

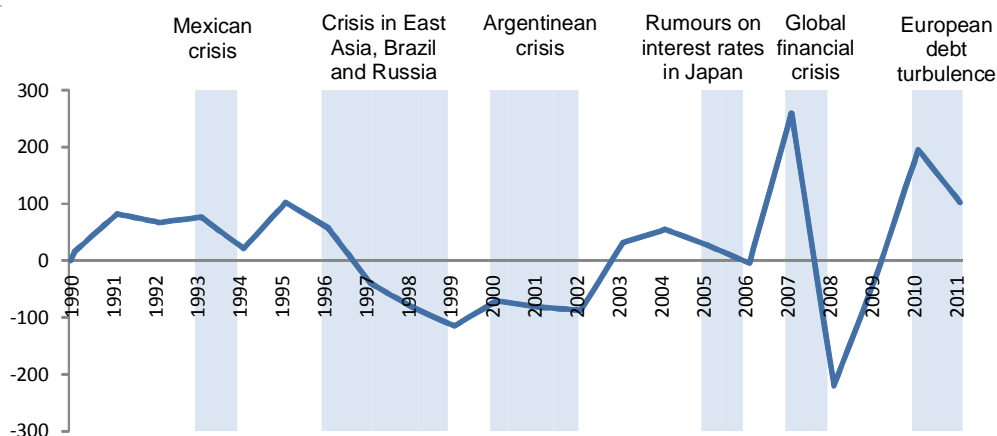
Dealing with Exchange Rate Issues: Reserves or Capital Controls?

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1. Introduction

Developing countries' positions regarding the capital account have changed significantly in the last decade. After a period of wide liberalisation, country authorities have now been constantly increasing their policy toolkit with new instruments to intervene in the capital account and limit the consequences of excessively volatile capital flows. This change is a response to the increasing size and volatility of capital flows, which is associated with the process of financialisation that has been taking place in recent decades, where financial actors and motives have assumed more important roles. The increasing magnitude and volatility of finance-related flows are clearly shown in Figure 1, which presents the net financial flows excluding Foreign Direct Investment (FDI) received by developing and emerging countries since 1990.²

Figure 1
Net Private Financial Flows Excluding FDI: Emerging and Developing Economies, 1990–2011 (US\$ billions)



Source: UNCTAD 2011, updated. Based on IMF, World Economic Outlook, April 2011 database.

The increases in the scale and volatility of financial flows have amplified their importance in determining exchange rates, compared to the impact of trade-related flows. This increased relative importance of finance-related flows has, however, brought important exchange rate problems: as these flows are more volatile and procyclical, issues of exchange rate volatility and misalignment have been happening more often.

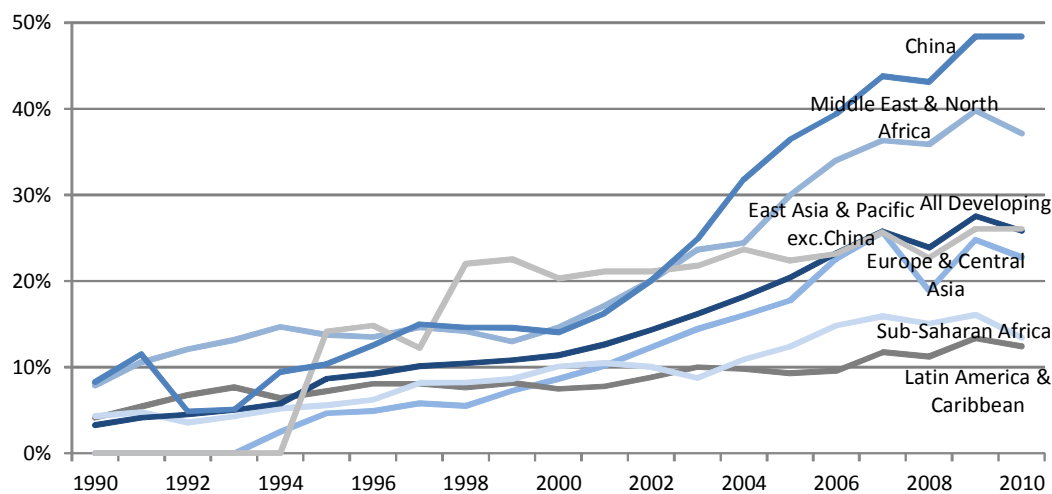
The exchange rates of developing countries already tend to experience higher volatility due to the specificities of finance-related flows to these countries, which flow in at periods of high liquidity internationally, but flow out at the smallest sign of crisis due to fear of facing important losses when re-converting the capital into the funding currency (the markedly different pattern of flows at times of crisis can also be seen in Figure 1). The impact of exchange rate volatility and of exchange rate misalignment also tend to be more important in developing countries due to features such as high exchange rate pass-through to inflation, high liability dollarisation, and higher reliance on the export of products whose competitiveness is price-based. Moreover, the impact of exchange rate volatility on the level of uncertainty—and, therefore, on economic activity—is higher in countries where there is greater volatility, such as developing countries.

