that the long position give rise to higher reserve buffers, as FX reserves in South Africa are lower than warranted given standard indicators and significantly lower than in peer economies.

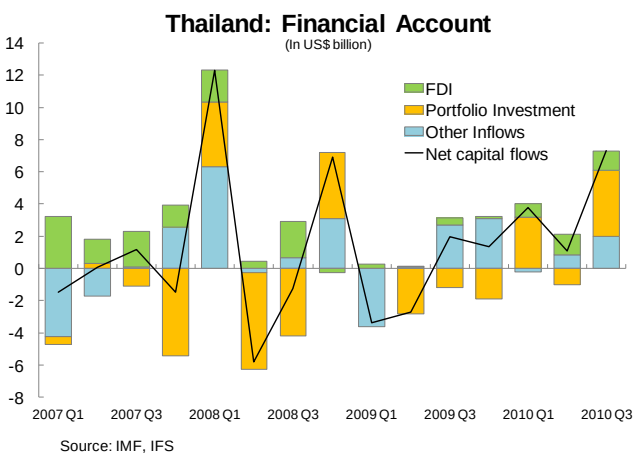
14. **Controls on outflows are gradually being liberalized**. South African resident entities and individuals are subject to a range of capital controls. These have been eased considerably over the years. However, the pace of relaxing the controls on residents' foreign exchange transactions is constrained by the heavy reliance of the banking system on wholesale funding. In other words, increased offshore allowance for local institutional investors may drive offshore liquidity that is essential to support banks' funding and balance sheets. While it is not clear the extent to which the previous limits were binding, the new measures may lead to greater outflows that could help offset portfolio inflows and would support two-way demand for the rand.

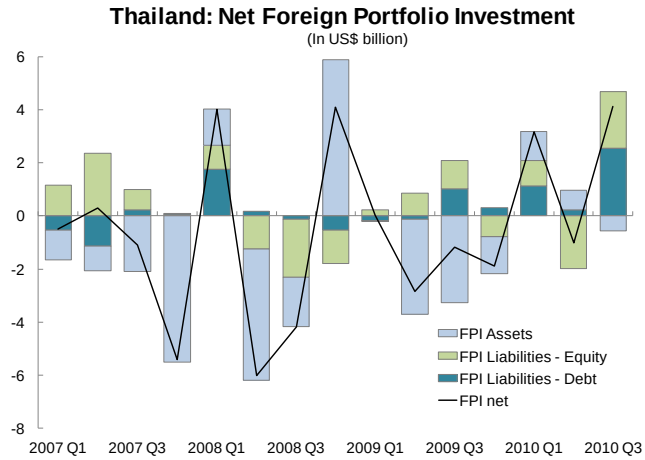
15. **The authorities are carefully monitoring the tax measures introduced by several countries**. In this context, "further steps to moderate the impact of capital flows on the South African economy will be considered, drawing on both international experience and assessment of the likely local impact" (South Africa Medium Term Budget Policy Statement, p. 18). Nonetheless, both authorities and market participants are concerned that controls on inflows may permanently drive away capital flows.

# ANNEX VIII. THAILAND[50]

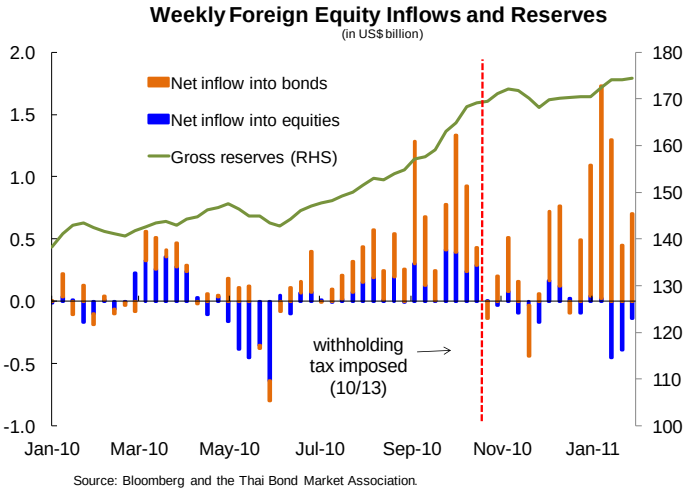
## A. Trends and Drivers of Capital Flows

1. **Capital inflows to Thailand, particularly portfolio inflows, have been growing strongly since recovering from the global crisis**. After turning positive again in mid-2009, capital inflows continued to increase through the first and third quarters of 2010, in line with the experience of other emerging markets (EMs). The second quarter of 2010 saw some outflows, especially from the equity market, first as the domestic political turmoil escalated in April-May, then as debt sustainability concerns heightened in Europe and soured investor sentiment. Third quarter portfolio inflows have been at historic levels and higher frequency data point to this trend continuing through the fourth quarter of 2010.




