

A regional reserve fund for Latin America

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ABSTRACT

This paper analyses the viability, implications and challenges of expanding the Latin American Reserve Fund (FLAR) to Argentina, Brazil, Chile, Mexico and Paraguay. A regional reserve fund should be viewed as one of a broad range of mechanisms offered by the international financial architecture to address balance-of-payment difficulties. A fund with resources of between US\$ 9 and US\$ 10 billion at its disposal would be able to cover the potential funding needs of its members in the most likely scenarios, without necessarily becoming the lender of last resort for all its members. In more extreme scenarios, the fund should be able to “broaden its shoulders” by drawing on other components of the international financial architecture. Fund governance would present the main challenge resulting from an increase in the number of members.

KEYWORDS

Monetary reserves, monetary policy, capital movements, balance of payments, Argentina, Brazil, Chile, Mexico, Paraguay, Latin America

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I

Introduction

Strengthening the Latin American Reserve Fund (FLAR) by expanding its size and scope in order to encompass a larger number of countries of the region would significantly contribute to financial stability as a regional and global public good.¹ This paper seeks to cast light on the viability, implications and challenges of expanding FLAR to another five countries in the region: Argentina, Brazil, Chile, Mexico and Paraguay.

In our view, regional reserve funds are one of the mechanisms that contribute to a denser international financial architecture and help enhance its capacity to provide global financial stability. Greater densification means not only that there is a wider range of tools, but also that there is greater interconnectivity between the institutions that make up the international financial architecture.

Regional funds are not, then, seen as the only defence mechanism for their member countries but rather as one line of defence in addition to other sources of balance-of-payments support. They should be regarded as a complement to global financial institutions, albeit within a multilevel framework of financial cooperation in keeping with principles of subsidiarity. The resources available to a regional fund are not limited to the contributions made by its member countries. A regional fund can leverage its resources through interactions with other components of the global financial system.

This has two fundamental implications for sizing the fund.

First, the fund should be sized bearing in mind that there are other sources to which member countries—in particular, the larger ones—can turn for meeting liquidity needs stemming from balance-of-payments constraints. Any expanded FLAR should be conceived as a fund essentially at the service of the countries with less easy access to other sources of financing. Countries for which it is easier to tap other resources could resort to an expanded FLAR as a fall-back line of defence.

Second, the fund should be sized to ensure it is able to respond to the most likely scenarios (according to the empirical evidence presented in this paper, the most likely scenarios are those where only a proportion of the

12 countries have balance-of-payments difficulties at the same time). In more extreme scenarios, the fund should be able to “broaden its own shoulders” by leveraging its capital to mobilize more resources or by taking action along with other components of the financial architecture. So, an expanded FLAR should be far smaller than it would need to be for addressing a tail risk scenario where all of the countries draw on it at the same time.

This report suggests that if, for example, capital contributions from new member countries were patterned after the current FLAR, an expanded fund would total nearly US\$ 9 billion, which is equivalent to 1.4% of the total stock of international reserves held by the 12 countries reviewed.

A fund of this size could, unleveraged, simultaneously cover potential demand from the entire group of smaller countries plus half of the needs of medium-sized countries, for a total of US\$ 7.8 billion.

Leveraging the fund’s capital via medium- to long-term borrowing at a ratio of 65% of its paid-in capital (the maximum authorized for FLAR) would yield nearly US\$ 13.3 billion in lending resources. At this volume, the fund could simultaneously cover more than 85% of the potential needs of the entire group of member countries—except for those of the two largest, estimated at US\$ 15.3 billion.

Beyond feasibility and the potential benefits of an expanded FLAR as a shared insurance mechanism, working towards bringing in new members entails major challenges in terms of fund governance, including voting and decision-making mechanisms, credit allocation criteria and surveillance mechanisms.

FLAR has been shown to have such positive attributes as speed, responsiveness, a strong sense of member country ownership (as seen in its solid position as senior creditor) and low lending conditionality that helps to keep borrowing from FLAR from being stigmatizing for the countries. The big governance challenge for an expanded FLAR would be how to adapt to having more members and more resources without losing these positive attributes that often differentiate FLAR from other global and regional funds.

This article is divided into five sections. Following this introduction, section II sets out empirical exercises to gauge how simultaneous balance-of-payment difficulties are for the 12 countries reviewed. Section

¹ See annex 1 for a description of the FLAR and other regional reserve funds.

III focuses on what the size of the new, expanded FLAR should be and provides two scenarios for member country capital contributions in keeping with that size.

Section IV examines the governance challenges that expanding FLAR would pose. Section V then offers some closing reflections.

II

Factors for evaluating the financial viability of an expanded FLAR

When assessing the sustainability and viability of a reserve fund, it is important that member country balance-of-payments problems and crises not occur simultaneously.

One of the standard ways to gauge the simultaneousness of balance-of-payments complications has been to take variables like variations in terms of trade, stock of international reserves and net capital flows and calculate simple correlation coefficients between them.²

Positive, statistically significant coefficients weaken the arguments in favour of a fund because they would mean that shocks impact the countries at the same time. By contrast, negative correlations would enhance arguments in favour of the fund as an insurance mechanism. Positive but not significant correlations also point in the direction of fund feasibility: with the intensity of the shocks varying from country to country, there will always be countries that are less affected and so have less need for tapping the fund.³

Determining whether there is a discernible pattern of simultaneousness within countries grouped by economy size was also regarded as a relevant exercise. After all, it is not the same for balance-of-payments difficulties (and,

thus, the potential need to draw on the fund) to arise at the same time for large and medium-size countries as for smaller countries whose funding needs are within the fund's capacity to handle.

The study thus centred on two groups of countries ranked by the size of their economies: large and-medium-sized, including Brazil, Mexico, Argentina, Colombia, Bolivarian Republic of Venezuela, Peru and Chile; and small ones, including Ecuador, Costa Rica, Uruguay, Plurinational State of Bolivia and Paraguay.⁴

The findings in this section indicate that it is not the rule that balance-of-payments problems arise simultaneously. The examination by country grouping shows that any simultaneous balance-of-payments complications would tend to appear among smaller countries. This provides even more evidence in favour of the financial viability of an expanded FLAR, because the funding needs of the smaller countries in the group are, naturally, of a magnitude that is more manageable for the fund.

1. Terms of trade

The correlation exercise with 12 countries yielded 66 pairs of correlation coefficients.⁵ Only 16 (24%) of them are significant and positive; 7 (11%) are significant and negative (see table 1).

These findings are expectable in that the terms-of-trade pattern varies from country to country because their export base is different. For instance, in a number

² See, for example, Agosin (2001); Machinea and Titelman (2007); Agosin and Heresi (2011).

³ Generally speaking, the reason for using these variables instead of just determining whether international reserve gains or losses for the countries are highly correlated is that the effects of balance-of-payment shocks are not always reflected in variations in reserves. Other adjustment mechanisms are sometimes involved. For example, if part of the effect of a capital-account shock is absorbed by variations in the country's exchange rate, the impact on international reserves will be smaller. Likewise, negative (positive) terms of trade shocks could eventually come along with loss (accumulation) of reserves, depending on whether the central banks use reserves to buffer or slow the resulting exchange-rate depreciation (appreciation). Aizenman, Edwards and Riera-Crichton (2011) identify, with regard to the Latin American countries, the important role that active international reserve management at the country level can play in substantially reducing real exchange-rate volatility in the face of terms-of-trade shocks.

⁴ For ranking by size, the most recent data available on GDP at purchasing power parity (PPP) rates were used. A country ranking based on average current-dollar GDP for 2009 and 2010 would only change the specific order of some countries within each group. The order between groups, which is the one that matters for this examination, does not change.

⁵ Contemporaneous correlations were used for this exercise.

TABLE 1

Simple correlation coefficients between terms-of-trade variations
(Annual data, 1990-2010)

	Brazil	Mexico	Argentina	Venezuela (Bolivarian Republic of)	Colombia	Peru	Chile	Ecuador	Costa Rica	Uruguay	Bolivia (Plurinational State of)	Paraguay
Brazil	1.00											
Mexico	-0.53	1.00										
Argentina	0.47	-0.22	1.00									
Venezuela (Bolivarian Republic of)	-0.30	0.62	-0.05	1.00								
Colombia	0.35	0.14	0.34	0.64	1.00							
Peru	0.36	0.03	-0.13	0.25	0.20	1.00						
Chile	0.40	-0.15	-0.12	0.24	0.30	0.84	1.00					
Ecuador	-0.16	0.53	-0.07	0.90	0.66	0.34	0.22	1.00				
Costa Rica	0.54	-0.77	0.14	-0.64	-0.15	-0.03	0.07	-0.54	1.00			
Uruguay	0.37	-0.62	-0.06	-0.62	-0.28	-0.15	-0.04	-0.49	0.39	1.00		
Bolivia (Plurinational State of)	0.30	0.00	0.13	0.38	0.63	0.54	0.55	0.53	-0.10	-0.11	1.00	
Paraguay	0.47	-0.31	0.26	-0.07	0.57	0.03	0.10	0.04	0.43	0.23	0.44	1.00

Percentage of simple correlation coefficients between terms-of-trade variations that were significant and positive
(As a percentage of the total, by groupings of countries)

	Medium-sized and large	Small
Medium-sized and large	19.0	-
Small	25.7	30.0

Source: prepared by the authors on the basis of World Bank, Development Indicators [online database].

