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Capital Flows, Policy Challenges and Policy Options

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Introduction

Latin American economies (LAC) are characterized by low domestic saving rates, which leave them vulnerable to large and unexpected swings in the availability of external financing, i.e., to the occurrence of sudden stops in capital inflows. This was particularly evident during the 1998 Russian crisis, which generated a panic among investors that led to massive capital outflows from LAC and costly adjustments in consumption, output and employment (Calvo, 1998).

The 2007-08 global financial crisis brought again to the table the fears of a new series of costly and protracted adjustments; reminiscent of those occurred immediately after the Russian crisis. Fortunately, even though LAC suffered a steep decline in growth and a stop in capital inflows, both of them quickly resumed after the crisis.

After briefly reviewing the fluctuations of macroeconomic aggregates along the cycles of capital flows for a sample of Latin American economies, these notes then describe the policy challenges associated with these capital flow cycles and summarizes the policy options available to policymakers to try to cope with them. The note will argue that both good policies *and* good luck are key elements in explaining the different outcomes observed in LAC during the Russian crisis versus the recent global financial crisis.

Capital flows cycles

This section presents a series of regularities about the behavior of output, credit and the real exchange rate along the cycles of capital flows since the early 1990's for six Latin American Economies -

Argentina , Brazil, Chile, Colombia, Mexico and Peru, LAC6—which comprise about 80% of regional output.

Fact # 1: output growth is strongly and positively associated with non-FDI flows, namely portfolio and debt flows. There is also a positive (although weaker) association between economic activity and total capital flows.

As evidenced by Figure 1, periods of rapid economic expansion coincide with periods of net positive non-FDI flows and vice versa. Figure 2 displays the same positive association between output growth and total private capital flows. This is strongly at odds with the standard model of frictionless financial markets, which predicts that countries will be able to smooth a negative output shock by tapping into international capital markets.

Fact # 2: the real exchange rate appreciates as international capital flows into the economy.

Figure 3 displays the real exchange rate, defined as the relative price of a US basket of goods in terms of a country's basket of goods, and non-FDI capital flows. According to the figure, there is a strong negative association between the RER and capital flows, i.e., inflows of capital coincide with large and persistent appreciations of the RER.

Fact # 3: financial credit to the private sector grows rapidly during a phase of large capital inflows.

Figure 4 shows how real domestic credit growth expands as the economy receives net positive capital flows. This expansion in credit is due in part to the intermediation of capital flows through the financial system, which allows consumers and firms to further increase their expenditure during phases of economic boom.

Fact # 4: asset prices increase during phases of capital inflows.

Figure 5 shows a measure of domestic asset prices, namely a real index of domestic stock prices alongside total private capital inflows. Starting from the first decade of this century, stock prices increased as capital was flowing into the economy, and briefly reverted during the recent global financial crisis.

Comparing the adjustment of LAC6 economies after the Russian crisis versus the adjustment after the global financial crisis, it is evident from that output recovered quicker during the recent crisis (Figure 1), the real exchange rate experienced a short-lived depreciation that was quickly reverted as capital flew back to the economies (Figure 4), and financial credit stayed constant in real terms or fell, but much less relative to the large adjustment observed during the late 1990's (Figure 5). Table 1 quantifies these output growth swings for LAC6 and shows that in fact, these economies experienced a v-shaped growth recovery after the global financial crisis, whereas output recovered at a slower pace after the Russian crisis.

One important difference between the 1998 Russian crisis and the global financial crisis was the lower vulnerability of LAC6 to external shocks due to two factors: a lower current account deficit and a higher openness to trade. Table 2 presents a measure of this external vulnerability: the ratio of the current account to the sum of total exports and imports around the crisis episodes.[1]

Table 1
Output growth before and after external financial shocks
(Annual % rate)

	Average growth	Russian crisis					Global financial crisis				
	1990-2010	98.Q1	99.Q3	00.Q3	Fall	Recovery	08.Q3	09.Q3	10.Q3	Fall	Recovery
Argentina	4.6	6.0	-5.1	-0.6	-11.0	4.4	6.9	-0.3	8.6	-7.3	8.9
Brazil	3.1	0.8	-1.0	4.2	-1.8	5.2	7.1	-1.8	6.7	-8.9	8.6
Chile	4.4	6.8	-1.1	4.2	-7.9	5.3	5.2	-1.4	6.9	-6.5	8.3
Colombia	3.2	5.6	-3.2	2.8	-8.8	6.0	3.6	1.1	3.6	-2.5	2.4
Mexico	2.5	7.5	4.4	7.0	-3.1	2.6	1.3	-5.5	5.1	-6.8	10.6
Peru	3.2	2.6	-1.3	2.5	-4.0	3.8	10.9	-0.6	9.6	-11.5	10.2

Source: own calculations based on World Data Bank, World Bank.