In this context of finance-related capital flows assuming an increasing role in determining exchange rates, and due to the problems of exchange rate volatility and misalignment, developing countries have been implementing different capital account policies. The following sections of this *Policy Research Brief* analyse two of these policies: the accumulation of reserves, and capital controls.³ The final section presents concluding remarks.

2. Reserves of International Assets

The policy of accumulating significant reserves of international assets is perhaps the clearest change in policymaking in international economics since the late 1990s. As shown in Figure 2, developing countries' reserves of international assets represented 5 to 10 per cent of GDP in 1990 and reached almost 30 per cent in 2010.

Figure 2
Ratio of International Reserves to GDP: Developing Countries



Source: IMF data, own calculation.

3. Reserves as a Policy Instrument

The policy of reserves is said to have a mercantilist or a precautionary goal depending on whether it aims at a gain in net exports or at reducing instability and crisis-related risks. Within the second rationale, the goal of the policy would have two related purposes: to avoid currency and economic crises such as those that occurred in the late 1990s, and to avoid exchange rate problems such as excessive volatility and misalignment. A strict differentiation between these two is, however, hard to determine, as an exchange rate misalignment or a sudden depreciation might lead to crisis; yet, the potential consequences of these exchange rate problems are not limited to that.

The role of reserves in avoiding currency crisis has been broadly studied, and several policy recommendations have been made. Indeed, the short-term debt-to-reserves ratio was one of the most highlighted factors associated with the crisis in the late 1990s, and it was broadly argued that holding reserves could decrease the probability of crisis. In the absence of a lender of last resort, reserves would serve as self-insurance which mitigates and also prevents crisis, as it decreases the expectation of such an incident and the speculation around it. As the IMF's intervention at the time came late and attached with procyclical conditionalities, by building up reserves developing countries would be able to independently counteract sudden outflows (UNCTAD, 2009).

Still related to the risks of currency crisis within a framework of fixed exchange rates, Levy-Yeyati and Sturzenegger (2005) suggest that reserves would be used to create an exchange rate regime similar to the pegged one, but without the peg-related risks.

The use of reserves is also associated with a different set of concerns, related to the instability that volatile capital flows

can bring to an economy through its impact on the exchange rate. According to this approach, reserves would be used to counteract volatile capital flows and, therefore, reduce exchange rate volatility. As developing countries have a high exchange rate pass-through to inflation, the combination of flexible exchange rates with an inflation-targeting regime would have caused major policy challenges. The policy of reserves would then be the response to a "fear of floating" (Calvo and Reinhart, 2002) or "fear of inflation" (Baquero et al., 2002) that these policymakers would have developed after the transition to flexible exchange rate regimes. An additional issue related to the inflation problem is the output costs involved in fighting inflation, which has been mainly done through monetary tightening (Lahiri and Végh, 2001). Further to these issues, excessive exchange rate volatility can also bring problems of debt servicing, as developing countries' debt tends to be issued in foreign currencies—the original sin problem (Eichengreen et al., 2003).

Reserves can also be used to avoid exchange rate misalignment, a problem which is closely linked to financialisation and to the procyclicity of financial flows. The procyclicity of financial flows is exacerbated by the fact that the appreciation of a country's asset is not only an incentive for higher inflows, but also the appreciation of the country's currency attracts more inflows. In a period of bonanza, developing countries might face major inflows of financial capital, exchange rate appreciation and overvaluation due to this procyclical mechanism.

It has been claimed that reserves have a mercantilist aim, but the importance of the challenges brought by volatile and procyclical capital flows and the pattern of accumulation of reserves seem to indicate that developing countries use

reserves to counterbalance flows and hinder exchange-rate-related issues. Indeed, reserves started increasing after the late-1990s crisis, as a means to prevent currency crisis.

The accumulation of reserves later gained a different pace; this was in mid-2000, a point that coincides with the rebound of financial flows to developing countries—see Figure 1 and 2. In addition, developing countries sold out reserves in 2008, when most of them faced a net outflow of capital.