Note: the annual variation of the terms of trade index for goods and services was used. Coefficients that are positive and significant at the 5% level are in bold. Coefficients that are negative and significant at the 5% level are shaded.

of cases there are significant negative coefficients for pairs of countries where one is a net exporter of energy (basically, hydrocarbons) and the other is a net importer. Such is the case with the correlations between the Bolivarian Republic of Venezuela and Costa Rica and Uruguay, as well as the correlations between Ecuador and these two same countries.

By contrast, correlations between pairs of countries where both are major net energy exporters (like the Bolivarian Republic of Venezuela and Ecuador, the Bolivarian Republic of Venezuela and Mexico, Colombia and Ecuador, and Colombia and the Bolivarian Republic of Venezuela) are positive and significant as well as generally high.

A look at pairs of countries can yield some general conclusions at the country group level. For example, in table 1 showing correlations between terms-of-trade variations among countries in the medium-size and large group, only four (19%) are positive and significant. In nine cases (25.7%), correlations between medium-sized and large countries and small countries are positive and

significant; in three (30%) they are positive and significant among countries in the small group. In other words, the occurrence of positive and significant correlations is low, both within and between country groupings.

This finding was to be expected, because a country's export structure is not necessarily related to the size of its economy.

2. International reserves

As for variations in the stock of international reserves, only 25 of the 66 correlation coefficients between pairs of countries were positive and significant; this is equal to 38% of the potential cases (see table 2).

An analysis was performed at the country grouping level. It shows that positive and significant correlations are found above all between pairs of small countries. Indeed, half of the correlation coefficients between pairs of small countries were significant and positive. The percentage of positive and significant correlations is lower (33.3%) between large and medium-sized countries.

TABLE 2

**Simple correlation coefficients between variations in the stock
of international reserves**
(Quarterly data, 2000-2011)

	Brazil	Mexico	Argentina	Venezuela (Bolivarian Republic of)	Colombia	Peru	Chile	Ecuador	Costa Rica	Uruguay	Bolivia (Plurinational State of)	Paraguay
Brazil	1.00											
Mexico	0.29	1.00										
Argentina	0.33	0.09	1.00									
Venezuela (Bolivarian Republic of)	-0.09	0.09	-0.08	1.00								
Colombia	0.54	0.08	0.21	-0.04	1.00							
Peru	0.62	0.30	0.30	-0.13	0.30	1.00						
Chile	0.25	0.22	-0.03	0.07	0.02	0.21	1.00					
Ecuador	0.30	-0.07	0.01	0.03	0.31	0.35	0.24	1.00				
Costa Rica	0.32	0.07	0.25	-0.31	0.21	0.53	-0.22	-0.09	1.00			
Uruguay	0.19	0.14	0.09	0.02	0.25	0.20	0.34	0.21	0.04	1.00		
Bolivia (Plurinational State of)	0.54	0.22	0.15	0.17	0.43	0.55	0.46	0.36	0.04	0.35	1.00	
Paraguay	0.47	0.20	0.23	0.03	0.27	0.39	0.29	0.35	0.04	0.57	0.45	1.00

Percentage of simple correlation coefficients between variations in international reserves that were significant and positive
(As a percentage of the total, by groupings of countries)

	Medium-sized and large	Small
Medium-sized and large	33.3	-
Small	37.1	50.0

Source: prepared by the authors on the basis of World Bank, Development Indicators [online database].

Note: the annual variation of the terms of trade index for goods and services was used. Coefficients that are positive and significant at the 5% level are in bold. Coefficients that are negative and significant at the 5% level are shaded.

These findings are evidence in favour of the viability of the fund, because any simultaneous loss of reserves would come mainly from the small countries, whose liquidity requirements are always more manageable than those of medium-sized and large countries.

3. Capital flows

For net capital flows, only 17 of 66 coefficients (26% of the total) were significant and positive (see table 3). These findings provide initial evidence that capital-account shocks in the countries would not be simultaneous. In other words, systemic shocks and/or widespread financial contagion that would spark net capital outflows from the countries at the same time are not the rule.

The analysis based on groups of countries shows that the proportion of positive and significant correlations is low in all cases. Moreover, within the group of large and medium-sized countries, there are a few cases of significant but negative correlations, which provides evidence that in such cases there is

no co-movement in capital flows but rather that they move inversely.

4. How simultaneous are sudden stops in capital flows?

The analysis set out in the foregoing sections hereof was completed by examining the simultaneity of sudden stops in capital flows. Doing so provides an objective measure of the degree of timing coincidence between sudden reversals of net capital inflows to the 12 countries reviewed. Such an analysis avoids two substantial weaknesses in the correlations methodology. First, contemporaneous correlation coefficients do not take account of the effect of lag structures on correlations between pairs of countries, which could impact the financial viability of the fund. Second, nor does it consider the effect of correlation risk: the fact that correlations can be low during “normal” periods but increase precisely in times of crisis, detracting from the fund’s financial viability (see, for example, Levy-Yeyati, Castro and Cohan, 2012).

TABLE 3

Simple correlation coefficients between capital flows
(*Net financial account in dollars, quarterly data, 2000-2011*)

	Brazil	Mexico	Argentina	Venezuela (Bolivarian Republic of)	Colombia	Peru	Chile	Ecuador	Costa Rica	Uruguay	Bolivia (Plurinational State of)	Paraguay
Brazil	1.00											
Mexico	0.36	1.00										
Argentina	0.34	-0.02	1.00									
Venezuela (Bolivarian Republic of)	-0.48	0.05	-0.22	1.00								
Colombia	0.61	0.36	0.23	-0.33	1.00							
Peru	0.65	0.34	0.14	-0.41	0.44	1.00						
Chile	0.05	0.10	-0.20	-0.19	0.13	-0.03	1.00					
Ecuador	0.11	0.10	-0.10	-0.22	0.24	0.19	0.19	1.00				
Costa Rica	0.27	0.14	0.03	-0.09	0.44	0.51	-0.03	0.12	1.00			
Uruguay	0.17	-0.04	0.16	-0.13	0.26	0.20	0.25	0.01	0.40	1.00		
Bolivia (Plurinational State of)	0.06	0.47	-0.20	0.01	-0.24	0.22	0.35	0.05	-0.14	-0.08	1.00	
Paraguay	0.32	0.41	0.29	0.00	0.44	0.30	0.02	0.06	0.37	0.32	0.04	1.00

Percentage of simple correlation coefficients between capital flows that were significant and positive
(*As a percentage of the total, by groupings of countries*)

	Medium-sized and large	Small
Medium-sized and large	33.3	-
Small	20.0	30.0

Source: prepared by the authors on the basis of International Monetary Fund, International Financial Statistics (IFS).

Note: coefficients that are positive and significant at the 5% level are in bold. Coefficients that are negative and significant at the 5% level are shaded.

With the Calvo, Izquierdo and Mejía methodology (2004 and 2008), sudden stops in net capital flows were identified for each of the 12 subject countries, using monthly data for the period between January 1990 and December 2011. Considering that, for most of the countries, the capital flows appearing in balance-of-payments statistics are quarterly, a monthly proxy (like the one employed by these authors) was used for these flows (see annex 2 for an explanation of the methodology used).

The findings are set out in figure 1, with a focus on the following crisis periods: the tequila crisis (1994-1995); the Asian/Russian/Brazilian crisis (1997-1999); the Argentine crisis (2001-2002); and the global crisis (2008-2009). The shaded cells show the periods during which the countries experienced sudden stops. As can be seen, the methodology captures many of the sudden stops highlighted in the literature, such as in Mexico in 1994-1995, Brazil in 1998-1999 and Argentina in 2001-2002.

Other known events, like the short-term capital outflows from Argentina in 1999, are not detected by this methodology because, in this case, short-term financial outflows were offset by privatizations that drew a high volume of foreign direct investment (FDI) into the country. We see this as a methodology advantage because the aim is to detect sudden stops in total external financial flows to the countries, regardless of their form.

These findings were used to calculate the percentage of countries simultaneously undergoing a sudden stop episode in each period (see figure 1). This was done on an annual basis, meaning that if a country experienced a sudden stop in the first half of a given year and another country underwent one in the second half of the same year, the two episodes were taken as simultaneous for the purpose of our calculations.⁶

⁶ Episodes starting in one year and running into the following year were attributed to the latter (for instance, some of the sudden stops that began in late 2008 and lasted into 2009 were attributed to 2009).