Table 2
External vulnerability
(Current account deficit as a % of international trade)

Year	**2000**	**2001**	**Δ**	**2008**	**2009**	**Δ**
Argentina	-6%	21%	27%	4%	7%	3%
Brazil	-28%	-9%	19%	-10%	-11%	-1%
Year	**1998**	**1999**	**Δ**	**2008**	**2009**	**Δ**
Chile	-4%	0%	4%	-1%	2%	3%
Colombia	-20%	3%	23%	-9%	-8%	1%
Mexico	-11%	-8%	2%	-4%	-2%	2%
Peru	-11%	-5%	6%	-5%	0%	5%
Averages	**-13%**	**0%**	**14%**	**-4%**	**-2%**	**2%**

Source: own calculations based on World Data Bank, World Bank.

According to the table, Chile, Colombia, Mexico and Peru, had on average a current account deficit that was 12% of their international trade just before the Russian crisis. This deficit was completely erased during the crisis. During the global financial crisis, however, the current account deficit was just 4% of their international trade, so the required adjustment to close the deficit was much lower.

[1] The sum of exports and imports is used as a proxy of domestic consumption of tradable goods. More formally, the vulnerability to external shocks is measured as the ratio of the current account to the domestic absorption of tradable goods, as in Calvo, Izquierdo & Mejía (2008).

Part of these differences in the extent of external vulnerability and the smoother response of the domestic financial sector are attributable to better management policies that originated from the lessons learned after the Russian crisis.

POLICY CHALLENGES

The theoretical benefits of capital flows are clear: they allow an open economy to smooth aggregate demand fluctuations by borrowing and lending in international financial markets. In the recent past, capital inflows have been a cheap and readily available source of funding for the region, boosting domestic demand in the recovery phase of the business cycle.

However, large and rapidly growing inflows are a concern due to their potential consequences on the allocation of real resources across sectors and time. As shown in the previous section, there is a systematic relationship between widening capital account surpluses, economic expansions (Fact 1), real appreciations (Fact 2), credit booms (Fact 3) and asset and non-tradable prices booms (Fact 4). Taken together, these four facts imply that there are important imperfections in domestic and international financial markets (v.g, frictions, lack of development) that prevent economies from fully smoothing their consumption in the face of adverse shocks which, in turn, creates a series of challenges from the viewpoint of the policymaker.

The first challenge is associated with the large and persistent real exchange rate appreciation episodes that accompany capital inflows (Fact 2). The issue goes beyond the pure distributional effects between the tradables and non-tradables sector associated with a change in relative prices. A further risk is that the medium and long run health of the economy may be compromised by these episodes. For instance, consider a typical persistent appreciation phase: demand for non-tradables increases, hurting the tradable sector for a protracted period. Once the factors behind the appreciation subside, non-tradable demand contracts. If financial constraints are binding, the tradable sector's ability to recover is compromised and the economy experiences a large exchange rate overshooting. The overshooting results from the tradable goods producers' inability to absorb idle resources, especially those workers freed from the contraction of the non-tradable sector. This inability leads to an amplified fall in real wages and consumption which reduces welfare. In addition, mismatch and informational problems in labor markets increase unemployment.[2]

The second challenge stems from the credit booms originated in part by the intermediation of capital flows (Fact 3). The literature, v. g., Kaminsky and Reinhart (1999), has found that persistent credit booms are typically later associated with financial crisis and deep contractions of credit, a vivid example being the banking crisis of the 1980's and the financial disarray caused by the 1998 Russian crisis. Although not all credit booms end in financial crises, the required real exchange rate adjustments once external conditions change and capital flows come to a sudden stop pose a serious risk to non-tradables sectors in the presence of large currency mismatches.

[2] These effects are amplified further in presence of nominal rigidities, since the adjustment involves a larger increase in unemployment.