2. **Unlike the case before the global crisis, Thailand has been receiving large inflows into both equity and debt markets**. In fact, foreign investment in debt instruments in 2010Q3 was at the highest level since the Asian crisis. FDI, however, has been below the pre-crisis average this year, and therefore has not played a big role in the recent surge of inflows.




3. **A closer look at high frequency data reveals three interesting facts**: 1) the flows into bonds rose markedly after July; 2) the removal of the withholding tax exemption on state bonds had an immediate, albeit temporary, impact on

[50] Prepared by Ceyda Oner (APD).

both types of inflows (see Section III); and 3) the inflows were countered with sterilized intervention as evidenced by the high correlation in total flows and gross reserves.

4. **Both push and pull factors have been at play in the recent surge**. The relatively better economic outlook in Thailand compared to advanced countries and attractive yield differentials have channeled excess global liquidity in the form of portfolio investment to Thailand throughout 2010, as it has to other EMs:

- The near-term outlook for advanced economies has improved, but there are risks to this outlook. And while a worse outlook for advanced economies is typically bad news for export-dependent emerging Asia, Thailand's growth figures have been above market expectations each quarter so far, and show encouraging signs of strengthening domestic demand. Though far from decoupling from advanced economies, the multi-speed growth outlook for the near term has been a key factor in driving capital flows to Thailand.

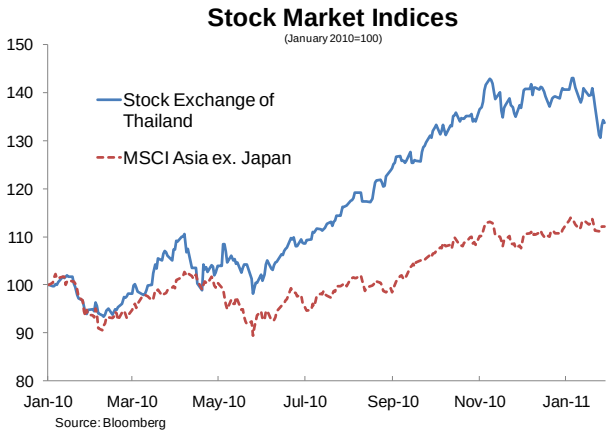
- The relatively low interest rates in advanced economies led investors on a search for higher yields, to EMs as well as to Thai assets.

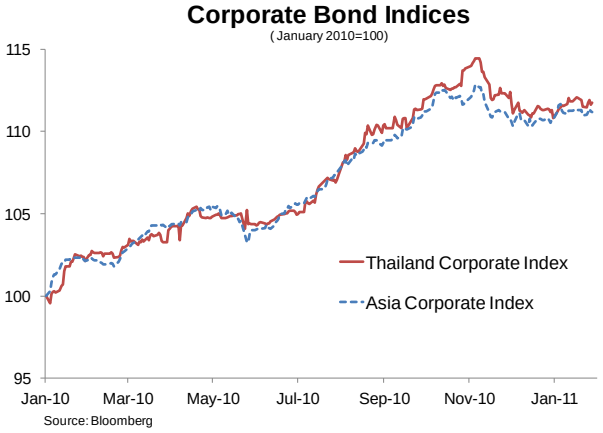
- In addition to the above factors, the Thai authorities' decision over the summer to cancel borrowing plans and fund investment projects from revenues has improved the public debt outlook, which may also have boosted the demand for government bonds.

5. **Capital inflows are set to continue in the near to medium term**. Nearly all factors that have driven inflows to Thailand are expected to remain in place, so inflows are likely to persist in the coming quarters. That said, the outlook for inflows into EMs in general changes rapidly and is subject to uncertainty in the short term. As for the medium term, the measures to liberalize outward investment should encourage Thai investors to take advantage of attractive investment opportunities in the region and lower *net* inflows.