FIGURE 1

Sudden stops in net capital flows, 1994-2009



Source: prepared by the authors.

Note: sudden stops in net capital flows are shaded.

This makes sense, because if two countries experience balance-of-payments constraints with slight time lags it is, for a reserve fund, as if they were simultaneous because the funds disbursed to the first country might not be available for another country requesting assistance shortly afterward.

As can be seen, only in 1999 and 2009 were there simultaneous episodes in a majority (more than 50% of the total) of the countries. However, in both cases the simultaneous episodes occurred primarily in the group of small countries and not so much between the medium-sized and large countries. Moreover, the 2009 crisis was widespread: as the term “global crisis” indicates, it basically impacted the entire world in one way or another. It can thus be said that this most recent crisis was more an exception than the rule insofar as sudden stop episodes in the countries of the region are concerned.

The findings are consistent with those obtained during the correlations analysis, providing further evidence as to the financial viability of expanding FLAR to this set of 12 countries.

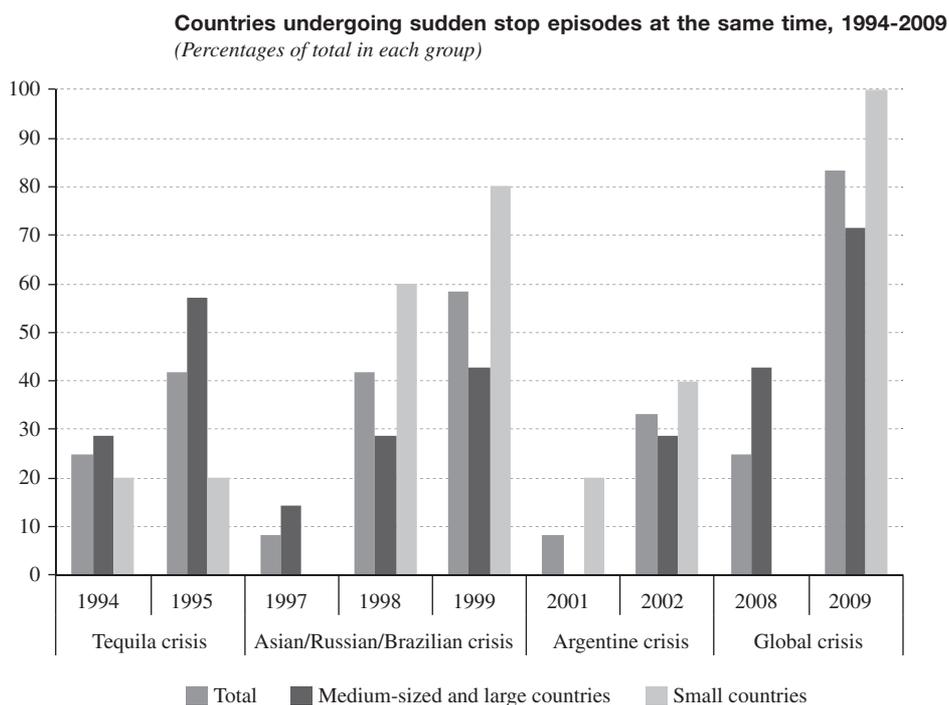
Systemic crises and widespread contagion are not the mode; instead, sudden stops tend to occur simultaneously in a certain percentage of countries

but not in all of them. Moreover, in the two years with the highest percentage of simultaneous events, these were sudden stop episodes in small countries. For the medium-sized and large countries simultaneous events are less frequent.

The findings presented here are in line with historical usage of FLAR facilities by its members. The credit lines have been used more frequently during crisis periods, especially during the external debt crisis of the early 1980s, when FLAR extended loans to almost all of its member countries. However, in all subsequent crises, only a minority of member countries sought simultaneous support to meet liquidity needs (see figure 3). The reason might be that countries do not run into balance-of-payments difficulties simultaneously, but it also means that FLAR is not the only line of defence for its member countries but rather one instrument in a wider array of support options.⁷

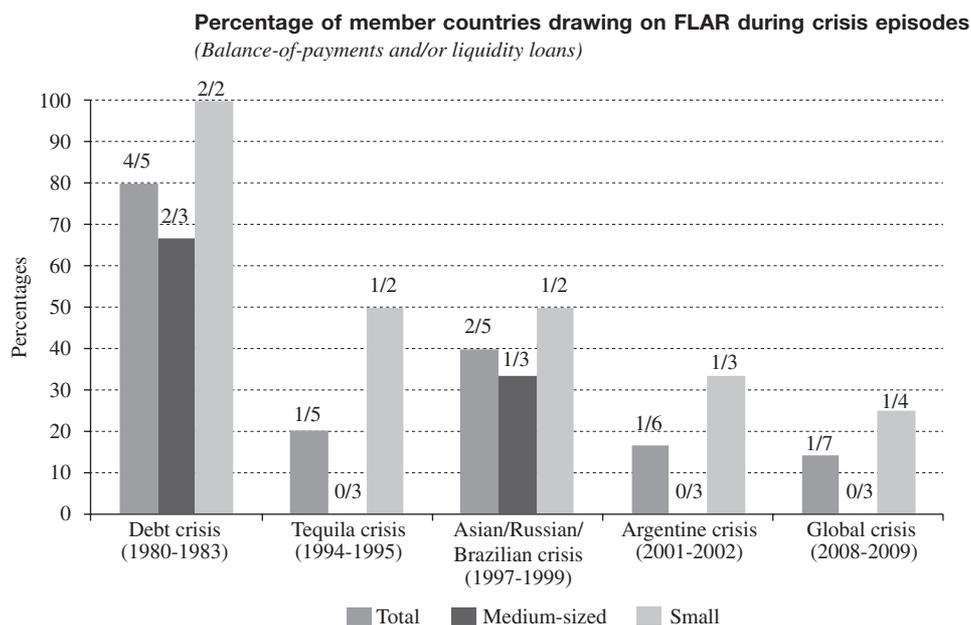
⁷ To cite an example, during the global crisis (in 2009), Colombia opted to request a nearly US\$ 10.5 billion precautionary loan (flexible credit line, FCL) from the International Monetary Fund (IMF) despite being a FLAR member country.

FIGURE 2



Source: prepared by the authors.

FIGURE 3



Source: prepared by the authors on the basis of figures provided by the Latin American Reserve Fund (FLAR).

Note: the figures above the bars show the number of countries borrowing from FLAR over the total number of member countries at the time. The grouping of medium-sized countries includes the Bolivarian Republic of Venezuela, Colombia and Peru; the grouping of small countries includes Costa Rica (only since 1999), Ecuador, the Plurinational State of Bolivia and Uruguay (only since 2008). Only balance-of-payments and/or liquidity loans were taken into consideration. The figures 0/3 mean that none of the three countries belonging to the grouping of medium-sized countries borrowed from FLAR.

III

Size of an expanded FLAR

Deciding on the size of a reserve fund requires, first of all, drawing on historical experience to estimate the member countries' potential funding needs arising from balance-of-payments constraints.

Second, as discussed, the fund should be sized to cover the most likely scenarios (according to our findings, those where just a percentage of countries—usually, the smaller ones—need funding at the same time because of balance-of-payment constraints), with leveraging mechanisms in place for cases in which its capital is insufficient.

1. Potential funding needs

Potential funding needs were proxied by variations in net capital flows towards the countries (see table 4) as in Agosin and Heresi (2011) during the crisis episodes regarded as most representative for the region. The reason for taking variations in net flows instead of net flows per se is that for any given country the variation

in available funding is more relevant than the absolute amount. If a country receives considerable funding in a given year and a drastically lower but still positive amount the following year, this could still be regarded as a sudden stop. The country would have to make a current-account adjustment or lose international reserves in order to counterbalance the decline in external funding.

The findings show, first, that funding needs have been disparate and vary significantly from one crisis to another. Second, the maximum funding needs shown in table 4 represent an upper bound determined by extreme need scenarios. For the reasons given earlier, it is therefore more useful to consider the statistical median of the data when deciding what size the fund should be.⁸

⁸ The statistical median has an advantage over the average (which is another measure of central tendency) in that it is not sensitive to extreme values in the distribution. That is why the median would be the same if the figure for 2008 had not been so extreme.

