

Capital Flows and Macroeconomic Policy in Emerging Economies

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Abstract

This paper develops the proposition that capital flows must be given explicit consideration in macroeconomic policy making in emerging economies. If policy makers want capital inflows to be well-behaved (to be neither too scarce nor too plentiful; to be steady rather than volatile), it is not enough to run prudent fiscal and monetary policies. In fact, capital inflows can make the normal tasks of macroeconomic policy very difficult indeed. The conventional (or “Wall Street”) view is that capital flows take care of themselves if macro policies are “correct”. Here we develop an alternative paradigm (labeled the “neoliberalist” view) that assigns a high degree of exogeneity to capital flows. Since they are typically large and volatile, such flows can wreak havoc with macroeconomic policy. The monetary impacts of inflows are difficult to sterilize, given their size and the tools available to the authorities in a typical developing country. Inflows almost always set off an unsustainable boom in output, consumption, and asset prices which is hard to resist. Through exchange rate appreciation, accumulation of debt, and persistent deficits in the current account of the balance of payments, they also sow the seeds for their subsequent reversal. Such reversals usually produce sharp and persistent declines in output, which in some cases can be catastrophic. Exchange rate expectations and the procyclical behavior of the fiscal accounts act as amplifiers of the cycle, both on the upswing and during the ensuing bust. The morale of the story is that, in emerging economies, policy makers need an additional tool: active management of capital inflows. This can take the form of a variable tax on inflows or outright capital controls, depending on the specific characteristics of the economy. The paper also argues in favor of intermediate exchange rate regimes, efforts to develop anticyclical fiscal policy tools, pragmatic monetary and exchange rate policies to deal with capital flight, banking regulations that take into account the capital flow cycle, and stronger international financial mechanisms to assist countries with capital booms and busts largely outside of their control.

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I. Introduction

As a consequence of the foreign capital surge experienced by a number of developing countries, since the early 1990s international economists and policy makers have been debating about whether foreign capital flows should be the object of specific policy. The debate crystallized around two opposite stances. On the one hand, there were those who claimed that capital flows were largely exogenous to the recipient countries and, in addition, very destabilizing (see, for example, Agosin and Ffrench-Davis, 1996 and 2001). The implication of this view was that the economic authorities should design and implement policies to dampen the impact of capital flows on domestic macroeconomic variables.

The opposite position departed from the assumption that capital flows largely respond to domestic variables, be they long-term (i.e., those affecting the country's risk premium) or related to short-term demand management. In either case, there was no need to worry explicitly about capital flows, and policy makers should concentrate exclusively on improving domestic policies.

Falling risk premiums resulting from economic reform were often cited as the explanation for inflows into Latin American countries in the early 1990s. But persistent capital inflows led to changes in perceptions. Inflows that were deemed "too large" (as they were during a good part of the 1990s in several so-called "emerging markets") were said to result from the insistence in maintaining tight money or lax fiscal policies. In this case, domestic interest rates will rise above risk-adjusted international rates, and large capital inflows will ensue.

Likewise, capital flow reversals and, particularly, massive capital flight, could only be the effect of poor policies. These policies, again, could affect long-term variables (e.g., the risk premium) or short-term ones. The policy misbehavior often cited as responsible for a rise in the risk premium and ensuing capital flight is a chronic fiscal deficit (as in Argentina). As for short-term factors, policies that keep risk-adjusted interest rates below international interest rates would lead to "excessive" outflows.

This view is contradicted by a couple of observations. The theory emphasizing a fall in the country risk premium as a major explanation for capital inflows is easily

disposed of, since countries experiencing large inflows in the nineties included some that had undertaken fundamental, pro-market reforms (the kind of variable that allegedly determines a country's risk premium) and others that had not.

Nor does the theory that “inappropriate policies” leading to high interest rates appear to hold water, since capital flowed into countries with the most varying exchange rate regimes (nominal anchors, floating rates, or crawling pegs); countries with persistent fiscal deficits and others with consistent fiscal discipline; countries where Central Banks practiced tight money and others where monetary policy was loose.

In fact, an early, and influential, analysis of the capital surge to developing countries ascribes it mostly to the effect of falling international interest rates (Calvo, Leiderman, and Reinhart, 1993). There were other factors as well, most of them exogenous to emerging economies. In particular, the recession in developed countries reduced rates of return on capital and made investors look for higher returns elsewhere. Likewise, since the Asian financial crisis, foreign capital has retreated from most emerging economies, regardless of the quality of domestic policies. In some cases, the “sudden stop” (as Calvo, Izquierdo, and Talvi, 2002, have felicitously labeled it) has been particularly traumatic (e.g., Argentina since 2001). In others (Chile), it has had less disastrous, although still quite unfavorable, effects. But in all cases, the reversal of the 1990s inflows has been dramatic, and it has been accompanied by a sharp deterioration in growth performance.

This paper, then, will make the argument that countries in a position to integrate themselves into world capital markets should develop specific policies to deal with capital flows. Such policies should take into account the effects – sometimes desirable, other times deleterious – of capital flows on long-term growth. These include macroeconomic stability, but go well beyond it. Conventional macroeconomic prudence (balanced budgets and sound money) will not be sufficient, because capital inflows are largely exogenous, they are very large relative to the size of the financial sectors of recipients, and they can be volatile and destabilizing. Such volatility normally leads to highly unstable key parameters, such as the real exchange rate and real interest rates, which, as shown below, have an adverse effect on long-run growth and lead to excessive volatility in the real economy.

The scheme of the paper is the following. In section II, some basic facts are presented in favor of the argument that foreign capital inflows are much larger and much more volatile in emerging developing countries than in developed countries; and that their effects on key macroeconomic variables are much stronger. Section III discusses in more detail the two opposing paradigms regarding capital flows. Section IV develops a simple classical open-economy macro model as a benchmark against which to analyze the effects of unfettered capital flows. In this model (which is the basis of conventional advice), there is, of course, nothing that policy makers need to do about capital flows. This would certainly be the case of capital flows that responded to declines in a country's risk premium, since such flows respond to underlying changes in fundamentals and represent a movement between two stock equilibria. "Excessive" inflows or outflows – i.e., those that cannot be explained by stock adjustment phenomena – are always due to poor domestic macroeconomic policies. But once we begin to drop the key assumptions of the model, the effects of capital flows that we observe in reality begin to emerge. This is done in section V. Section VI derives policy conclusions.

II. How important are international capital flows in emerging economies?

The argument of this paper is that capital flows to emerging economies are very large relative to relevant macroeconomic variables; that they are much larger than flows to developed economies; that they are more volatile, and that, as a consequence of these characteristics, they are more destabilizing. There are basically two alternatives for measuring the relative importance of capital flows. One could use an output aggregate, such as GDP, as the normalizing variable. Or one can use a measure of financial market depth. This is what we do here. Capital flows are calculated as a share to broad money supply (M2). In developed countries, M2 is typically larger than GDP. In developing countries, on the other hand, money supply is considerably smaller than GDP. Other indicators of financial development suggest that financial markets in developing countries are even shallower than what one might glean from M2 to GDP ratios. Stock market capitalization, daily stock market turnover, daily bond trading volumes, etc. are all

extremely low, sometimes insignificant. This means that international capital flows to and from stock and bond markets, for example, can produce very large swings in prices.

As shown in table 1, the ratios of capital flows to M2 in the developing countries sampled (which are among the main recipients of capital inflow in the 1990s) are several times (in absolute values) the levels recorded in the developed countries included in the table. Figure 1, which shows these ratios year by year over 1991-2001, highlights the huge differences between developed and developing countries in this regard. When a country experiences inflows of between 10 and 20 percent of its money supply (not uncommon during the 1990s), rather than capital movements (inflows or outflows) between 0 and 6 percent (as in developed countries), the potential for destabilization, and the policy difficulties of dealing with the inflows, are of a higher order of magnitude.

[Insert table 1 and figure 1]

Flows are not only larger (relative to the size of their financial markets) in developing countries; they are also more volatile. The particularly high volatility of flows is described in table 1 in two ways. First, the standard deviation of annual flows relative to M2 is shown to be much larger in developing than in developed countries. Second, we measure average annual ratios of capital flows to M2 for the period characterized by heavy capital inflows (1990-97) and then for the period of foreign capital drought (1998-2001). Again, the changes in the ratio of capital flows to M2 are much larger for emerging economies than for developed countries.

Figure 1, as well, shows graphically how volatile flows have been, with frequent changes of sign in the direction of flows: both inflows and outflows are large relative to M2, and they are prone to change direction from one year to the next. By contrast, flows to and from developed countries show much more predictable patterns: Japan and Switzerland are capital exporters consistently during the 1991-2001 period, and the United States is a consistent capital importer. Canada is somewhere in the middle, but its capital imports or exports are small relative to monetary aggregates.