A third challenge is associated with the composition of capital flows, which may amplify other risks. In particular, short-term debt flows raise liquidity or currency risk for the real sector and/or the financial system. In general, the combination of loose macroeconomic policies and large capital inflows in the expansionary phase of the business cycle increase financial and real vulnerabilities, and makes the adjustment of the economy after a sudden stop more painful.

A fourth challenge is the underdevelopment of domestic financial systems. Capital flows are volatile and unpredictable, which would not be much of a problem in economies with deep, solid and developed financial sectors, nor in countries with a low degree of financial development, where capital inflows are naturally restricted by illiquid asset markets and high transaction costs. However, countries with an intermediate degree of financial development have *partially* liquid financial instruments and markets. Thus their ability to safely deal with all capital inflows is limited. In this context, liquidity, term and currency mismatches become relevant, and the markets for hedging against these mismatches are typically not well developed (IMF, 2010 and Yellen 2011).

POLICY OPTIONS

The discussion in the previous section emphasized the wide array of challenges associated with episodes of large capital inflows. Given these challenges, policymakers are faced with the dilemma of how to take advantage of the virtues of capital flows while, at the same time, minimizing the destabilizing risks inherent to sudden stops in capital flows. This section discusses the policy tools used across LAC6 before and during the global financial crisis that originated, in part, as a consequence of the hard lessons learned after the Russian financial crisis.

1. *Counter-cyclical monetary policy with a floating exchange rate regime.* Exchange rate flexibility has been crucial for implementing countercyclical monetary policy, especially in a low currency-mismatch and low pass-through environment, as evidenced by the difference in how monetary policy responded during the Russian crisis and during the global financial crisis. In turn, low currency mismatches are partially the result of exchange rate flexibility, as the private sector learns to deal with exchange rate volatility.

2. *Counter-cyclical fiscal policy.* Monetary policy alone cannot be fully effective to stabilize business cycles. In fact, the best way to deal with a persistent appreciation of the currency stemming from structurally high terms of trade and the related FDI inflows is to increase domestic savings. In the short and medium term, this must be accomplished by raising public savings, which gives a central role to counter-cyclical fiscal policy, like fiscal rules.

3. *Sterilization of capital inflows*. In the absence of a global, coordinated insurance system that substitutes for international capital markets in the face of a global crisis, countries are left to resort to self-insure via international reserves accumulation, that serve as a partial buffer against external shocks. This international reserves accumulation should balance the benefits of self-insuring and correcting the distortions induced by externalities with the costs associated with providing an implicit floor for the exchange rate, which hampers private sector's incentives to hedge from

exchange rate risk. A perverse outcome of this is the emergence of large currency mismatches that would hinder the ability to conduct anti-cyclical monetary policy and compromise financial stability.

4. *Financial regulation.* As mentioned before, capital flows are largely intermediated through the domestic banking system (Kaminsky and Reinhart, 1999). This induces important liquidity and foreign currency risks that may come to fruition once capital flows come to a sudden stop. In this regard, financial authorities may reduce the extent of liquidity and foreign-currency mismatches by introducing leverage caps on foreign-currency denominated assets and debts. As well, countercyclical marginal reserve requirements are a useful tool for containing excessive credit growth during periods of large capital inflows.[3]

5. *Capital controls as a complementary counter-cyclical policy.* Despite the long-standing debate about the effectiveness of capital controls, there is an apparent growing consensus, partly fueled by the IMF, that capital controls can be a legitimate countercyclical policy tool in some specific (and probably extreme) circumstances (Ostry et al, 2010), especially when monetary and fiscal policies bring about undesirable consequences, like large quasi-fiscal costs. Yet, recent theoretical and quantitative models, show that Pigouvian taxes to capital flows can restore the first best equilibrium as they attack the externalities that give rise to large and persistent RER appreciations and overborrowing (Mendoza and Bianchi, 2011 and Korinek, 2011). Thus, the policy implication in these models is that taxing capital flows are more a complementary instrument than a last-resort measure. In any case, whether capital controls are used as a last-resort or as a complementary tool, they do not substitute monetary and fiscal countercyclical policies as well as prudent financial regulation.

It is important to emphasize that these policy tools should be coordinated so that, for example, a tight monetary policy during a period of expanding growth should be accompanied by a policy of fiscal restraint. Also, these policies are more effective when coupled with countercyclical financial regulation and a careful supervision of domestic financial institutions.