TABLE 4

Expanded FLAR member countries: annual variations in net capital flows
(Billions of dollars)

	Tequila crisis		Asian/Russian/Brazilian crisis			Argentine crisis		Global crisis		Statistical median
	1994	1995	1997	1998	1999	2001	2002	2008	2009	
Brazil	1.0	21.6	-7.0	-3.2	-13.0	-13.6	-19.5	-46.6	11.3	
Mexico	-18.0	-26.3	11.1	-5.4	-4.5	12.8	-8.3	-3.7	1.0	
Argentina	-8.3	-6.4	8.1	-0.1	-5.1	-23.6	-6.5	-15.5	2.1	
Venezuela (Bolivarian Republic of)	-6.4	0.0	2.7	2.3	-3.4	2.4	-8.2	-1.1	11.4	
Colombia	0.6	1.3	0.4	-3.3	-4.5	2.1	-0.3	0.5	-2.3	
Peru	3.0	-0.2	2.0	-3.9	-1.2	0.6	0.4	0.6	-6.1	
Chile	2.8	-3.1	1.4	-4.8	-0.7	-1.8	-1.0	24.3	-10.3	
Ecuador	0.4	-0.4	-0.1	1.5	-2.8	7.1	0.5	-0.2	-1.7	
Costa Rica	-0.2	0.6	0.1	0.1	0.5	0.3	0.6	-0.1	-2.0	
Uruguay	0.3	-0.1	0.4	-0.1	-0.4	-0.3	-2.4	1.2	-1.8	
Bolivia (Plurinational State of)	0.0	0.2	0.2	0.3	-0.3	0.0	0.2	1.2	-0.3	
Paraguay	0.2	0.0	0.3	-0.1	-0.2	0.1	-0.1	-0.1	-0.1	
Total	-32.9	-36.5	-7.1	-20.8	-36.1	-39.2	-46.3	-67.4	-24.6	-36.1
Total medium-sized countries	-14.7	-9.7	0.0	-12.1	-14.8	-25.4	-16.0	-16.6	-18.7	-14.8
Total small countries	-0.2	-0.5	-0.1	-0.2	-3.7	-0.3	-2.5	-0.4	-5.9	-0.4

Source: prepared by the authors on the basis of International Monetary Fund, International Financial Statistics.

Note: refers to the balance-of-payments capital and financial account, excluding exceptional financing and including only the portion of FDI that corresponds to net inflows towards each economy. The bottom three rows of the table show sums (by groups of countries) of the variations in flows, considering only those that are negative.

For the group of 12 countries, the median value of funding needs is US\$ 36.1 billion. For the group of medium-sized countries it is US\$ 14.8 billion; for the group of small countries it is US\$ 400 million.

Based on these estimates, an expanded flar with a size (paid-in capital) of between US\$ 9 billion and US\$ 10 billion, which could be leveraged to generate somewhat more than US\$15 billion in lending resources, would provide the member countries with an adequate level of coverage for their liquidity needs.

2. Capital contribution scenarios and resource mobilization capacity of the fund

Set out below are two capital contribution and resource mobilization scenarios consistent with the estimated figures provided in the section above. In the first scenario, the capital contributions follow the rationale governing the Latin American Reserve Fund (FLAR). In the second scenario, the capital contributions made by the countries are determined by the formula used for assigning International Monetary Fund quotas.

3. Scenario following the FLAR contribution rule⁹

In the first scenario, the current flar member countries would maintain their contribution rate; contributions by “new” countries would be in keeping with their relative size within the group.¹⁰

Following this model would take the fund’s total capital to nearly US\$ 9 billion, equivalent to 1.4% of the total stock of international reserves of the 12 subject countries. A fund of this size (completely unleveraged) could simultaneously cover potential demand from the entire group of small countries along with half of the needs of medium-sized countries for a total of US\$ 7.8 billion (see figure 4(a)).

Leveraging the fund’s capital via medium- to long-term borrowing up to a ratio of 65% of its paid-in capital (as is currently authorized by FLAR) would generate lending resources totalling US\$ 13.29 billion.¹¹ This volume of resources would enable the fund to simultaneously cover more than 85% of the potential needs of all the member countries, except for the two largest in the group, estimated at US\$ 15.3 billion.

Implicit in a fund so designed is the fact that the large countries (notably, Brazil and Mexico, but also a few medium-sized countries in scenarios where the fund’s resources are insufficient) would utilize alternative sources of funding and only turn to the fund as a back-up line of defence.

While the large countries’ contribution to the fund’s capital base is very important in this scenario (44% of total capital), their participation cost is not high in terms of their total stock of international reserves nor in comparison with their International Monetary Fund quota (see table 5).

By participating in an initiative of this kind, these countries would be playing a leading role in regional financial cooperation that could even bring them benefits stemming from greater financial stability region-wide. The fact that the countries’ capital contributions could count as part of their stock of international reserves (as is currently the case with the International Monetary Fund) would be a further incentive.

4. Scenario following the IMF contribution rule

In this scenario, the countries’ capital contributions are determined on the basis of the IMF quota formula, but they are then rescaled in keeping with a fund the size of flar, that is, a fund whose drawdown multiple is 2.5 times contributions (see annex 1) and not 6 times as with the International Monetary Fund.¹²

The simple way to determine contributions under this rule is to take the existing International Monetary Fund quotas for the countries and rebase them (rule

⁹ In early July 2012 FLAR approved a 40% increase in subscribed capital. This scenario is based on capital after completion of the increase. The scenarios assume that the subscribed capital is wholly paid in.

¹⁰ For example, Paraguay (as a small country) would contribute the same as the small countries that are members of FLAR (Costa Rica, Ecuador, Plurinational State of Bolivia and Uruguay): some US\$ 328.2 million. Argentina and Chile would contribute the same amount as the medium-sized FLAR member countries (Bolivarian Republic of Venezuela, Colombia and Peru), that is, some US\$ 656.3 million each or double the contribution for small countries. For Brazil and Mexico, the two largest countries in the group, this scenario assumes that each one would contribute three times the medium-sized country contribution, or some US\$ 1.969 billion.

¹¹ Lending resources, or *LR*, are calculated as follows: $LR = K + 0.1K - 0.25K + eK$, where *K* is paid-in capital and *e* is the debt ratio, assuming that reserves are 10% of paid-in capital and that 25% of paid-in capital is for operations (see Alonso, Magali and Villa, 2012).

¹² Borrowing from IMF is capped at 200% of a country’s quota annually and up to 600% cumulatively. IMF quota shares are set by IMF using a formula that weighs four variables: the size of its economy (measured as a blend of GDP based on market exchange rates and purchasing power parity); international reserves; openness (measured as the sum of current external payments and receipts); and variability of current external receipts and capital flows. See details at <http://www.imf.org/external/np/pp/eng/2012/021012.pdf>.

TABLE 5

Comparison of country contribution efforts^a
(Percentages)

	Contribution, scenario 1	Contribution, scenario 2	IMF quota
Brazil	0.68	0.94	2.27
Mexico	1.63	1.93	4.63
LARGE COUNTRIES	0.96	1.23	2.96
Argentina	1.26	2.60	6.24
Venezuela (Bolivarian Republic of)	2.21	5.75	13.79
Colombia	2.34	1.77	4.24
Peru	1.48	0.93	2.22
Chile	2.36	1.97	4.73
MEDIUM-SIZED COUNTRIES	1.80	2.48	5.95
Ecuador	12.51	8.50	20.40
Costa Rica	7.09	2.27	5.45
Uruguay	4.29	2.57	6.16
Bolivia (Plurinational State of)	3.37	1.13	2.71
Paraguay	7.88	1.54	3.69
SMALL COUNTRIES	5.70	2.42	5.82
TOTAL expanded FLAR	1.43	1.66	3.97

Source: prepared by the authors on the basis of International Monetary Fund (IMF) [online] <http://www.imf.org/external/np/sec/memdir/members.aspx#1>; and World Bank, World Development Indicators [online database].

Note: data as of year-end 2010 were used for the stock of international reserves.

^a Contribution to the expanded FLAR (scenarios 1 and 2) and IMF quota as a percentage of international reserves.

of three). If a country's IMF quota is x million dollars, the theoretical contribution to the new, expanded FLAR

should be $x * \left(\frac{2.5}{6}\right)$.¹³

In this scenario, the total capital of the fund would be US\$ 10.3 billion. As in the first scenario, this fund would be able to simultaneously cover the potential needs of the entire group of small countries and half of the potential needs of the group of medium-sized countries (for a total of US 7.8 billion) without leveraging.

Under this scenario, were the fund to leverage its capital by borrowing at a ratio of up to 65% of paid-in capital it would generate US\$ 15.4 billion in lending resources and thus easily cover all of the potential needs of the entire group of small and medium-sized countries—estimated at US\$ 15.3 billion (see figure 4(b)).