The volatility of capital inflows is not only, or primarily, of a short-term nature. As table 1 exemplifies, long swings of large inflows (1990-97) are followed by also long swings in outflows or, at least, much diminished inflows (as during 1998-2001). These swings require very large adjustments in the current account. During periods of large

inflows, countries are able to run large current account deficits, which must necessarily become surpluses during periods of protracted outflows.

With their more sophisticated money and capital markets, developed countries have a wider panoply of tools at their disposal to manage capital flows. Given the small relative orders of magnitudes, their deep capital markets, and their thick industrial structures (and, consequently, their greater adjustment capabilities), most of them practice benign neglect of capital flows, inward or outward.

Developing countries, on the other hand, cannot afford that luxury. In the absence of capital controls, during foreign capital surges, countries that peg to a major currency experience an inflating money supply and real exchange rate appreciation through higher prices for non-tradables. Those that float their currency are visited by sharp nominal (and real) exchange appreciation. In both cases, export diversification and the capacity of domestic producers to compete with imports is threatened. During periods of capital outflows, the real exchange rate tends to depreciate, more rapidly in countries with floating exchange rate regimes.¹ As argued below, there tends to be overshooting in both directions.

The greater volatility of exchange rates in developing countries is shown in table 2 and figure 2. Annual changes in real exchange rates tend to be larger in absolute size in developing than in developed countries.² This also holds for the standard deviation of annual changes in real exchange rates. The differences are obscured by the fact that the period 1991-2001 saw both a capital surge to emerging markets (until 1997) *and* its reversal (1998-2001). The depreciations after 1998 tend to cancel out the appreciations during 1991-97. Therefore, the differences between developed and developing countries in exchange rate changes come out more clearly when we take the two subperiods separately. In several cases (Argentina, Brazil, Chile, Colombia, Ecuador, Venezuela), the real exchange rate appreciated by between 5 and 8 percent *annually* between 1991 and 1997. These large appreciations were partially or fully reversed in the years since 1998.

¹ There is an asymmetry between inflows and outflows. Whereas a country can maintain a peg indefinitely during periods of inflows by accumulating reserves, when outflows are severe, floating is inevitable, because reserves are depleted and the country loses access to capital markets. IMF finance, which is supposed to provide a cushion, has proven to be very skimpy.

[Insert table 2 and figure 2]

The time period subdivisions are chosen to coincide with the ebbs and flows of foreign capital in South America (heavy inflows up to 1997, outflows, or sharp declines in inflows, since then). These subperiods are not always suitable for analyzing the behavior of foreign capital in all countries. In Mexico, the appreciation, and the capital inflows, started in the late 1980s and lasted only until 1993. In early 1994, the first symptoms of a capital flow reversal were already evident, with the crisis exploding in December of that year. Total real appreciation between 1990 and 1993 was almost 27 percent; depreciation in the crisis years of 1994 and 1995 exceeded 50 percent. The recovery of market access in the following years up to 2001 led to a renewed appreciation of 38 percent. In the Asian emerging economies included in the table (Malaysia, Korea, and Indonesia), the capital surge came to a halt a year earlier than in Latin America, and so did the appreciation of their currencies. If one takes the period 1991-95 for Korea and 1991-96 for Malaysia and Indonesia, the mean annual appreciation during the capital surge period was 2.6, 3.3, and 2.8 per cent, respectively. The depreciations in Malaysia and Indonesia in the ensuing period averaged 7.7 and 23.2 percent annually, respectively. The behavior of the exchange rate in Korea is more complex. It depreciated considerably during the crisis years of 1997-98, it appreciated again owing to the return of capital inflows in 1999-2000 and was affected by the slowdown in the United States in 2001.

III. All you ever wanted to know about capital flows: two paradigms

As stated in the introduction, two opposite paradigms have been developed in the literature for understanding capital flows to emerging markets: the conventional, capital-account-liberalization, or “Wall Street” paradigm; and the “neoliberalist” paradigm (see table 3 for the main points of divergence).

[Insert table 3]

The basic difference between these paradigms is in the way they see the workings of the economy. The Wall Street view (which is behind much conventional policy advice) tends to think of the economy in terms of a textbook case of complete markets, rapidly

² The exchange rate is defined as units of domestic currency per unit of foreign currency.

adjusting prices, and the classical dichotomy (i.e., monetary variables do not have a lasting influence on real variables). The neostructuralist view stresses the existence of incomplete markets in developing countries (particularly in the financial sector), slow and incomplete adjustment toward equilibrium, and protracted real effects for monetary variables (particularly, the nominal exchange rate).

From its basic premises, Wall Street concludes that capital flows are largely benign, and that any pathology that may be observed is due exclusively to poor domestic policies in recipient countries. As already noted, large inflows could be the transitional manifestation of a change in the desired stocks of national assets held by wealth holders, both national and foreign. An alternative explanation for large inflows is that they persist only because domestic interest rates are above risk-adjusted international rates, and this can happen in situations where monetary policy is too tight or the fiscal stance too lax.³ Clearly, how to distinguish between these two explanations is not easy.

Financial crashes, on the other hand, are almost always ascribed to chronic fiscal deficits (see Mussa, 2002, for an analysis of the Argentinean case along these lines), which raise the country's risk premium. The policy prescription in these cases is simply to get your house in order: correct the deficit and foreign investors should be (eventually) willing to return. Governments of countries experiencing capital flight are also advised to raise sharply short-term interest rates in order to moderate capital outflows, and to allow the domestic currency to depreciate. In particular, governments should not stubbornly hold on to a peg that is patently indefensible.⁴

The neostructuralist paradigm stresses that capital flows can be very destabilizing and, therefore, that developing countries beginning to integrate their financial sectors into international capital markets should do so very carefully. There is no such thing as “equilibrium” capital flows, responding to a known “hard” risk premium, or changes

³ This is, of course, a simplification. There are more sophisticated versions of the conventional paradigm that would ascribe to poor banking regulation or to “crony capitalism” (the connivance between government, banks, and non-bank private final users of foreign credit) a good part of the blame for excessive indebtedness and subsequent crashes (see Eichengreen, 1999, for a description of the various theories explaining financial crises).

⁴ In this respect, there are differences of opinion among “conventional” analyses. In the case of Argentina, when outflows could no longer be perceived as temporary, recognizing the difficulties posed by liability dollarization, some called for going all the way to dollarization, rather than floating and devaluing. In any event, floating – and a dramatic depreciation – proved inevitable.

therein. Capital flows occur because of a variety of factors, almost always the result of changes in the humors of foreign portfolio investors and international banks, and almost never having much to do with domestic policy, although poor policy can exacerbate both inflows and outflows. But good policy is not only conventional macroeconomic prudence (undoubtedly necessary!). It also relates to a coherent and properly implemented policy toward financial integration with the rest of the world, so as to allow the country to pursue macroeconomic policies that keep aggregate demand at levels close to potential output.

Neostructuralists view capital flows as basically exogenous to the recipient economy. Inflows are large relative to the size of embryonic and poorly regulated domestic capital markets (factors, in themselves, characteristic of low levels of development). Moreover, even in the best of circumstances, given the tools available to them and the large magnitudes involved, managing inflows is a difficult task for policy makers. For example, experience shows that it is difficult to sterilize the monetary impacts of capital inflows and to prevent the real exchange rate from appreciating sharply.

Action to dampen inflows is usually resisted, even in policy circles. Episodes of large inflows are perceived by the business community and the public as being quite benign: there is a domestic boom, unemployment declines, asset prices rise. Nobody wants to stop a good thing, which, for all intents and purposes, appears to be permanent (perhaps a reward for good behavior or for having undertaken difficult, market-oriented reforms).

Regardless of how benign the inflows appear to be, sooner or later heavy inflows alter the economy's macroeconomic prices and aggregates and sow the seeds for the ensuing capital outflows. Because inflows are large and difficult to sterilize, they set off increases in the monetary aggregates and a boom in asset prices. The current account deficit bulges, and the exchange rate appreciates in real terms, normally overshooting its (even appreciated) equilibrium. At some point, foreign portfolio investors decide the current account deficit is too large, or that it has been too large for too long, or that the exchange rate has appreciated beyond any reasonable degree (as in Thailand in mid 1997). As it becomes more difficult to finance current account deficits, international

reserves stop increasing and begin to decline. As the situation of the country begins to look much worse than had been expected, panic takes hold of foreign financial asset holders, and domestic asset sales accelerate. Money center banks don't renew expiring credit lines and call in loans. Large capital outflows ensue. Experience shows that this can happen in cases of prudent public sector behavior, and where, therefore, the counterpart of current account deficits is in the private sector (e.g., Korea and Chile), but also in countries where the government has been incorrigibly profligate (e.g., Argentina).