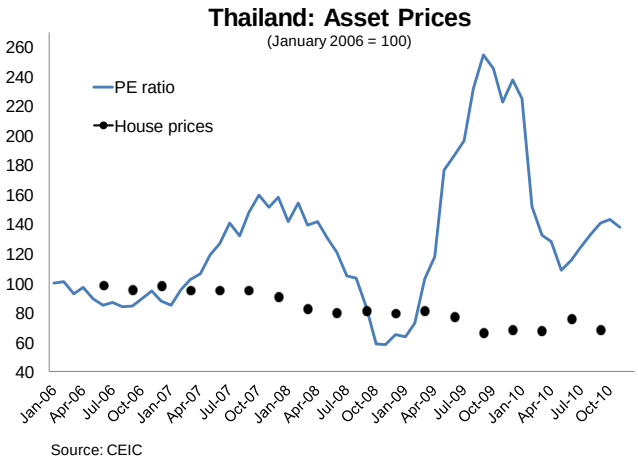
## B. Impact on the Economy

6. **The main impact of capital inflows has so far been contained in financial markets**. The recent surge in capital inflows has pushed up stock and bond market indices in Thailand, as it has in the rest of the ASEAN countries. In fact, market indices have now reached their highest levels since the Asian crisis. The Thai stock exchange market index, for example, rose by over 40 percent in 2010, which is more than three times the rise in the MSCI Asia ex-Japan index. Similarly, the corporate bond index rose 11 percent over the same period. These financial gains have likely contributed to the resiliency of domestic private demand indicators in Thailand, particularly when external demand was weaker.

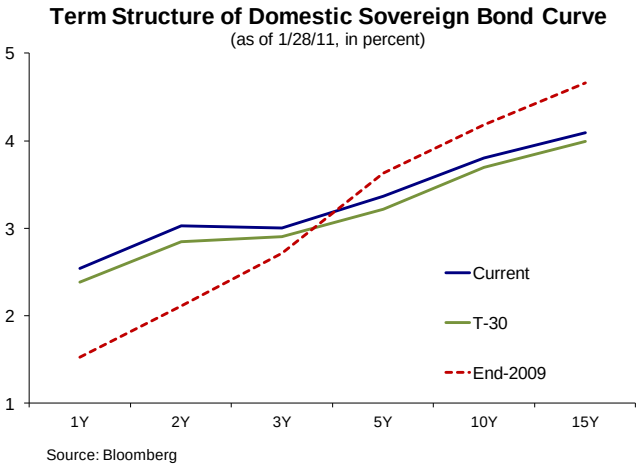



7. **The impact on property markets is yet muted**. Property prices in Thailand are still recovering from the trough reached in the recession and there is some concern in the local markets about a possible oversupply of certain types of properties. At the same time, there are higher rates of transactions in other segments of the real estate market, pointing to a saturation of the supply soon. In short, property price inflation is not of immediate concern in Thailand yet, but recent trends warrant a close watch of developments.



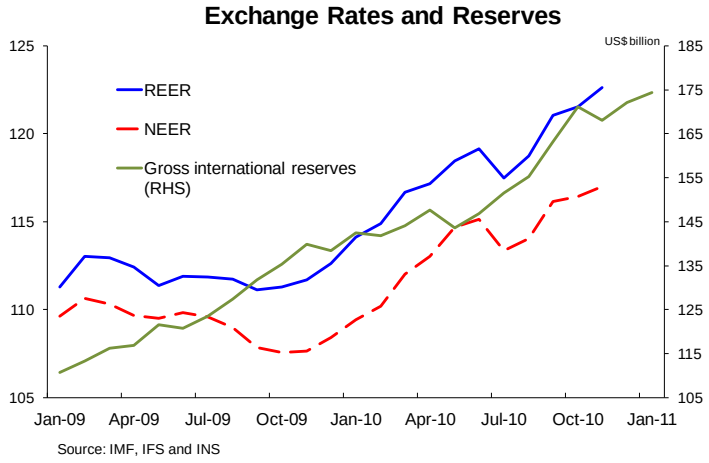

8. **The inflows to the bond market may have contributed to the decline in long-term interest rates**. As in other EMs, yield curves in Thailand have also flattened over 2010, though this should be viewed in conjunction with the overall loose monetary policy stance during most of this timeframe. The BoT began the policy rate normalization trend in July, with a 25 basis point hike, followed by additional hikes of the same magnitude in August and December 2010, and in January 2011. Even with these increases, the policy rate in Thailand is one of the lowest in absolute value in the region. While easy monetary conditions have kept rates low, the policy rate hikes are only gradually filtering into long-term rates, raising the question of whether capital inflows may weaken the link between short and long-term rates. If so, monetary policy in the face of large and persistent capital inflows may be rendered less effective.