5. Ways to “broaden the financial shoulders” of the regional fund

The regional fund is part of a broader network of components of the global financial architecture, so it should be feasible to provide the fund with mechanisms for broadening its scope through leveraging or by means of joint action with other institutions, such as the International Monetary Fund, in the event its capital falls short of member country needs.¹⁴

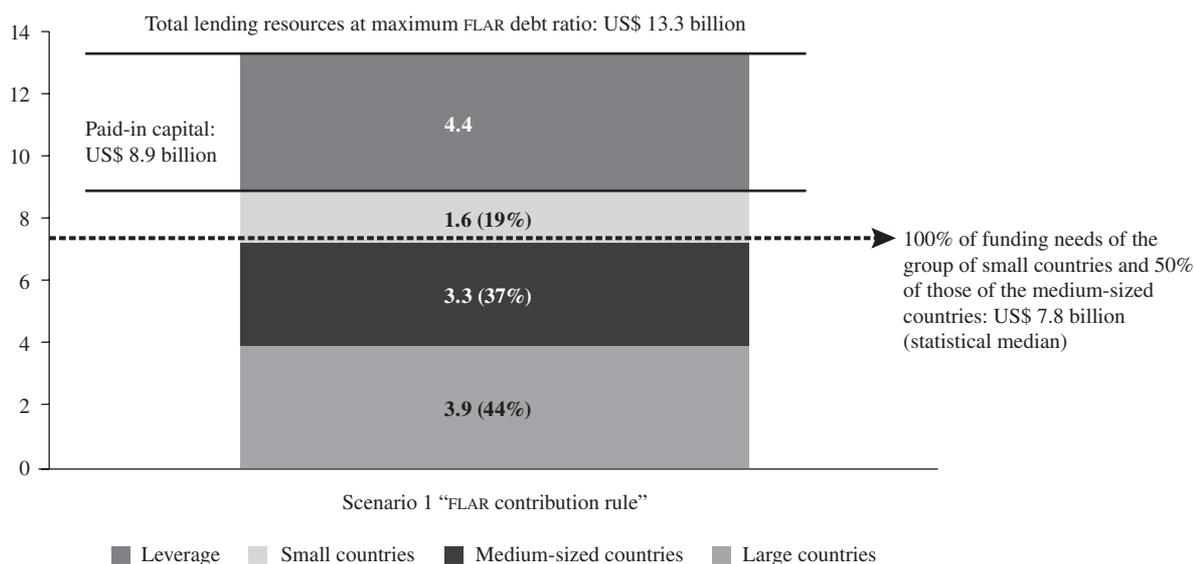
A first option would be for the fund to have signed dollar-denominated loan commitments, either with member countries or with countries outside the arrangement. Loan commitment agreements in favour of the reserve fund would be contingent and would be activated at the request of the fund. All of the loan conditions (term, interest rate and renewability, among others) should be pre-negotiated and spelled out in the

¹³ The quotas were actually calculated in SDRs (Special Drawing Rights, an international reserve asset created by IMF, whose value is based on a basket of currencies comprising the US dollar, the euro, the Japanese yen and the pound sterling) and converted to dollars at the average US\$/SDR exchange rate for March, April and May 2012.

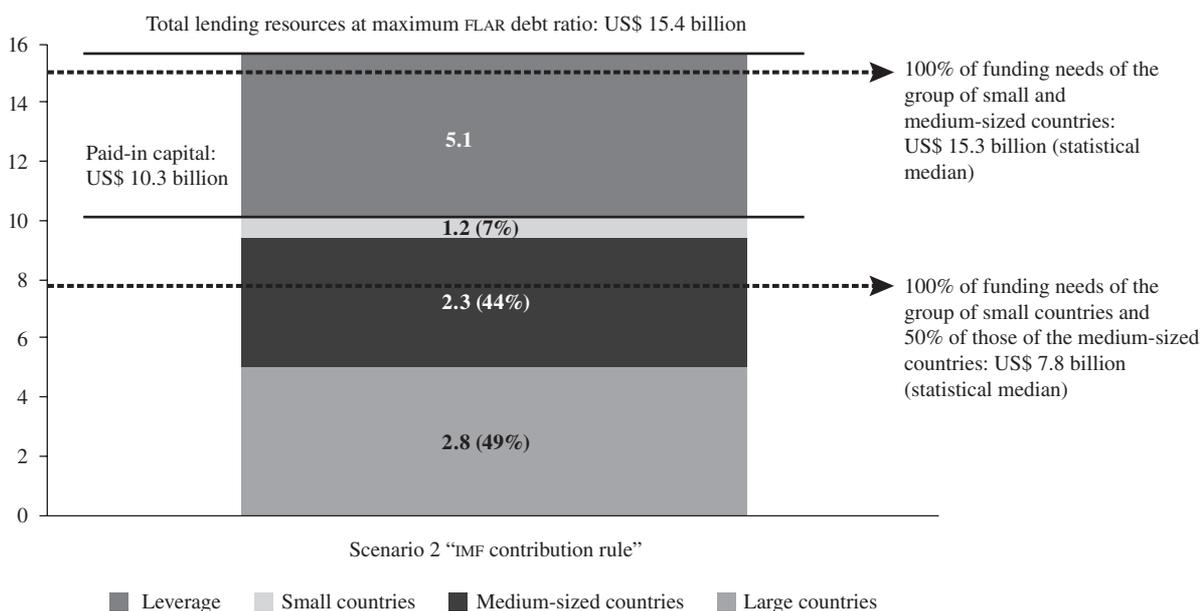
¹⁴ Ideally, these alternatives for enabling the fund to draw on extra resources if needed should be pre-negotiated, thus providing more streamlined and less costly access than would be the case if they had to be negotiated once the need arose.

FIGURE 4

(a) Size of an expanded FLAR according to the “FLAR contribution rule”
(Billions of dollars)



(b) Size of an expanded FLAR according to the “IMF contribution rule”
(Billions of dollars)



Source: prepared by the authors.

IMF: International Monetary Fund.

loan agreements so that there is no need to negotiate them upon activation. The fund would therefore have, if necessary, streamlined access to resources beyond its own capital. The loan commitments would be similar to the New Arrangements to Borrow (NAB) established by IMF as a way to expand its lending capacity if needed. In our region, three countries (Brazil, Chile and Mexico) are IMF NAB participants, for some US\$ 13.5 billion, US\$ 2.1 billion and US\$ 7.7 billion, respectively.

For countries signing loan agreements, interest rates (if and when the agreements were activated) would probably not be high, but neither should they be much lower than those obtained by Latin American central banks for the portion of their reserves invested in “safe” instruments. For example, if the system adopted is similar to the IMF NAB, the SDR interest rate would apply. In addition, the credit risk borne by countries signing agreements would be that of the reserve fund and not that of the individual member countries potentially borrowing from it.

Among the other options, the fund could have pre-negotiated stand-by lines of credit with international private banks (Agosin and Heresi, 2011) or debt instrument purchase agreements signed with interested countries. The International Monetary Fund recently made use of this option. Since 2009 it has signed agreements with a number of countries that have committed to purchase IMF notes if needed to boost IMF lending resources. For

example, in 2010 Brazil signed an agreement to purchase up to US\$ 10 billion in IMF notes.

In view of statutory limits on leveraging and constraints stemming from its potential negative impact on a fund’s credit rating, a third option would be for the fund to seek joint action coupled with another arrangement—with IMF, for example.¹⁵

The possibility of IMF complementing a regional fund’s packages for some of its member countries by means of a bilateral loan or a loan to the regional fund itself has already been considered by IMF in some of its documents, but this would require amending the provisions of the IMF Articles of Agreement concerning the conditions governing use of its General Resources Account (GRA) (Henning, 2011). Even if the amendment were made and this alternative became possible, there would be issues to be resolved in each case that are neither evident nor direct. For instance, it would have to be determined exactly how much the regional fund and IMF would contribute to the joint package, which one would set the eligibility requirements for the credit and which one would be responsible for surveillance (Henning, 2011).

¹⁵ Higher leverage can trigger credit rating downgrades along with their concomitant negative consequences. See, for example, Levy-Yeyati and Cohan (2011).

IV

Governance challenges for an expanded FLAR

FLAR has positive attributes that include responsiveness and flexibility for facing external shocks. Also worthy of note is the strong sense of ownership on the part of its member countries, reflected in its solid position as senior creditor. In addition, its low loan conditionality helps keep borrowing from FLAR from being a stigma for the countries.

Meshing these attributes with the governance structure of an expanded FLAR with a broader membership and a greater volume of resources under its administration poses major challenges in terms of (i) voting mechanisms and their relationship to decision-making authority; (ii) criteria for allocating financial resources; and (iii) surveillance mechanisms.