Contagion mechanisms (which are another manifestation of the exogeneity of capital flows) spread the crisis from originating countries to others. Contagion can be "subjective" or "objective". Subjective contagion is the stampede of investors in other economies from the originally hit by the crises who run simply because other investors are doing it. Investors in assets denominated in Korean won panic because they assume that Korea is next, after investors in Thailand have begun to run. Objective contagion is the result of the behavior of institutional investors – be they hedge funds or mutual funds – who, when faced with losses in one market, sell still-good assets of another country in order to meet margin calls or recoup losses.

During the early 1990s, reforms perceived favorably by investors, together with low returns on financial investments in major markets, led to a capital surge to emerging economies. On the eve of the Asian financial crisis in mid 1997, several recipients in Asia and Latin America were beginning to experience the symptoms of changed fundamentals described above. When the crisis erupted in perhaps the most vulnerable country (Thailand, in mid 1997), it spread through contagion to many other countries, some of which shared some of Thailand's vulnerabilities, but also to others that did not.

Several episodes of contagion have occurred since the late 1990s. The first one was the Asian crisis, which engulfed practically all emerging markets in Asia, including countries with solid fundamentals, such as Singapore, Hong Kong, and Korea. The Russian crisis of mid 1998 affected even countries with no economic ties to Russia, such as Brazil. In turn the Brazilian crisis of late 1998 and early 1999 had strong knock-on effects on other Latin American countries. And the protracted Argentinean crisis is still having depressing effects through a drought in international financing on a large number

of emerging economies, some of them with not-so-good domestic policies (Ecuador), others with very good fiscal and monetary management (Chile).

IV. Alice in Wonderland (or a benchmark classical model)

We start from the benchmark classical model (Macroeconomics 101) that underpins the Wall Street view of capital inflows, not because it is an accurate description of reality but because, by dropping the key assumptions that lead to its conclusions, one can arrive at a reasonable analysis of the behavior and effects of capital flows on recipient countries. The benchmark model consists of six equations that describe an economy with three markets: a goods market, a money market, and a market for foreign money. In order to simplify the analysis, all variables are expressed in real terms. Markets clear and long-term equilibrium occurs at high employment (let us say, at the natural rate of unemployment).

Equilibrium in the goods market is just the IS curve of standard macroeconomics, where total saving (foreign and domestic) must equal desired investment. The money market is in equilibrium when the supply of money, m , equals desired money holdings, which depend on income and the interest rate (the LM curve). The balance of payments is in equilibrium when desired capital inflows (which depend on the difference between domestic and risk-adjusted international interest rates) are exactly equal to the desired current account deficit at current levels of income and the exchange rate. This is the BP curve. Finally, the interest rate parity condition – that the domestic interest rate must equal the risk-adjusted international rate – must hold. The fact that we are dealing with a small country that does not affect international interest rates implies that the BP curve is horizontal at a level where the domestic interest rate is equal to the international rate plus the risk premium.

In schematic form, the model is as follows:

$$S_p[Y - T(Y)] + [T(Y) - G] + [M(Y, \varepsilon) - X(\varepsilon)] = I(r) \quad (1)$$

$$m = L(r, Y) \quad (2)$$

$$F(r) = M(Y, \varepsilon) - X(\varepsilon) + \Delta R \quad (3)$$

$$r = r^* + \rho + dE[\varepsilon] \quad (4)$$

$$R_t = R_{t-1} + \Delta R \quad (5)$$

where

- S_p = personal saving
- Y = aggregate income
- I = gross investment
- T = tax revenue
- G = government expenditure
- M = exports
- X = imports
- F = capital inflows, equal to the current account deficit ($M-X$)
- m = real money supply (M/P), where P is the price level
- L = demand for real money balances
- r, r^* = domestic, international interest rates
- ε = real exchange rate (pesos per dollar)
- ρ = country risk premium
- $E[\varepsilon]$ = expected real exchange rate
- R = international reserves
- ΔR = increase in international reserves

We solve the model by imposing the condition that, in equilibrium, income is at its high employment level ($Y=Y_h$) and international reserves are in steady state ($R_t = R_{t-1}$). In effect, then, in equation (5) capital inflows would simply be equal to the current account deficit. Since (in this model) expectations of exchange rate depreciation are nil in the absence of real shocks to the economy, the interest rate parity condition boils down to equating the domestic interest rate to the international rate plus the country risk premium, ρ , which reflects the lower quality of domestic assets relative to those of international capital market centers ($r = r^* + \rho$). The parameter ρ reflects “hard facts” about the domestic economy that are well-known to investors. This solution is depicted in figure 3 by equilibrium at $(Y_h)_0$.

[Insert figure 3]

Now we account for growth. Consider a simple growth model à la Solow; together with the law of capital accumulation, one obtains two additional equations:

$$Y_h = (Le^{(n+\lambda)t})^\alpha K^{1-\alpha} \quad (5)$$

$$K_t = (1-\delta)K_{t-1} + I \quad (6)$$

where:

- n = annual rate of growth of the labor force (exogenous)

λ = annual rate of labor productivity increase (exogenous)
 L = labor force
 K = capital stock
 δ = depreciation rate

In this model, the only reasons that capital inflows might increase are a decline in the country risk premium (ρ) or in r^* , the international interest rate. To simplify, assume that the cause is a decline in ρ , because the country in question is, let us say, instituting market-oriented reforms. The effects will be a fall in the domestic interest rate, an appreciation in the real exchange rate, and a one-time increase in reserves and the money supply.⁵ In this case, the BP line shifts downward and the real money supply rises, shifting the LM curve outwards. But the exchange rate appreciates, which ought to shift the IS curve downward. However, investment also rises with capital inflow. It is not possible to determine a priori which effect dominates. Let us assume that the two effects cancel each other out and that the IS curve stays put. But Y_h will unambiguously move to the right, because investment is higher than before the capital inflow (see figure 3). In fact, since output is at its high-employment level, the only way for output to rise is through the additional capital accumulation brought about by the capital inflow.

What are the real results of capital inflows, then? Aggregate output is higher, and the composition of output shifts to non-tradables. Since there is no reason to be concerned about the composition of output, the main effect appears to be beneficial and takes the form of an increase in steady-state output. In addition, the model does not distinguish between different forms of capital inflow (direct investment, portfolio investment, bank loans, or whatever), which by assumption all wind up having the same effect. They all translate into an increase in investment.

If capital inflows are in excess of what the model would predict, and the exchange rate appreciates too much, it must be that fiscal policy is too loose (raising domestic interest rates above the interest rate parity condition) or that monetary policy is too tight. But these are transitory phenomena that are eventually corrected by appropriate price

⁵ The real exchange rate appreciation will occur regardless of whether the economy is on a floating or fixed nominal exchange rate. The supply of foreign exchange will rise relative to the demand, and its real price (pesos per dollar) must fall. Similarly, in this model the money supply will rise as a consequence of the increase in reserves.

changes. Once the authorities straighten out their policy mix, capital inflows should be just sufficient to finance the equilibrium current account deficit.

Exactly the opposite is the case when capital flows decline. Their fall must be attributed to a rise in r^* (tighter money or looser fiscal policy in capital market centers) or in ρ (fiscal deficits in the borrowing country that go uncorrected for too long, or a backsliding on reforms?). The effects are symmetrical to those analyzed for capital inflows: the domestic interest rate rises, the exchange rate depreciates, the composition of output shifts toward tradables, and steady-state output falls. Again, there is no need to develop an explicit policy toward capital outflows. If they don't stop of their own accord, it must be because the domestic policy environment (large fiscal deficits?) continues to deteriorate. In order to staunch the flow, policy makers must address the underlying causes. Raising interest rates temporarily and validating market expectations of a real exchange rate depreciation (rather than persisting in defending last year's equilibrium or a peg out of line with fundamentals) can facilitate adjustment to the new equilibrium.

V. How the real world works

Reality is considerably more complex and interesting. Capital inflows have been shown to induce powerful (if unsustainable) increases in real incomes, and outflows have led to deep and long depressions (Indonesia and Argentina are the prime examples). In less dramatic extremes, they have been the main factor behind sharp but less durable recessions (Korea in 1997-98) or protracted growth slumps (Chile since 1998).

A. Modifying the assumptions

Let us then proceed to modify the model in some of its key assumptions.

In the long run, output settles at its high-employment level. Output usually settles well short of its high employment level, and the forces that might take it there are weak. This is more likely to happen in a developing economy than in a developed one, for a variety of reasons. These include the existence of mismatches in supply and demand for skills that can be corrected only in the very long run and with considerable

investment, sector-specific physical capital, geographic barriers and financial constraints to factor mobility. This means that any change in relative factor prices, say in the real exchange rate, will lead to slow adjustment. Adjustment to depreciation, which should encourage the production of tradables, is likely to be more difficult than adjustment to appreciation, which stimulates non-tradables and imports (financed with the capital inflows that are responsible for the appreciation). This is because the technology and skill requirements of tradable production, particularly those of goods that are not produced in the domestic economy, are very difficult to meet.