## C. Policy Responses and Effectiveness

9. **The Thai authorities have countered the capital inflows with a mix of macroeconomic and prudential policies**. On the macroeconomic side, the authorities have allowed significant appreciation, along with sterilized intervention. Among other measures, they have relaxed capital outflows and removed a withholding tax credit to nonresident investors for their gains on state bonds.

- The baht appreciated against the U.S. dollar by 10 percent over 2010 (same in real effective terms), which is the largest appreciation among Asian EMs. The appreciation kept the baht in line with its medium-term fundamentals. At the same time, gross international reserves grew by US$32 billion, even more than the net inflow of capital, which is estimated at about US$15 billion. (The current account surplus in the first 11 months is US$13 billion) These figures imply that there was significant intervention, and the constant reserve money points to the sterilized nature of these interventions, in line with the authorities' inflation targeting framework. The cost of sterilization operations over 2010 is estimated to be around 0.1 percent of GDP, which is not large, but of importance in the case of Thailand because these costs accumulate over years and weaken the capital position of the Bank of Thailand (BoT).




- On September 22, the Thai authorities further liberalized capital outflows by raising the ceilings on outward direct investment, lending abroad, and foreign currency holdings of Thai investors. Since the pre-existing ceilings were not binding, these steps have not eased the appreciation pressure on the baht. That said, these liberalization policies should be seen as part of the authorities' strategy to encourage more regional financial integration.

- On October 13, the Thai authorities removed a withholding tax exemption for nonresident investors, institutional and individual alike, on their earnings (interest and capital gains) from state bonds. The tax exemption had been granted in 2005 to foster investment in the local bond market. With its removal, nonresident investors now pay a 15 percent withholding tax on earnings from government, BoT, and state enterprise bonds, which is the same tax rate applied to corporate bonds for all investors. Resident institutional investors will continue to pay a 1 percent withholding tax. Even though the

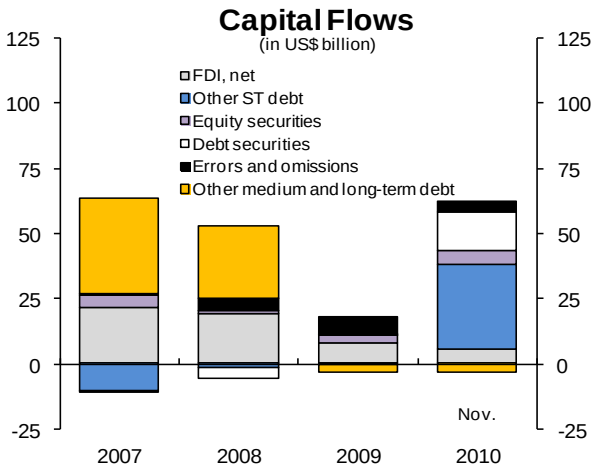
tax applied to state bonds only, and double tax agreements grant exemptions to investors from over 50 countries, the tax created enough uncertainty among market participants to dampen both debt and equity inflows. And a few weeks after the tax was imposed, a new wave of debt difficulties in Europe, coupled with rising political tensions in the Korean peninsula, suppressed overall inflows into Asian EMs, while political uncertainty in Thailand added to the risk aversion of foreign investors. The impact of the tax was not long-lived; inflows to the bond market resumed in December, and have been growing strongly since.

- To ensure that residential real estate loans and prices remain sustainable, the BoT proactively imposed loan-to-value (LTV) regulations in November 2010. Effective January 2011, the risk weight on loans for low-end condominiums ratchet up from 35 to 75 percent for loans with an LTV greater than 90 percent, and a similar risk weighting applies to loans for low-rise properties with an LTV exceeding 95 percent, effective January 2012.