1. Voting mechanisms and decision-making authority

In FLAR, member country voting power in the decision-making bodies (the Assembly of Representatives and the Board of Directors) is not based on the amount contributed to the fund’s resource pool. Each member country has a chair and one vote on each body.¹⁶ This, plus the fact that decisions by both bodies are adopted

¹⁶ Under the “one country, one vote” rule, the capital paid in by the countries must be above a certain threshold. All of the member countries are currently in compliance with this rule, so all of them are entitled to their vote.

by affirmative vote of 75% of the total representatives or directors attending, means that, in practice, decisions adopted are supported by a clear majority of the countries. In order to ensure that all voices are heard, FLAR requires a super-majority, where negative votes do not exceed 20% of the total votes cast, for agreements reached by the Assembly of Representatives on essential issues (FLAR, 2012).¹⁷

This setup has bred a strong sense of ownership of the institution among its member countries, as seen in its sound position as senior lender. The member countries have always fulfilled their commitments to FLAR, even during sovereign debt moratoriums.¹⁸ In turn, the fund's position as senior creditor is one of the reasons for its very good credit risk ratings—better than any of its individual member countries and, indeed, the best in Latin America at present (see Ocampo, 2012; Ocampo and Titelman, 2012).¹⁹ Of course, a good credit rating enables FLAR to access the financial markets on advantageous terms and, therefore, lend to its member countries on terms that are more favourable than the ones they could obtain in the private credit markets (Ocampo, 2012).

FLAR governance in terms of voting mechanisms and decision-making authority stands in stark contrast to other global and regional arrangements, where voting power is concentrated in a handful of countries and the other members therefore have less of a say.

Voting power in the International Monetary Fund, for instance, is closely linked to each country's financial contribution. Of a total of 188 member countries, the 10 largest contributors together account for 55% of IMF resources and concentrate more than half of the voting power. In the Chiang Mai Initiative Multilateralization (CMIM), China, Japan and the Republic of Korea are the biggest contributors; they account for 80% of the contributions to the arrangement and concentrate more than 70% of the votes. As the Executive Level Decision Making Body (ELDMB) decisions require a two-thirds majority of votes, in practice this means that these three countries can make most of the decisions on their own.²⁰

These examples make plain the major challenge an expanded FLAR would face in terms of decision-making mechanisms. Some thought should be given as to the feasibility of maintaining the “one nation, one vote” principle in an expanded FLAR with countries contributing very different amounts and with a high percentage of total contributions concentrated in larger countries like Brazil and Mexico. The alternative would be a mechanism in which voting power is more concentrated.

2. Credit eligibility requirements

Setting a fund's loan eligibility requirements is another crucial issue that poses substantial challenges.

The classic dilemma for a reserve fund lies in determining to what extent member countries should be able to access resources quickly and flexibly (that is, with little or no conditionality) and to what extent access should be subject to compliance with certain conditions aimed at counterbalancing potential moral hazard issues and situations of nonpayment by the countries.

FLAR essentially sets no conditionalities. This is one of its governance features that sets it apart from other funds, which usually have explicit or implicit conditionalities. However, these conditionalities have sometimes acted, in practice, as barriers to access, leading the countries to prefer not tapping the arrangements that impose them.

At the International Monetary Fund, for example, establishing conditionalities for accessing the Stand-By Arrangements, or SBA, that until recently were the ones most often approved for medium-income countries facing a crisis, contributed, over time, to negative perceptions of countries that had needed to turn to IMF. There was a kind of stigmatization in that borrowing from IMF meant that the country had run into difficulties because of poor economic policies. Obviously, a reserve fund that is subject to such stigmatization can do little to support its members in times of crisis. For one thing, stigmatization itself can exacerbate the crisis; for another, adjustment policy conditionalities imposed on a country can themselves end up worsening its economic performance.²¹

In the Chiang Mai Initiative Multilateralization, conditions for accessing financial support also posed problems. While the conditions are not explicit, there is an “IMF link” whereby more than 20% of the amount available to a country cannot be disbursed unless it

¹⁷ A super-majority is required for agreements concerning capital increases, creation of special funds, amending the agreement for the establishment of the fund and changing credit limits and terms (FLAR, 2012).

¹⁸ See Ocampo and Titelman (2009).

¹⁹ The rating agencies themselves note its position as senior creditor as one of the reasons for giving FLAR good risk ratings (see, for example, Moody's, 2008 and Standard & Poor's, 2008).

²⁰ As with FLAR, the Chiang Mai Initiative Multilateralization (CMIM) has a different rule for decisions on what are regarded as core issues, which must be made by consensus.

²¹ For a review of conditionalities and adjustment programmes imposed on countries under loan programmes approved by IMF since 1995, see Henning (2011).

first enters into an agreement with the International Monetary Fund. It is thought that the IMF link is exactly what kept the participating countries from drawing on the CMIM even in times of great need such as the recent global crisis.²²

It is not obvious that the FLAR experience could be replicated in other arrangements or even in a FLAR with more members and funding, but it does seem that greater lending flexibility is a positive attribute that all reserve funds should seek.²³

Indeed, in the wake of the most recent crisis (2008-2009), recognition of this attribute has been seen in the trend towards more flexible conditions for liquidity support under several arrangements.

At the height of the global crisis, IMF reformed its stand-by arrangements to make them more flexible and responsive to countries' needs.²⁴ Caps on access were increased, as were initial disbursement amounts, and conditions were streamlined. In addition, IMF created its Flexible Credit Line (FCL), which is approved for pre-qualified countries without ex-post target or policy conditions.²⁵

The CMIM has also gone in the direction of more flexible ways to provide financial assistance to its members. It recently decided to increase the IMF de-linked portion of its loans and established the CMIM Precautionary Line

(CMIM PL), modeled on the IMF FCL, that will have ex-ante conditions instead of ex-post ones.²⁶

The expanded FLAR should consider whether to maintain the existing set-up for lending without conditions or introduce some kind of conditionality, such as ex-ante requirements. The latter would pose a significant challenge because macroeconomic policies differ from country to country and it is not clear that they could all agree on what the "appropriate" ex-ante requirements might be. Nor is it clear that they could agree on how to monitor and assess a country's compliance with its conditions.

3. Surveillance mechanisms

Surveillance mechanisms are a third area that poses challenges for an expanded FLAR. Surveillance refers to the processes for monitoring and consulting regularly with fund members to help the countries detect potential vulnerabilities early and thus help ward off crises (Ciorciari, 2011).

Designing a fund's surveillance system is no trivial matter, as it involves sensitive policy issues at the country level. Surveillance between peers through regional arrangements is especially sensitive and does not lack for problems, because countries often prefer not to sit in judgement of neighbour country policies. This issue is compounded by the fact that it is not clear what regional arrangements might have the capacity (not only in terms of technical independence but also in terms of sufficient financial and human resources) to conduct the requisite surveillance.

In Asia, when the Chiang Mai Initiative was multilateralized (2010) there were already formalized surveillance mechanisms that had not been successful. The Economic Review and Policy Dialogue (ERPD), intended to facilitate the voluntary exchange of information between countries, as well as peer reviews, had run into obstacles because the countries did not always provide information on a timely basis or in the right way and were generally reluctant to criticize their neighbours' policies (Ciorciari, 2011). The Macroeconomic and Financial Surveillance Office (MFSO), established in 2008, had been underresourced and had, moreover, run into serious political obstacles. Its reports could be revised by the countries, which could delete sections they did not agree with or could prove embarrassing.

²² Strictly speaking, what was in effect in Asia in 2008 was the precursor to CMIM, then referred to as the Chiang Mai Initiative (CMI). It consisted of a network of bilateral foreign exchange swap facilities among the countries and also had an IMF link for access to credit. CMI was never used. Although the Republic of Korea had US\$ 18.5 billion in swap agreements through CMI, during the global crisis it turned to a US\$ 30 billion bilateral swap arrangement with the United States Federal Reserve because only US\$ 3.7 billion could have been drawn without being part of an IMF programme. Moreover, some believe that entering such a programme would have been "political suicide" for the government after its bad experience during the 1997-1998 crisis (see Sussangkarn, 2010; Dixon, 2012). Singapore and Indonesia, as well, sought a swap line with the Federal Reserve during the global crisis instead of tapping CMI, although one was not provided for Indonesia.

²³ The fact that FLAR does not tie its conditions to those of other funds (as CMIM does with its IMF link) is without question another factor contributing to the greater sense of ownership by its member countries.

²⁴ See IMF [online] <http://www.imf.org/external/spanish/pubs/ft/survey/so/2009/new032409as.pdf>.

²⁵ For qualified countries (those that, according to the IMF, have very strong economic fundamentals and policy frameworks and therefore meet stringent pre-established eligibility requirements), there is no predetermined FCL cap and disbursement is immediate instead of in tranches. These lines do offer countries flexibility to draw the entire amount upon approval or else treat it as a precautionary facility. In 2011 IMF established its Precautionary and Liquidity Line (PLL) for flexibly meeting the liquidity requirements of countries with vulnerability factors that keep them from drawing on the FCL. The PLL combines ex-ante eligibility requirements for access with some ex-post conditions focused on reducing those vulnerabilities.