Is output demand determined? Output may also settle far short of its high-employment level owing to insufficiency of aggregate demand (see Dutt and Ros, 2004). This means that the higher aggregate demand associated with capital inflows and the ensuing asset price booms will affect output not only through increased investment, but primarily through rising consumption. In fact, the form that capital inflows take will be crucial in determining which component of aggregate demand rises. When inflows are mainly foreign direct investment in new facilities, investment will increase. But when inflows go into the stock market or take the form of bank loans channeled to the real estate sector (as in the Thai experience prior to 1997), wealth effects will stimulate consumption rather than investment. Furthermore, experience shows that currency appreciation gives a strong boost to consumption, as real wages rise (due to the fall in relative consumer prices).

Does a stable, fundamentals-determined, risk premium exist? The benchmark model assumes a fairly constant or slow-changing country risk premium responding to variables that change slowly and are known with certainty by all market participants. But the country risk premium is not a hard fact. It depends on market participants' assessments about the future course of an economy and policy making. Experience has shown that these perceptions can be very volatile and that they have only a tenuous relationship to the quality of policy making or long-term growth prospects. Country risk premia (as measured, say, by the spread of country debt over U.S. Treasuries) have been observed to change markedly and to follow swings. For example, the spread on Brazilian

debt rose consistently from the time the election polls indicated that Lula had a high probability of winning the Presidential election, but began a sharp downward course almost immediately after his election and, by mid 2003 had reached levels that were lower than before the steep pre-election climb. The spread on Turkish debt fell dramatically during the first quarter of 2003, apparently because markets considered the new government to be stronger than the outgoing one, and in spite of the fact that little had been done to contain a very high level of public debt and a debt service to tax revenue ratio that was around 90 percent!

Do changes in the risk premium determine changes in capital flows? Changes in the direction of capital flows are not necessarily reflected in country risk premia on government debt. For example, recent declines in capital flows have been accompanied by stable or even lower risk premia in some countries. In Chile, the sovereign risk spread has remained fairly stable, but FDI has fallen from over 5 per cent of GDP to about 1 percent, and foreign investment in the Chilean stock market has disappeared. Likewise, in Central America, there has been an improvement in access to international public debt markets (and falling spreads), but capital flows generally have declined.

Capital flows are not homogeneous. There are different kinds of capital flows, and the agents behind them are different. Generally, one can speak of five kinds of flows: foreign direct investment, portfolio investment in stocks and bonds, international bank lending, and, in some countries that still qualify, concessional loans and grants. The motivations of agents who carry out these various transactions vary greatly. Only bank lending can be thought of as arbitraging risk-adjusted interest rates. This distinction is crucial for policy making. At one end of the spectrum, FDI flows tend to have long horizons and are unlikely to respond to changes in interest rates.⁶ At the other, short-term bank lending and portfolio investment have a speculative element that renders them volatile, herd-like, and particularly prone to reversals.⁷

⁶ However, multinationals with access to international capital markets and deep pockets are certainly able to take advantage of short-term currency and interest rate arbitrage possibilities.

⁷ The conventional definition of FDI includes both greenfield investments and purchases of existing assets (as long as the purchase exceeds 10 percent of the capital of a firm). Recent years have witnessed a

The corollary of the above distinction between agents behind capital flows is that a varying fraction of capital inflows winds up as real investment. And even foreign direct investment does not always crowd in domestic investment, especially in the short term (Agosin and Machado, 2004).

What determines real exchange rates? The benchmark model also assumes that expectations of real exchange rate change are based only on fundamentals. As already noted, the conventional model assumes a fundamentals-determined real exchange rate; in other words, in the absence of external shocks (e.g., terms of trade), $dE[\varepsilon] = 0$. Reality shows that real exchange rate expectations are also subject to humors. In fact, they are an integral part of the mechanism that amplifies the effects of capital surges or capital flight. When capital inflows are large and expected to continue, market participants also expect appreciation. Everybody sells foreign currency and buys the peso. Domestic asset holders behave the same way as foreigners. The domestic currency is likely to become excessively appreciated, until the mood turns. During episodes of capital flight, the generalized expectation is that the peso will depreciate, so everybody, foreigners and nationals alike, sell it. The result is overshooting in the other direction.

B. What happens during capital inflow episodes?

The analytics of capital inflows can be traced with the help of figure 4, which depicts a standard Mundell-Fleming macroeconomic model without assuming that output is at its long-run equilibrium of Y_h . In fact, in keeping with the neostructuralist paradigm, it is assumed that the normal state of affairs is for output to settle below Y_h , for both supply and demand reasons. In addition, we drop the assumption of a well-behaved country risk premium, ρ , so that domestic interest rates are no longer in lockstep with international rates. The domestic interest rate does have a floor (which is above international rates), but the spread between it and the relevant international rate can be extremely variable.

[Insert figure 4]

spectacular rise in FDI of the latter kind. These are more akin to portfolio investments by large multinational holding companies. They are, of course, more difficult to dispose of than small

Capital inflows can be set off by a variety of causes. For example, portfolio investors can come to believe that a given country (or, more likely, a group of countries) has introduced fundamental, market-oriented, reform. This is akin to a lowering of the country risk premium. As noted, such an event can elicit very sharp increases in capital inflows. Some Latin American countries are cases in point. From the large outflows of the 1980s, several countries in the region swung to inflows that were in the order of 5 to 10 percent of GDP, and, as noted, considerably higher as a proportion of relevant financial variables. Even assuming that the authorities wish to do so, it is very difficult to sterilize the effects of such large inflows on money and aggregate demand. The economy experiences a boom, liquidity constraints are relaxed, asset prices rise. The big boost in demand is in the non-tradable segments of the economy (real estate, commerce, finance). Although the production of tradables is discouraged by exchange rate appreciation, real income and employment rise.

There are amplifying mechanisms that determine a positive feedback loop taking the economy away from equilibrium. The boom is often amplified by enhanced expectations of exchange rate appreciation and the ensuing asset substitution in favor of the domestic currency. This amplifies the appreciation of the exchange rate, making importable consumer goods even cheaper and giving a further boost to real incomes.

Another amplifying mechanism is the way fiscal policy operates in most developing countries. Fiscal policy is endogenously procyclical rather than anticyclical (see Braun and Di Gresia, 2003). Automatic stabilizers such as unemployment insurance and progressive income taxation are weak or absent. Moreover, during periods of bonanza, there are strong pressures to increase spending. And the capacity of the government to spend is enhanced by larger tax revenues. As the domestic currency appreciates and international interest rates available for the country decline, debt servicing declines as a proportion of tax revenue, leaving more resources available for spending.

Figure 4 presents a modified version of the benchmark model in which the economy is out of long-term equilibrium (aggregate supply is below high employment income, Y_h , to start out with, and there are no forces taking it there). In terms of this

shareholdings, which can be liquidated instantaneously.

model, capital inflows raise the real supply of money more than its demand,⁸ displacing downward the LM curve, discouraging exports and import substitutes through currency appreciation. Since only a fraction of capital inflows takes the form of real investment (and even that fraction may crowd out a certain amount of domestic investment), the depressing effects of currency appreciation on exports and importables may well outweigh the positive impact of inflows on investment, shifting the IS curve downward. However, the government is flush with tax revenue, encouraging it to increase expenditures (which counteracts the dampening effects of lower production of tradables and the downward shift in the IS curve). In the end, aggregate income rises towards high-employment income. The boom can be steep and it lasts while net capital flows remain positive.

[Insert figure 4]

C. ... and during capital flight?

But this is not the end of the story. As already noted, currency appreciation, mounting debt, sagging exports, and eventually slackening growth may cause financial investors to reassess their good rating of a country. As investors and banks first fail to roll over debt coming due or stop making net purchases of other domestic assets, foreign exchange reserves fall, firms and consumers begin to cut back on expenditures, and the negative expectations of financial investors are validated.

Expectations of real exchange rate depreciation amplify the positive feedback cycle, with everybody dumping the domestic currency in favor of dollars. Fiscal policy, the other amplifying mechanism, also contributes to the decline in activity. As the government loses its capacity for taking on new debt, expenditures must be cut. Currency depreciation and increases in international interest rates cut into the public resources available for spending, so that the collapse of government spending amplifies the downward spiral. The end result is a sharp contraction of economic activity.