# ANNEX IX. TURKEY[51]

## A. Recent Trends in Capital Flows and Outlook

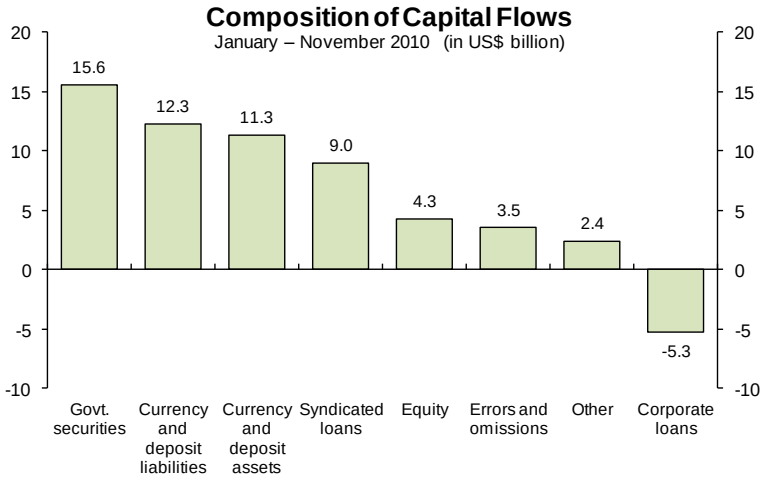
1. **Since the global crisis receded, Turkey has been attracting increasing capital inflows although it remains subject to heightened uncertainty in Europe and the Middle East**. Limited financing pressures were experienced in 2009Q4 and 2010Q1, although mostly offset by a drawdown of official reserves and notably of private assets. By 2010Q2 the financial account had already turned positive, with sizable inflows as the economy started recovering.




Sources: CBT; and IMF staff estimates.

2. **Push and pull factors are both behind Turkey's intensified inflows**. Still wide differentials from record-low interest rates in advanced countries, reduced political uncertainty, favorable near-term growth prospects and relatively healthy balance sheets, as well as less-leveraged households than in much of Europe, are supporting inflows. Moreover, widespread expectations of an upgrade to investment status are expected to continue to underpin strong inflows, including from new real money investors.

3. **However, the composition of capital flows in the post-crisis period is skewed towards short-term maturities and potentially volatile portfolio assets**. Capital inflows have been channeled by foreign investors mostly through deposits and securities. Banks' deposit inflows up to November 2010 have already reached US$24 billion, with an external financing contribution of almost 50 percent in the financial account. The remainder has been mostly in portfolio flows with buoyant debt securities purchases in the secondary market, a series of successful primary Eurobond issues and rising equities inflows. The contribution of FDI to the financial account has



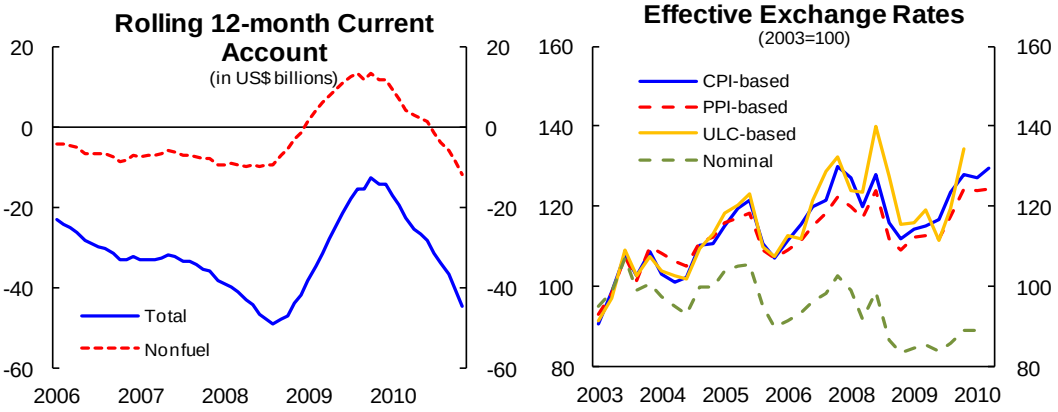

Sources: Central Bank of Turkey and IMF staff estimates.

[51] Prepared by Manuela Goretti (SPR).

sharply declined to 13 percent from over 50 percent in the pre-crisis years. Loan rollover rates have improved since the beginning of the year, notably for the banking sector, but remain below pre-crisis levels at around 115 percent in 2010Q3.