²⁶ See the press release relating to the 15th ASEAN+3 Finance Ministers and Central Bank Governors' Meeting held in early May 2012 <http://www.aseansec.org/Joint%20Media%20Statement%20of%20the%2015th%20ASEAN+3%20Finance%20Ministers%20and%20Central%20Bank%20Governors'%20Meeting.pdf>.

Obviously, the outcome was reports lacking in objectivity and credibility (Ciorciari, 2011).

A key part of the negotiations for establishing CMIM therefore included setting up a strong, effective surveillance unit. The Asean+3 Macroeconomic Research Office (AMRO) was finally established in May 2011 in order to “monitor and analyze regional economies” and thus contribute to “early detection of risks, swift implementation of remedial actions and effective decision-making of the CMIM.”²⁷ Current discussion in Asia has precisely to do with how to enhance AMRO, improve internal procedures at and coordination with the other surveillance mechanisms and make them more complementary.

While FLAR does not have a formal surveillance unit, it does monitor the macroeconomic performance of its member countries, reviewing their status, performance outlook and environment over the short and medium term.²⁸

²⁷ See [online] http://www.aseansec.org/documents/JMS_13th_AFMM+3.pdf.

²⁸ Where there are outstanding loans to a country, the FLAR Division of Economic Studies usually evaluates the country’s balance of payments situation and its repayment capacity over the term of the loan. This can involve technical visits to authorities and experts at the country’s economic institutions, as well as reporting to the Office of the FLAR Executive President and Board of Directors. See FLAR (2010) for follow-up on the loan approved for Ecuador during the global crisis.

Nonetheless, it is not clear whether not having an institutionalized surveillance mechanism could continue to be an option for an expanded FLAR. It might be necessary to establish formal arrangements for this task by creating a surveillance office with the capacities needed to perform this function.

The surveillance office could and should eventually seek to divide the work appropriately with institutions, such as IMF, that at present monitor FLAR member countries. As noted by Henning (2011) concerning AMRO (but also applicable to an expanded FLAR), the regional surveillance office should be able to (i) render opinions that might sometimes differ from those of IMF concerning the vulnerabilities of the countries participating in the arrangement; (ii) provide evaluations more frequently than IMF; and (iii) participate in evaluation discussion forums jointly with IMF. In short, there should be a division of work that, while avoiding duplication of effort, yields a more complete view that is more in line with reality than would otherwise be the case.²⁹

²⁹ This is something like what is happening in Asia, where IMF and Asian Development Bank (ADB) reports are taken as input for the Economic Review and Policy Dialogue.

V

Conclusions

- Strengthening the Latin American Reserve Fund (FLAR) by expanding its size and membership would be a substantial contribution to providing a regional and global public good: financial stability.
- This report sought to cast light on the viability, implications and challenges of expanding FLAR to five more countries of the region: Argentina, Brazil, Chile, Mexico and Paraguay.
- Its approach grew out of the authors' idea of what a regional reserve fund should be.
- Such funds should not be seen as the only line of defence for their member countries. Rather, they are part of a broader network of instruments and sources of support available to the countries for facing external shocks.
- As such, they help densify the international financial architecture as an additional line of defence for countries within a multilevel financial cooperation structure in keeping with principles of subsidiarity.
- This way of looking at regional reserve funds has two fundamental implications for deciding on the size of an expanded FLAR.
- It means, first, that when deciding the size of the fund it should be borne in mind that there are other sources that the member countries (especially the larger ones) can turn to for meeting liquidity needs in the face of balance-of-payments constraints.
- An expanded FLAR could therefore be much smaller than it would have to be if it were to be a lender of last resort for all of its members.
- Second, seeing the regional fund as one component of a broader global financial architecture framework means that an expanded FLAR would not necessarily have to be large enough to cover extreme scenarios. Instead, it should be sized for facing the most likely ones.
- According to this article, the most likely scenarios are those where only a certain percentage of the countries of the region run into balance-of-payments difficulties at the same time. Systemic crises and widespread contagion are not the mode.
- A fund designed to deal with these more benign scenarios should obviously be far smaller than one seeking to cover extreme scenarios.
- For addressing extreme cases (which are, according to our findings, less likely) such as a systemic crisis or widespread contagion, and even for intermediate scenarios where the fund's capital is not enough to meet the requirements of its member countries, the fund should be able to "broaden its shoulders" by leveraging its capital in order to mobilize additional resources or by acting jointly with other components of the financial architecture.
- In view of the above, basing capital contributions from new member countries on the same rationale behind the existing FLAR would yield an expanded fund totalling nearly US\$ 9 billion, which is equivalent to 1.4% of the total stock of international reserves held by the 12 subject countries.
- A fund of this size, unleveraged, could simultaneously cover the potential needs of the entire group of small countries along with half of the requirements of the medium-sized countries, for a total of US\$ 7.8 billion.
- Leveraging the fund's capital by borrowing, up to a medium- and long-term debt to paid-in capital ratio of 65% (the maximum authorized for FLAR), would generate lending resources totaling almost US\$ 13.3 billion.
- At this volume of resources, the fund could simultaneously cover more than 85% of the potential needs of the entire group of member countries except for the two largest. These needs have been estimated at US\$ 15.3 billion.
- In this contribution scenario (and in another set out herein), the amount that Brazil and Mexico—the region's two largest economies—contribute to the total capital of the fund is very important.
- However, the cost of participation for these two countries is not high, either in terms of their total stock of international reserves or in comparison with their IMF quotas.
- By participating in an initiative of this kind, both countries would be playing a central role in promoting regional financial cooperation—a role that would even provide them the benefits stemming from greater regional financial stability.
- The fact that capital contributions from the countries could count as part of their stock of international reserves (as is now the case with the International Monetary Fund) would be an additional incentive.

- Aside from the potential benefits of an expanded FLAR, working towards bringing in new members would pose major challenges for fund governance, that is, decision-making and surveillance mechanisms and criteria for allocating funding.
- The existing FLAR has been shown to have a number of positive attributes, among them the strong sense of ownership on the part of its member countries that is, in practice, reflected in the fund's solid position as senior creditor, its quick and timely response, and its low loan conditionality that helps to keep borrowing from FLAR from being stigmatizing for the countries.
- The governance of an expanded FLAR should be in line with a fund with more members and resources while seeking not to lose the positive attributes that in many cases set FLAR apart from other global and regional funds.

ANNEX 1
TABLE A.1

Comparison of three regional reserve funds

Member countries	Objectives	Types of credit facilities	Management	Relevance for member countries
		Latin American Reserve Fund (FLAR) 1989		
Bolivarian Republic of Venezuela, Colombia, Costa Rica, Ecuador, Peru, Plurinational State of Bolivia, and Uruguay	(i) Provide financial balance-of-payments support to member countries; (ii) improve the conditions for member country reserve investments; and (iii) help harmonize member country monetary and financial policies.	Balance-of-payments support loans: three years plus one-year grace period for capital subscriptions. The access limit is 2.5 times paid-in capital. The interest rate is three-month LIBOR plus 400 basis points. Must be approved by the Board. Public external debt restructuring loans: Three years plus one-year grace period for capital subscriptions. The access limit is 1.5 times paid-in capital. The interest rate is three-month LIBOR plus 400 basis points. Must be approved by the Board. Liquidity loans: terms of up to one year. The access limit is 1 time paid-in capital. The interest rate is three-month LIBOR plus 150 basis points. Approval requires clearance by FLAR Executive President. Contingency loans: six months, renewable. The access limit is 2 times paid-in capital. The interest rate is three-month LIBOR plus 150 basis points. Approval requires clearance by FLAR Executive President. Treasury loans: terms from 1 to 30 days, with an access limit of 2 times paid-in capital. Approval requires clearance by FLAR Executive President.	The countries made capital contributions (reserves) to FLAR, which manages the resources contributed by the countries.	The size (paid-in capital) of FLAR is US\$ 2 billion (data from March 2012), which is approximately 1.61% of the average stock of international reserves held by its member countries and 0.21% of their GDP, although the relative importance of each member country's capital contribution varies.
		Arab Monetary Fund (AMF) 1977		
Twenty-two members of the Arab League of States: Jordan, United Arab Emirates, Bahrain, Tunisia, Algeria, Djibouti, Saudi Arabia, Sudan, Syria, Somalia, Iraq, Oman, Palestine, Qatar, Kuwait, Lebanon, Libya, Egypt, Morocco, Mauritania, Yemen and Comoros	(i) Correct balance-of-payments disequilibria in the member States; (ii) promote exchange-rate stability among member States; (iii) establish policies and modes of monetary cooperation that favour integration; (iv) render advice, upon request, with regard to the investment of the financial resources of member States in foreign markets; (v) promote the development of Arab financial markets; (vi) promote the use of a common unit of account (the Arab dinar) and the creation of a unified Arab currency; (vii) coordinate member State positions on international monetary and economic issues; and (viii) settle current-account balances between States in order to promote trade.	Balance-of-payments loans: there are four modalities: automatic (up to 75% of the paid subscription); ordinary (up to 100% of the paid subscription); extended (up to 175% of the paid subscription); and compensatory loans (up to 100% of the paid subscription). Some of these can be combined, bringing the access limit up to 250% of the paid subscription. Structural Adjustment Facility (SAF): for funding sectoral structural reforms in the States, focusing on sectors within the fund's purview (finance, banking and public finance). As a rule, loans under the SAF are capped at 175% of the paid subscription but a State can apply for more than one. Since 2007 there is a facility for States that are net importers of petroleum, capped at 200% of the paid subscription. Loans for States facing liquidity constraints: this new facility was approved in 2009 for States that have a sound track record but are facing liquidity constraints. Access is capped at 100% of the paid contribution. ^a	The States paid in capital contributions (reserves) to the AMF, which manages the resources contributed by the States.	The size (paid-in capital) of the AMF is US\$ 2.75 billion (data as of year-end 2010), which is approximately 0.26% of the average stock of international reserves held by its member States and 0.14% of their GDP. As with FLAR, the relative importance of each State's capital contribution in terms of its stock of reserves and GDP varies.