The economy can get stuck in a low-income quasi equilibrium, depicted in figure 5. The BP and LM curve have shifted upward, the IS curve has shifted downward as

⁸ The demand for money also increases. That is the essence of asset substitution (in favor of the peso, in this case).

investment, consumption, and public spending collapse, and the new equilibrium is at a much higher domestic interest rate (r_I). Although the exchange rate has depreciated, this does not generate new exports (or production of import substitutes), because the banking sector has been crippled and is unable to extend credit. International credit lines to domestic banks and exporters are also shut down. Therefore, the IS curve cannot return towards its original position as a result of depreciation. Monetary policy is impotent, since any increase in money supply translates into higher, unsatisfied, demand for foreign currency, and reserves are effectively exhausted. Income shrinks and unemployment soars.

[Insert figure 5]

VI. Policy conclusions

Capital flows can produce great upheavals in countries that are beginning to integrate into international capital markets. Policies toward capital flows must be developed to face the prospects of large and destabilizing inflows, as well as large outflows. They are an integral part of good macroeconomic management. But governments can do more to ensure that capital flows contribute to development. We explore some of these dimensions of policy in this concluding section.

A. A case for managing capital flows

The experiences of some countries (Chile, Colombia, Malaysia, China, and Taiwan) indicate that a wide variety of unorthodox policies to deal with excessive inflows and/or outflows can be quite successful and cause minimal distortions. These run the gamut from variable taxes on capital inflows to outright controls.

This is not to validate the use of *any* kind of controls. In some countries controls have been abused and/or used as a vehicle for corruption. On the other hand, the bad experience of some countries should not lead to the opposite, also erroneous, conclusion that controls can never work. The experience of the countries listed in the preceding paragraph belies such a proposition.

Variable taxes on inflows (the rate depending on the strength of the surge) can be implemented directly or can take the form of unremunerated reserve requirements (URR)

for a fixed period. The latter, used by Chile until capital flows vanished in 1998, and by Colombia, have the advantage that they can be imposed directly by the Central Bank and do not require legislation by Congress. They are particularly onerous for short-term round tripping seeking to take advantage of temporary interest rate differentials or stock market plays, but have practically no incidence on long-term flow (see Agosin and Ffrench-Davis, 2001, annex, for a calculation of the impact of URR on the cost of borrowing at different maturities). The cases of Chile and Colombia show that they can be quite effective in dampening total inflows and in changing their composition away from short-term inflows during periods of heavy demand for the domestic currency.⁹

Other countries have used direct controls, either on inflows or outflows, to good effect. Malaysia used capital controls to protect its domestic economy from capital flight during the Asian crisis.¹⁰ China has a tightly controlled capital account. And Taiwan was in the process of cautiously liberalizing its capital account when the Asian crisis hit. The direct interference of its Central Bank with capital inflows and outflows was useful in preventing the violent swings in aggregate demand and output that occurred in Asian countries such as Indonesia and Korea, which had adopted a much more liberal approach to capital flows (see Agosin, 2001a, for a detailed comparison of Taiwan and Korea).

B. Exchange rate policy: the empty extremes

There are other policy implications for developing countries that are worth highlighting. One of them refers to the exchange rate. There has been a debate as to whether developing countries ought to continue to manage exchange rates or should opt for one of the two extreme regimes: a free float or a fixed peg (for different views, see Frankel, 1999; Velasco, 2000; Larraín and Velasco, 2001; Williamson, 2000; and Ffrench Davis and Larraín, 2003). The new conventional wisdom has been labeled the “empty

⁹ In the Chilean case, there has been a stormy debate on how effective URR have been (Agosin and Ffrench-Davis, 2001; Lefort and Lehman, 2003; De Gregorio, Edwards, and Valdés, 2000). For an analysis of the Colombian case, see Cárdenas and Barrera (1997); and Ocampo and Tovar (2003). Some claim that the effect of the URR has been only to change the composition of inflows, but that they have not affected total flows. However, for this to be true, while discouraging short-term operations, the URR would have had to *increase* long-term capital inflows. This is highly unlikely. Therefore, a decline in short-term flows should have led to a fall in total inflows as well.

¹⁰ The Malaysian experience is described in Khor (2003).

middle”: that the best exchange rate regime is necessarily one of the two extremes, free floating or an ironclad commitment to a fixed parity.

If capital flows are exogenous and as large and volatile as I have argued in this paper, and if foreign exchange markets are shallow in recipient countries, the conclusion is quite different: what is empty is not the middle but the extremes.

In the face of difficulties in sterilizing capital inflows and a lot of amplifying asset substitution, a fixed exchange rate leads to wild swings in domestic activity, with an inflating economy during upswings and a depression during outflows. The real exchange rate appreciates sharply during inflows, as the prices of non-tradables rise as a consequence of the expansion of liquidity. The appreciation not only reduces tradable production but also tends to destroy installed capacity and to discourage investment in tradables. But when the crisis hits, a real depreciation is much more difficult to engineer with a fixed nominal rate, because domestic prices and wages are sticky. The result is a depression in employment and output. Argentina’s experience is paradigmatic of this corner “solution”, which has shown how undesirable it can be.

Neither is the other corner, the totally flexible nominal exchange rate, all that great. With large and volatile capital flows, a flexible exchange rate regime without official intervention would result in even wilder swings in real exchange rates than with totally fixed rates, which would impart a good deal of noise to relative prices, discouraging investment and lowering growth. This may be a reason why no developing country has stuck to this “solution” for very long. Even those Central Banks that claim to float do intervene in foreign exchange markets to prevent severe misalignments.

Thus the exchange rate conundrum is not so easily sidestepped. Dampening oscillations in capital flows would indeed make exchange rate management easier. But since policy makers are unlikely to be able to eliminate altogether the swings in capital flows, the exchange rate regime becomes an important complement in reducing the amplitude of the capital flow cycle and in moderating its impact on the domestic economy. Some sort of band (perhaps with a crawl to take into account differential inflation) is likely to be superior to both a fixed peg or an unfettered float (see Williamson, 2003). In fact, by imparting some uncertainty as to the future of the exchange rate, a band in itself discourages some interest rate arbitrage. Mistakes can be

quite costly for currency market players when the Central Bank is not offering complete exchange rate cover for free.

Contrary to the current academic fad, there is no such thing as an optimal regime. The choice has more of art than science and is likely to include a band with hard edges (to give certainty to long-term investors in tradables); bands that are sufficiently wide as to allow for some flexibility but not so wide as to lose all meaning; and dirty floating within the band.

C. Monetary policy during capital flight: a contrarian view

When faced with capital flight, should developing countries raise interest rates to encourage wealth holders to keep their assets in domestic currency and allow the exchange rate to depreciate to wherever the market will take it? Furman and Stiglitz (1998) and Radelet and Sachs (1998) argue that such policies simply accelerate capital flight by pushing borrowing firms and domestic banks into bankruptcy. They are surely right.

In addition, tight money has adverse distributional effects. While the problem arose in the first place due to excessive borrowing in foreign exchange by large firms and banks with access to international financial markets, the “cure” of high interest rates affects primarily those companies that do not have access to borrowing in foreign currency (mostly small and medium-size enterprises). Besides, by bankrupting many firms, tight money places in jeopardy the banking system, which experiences a dramatic rise in non-performing loans and declines in liquidity, in turn causing banks to reduce their lending and call in loans.

The best policy is to avoid getting into that rut to begin with, and this means discouraging excessive inflows. But, again, in a world of international capital volatility, even the best policy is unlikely to prevent crises altogether. Once a run on the currency gets under way, the only sensible thing to do is to call a halt: impose capital controls and seek an orderly way out of the mess. This ought to be accompanied by exchange rate and interest rate policies that avoid bankrupting solvent banks and profitable firms.¹¹

¹¹ Recent financial crises have shown that solvency and profitability depend crucially on the exchange rate-interest rate configuration. Steep depreciations and sky-high interest rates push firms into bankruptcy that

D. Developing the tools for counter cyclical fiscal policy

Governments find it very difficult to avoid spending during booms, and many emerging countries wind up increasing their borrowing even in good times. In fact, the creditworthiness of emerging country governments tends to improve during periods of capital inflows, encouraging them to increase spending with borrowed funds. In order to practice counter cyclical fiscal policy, however, the public sector must generate a surplus during expansions. This will allow it to run a deficit during recessions and counter the dampening effects on the economy of private sector retrenchment.¹² The surplus generated during booms needs to be saved, by increasing assets or diminishing liabilities. If assets are increased, they should preferably take the form of foreign asset accumulation, since recessions are almost always caused, or accompanied by, capital flight, which can be stemmed if foreign assets have been accumulated during the boom. In addition, since the public sector would have lower debt ratios under this kind of policy, it would retain better access to international financial markets during recessions.