A FEW CAVEATS

1. *Good luck versus good policies.* Some economists are quick to attribute lower output growth volatility to successful policy responses. This probably overestimates the impact of policies, as countries with different policy tools and frameworks displayed fairly similar behavior during the crisis (see Table 3). Of course, good policy was and will continue to be central. However, there were three important "good luck" elements that reduced the impact of the crisis:

[3] This is especially important for countries with intermediate financial development. As financial markets deepen the country's ability to absorb capital inflows increases, however, sound financial regulation is still crucial, as the financial crisis in the developed world shows.

(a) First, unlike other episodes of large external shocks to the region, this time around the origin of the crisis was in advanced economies, so LAC6 felt the second round of the crisis, instead of the main shock.

(b) Second, commodity prices in real terms are at historical highs, even accounting for their correction during the financial crisis. This certainly contributed to the ability of commodity exporters to cope with the effects of the shock.

(c) Third, IMF and Multilateral Banks aid packages, as well as central banks swap agreements, helped to contain liquidity risks in many countries like Brazil, Mexico, South Korea, Singapore, Hungary, to mention a few. See, v.g., Izquierdo and Talvi, 2010.

2. *Effectiveness of macroprudential policies.* There is little empirical evidence on the effectiveness of some of the policy tools, especially the unconventional ones. True, the literature on macroprudential policies is still young, but the wide variety of policy frameworks and the similarly shaped LAC6 recovery has also probably made it more difficult for researchers to assess the *marginal* contribution of macroprudential tools, at least in Latin America.

3. *Global general equilibrium effects of self-insurance and capital controls*. Even if unconventional policies were effective, prudence should also be exerted when implementing them due to their general equilibrium effects. For instance, a self-insurance global equilibrium in which all central banks pile up foreign reserves, leads to an inefficient intertemporal allocation of capital with low interest rates, as we already know from the incomplete financial markets literature (Prasad, 2011). A similar argument applies to capital controls, with one aggravating consequence: the forgone benefits of the private sector's access to international financial markets (Calvo, 2010).

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Figure 1
Non-FDI Private Capital Flows to GDP and GDP Growth