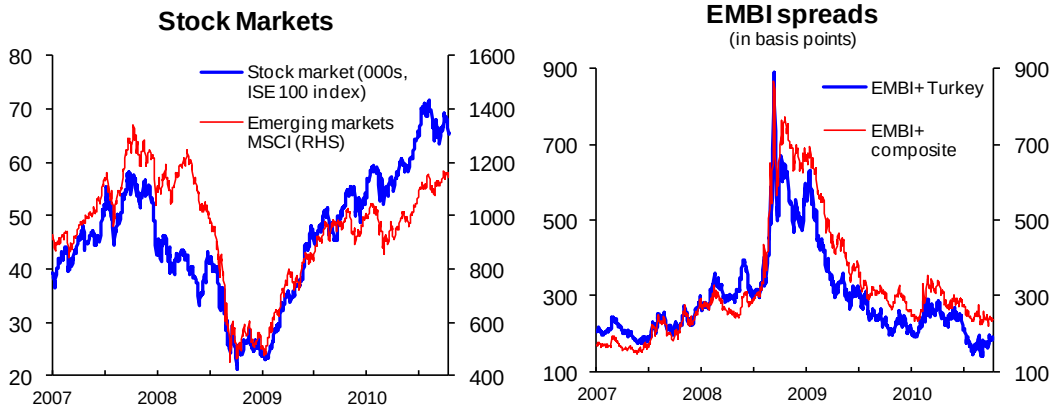
## B. Macroeconomic and Capital Market Impact

4. **Short-term capital inflows are supporting the robust domestic demand and widening current account deficit**. Growth—mainly driven by private consumption and investment—is projected to exceed 8 percent in 2010, with the current account deficit expected to widen to 6½ percent of GDP. An end-year drop in volatile food prices brought headline inflation slightly below target (6.5 percent), although expectations remain above target. Export growth prospects are constrained by the already overvalued real exchange rate, due to still sizable price and cost differentials with partner countries and despite limited nominal appreciation since the global crisis. Moreover, growth remains import-dependent, with a large oil and intermediate inputs deficit.



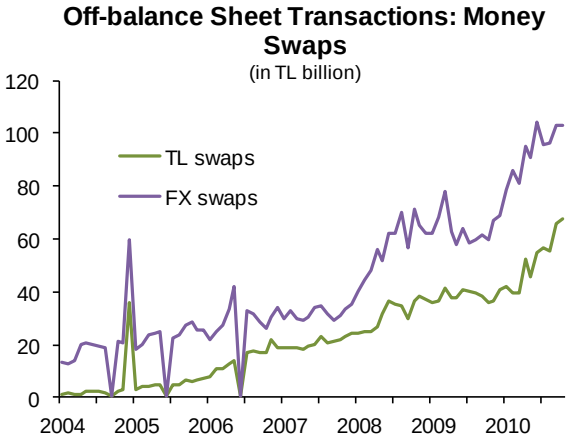

Sources: CBT; Turkstat; IMF, *Direction of Trade Statistics*; and IMF staff estimates.

5. **Debt-creating flows have led to a striking rise in Turkey's market indicators**. Turkey has outperformed most emerging markets peers in attracting capital flows. Equities and government securities' prices have increased sharply and remain close to historical highs, despite greater volatility in the region. House prices remain subdued but partly as a result of an ongoing construction boom.



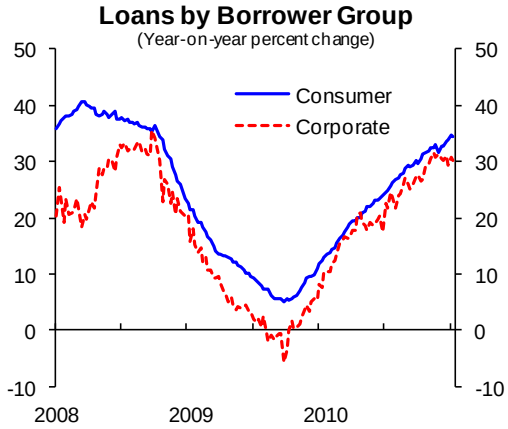

Source: Bloomberg

6. **Increased foreign-currency denominated liabilities have translated in a surge in currency swap transactions**. In the context of increasing FX deposits, banks have closed their net open positions through cross-currency swaps and used the Turkish lira (TL) liquidity from the conversion to fund new lending. Foreign investors (including hedge funds and international investment banks) represent the main counterparties of these transactions, and have been willing to take a long spot position in lira to benefit from relatively high interest rates and currency appreciation. The volume of currency swaps increased by US$12 billion in the three months to November 2010, but partially reversed since. As of November 2010, about 37 percent of these swaps have an overnight maturity. Therefore, although the currency mismatch rests with the foreign investors, Turkish banks are exposed to rollover and interest rate risk. Most currency swaps operations are reportedly taking place via offshore Turkish branches with the TL liquidity then channeled back to the parent bank. More than 70 percent of TL deposits inflows to Turkey for 2010 are indeed originating from offshore branches, although details on currency-swap-related flows are not available.