If governments can keep to it, a structural fiscal rule is a good thing. This rule – as applied in recent years, for example, by Chile – specifies that the budget must be balanced over the cycle.¹³ The size of the permissible deficit in bad times (as tax revenues fall) would be contingent on the estimation of the high-employment fiscal balance.¹⁴ Of course, this is feasible only if the Central Bank has sufficient reserves, or access to foreign credit, when times are bad. High levels of debt are likely to be particularly damaging during downturns, since borrowing is practically impossible. This is an argument for keeping foreign indebtedness low during good times.

In cases where cycles are produced by commodity price changes, the argument for commodity stabilization funds has been well rehearsed in the literature. Suffice it to

are otherwise profitable, and banks can be made insolvent by the choking up of credit lines associated with capital flow reversals and the bankruptcy of their borrowers. Things are made worse by the steep falls in output that accompany financial crises.

¹² For a fuller exposition of this point, see Ocampo, 2002.

¹³ In the case of Chile, the target adopted is a one percent structural surplus. There are, of course, methodological issues involved in the measurement of the surplus that have given rise to quite a bit of debate.

¹⁴ In other words, one would need to calculate the fiscal balance that would have resulted had the economy been close to full employment. This is the “structural” balance.

say that it is symmetric to the one made here: when commodity prices rise, the temporary increase in government revenues and in foreign exchange ought to be sterilized, to be spent later to dampen the macroeconomic effects of the downswing in prices. If they are to work as they are intended to, stabilization funds require very disciplined governments that eschew the temptation to spend their surpluses during good times.

E. Implications for banking supervision

The analysis of this paper also has implications for banking supervision. Banks are key institutions in the generation of a financial crisis and the amplification of its effects (see Goldstein, Kaminsky and Reinhart, 2000; Kaminsky and Reinhart, 1996). Bank supervision should strive to prevent banks from holding net debtor positions in foreign currency. This, of course, is easier said than done. Regulators must take into account that some of the banks' assets may be denominated in foreign exchange only nominally. If loans in foreign currency are extended to producers of non-tradables, the denomination of the loans will not solve the problem. On the contrary, it will make things worse in the case of sharp currency depreciation: borrowers may well go bankrupt or default on their loans, and creditor banks will be unable to service their own foreign loans. Although not easy, the avoidance of net exposures in foreign currency in the banking sector has been achieved in some countries with sophisticated regulatory environments.

The rules regarding provisioning against bad loans are also intimately bound up with whether the banking sector acts as a buffer or an amplifier of booms set off by capital inflows and the ensuing busts that occur with capital flow reversals. During booms, all projects tend to look good, even those whose profitability across the cycle is lower than the interest rate on borrowed funds. Exactly the opposite occurs during capital flow reversals: projects that are profitable in the long run tend to experience difficulties in servicing their debts when money markets tighten and demand falls, however temporary such phenomena may be. So, if they are not to amplify the effects of capital surges and cause unnecessary bankruptcies during capital flight, provisioning rules should consider the profitability of projects financed through bank lending during the entire business cycle. This means that provisioning will have to constitute a higher ratio of total lending

than in developed countries. It also implies that there will have to be more provisioning and less lending during booms and more lending and less provisioning during busts.

F. A new international financial architecture: reviving the discussion

Last but not least, the arguments developed in this paper have important implications for the redesign of the international financial architecture. The Asian crisis highlighted the shortcomings of international financial institutions to deal with the globalization of finance and gave rise to a lively discussion in academic and policy circles.¹⁵ Perhaps owing to the lack of action, this discussion has lost momentum, and many interesting proposals have been left in a sort of limbo. The exogeneity of capital flows and the strong contagion effects to which financial markets are prone suggest that, in the absence of institutional reform and in spite of improved national policies to deal with capital flows, international financial crises will remain a fixture of the international economy. As shown in this paper, these crises tend to fall mostly on emerging economies, with very adverse effects on their development process.

A full treatment of this topic is outside the scope of this paper. Here we will note only three dimensions. One strand of proposals is to create – or transform the IMF into – an international lender of last resort. This idea has been discussed extensively in the literature (see Agosin and Ocampo, 2001; and Ocampo, 1999). In fact, the IMF had moved part of the way in this direction by creating the Contingent Credit Lines (CCL), which were designed to assist countries afflicted by contagion but which otherwise are following unimpeachable macroeconomic policies. Countries that could be certified ex-ante as having appropriate policies would have access to the CCL when hit by a crisis. The facility itself was discontinued in 2004, because no country decided to sign up for it, perhaps because of fears that doing so might have sent a negative signal to financial markets. In addition, it was not clear whether the sufficient financing for confronting a crisis would have been forthcoming and whether the conditionality attached to its use would have been truly ex-ante.

One problem with ex-ante certification is that it is difficult to identify what are the “correct” policies that countries ought to be following. In a sense, as discussed in this

¹⁵ See Eichengreen, 1999; Ocampo, 1999; Kenen, 2001; Ahluwalia, 1999; and Akyüz, 2000.

paper, each “model” yields different policy recommendation. Second, policies that appear to be fine before a crisis look a lot worse once capital flight is underway. This is the problem of multiple equilibria, which has figured prominently in the recent literature on international financial crises. Third, some observers fear that, by ensuring the availability of finance in case a crisis hits, pre-certification could lead to moral hazard problems, e.g., to the worsening of the policy framework that originally made the country eligible for the facility.

Even though dealing with all the difficulties involved will not be a simple task, if systemic financial crises are to be dealt with appropriately, the international financial architecture will have to come to include an international lender of last resort. Developing countries are very small boats in the turbulent ocean of international finance. Even with the best policies, they cannot be expected to deal with the issue of volatile capital flows on their own. Therefore, options for structuring an international lender of last resort that deal the problems identified above should be a priority on the international research agenda.

Another variety of proposals would establish a sovereign debt restructuring mechanism (SDRM) for governments that are unable to service their sovereign debts, much in the spirit of Chapter 11 of the United States bankruptcy laws. The most fully articulated version of this kind of proposal is the one put forward from the IMF by Anne Krueger (2001) and at various times by UNCTAD (various issues). This alternative would assist both debtors and creditors to emerge from crises that have already occurred in an orderly fashion while minimizing losses in output on the part of debtor countries and in capital investment on the part of creditors. However, the Krueger proposal has been received coolly in financial markets, has been put on ice, and is unlikely to be revived any time soon.

It should be noted, though, that the SDRM-type solution deals only with sovereign debt in the private market and does nothing to resolve the problems of excessive private capital inflow to private borrowers (bank lending) or portfolio investments; and the ensuing capital flight once fundamentals have changed. For government debt, the best solution is undoubtedly moderation on the part of borrowers and lenders. The profuse literature on public debt sustainability that has emerged in

recent years should assist governments in framing more appropriate fiscal policies to avoid excessive indebtedness and public debt crises. The discussions above on anti-cyclical fiscal policies could also be useful. It should be recognized, however, that protracted downswings, a la Argentina (GDP contracted by almost 20 per cent in 1998-2002) are particularly difficult to deal with. In the absence of official support, fiscal contraction at a time of capital flight only makes things worse. If an overall framework for a lender of last resort is in place, the problem can be made easier to deal with, and fiscal contraction that winds up causing even larger damage to the economy may turn out to be unnecessary.

A third set of proposals takes into account the fact that contagion has a regional dimension. This being the case, the regional pooling of reserves, by making much larger funds available to individual countries, may discourage speculation against their currencies. This type of proposal is more likely to be implemented in one form or another. The less ambitious one involves simply a pooling of reserves at the regional level. In Asia, this is already occurring in the framework of the Chiang Mai agreement between China, Japan, and a group of emerging economies in Asia (Henning, 2002). A more ambitious version would be to create regional monetary funds, which could take on a number of roles, including the provision of international finance to stem contagion and to tide countries over periods of deteriorating terms of trade (Agosin, 2001b).

In the meantime, it is important that countries integrating into international capital markets maintain much larger levels of reserves or establish access to lines of credit to deal more effectively with runs on their currencies. In a financially integrated world, the usual measure of reserve adequacy (months of imports) has lost meaning. Countries ought to back with reserves a prudent share of their money supply, which is the basis for demand for foreign exchange during financial crises.