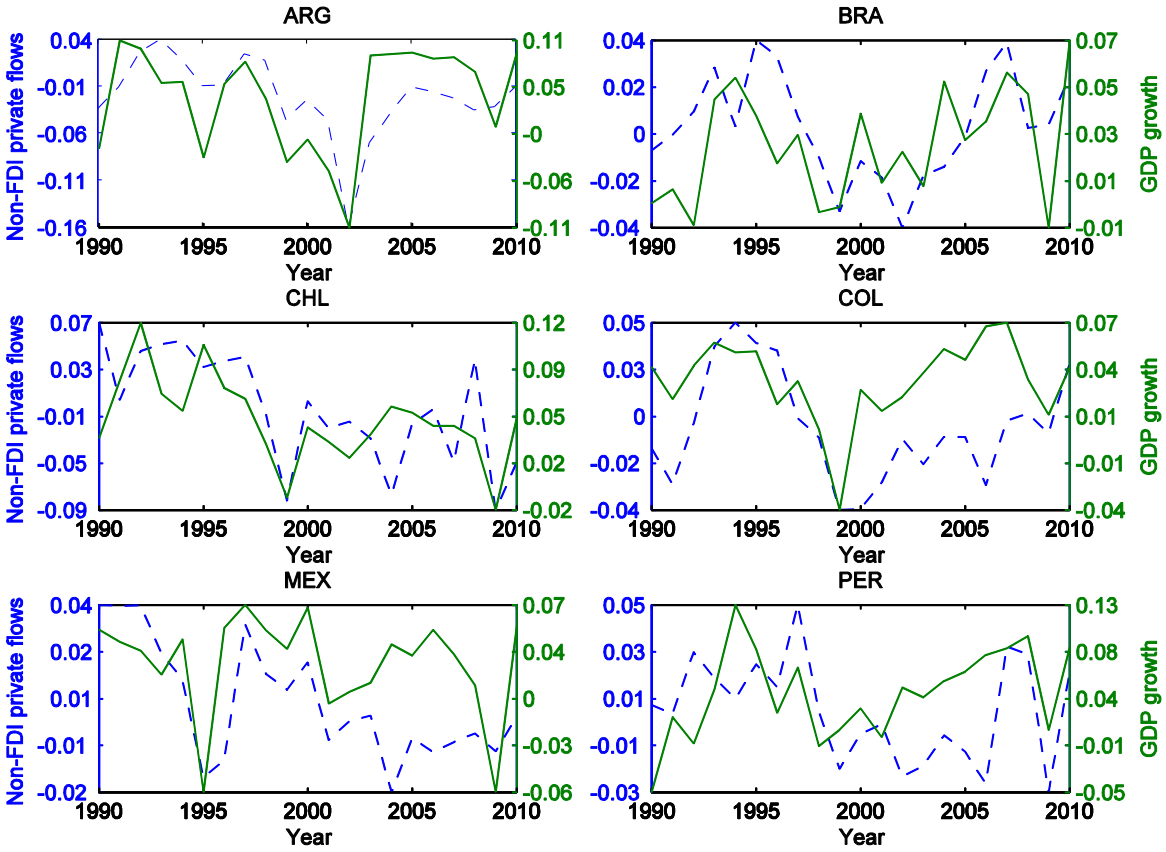

Figure 2
Private Capital Flows to GDP and GDP Growth

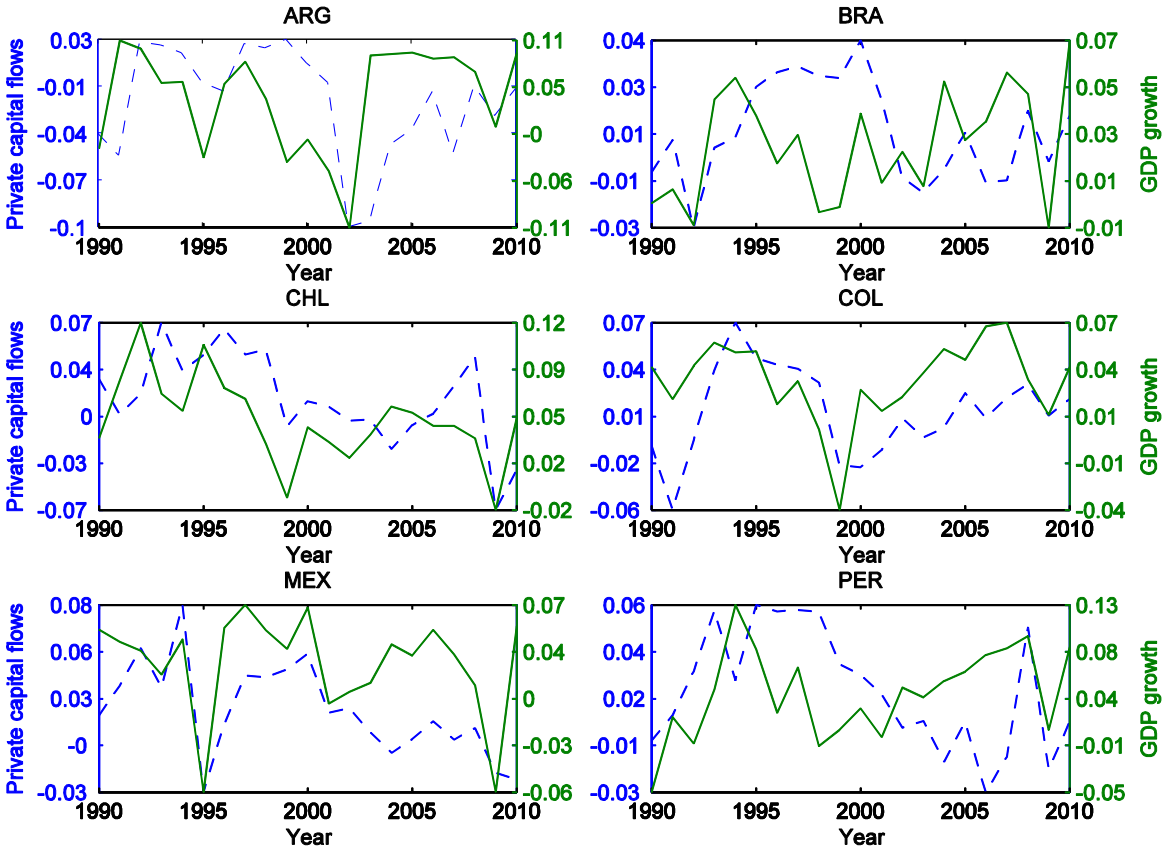

Figure 3
Private Capital Flows to GDP and RER (2005 = 100)