Source: Turkey's Banking Regulation and Supervision Agency.

7. **Nevertheless, a large share of the deposit inflows is due to the change in banks' FX lending regulation**. As discussed in the Staff Report for the 2010 Article IV Consultation with Turkey, the removal in July 2009 of the ban on onshore FX lending to unhedged Turkish corporates under certain conditions has encouraged a shift in FX credit from offshore branches back to banks' onshore operations. As a result, corporate loans rollover rates have declined, while parents have been drawing down their assets abroad and increased their borrowing from abroad onshore. Nevertheless, offshore branches continue to account for more than 10 percent of banks' total syndicated loans. Reportedly, although debt contracted offshore is now subject to the same reserve requirements, offshore funding remains advantageous given scope for regulatory arbitrage between the EU and Turkey.



Sources: Central Bank of Turkey and IMF staff calculation.

8. **Capital inflows are facilitating faster lending by banks in a low real interest rate environment**. Credit is growing at an annualized rate just above 30 percent, fuelling consumption and investment. Credit provision has been broad-based across currency, type of bank and borrower, with a recent tilt toward housing and profitable general purpose loans (close to 35 and 40 percent year-on-year growth respectively). While the nonperforming loan (NPL) ratio

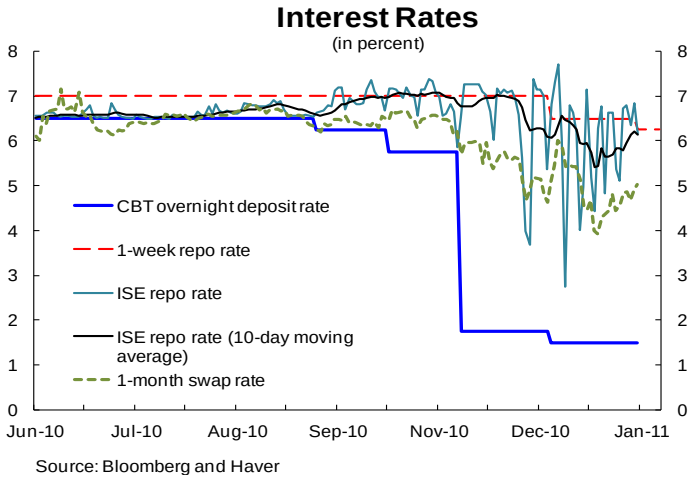
continues to moderate (to 4 percent for total loans, and 8¼ percent for credit cards), NPLs in nominal terms recently rose.

### C. Authorities' Recent Policy Actions and Market Response

9. **Turkey's ability to absorb or fend-off inflows is constrained by an already overvalued real exchange rate and still relatively high headline inflation**. Much larger foreign currency purchases introduced in October 2010 led to some strengthening of the lira, mostly against the U.S. dollar. However, the real exchange rate is already substantially overvalued and further lira appreciation would obstruct needed improvement in the underlying current account deficit. Above-target inflation, a closing output gap, and the resulting need to fully sterilize FX purchases would warrant a call for higher interest rates, which is limited by the need to discourage further inflows.

10. **To preserve financial stability and ultimately the goal of price stability, the Turkish authorities have engaged in a four-pronged response**. This focuses on measures to (i) encourage lower leverage ratios in the public and private sector; (ii) extend maturities of domestic and external liabilities; (iii) strengthen the country net foreign exchange position by promoting TL borrowing; and (iv) promote better risk management practices.[52]

11. **Specifically, the Central Bank of Turkey (CBT) has embarked on a policy mix of low short-term interest rates, high reserve requirements ratios, and wider interest rate corridor**. The strategy intended to address a scenario of accelerating credit growth but still contained inflationary pressures given the sluggish recovery in the external environment. In this "new normal", the CBT intends to make greater use of reserve requirements and macro-prudential measures combined with policy rate cuts to help secure financial stability without hampering the price stability objective. Nevertheless, the CBT Governor has signaled the possible use of higher policy rates under higher-inflation scenarios.