With the growing importance of reserves as a policy to avoid currency crisis, recommendations on the appropriate level of reserves have changed. The most common rule until the late-1990s crisis used to be the equivalent to three or four months of imports. With the crisis, this threshold was substituted for the country's short-term debt (known as the Guidotti-Greenspan rule). Later, the IMF's guidance was to hold reserves "well in excess of this level", depending on factors such as: "macro-economic fundamentals; the exchange rate regime; the quality of private risk management and financial sector supervision; and the size and currency composition of the external debt" (Fischer, 2001).

This change in recommendations is positive, as it moves the focus from guaranteeing commercial flows to a hedge of financial flows, which are, in many cases, of greater magnitude. Yet, recommendations on the appropriate levels of reserves are still limited to problems related to debt servicing—which is partially a remainder of the fixed exchange rate regimes—neglecting the importance of the current exchange-rate-related problems faced by developing countries. To account for these problems, the appropriate level of reserves should not focus on flows of capital, but rather on the stock of capital that might take flight in the case of turbulence causing major exchange rate changes.

The stock of foreigners' flows is much larger than the debt-related flows, as this also accounts for non-debt instruments such as stocks or bonds. In addition, capital held by domestic financial institutions should also be taken into account, as these might also leave the country suddenly—as happened in some of the crises.

4. The Problems of the Policy

Although the appropriate level of reserves to avoid major exchange rate changes is very high, this policy presents several drawbacks. One of the main problems is the high sterilisation cost that the policy might have. These costs come from the fact that Central Bank interventions to buy foreign assets can be inflationary, and, if this is the case, it should be sterilised. Sterilisation, in turn, involves selling a bond to offset the increase in the amount of money in circulation caused by the foreign exchange operation.

The result of these operations is that the Central Bank accumulates foreign assets, and the internal debt becomes higher. However, the bond issued by the developing country normally pays higher interest than the one it buys—which is considered risk-free as it is issued by a developed country whose currency is broadly used in international trade and finance. This interest rate differential imposed on the amount of reserves held is broadly referred to as sterilisation, fiscal or quasi-fiscal costs.

Apart from the costs of the policy, other drawbacks are also very important. The part of reserves whose sterilisation bonds are sold to foreigners results in a circular flow: facing the capital inflow, the government buys reserves and increases the domestic debt, which is itself the asset which is sold to foreigners (the inflow). The result of this circular process is that the developing country's government which is receiving inflows is subsidising the profits of the foreign investor, who would earn less interest if they invested in the developed country instead.

It is also important to mention that depending on the country's limitations to issue internal debt, reserves might exercise an upward pressure on interest rates, which would have a negative effect on economic activity. Moreover, if reserves are higher than the external debt, they cancel out the foreign transfers to the country, leaving its investment capacity unchanged and cancelling out many of the arguments for capital account liberalisation.

Also relevant is an analysis of who would profit from holding large amounts of reserves. When the policy has a mercantilist goal, or when it results in a more stable exchange rate, the whole economy benefits. However, when it is done to hedge the country's external debt, it is primarily beneficial to international speculators, whose risk will be reduced (UNCTAD, 2007).

Regardless of these very important drawbacks of the policies of reserves, given the current vulnerability of developing countries to capital flows due to their openness and the volatility of the flows they receive, holding large amounts of reserves is necessary. To be able to start decreasing the level of reserves and, therefore, avoiding these problems, developing countries must first implement other capital account policies to decrease the volatility of the flows they receive.

5. Capital Controls

With the global financial crisis, other policies of capital account management have been implemented, complementing intervention in the exchange rate markets through the use of reserves. Unremunerated reserve requirements have been implemented in Argentina, Colombia and Indonesia. Brazil implemented an inflow tax. Peru first banned foreign purchases of Central Bank bills and later implemented a reserve requirement and a tax on capital gains of foreign investments in the stock market.

Thailand has also implemented an income tax. Chile and Peru have implemented measures to facilitate institutions that manage large amounts of capital for investment abroad (ECLAC, 2011; Forbes et al., 2011). This section focuses on policies of capital controls, such as inflow taxes, unremunerated reserves requirement (URR) or outright bans on foreign operations.

The most common objectives of capital controls are:

- i) to disincentive outflows (inflows) and, therefore, currency depreciation (appreciation);
- ii) to reduce the volatility of flows and of the exchange rate (Neely, 1999); and
- iii) to allow monetary policy independence (Oreiro, 2004).