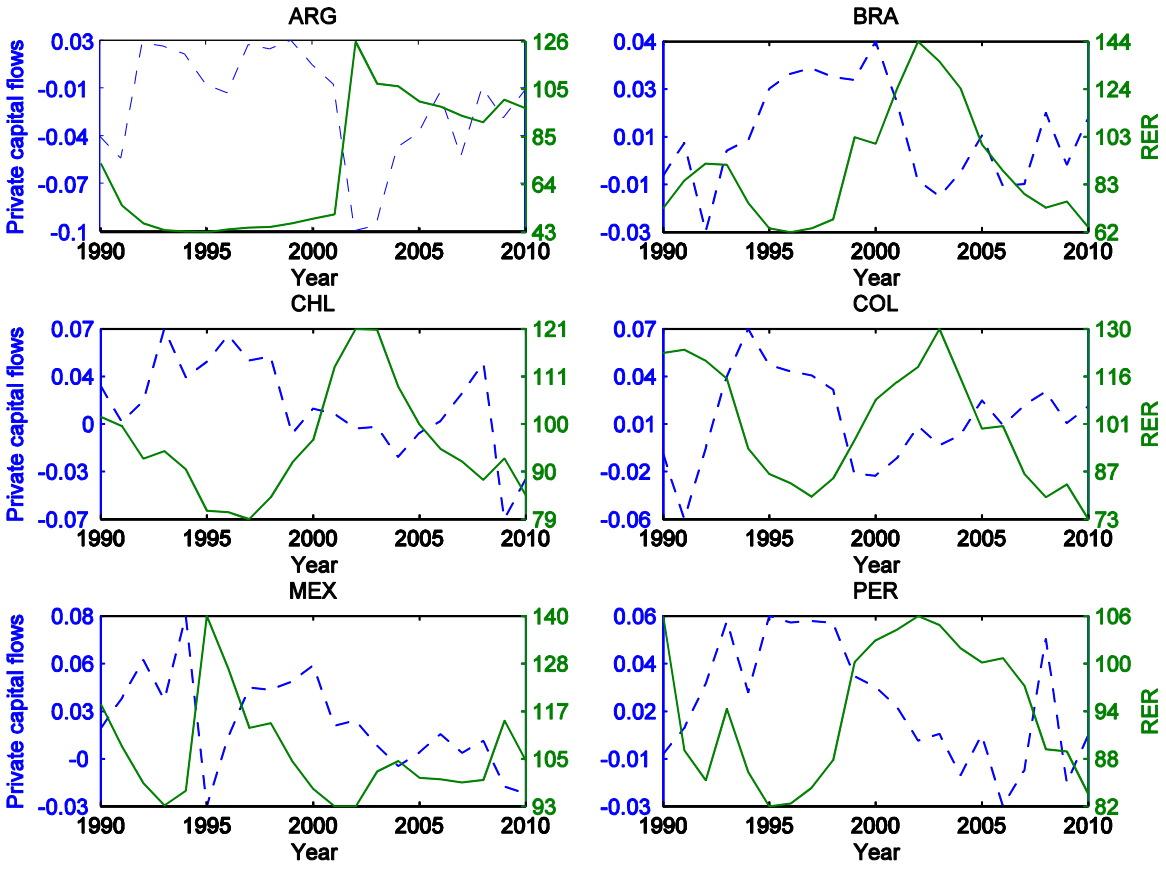

Figure 4
Private Capital Flows to GDP and Domestic Credit Growth

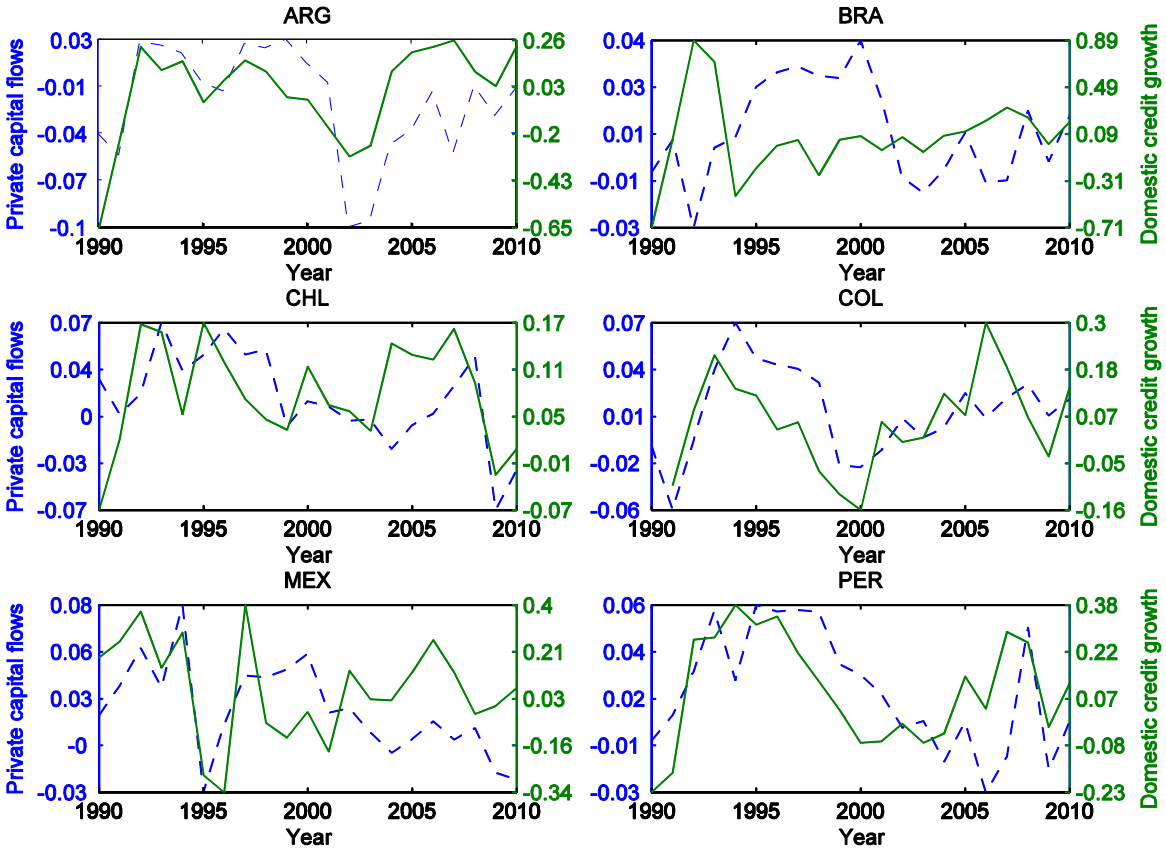

Figure 5
Private Capital Flows to GDP and Stock Market Prices

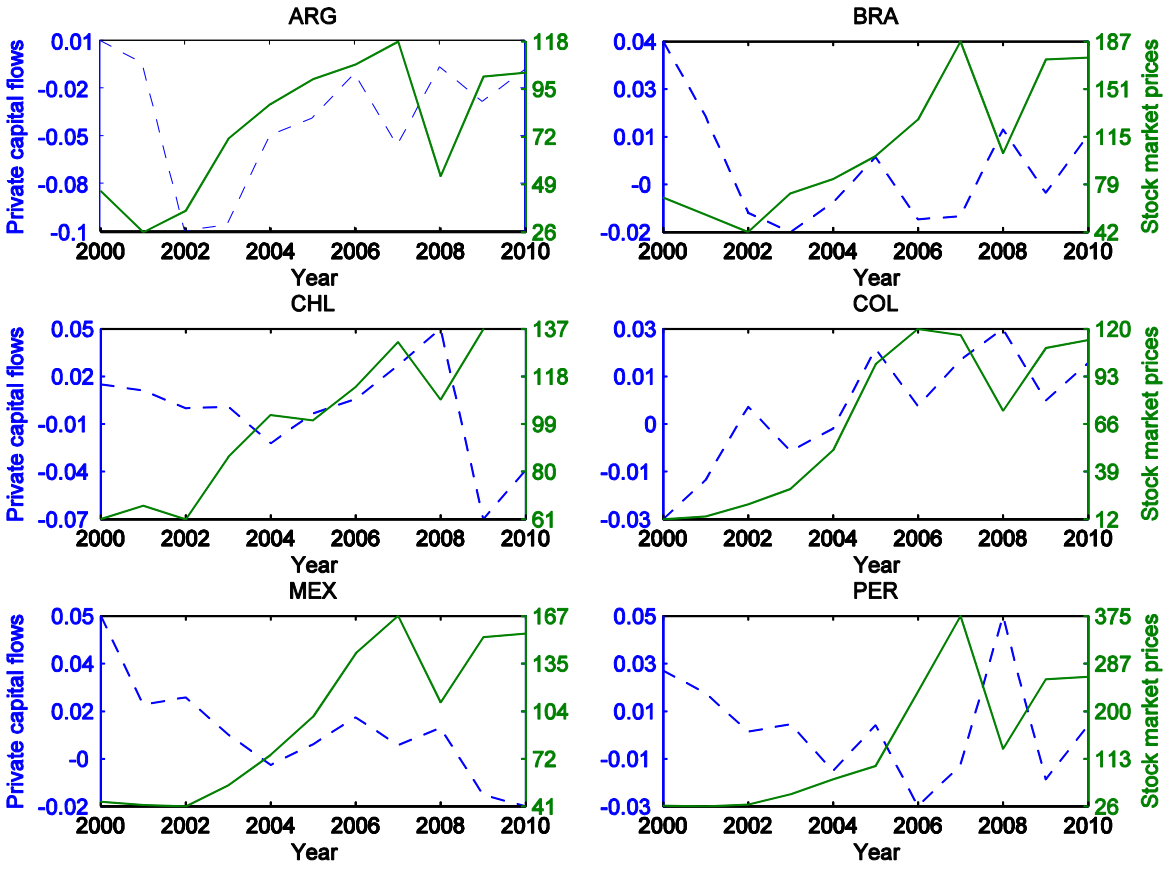

Table 3
Macroproduential Policies

Policy tool	Recent examples or proposals	Motivation/Objective
• Countercyclical capital requirements	Basel III; Brazil (auto loans-December 2010)	Buffer ranging between 0–2.5 percent to be introduced when aggregate credit is growing too fast.
• Dynamic provisioning	Bolivia (2008); Colombia (2007); Peru (2008); and Uruguay (2001)	Countercyclical tool that builds up a cushion against expected losses in good times so that they can be released in bad times.
• Leverage ratios	Basel III	Constrain the leverage in the banking sector, to mitigate the risk of the destabilizing deleveraging processes; and supplement the risk-based measure with a simple, transparent, independent measure of risk.
• Loan-to-value (LTVs) ratios	Canada (Mortgage market-April 2010, March/April 2011);	Regulatory limit to moderate cycles in specific sectors by limiting loan growth and leaning on asset demand.