Table A.1 (conclusion)

Member countries	Objectives	Types of credit facilities	Management	Relevance for member countries
Member States of ASEAN+3, comprising the 10 member States of the Association of Southeast Asian Nations (Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam, plus China, Japan and Republic of Korea)	(i) Address balance-of-payments and short-term liquidity difficulties in the region; and (ii) supplement existing international financial arrangements.	Chiang Mai Initiative Multilateralization (CMMI) 2010 ^b Swaps: CMMI provides liquidity to enable its member States to address balance-of-payments constraints by swapping their local currencies for United States dollars held by the fund. The States are entitled to swaps for an amount up to their contribution to the fund multiplied by a certain number (0.5 for China and Japan, 1 for the Republic of Korea, and 2.5 or 5 for the other, smaller countries). But there is an "IMF link" whereby more than 20% of the amount available to a country cannot be disbursed unless it first enters into an agreement with the International Monetary Fund. Swaps mature in 90 days and can be rolled over for up to 720 days. The interest rate is LIBOR plus 1.5%, increasing by 0.5% every 180 days up to a maximum of LIBOR plus 3%. ^c CMMI Precautionary Line (CMMI-PL): the precautionary line was established in May 2012; it has ex-ante conditions for countries to qualify. Duration of access to the facility is six months for the portion that is delinked from IMF and one year for the IMF-linked portion.	Central banks participating in the Chiang Mai Initiative Multilateralization sign letters of commitment of funds in dollars that are transferred only when a swap has been requested and approved. In practice, the international reserves remain in possession of the countries, so each country manages them on an individual basis.	The size of the swap network is US\$ 120 billion (US\$ 96 billion contributed by the "+3" countries and US\$ 24 billion contributed by the 10 ASEAN member States). This is approximately 2.4% of the average stock of international reserves of the member States and 0.84% of their GDP. At the 15th ASEAN+3 Finance Ministers and Central Bank Governors' Meeting in early May 2012 it was decided to double the size of CMMI, to US\$ 240 billion.

Source: prepared by the authors, on the basis of information from the respective funds; agreements establishing FLAR and AMF; World Bank, World Development Indicators [online database]. Calculations of international reserves are based on data including gold as of year-end 2010.

^a For AMF, as a general rule and beyond the caps for each kind of loan, loans issued to a member over a period of 12 months shall not exceed twice the amount of its paid-up subscription. Outstanding loans to a member shall not at any time exceed three times the amount of its paid-up subscription. The Board of Governors may decide by a three-fourths majority to raise the limit to four times the amount of the paid-up subscription (Article 21 of the Agreement Established in 2000, which consisted of a network of bilateral swap arrangements between countries.

^b Effective from March 2010. The precursor of CMMI was the Chiang Mai Initiative (CMI) established in 2000, which consisted of a network of bilateral swap arrangements between countries. ^c In May 2012 it was agreed that the IMF de-linked portion of available credit would be increased (see footnote 26). It was also agreed that swap maturity would be extended to one year (and may be rolled over for two additional one-year periods for a total of three years) for the IMF de-linked portion. For the other portion, maturity will be lengthened from 90 days to six months, renewable three times for a total not to exceed two years.

ANNEX 2

Identifying episodes of sudden stops in capital flows

The methodology proposed by Calvo, Izquierdo and Mejía (2004, 2008) was used to determine what is considered to be a sudden stop episode. This methodology seeks to detect periods with substantial unexpected slowdowns in net capital flows and therefore utilizes a series of variations in those flows. A sudden stop episode thus meets the following conditions:

- (i) It contains at least one observation where the variation in net capital flows lies at least two standard deviations below the mean for the series of variations.³⁰
- (ii) Having found an observation that meets condition (i), the starting point of the episode is that observation where the variation in net capital flows first fell at least one standard deviation below the mean.
- (iii) The episode continues for as long as the variation in net capital flows remains at no more than the mean minus one standard deviation.

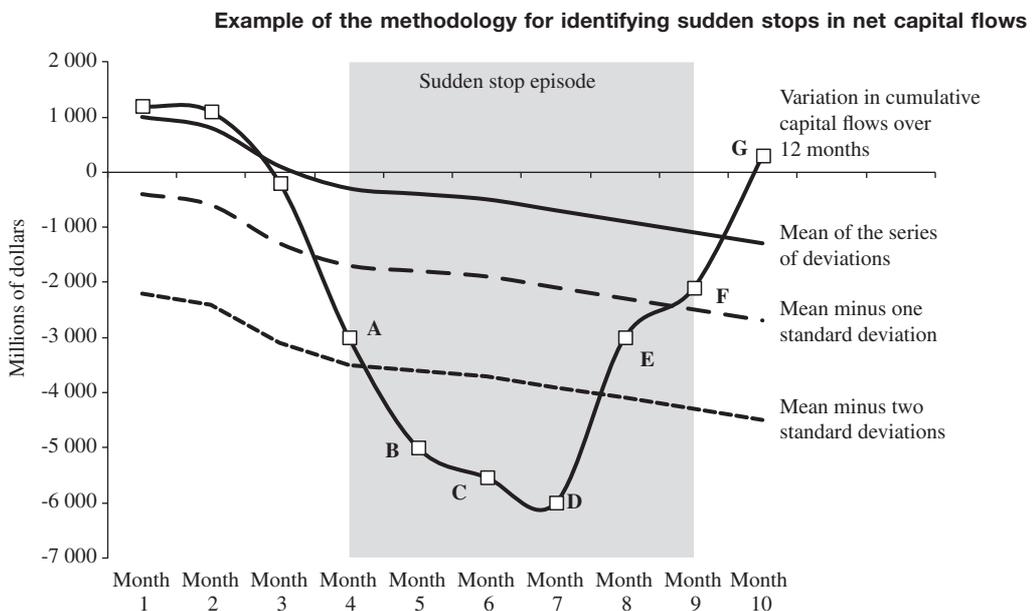
The graphic example in figure A.1 clarifies the methodology. The variation in net capital flows is

positive in the first two months and turns negative in month three. According to the methodology used, the sudden stop begins in month four (point A), when the variation in capital flows first falls at least one standard deviation below the mean for the series of variations. The episode continues for as long as the variation in net capital flows is below the mean minus two standard deviations (points B, C and D) or is between the mean minus one and two deviations (point E). In this example, the final point in the episode is exactly point E, because the following point (F) lies above the mean minus one standard deviation.

Using this methodology, episodes of sudden stops in net capital flows were identified for each of the 12 subject countries, employing monthly data for the period between January 1990 and December 2011. Because the capital flows in balance-of-payments statistics are, for most of the countries, quarterly, a monthly proxy like the one utilized by Calvo, Izquierdo and Mejía (2004, 2008) was used for these flows. This proxy was obtained by netting out changes in international reserves from the trade balance; both variables are recorded monthly. While this proxy implicitly includes the portion of the current account corresponding to net factor payments and current transfers, any problem that this could cause

³⁰ Both the mean and the standard deviation are calculated each period using an expanding window with a start date fixed at the first observation so as to capture the behaviour of the entire series.

FIGURE A.1



Source: prepared by the authors.

would be minor since what is relevant for such an exercise is not so much the level of the respective accounts but rather their volatility. Because these categories do in fact include low-volatility elements such as interest payments on long-term debt, they should not introduce

spurious volatility into the proxy (Calvo, Izquierdo and Mejía, 2008). Capital flows were taken as cumulative over 12 months; changes in them were measured on a half-yearly basis in order to avoid the extreme volatility of monthly variations.

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