Source: Bloomberg and Haver

12. **Policy rates have been cut to reduce incentives for carry trade and extend maturities**. Since September, the CBT slashed its overnight borrowing rate by a cumulative of 500 basis points to 1.50 percent and, at the December and January meeting, reduced the current policy rate, the one-week repo rate, by a total of 75 basis points to 6.25 percent. The

[52] "Reform Strategies and Expectations in the New Normal: A Public Perspective", Speech by D. Yilmaz, CBRT Governor, December 8, 2010, and CBRT "2011 Monetary and Exchange Rate Policy".

cut in the overnight rate was designed to introduce some volatility and discourage short-term lira conversion through currency swaps. As a result of the cut, higher volatility has been recorded with the ISE overnight repo rate hovering above and below the policy rate and the one-month swap rate declining sharply although only with a lag after the overnight rate cut.

13. **To offset the recent policy rate cuts, unremunerated reserve requirements were raised and coverage broadened, while other measures to improve maturity profiles may be considered**. The CBT's unusual shift in monetary policy includes an increase across maturities of the TL reserves requirement ratio (RRR), now ranging from 5 percent for deposits with maturity of at least one year to 12 percent for demand deposits. This step follows previous increases which had raised RRRs for TL and FX liabilities to pre-crisis levels of 6 and 11 percent, respectively. Remuneration of reserves requirements was also halted to reduce profits from intermediation and withdraw liquidity as well as to increase the effectiveness of RRR as a policy tool via the cost channel.

14. **Moreover, the sharp step-up in FX purchases has been moderated, also in view of greater market volatility in the region**. The CBT gradually cut the total amount in daily FX purchase auctions from US$140 million to US$50 million for 2011, thereby reducing the need for sterilization instruments to absorb additional liquidity and limiting the risk of further interest rate pressures. Nevertheless, a flexible approach to currency auctions will continue to be pursued to counter "hot money" inflows.

15. **Macro-prudential and other market-based measures are supporting the monetary policy response**. To moderate credit growth, the government raised the Resource Utilization Support Fund levy on the interest from consumer loans to 15 percent, while the Bank Regulation and Supervision Agency (BRSA) extended the limits to loan-to-value ratios previously reserved for securitized mortgages to all mortgages. To encourage longer maturities, the BRSA is now granting permissions for the issuance of TL-denominated bonds by banks. Accordingly, the government has recently abolished or reduced the withholding tax on interest earnings from Eurobond issues by Turkish corporates for longer maturities. These measures support existing ones, such as the ban for households to use FX-denominated or FX-indexed loans and the FX net general position limits for the banking sector.

16. **The role of fiscal policy in dealing with "hot money" flows should not be underestimated**. Sustained fiscal discipline in the public sector is seen as a key ingredient to limit the risks from the widening current account deficit. However, in staff's view, the authorities' fiscal anchor—the Medium Term Program (MTP)—does not adjust flexibly to current macroeconomic conditions. Consequently, a faster withdrawal of the fiscal stimulus, once all cyclical conditions are accounted for, should be pursued beyond the scope of the MTP.

17. **As regards capital controls, the authorities believe that these should not be used**. The free floating exchange rate and open trade and capital account have served Turkey well in the last decade and the authorities continue to subscribe to this strategy, although they are aware of the need to implement policies to reinforce financial stability and enhance financial depth. Moreover, restrictions to capital inflows are regarded as inconsistent with the free

floating regime and are ineffective in stemming the volume of capital inflows, with only a limited impact in terms of capital flows composition, as increasing financial innovation and the integration of markets leave wide room for circumvention.

18. **The CBT and government strategy seems to have been effective at discouraging capital inflows although it is difficult to draw conclusions given also heightened uncertainty in Europe and the Middle East.** Widening the interest rate corridor and raising RR seems to have helped slow capital inflows, restoring a welcome degree of monetary policy independence. Moreover, the registered higher uncertainty among market participants about the next CBT steps (and effectiveness of recent policy rate cuts) also seems to help deter one-way bets. However, an environment of increased turmoil due to sovereign debt problems in Europe and developments in the Middle East may also have created additional uncertainty. Moreover, the ability of these measures in containing inflation and credit growth is less apparent.

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