• Debt-to-income (DTIs) ratios	Korea (August 2010)	Measure to limit the leverage of borrowers and manage credit risk.
• Liquidity requirements	Colombia (2008); New Zealand (2010); and Basel III	Tools to identify, measure, monitor, and/or control liquidity risk under conditions of stress.
• Reserve requirements on bank deposits	Peru (January and April, 2011); Brazil (December 2010); China (January 2011); and Turkey (2009–11)	Countercyclical tool that acts as: i) speed limit on credit; ii) tool for credit allocation; and iii) complement to monetary policy to achieve macroprudential goals.
• Tools to manage foreign exchange credit risk	Peru (July 2010); Uruguay	Tool to internalize foreign exchange credit risks associated with lending to unhedged borrower.
• Limits to foreign exchange positions	Colombia (2007); Israel (restrictions on banks derivatives transaction-2011)	Measures to manage foreign exchange risk in on- and off-balance-sheet FX-denominated assets and liabilities. Also useful for dealing with surges in capital inflows, which may pose systemic risks to the financial system when they create "bubbles" in certain economic sectors.
• Others	Brazil (tax on consumer credit-April 2011)	Curb credit expansion

Brazil: (i) increased by 50 percentage points the risk-weighting on consumer and automobile loans depending on their loan-to-value ratio and maturity; (ii) introduced a 60 percent reserve requirement on short U.S. dollar positions; and (iii) increased the tax on consumer credit from 1.5 percent to 3.0 percent.

Peru: (i) raised by 100 basis points the implicit reserve requirement rates on domestic and foreign currency deposits, and the unremunerated portion of reserve requirements (currently 9 percent of deposits); (ii) reduced reserve requirements on external FX liabilities with maturities under 2 years (from 75 percent to 60 percent), but extended their application to credit channeled through off-shore branches of domestic financial institutions; and (iii) established limits on the net FX derivative position of banks (40 percent of capital or S/.400 million, whichever is higher).

Source: IMF (April 2011). Regional economic outlook: Western Hemisphere: watching out for overheating.