Given the current international scenario, developing countries have been implementing inflow controls. These can result in lower and less volatile flows and, therefore, are a positive step in the current case of excessive inflows but also in the case of a reverse of this scenario, if inflows turn to sudden outflows.

Inflow controls can take the form of outright prohibition of certain categories of capital flows, quantity limits or taxes on inflows or they can be a system of unremunerated reserves requirement (URR), which requires foreign investors to maintain a deposit in the Central Bank and imposes fees for early withdrawal. The URR system has the benefit of penalising only short-term flows, but direct taxes have the advantage of providing the government with revenue that could compensate for possible losses from other policies of capital account management such as the holding of reserves.

On the question of quantitative or qualitative controls, the former has the advantage of being easily adjusted to different scenarios. This is a very important feature when dealing with capital account management techniques, as capital flows are very volatile, responding to changes not only of the domestic economy but also of the economies from which capital is flowing out and of the economies which would be 'competitors' for these flows. Therefore, to constantly adjust controls enhances their effectiveness. Moreover, more comprehensive controls are preferable to more specific ones, as they have fewer loopholes and are, therefore, more difficult to circumvent.

6. Analysing the Effectiveness of Controls

Capital controls were the subject of criticism for a long time on the grounds that they would only bring microeconomic costs without having any impact on the volatility of flows or of the exchange rate, as highly developed financial markets would provide different ways to circumvent them. It is, however, unlikely that every participant in the market would be able to circumvent controls, which is the only case in which controls would have no effect.

Assessing the effectiveness of capital controls is not straightforward, as there are several methodological limitations to be considered. First, econometric exercises might not be the most appropriate due to the problem of endogeneity which derives from capital controls being imposed or modified during periods of major in- or outflows (Carvalho and Sicsú, 2004). Moreover, to assess the impact of controls on capital flows and on the exchange rate might also be complicated by the fact that there are numerous factors influencing these two variables.

For instance, one would have to consider changes in Central Bank interventions and in the international scenario: in countries which provide liquidity and in others which can be seen as 'competitors' for inflows. In addition, variables related to expectations are very important in forming the future—and, therefore, the spot—exchange rate; but expectations are very difficult to assess due to a lack of data for many countries.

Even if an analysis based on econometric exercises were appropriate, these are also known to suffer from problems

related to measuring the intensity of controls, to attributing changes in economic indicators to the implementation of controls, and to differentiating short- and long-term capital (Ariyosh, 2000).

Regardless of the debate on how to better measure the effectiveness of capital controls, studies using different methodologies have argued for their effectiveness. Epstein et al. (2003) provide a comprehensive analysis of seven experiences based on a detailed description of each country's context. Magud and Reinhart (2006) present a summary of 30 econometric evaluations of the policy and draw conclusions by weighting their results according to their econometric rigour. The first study concludes for the effectiveness of all the cases studies. The second one states that controls were effective to change the composition of inflows towards longer maturities, to make monetary policy more independent, and to reduce exchange rate pressures.

7. Conclusions

Developing countries have been facing significant challenges related to exchange rate volatility and misalignment—problems that emerge from their participation in the international financial system and the characteristics of the capital flows they attract. These problems have first been addressed by using reserves of international assets to counterbalance in- and outflows. The consequence of using this policy at a time of rebounding capital flows is that developing countries now own significant amounts of reserves.

Despite the significant drawbacks of this policy, developing countries cannot afford to significantly decrease their levels of reserves due to their vulnerability to capital flows and their consequences for their exchange rates. This vulnerability must first be attenuated before reserves are reduced. Reducing the importance of the exchange rate to their economies is not an option; therefore, the volatility and procyclicality of capital flows to these countries must be reduced. An option for achieving this resilience to highly volatile financial flows is the use of capital controls. By imposing taxes on the most volatile forms of capital flows, foreign operations will be discouraged. To be effective, the tax should be broad enough to avoid loopholes and circumventions. Moreover, its size must reflect the differential of the revenues provided by the country's assets and the other international options, as well as the risk difference. In line with this, the control must be flexible enough to be changed if the international scenario changes. ■

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2. For more details and references on the topics of this introduction, see Ramos (2012).

3. Policies to decrease the volatility of exchange rates are not limited to these two. Regulation of the derivative markets, in particular, is very important—see Fritz and Prates (2012) on the inclusion of "derivative management techniques" among other capital account management techniques. Other policy options which involve international agreements could also limit exchange rate problems, such as: the use of Tobin taxes, the broader use of the special drawing rights and the implementation of monetary agreements between country authorities such as swap agreements and regional payment systems. These are, however, not within the scope of this paper.

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