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Table 1
Annual capital flows to developed and emerging economies,
as a share of M2, 1990-2001
 (percentage)

	1990- 2001 Mean	1990- 2001 St. dev.	1990- 1997 Mean	1990- 1997 St. dev.	1998- 2001 Mean	1998- 2001 St. dev.
Japan	-1.4	0.9	-1.6	0.7	-1.2	1.2
Canada	1.0	3.4	2.3	3.1	-1.2	2.2
United States	3.2	1.8	2.6	1.1	4.6	2.0
Switzerland	-6.0	2.1	-4.9	1.5	-7.7	1.6
Korea	3.6	4.6	4.8	4.6	0.0	4.3
Brazil	7.0	7.3	5.1	7.6	10.8	4.7
Indonesia	1.8	9.9	8.0	4.0	-8.6	5.9
Malaysia	5.5	10.2	11.1	7.4	-4.1	4.0
Venezuela	-2.9	15.5	-2.7	18.3	-1.3	9.6
Chile	12.7	8.8	17.3	7.0	7.0	7.7
Colombia	12.7	14.4	15.8	16.3	10.6	11.6
Mexico	16.2	12.4	16.7	15.2	16.7	5.5
Ecuador	-5.8	53.0	10.2	14.1	-30.3	78.3
Argentina	11.2	21.3	13.1	23.6	10.3	16.9

Source: International Monetary Fund, *International Financial Statistics*, various issues, Washington, D.C.

Table 2
Average annual changes in the real exchange rates of selected
developed and emerging economies, 1991-2001
 (percentage)

	1991- 2001 Mean	1991- 2001 St. dev.	1991- 1997 Mean	1991- 1997 St. dev.	1998- 2001 Mean	1998- 2001 St. dev.
Japan	-1.2	10.3	-2.1	10.3	0.3	11.8
Canada	2.0	3.8	1.4	4.3	3.0	3.0
United States	-1.3	5.4	0.9	4.8	-5.0	4.5
Switzerland	-1.5	4.0	-1.0	4.6	-2.4	3.1
Korea	2.7	12.8	0.2	6.4	7.2	20.5
Brazil	6.8	20.3	-5.2	4.6	18.7	23.6
Indonesia	11.2	36.9	3.4	10.7	24.9	62.5
Malaysia	1.7	10.5	-1.5	5.9	7.3	15.3
Venezuela	-6.5	12.5	-5.8	14.7	-7.6	9.3
Chile	-0.1	7.9	-5.0	3.6	8.4	5.4
Colombia	-1.6	9.9	-7.4	5.7	8.5	6.8
Mexico	-2.4	16.9	-0.6	21.5	-5.5	2.8
Ecuador	-0.6	18.0	-5.3	4.8	7.6	29.8
Argentina	-4.0	10.0	-7.5	10.8	2.2	4.4

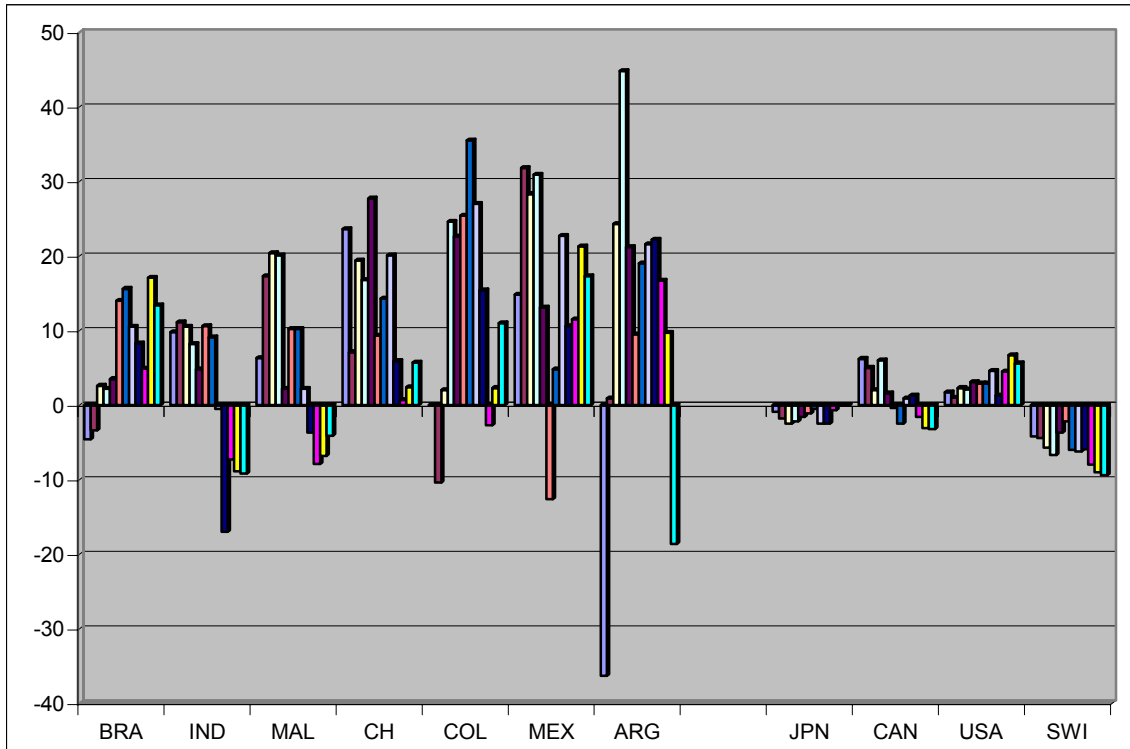
Source: International Monetary Fund, *International Financial Statistics*, various issues, Washington, D.C.

Note: Real exchange rate defines as units of national currency per unit of foreign exchange. For developed countries, real exchange rates are the inverse of the real effective exchange rate index, as reported by IMF in *International Financial Statistics*. For developing countries, the real exchange rate is defined as the price of the dollar in domestic currency, deflated by the consumer price index, multiplied by the wholesale price index for industrial producer goods in the United States. The Brazilian series begins in 1994.

Table 3. The two paradigms

	Wall Street	Neostructuralist
Nature of the economy	Flexible wages and prices; full set of markets; high employment output maintained; classical dichotomy of monetary and real variables	Markets don't clear; constrained equilibria; variable unemployment; undeveloped financial markets; monetary variables affect real outcomes
Nature of international capital markets	Capital flows are the product of rational decisions made with complete information (or behave "as if")	Asset decisions made on the basis of incomplete information; herd behavior; contagion in both directions
Causes of capital flows		
Changes in "expected" flows	Changes in country risk premium	No such thing as "normal" or "expected" inflows
"Excessive" inflows	Tight monetary policy and/or lax fiscal policy, which raise domestic interest rates	Exogenous to country, though aggravated by policy (e.g., liberalization of capital account, procyclical fiscal policy)
"Excessive" outflows	Chronic fiscal deficits	Consequences of excessive inflows
Effects		
Inflows	Exchange rate appreciation; increase in aggregate output; shift of resources to non-tradables	Overshooting exchange rate appreciation; unsustainable increases in output, employment and wages; asset price boom; shift of resources to non-tradables; increase in output, but fall in exports; rapidly rising current account deficit
Outflows	Exchange rate depreciation; fall in high-employment output; high employment maintained; shift of resources to tradables	Overshooting exchange rate depreciation; fall in investment, consumption, output, employment, and real wages; no increase in output of tradables; banking and fiscal crises; asset price crashes
Policies required		
Excessive inflows	Tighten fiscal policy; relax monetary policy	Tax capital inflows; accumulate foreign assets for bad times
Excessive outflows	Correct persistent fiscal deficit; raise domestic interest rates; allow strong depreciation	Outflows less likely to be excessive, if previous inflows were not; avoid high interest rates and maintain credit lines; exchange controls to avoid overshooting

Figure 1
Capital flows to emerging and mature economies, as a share of M2, 1990-2001
 (percentage)

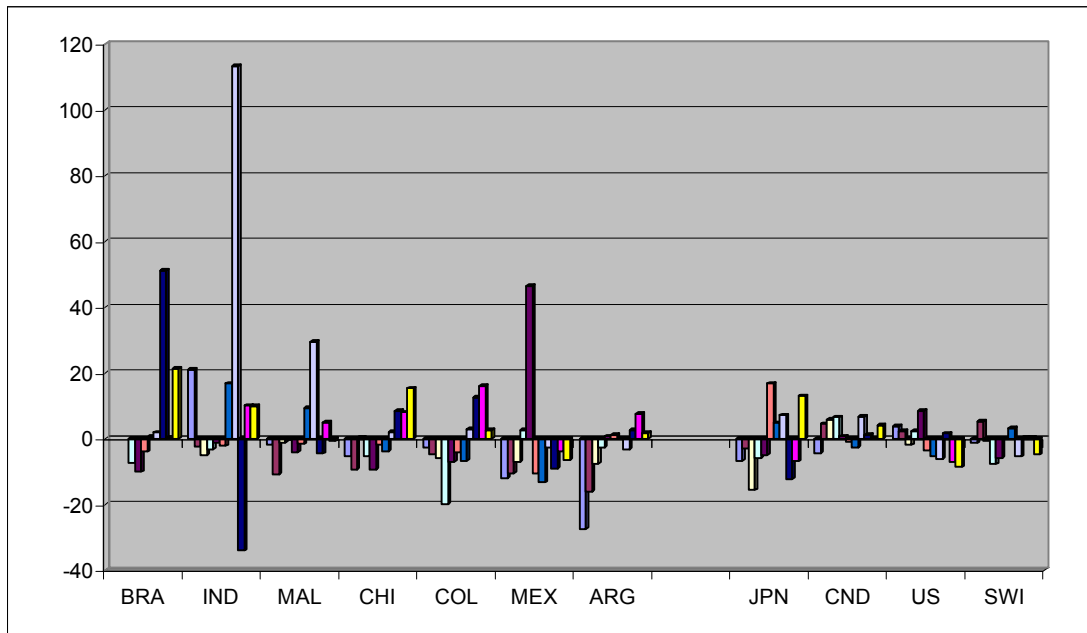


Source: International Monetary Fund, *International Financial Statistics*, several issues, Washington, DC.

Note:

Emerging economies are: Brazil (BRA), Indonesia (IND), Malaysia (MAL), Chile (CH), Colombia (COL), Mexico (MEX), and Argentina (ARG). Developed economies are: Japan (JPN), Canada (CAN), United States (USA), and Switzerland (SWI).

Figure 2
Selected developed and developing countries: Annual real exchange rate variation
(percentage)



Source: International Monetary Fund, International Financial Statistics, various issues.

Figure 3. Effects of capital inflow in the benchmark classical model

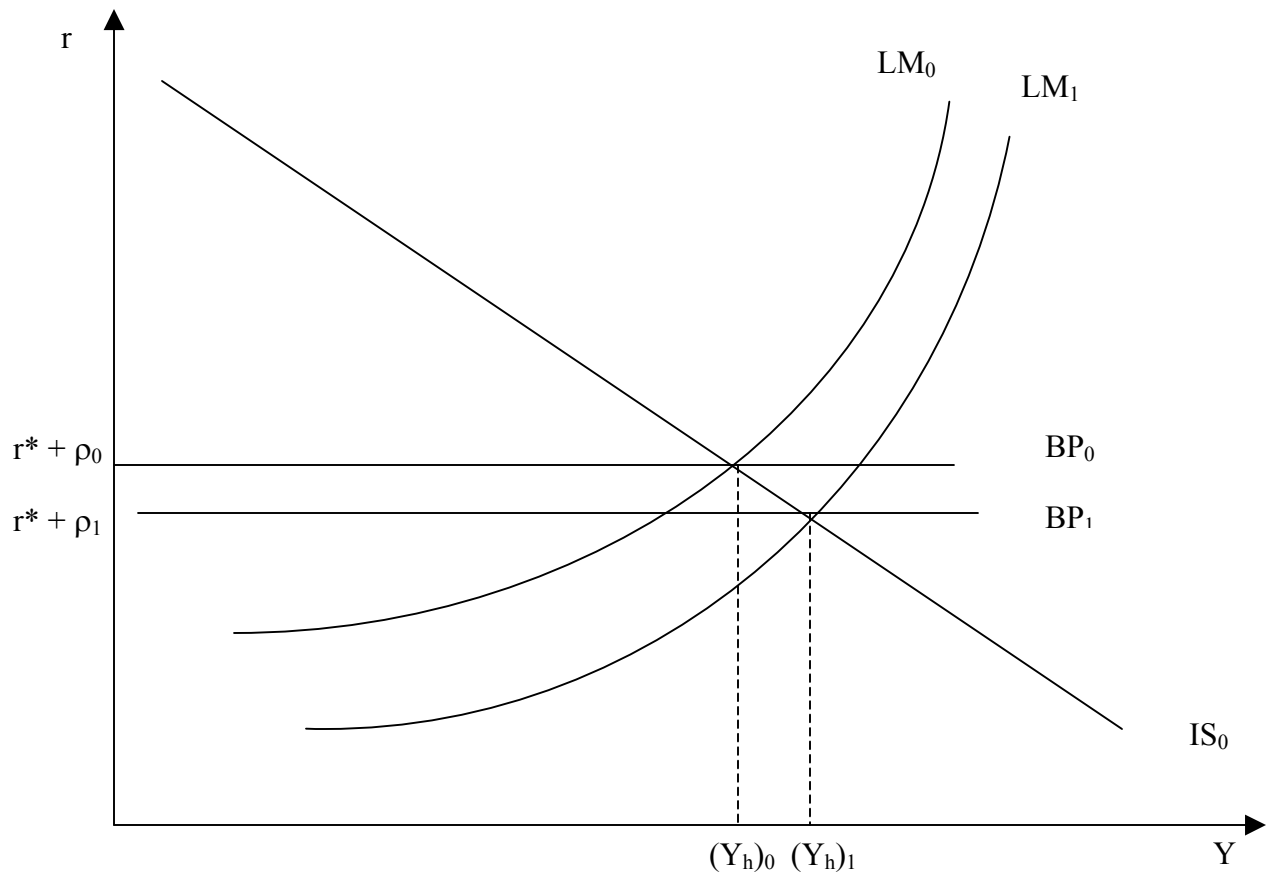


Figure 4
Effects of capital inflows in the neostructuralist paradigm

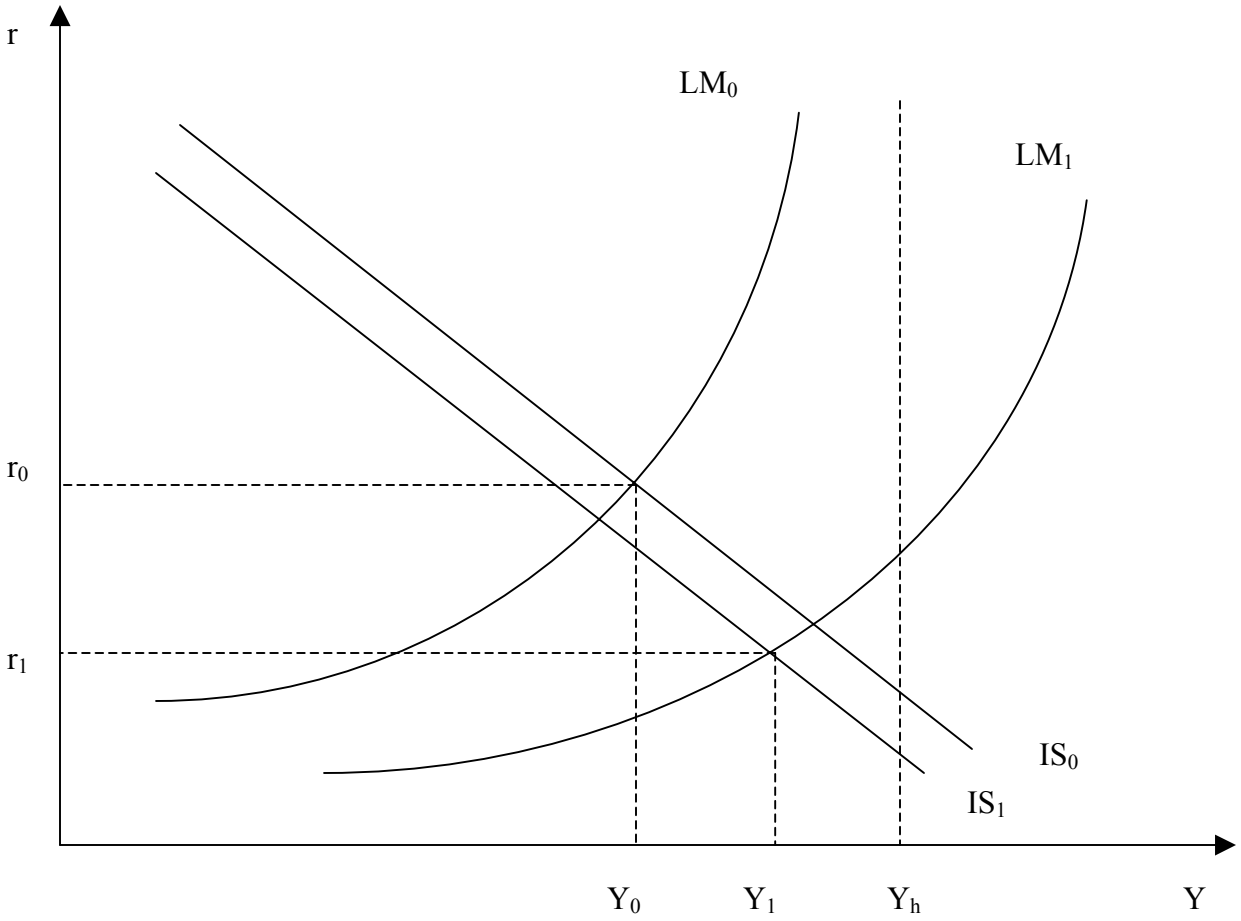


Figure 5
Capital outflows in the neostructuralist paradigm

