The Great Recession, 'Rainy Day' Funds, and Countercyclical Fiscal Policy in Latin America

This version: July 2010

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Abstract

Abstract: This paper examines the fiscal policy options that were available to Latin American countries at the onset of the current global economic crisis. It concludes that most of the major countries in the region possessed the fiscal space (as measured by credible fiscal sustainability and debt headroom) to run prudent countercyclical fiscal deficits. For those countries, the appropriate policy response involved a constrained fiscal expansion focused on productive public spending and financed by drawing on the "rainy day" funds - in the form of large stocks of foreign exchange reserves - that they accumulated in prior years, rather than by market borrowing. It shows that the recent surge in multilateral financial activity to alleviate market illiquidity, whether intended for reserve or budget support, strengthens the case for this policy prescription: with multilateral support, the appropriate policy response is more expansionary, and its financing is less reliant on market borrowing.

JEL Classification: E62, E63, F34.
Keywords: countercyclical policy, fiscal space, international reserves, multilateral financial support.

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1. Introduction

The current financial crisis has been the most severe and widespread that the international economy has experienced since the Great Depression of the 1930s. Although it originated in the United States, the crisis spread internationally very quickly. Developing countries in particular were affected through various channels, both financial and real. The financial channels include sharp contractions in domestic asset prices and capital outflows, while the real channels include reductions in export volumes, declines in the prices of primary commodities, and reduced flows of workers' remittances.

The worldwide nature of the crisis has generated a debate both in each affected nation as well as in all of the major international financial organizations about the appropriate nature of the policy response. The complicating factors in addressing this issue are that the crisis manifested itself in different forms in different countries, that the effectiveness of the policy instruments available to confront it is likely to differ country by country, that each country faces country-specific constraints and tradeoffs in deploying such policy instruments, and that countries differ in the weights that they place on different policy objectives. Not surprisingly, therefore, there has been much international disagreement about appropriate policy responses, and individual countries have implemented quite different policies.

This paper considers the challenge of crisis policy from the perspective of Latin America. Its particular concern is with the appropriate role for countercyclical fiscal policy in response to the crisis. This issue was hotly debated within the region in the early stages of the crisis, and prominent voices argued for fiscal restraint, for reasons similar to those used to justify fiscal restraint more recently in many countries outside the region – i.e, to safeguard market confidence. In the event, breaking with the past, countries in Latin America indeed undertook moderate fiscal stimulus. Instead of engineering fiscal restraint, fiscal balances in 2009 were allowed to accommodate the downturn in almost every country in the region.[3] In the typical country, the primary fiscal balance in 2009 deteriorated with respect to 2008 by 2.4 points of GDP, 1.4 points due to lower fiscal revenues and one point on account of higher expenditures.

[3] With the exception of the Dominican Republic.

Countercyclical fiscal policy was behind not only spending expansion but, in part, revenue contraction due to lowering taxes. This impulse is planned to continue to some extent over 2010.

Recovery is currently under way in Latin America. Since there were other forces driving that recovery, however (such as fast-growing demand for the region's primary products from booming economies in Asia), the contribution of fiscal stimulus to the region's recovery remains to be established. However, the question remains: was countercyclical fiscal policy an *ex ante* mistake that proved to be less harmful *ex post* because of fortunate developments in trade with Asia? Or have at least some economies in the region evolved to the point where a countercyclical fiscal stance – which indeed represents a significant break from the region's past – was appropriate *ex ante* in light of the severity of the crisis? The question is an important one, because it speaks to the crucial issue of whether, after two decades of reform, the region's macroeconomic institutions and circumstances have placed it in a position to be able to actively pursue macroeconomic stability in response to external shocks, rather than exercise restraint for the sake of preserving market confidence. In the event that the current recovery turns out not to be sustained, or that an independent new crisis appears on the horizon in the near future, the formulation of an appropriate policy response requires that this question be addressed.

Because theory suggests that the answer is likely to depend on country-specific conditions, we illustrate some of the important factors to be considered by focusing on the case of the seven largest economies in the region (the LAC-7 countries, consisting of Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela). In a previous paper (Fernández-Arias and Montiel 2009), we argued that for several of these countries, the right policy was a program of "constrained" fiscal expansion financed with multilateral support and drawing down some of the large stocks of foreign exchange reserves that they had previously accumulated as "rainy-day" funds. In the current paper we review our argument in light of the actual experience. In retrospect, we find that fiscal policy actually exercised by these countries has indeed been an important component of an appropriate countercyclical response.

The structure of the paper is as follows: in the next section we examine the state of vulnerability of the major Latin American economies at the outset of the crisis. Section 3 provides a brief overview of policy responses that have been implemented elsewhere, and considers the pros and cons of implementing similar policies in Latin America. Section 4

presents our case for the view that constrained fiscal expansion was indeed appropriate *ex ante* in many countries in the region, while Section 5 describes and evaluates several potentially serious objections to our recommendations. The concluding section compares the paper's policy prescriptions with the policies actually implemented by the seven major Latin American countries.

2. Vulnerability

The international crisis was transmitted to Latin America through reduced export volumes, less abundant and more expensive external finance, deterioration in the terms of trade, and reduced flows of worker remittances. The implications that these shocks had for Latin American economies, however, were determined by the extent of vulnerability that these economies exhibited when the shocks arrived. In this respect, the news was relatively good in Latin America at the time the crisis broke out: while the reforms of the 1990s may have left the region more exposed to external shocks, they also rendered it more resilient in the face of such shocks. There are several aspects to the region's enhanced resiliency.

First, a key source of macroeconomic vulnerability is the health of the financial system, as the United States and several other industrial countries have rediscovered to their dismay. As the result of financial reforms undertaken over the past decade and a half, including improvements in financial regulation and supervision, enhanced competition in the financial system, and in some cases the recent resolution of banking crises, the financial systems of Latin American countries were healthier at the outbreak of the current crisis than they have been in the past. The entry of foreign banks has also significantly contributed to the health of the system.[4] Moreover, Latin American financial institutions did not acquire the "toxic assets" that caused so much trouble in many industrial countries, so they did not experience the direct hit suffered by financial institutions in those countries.

[4] It is worth noting that, while the presence of foreign banks could enhance the health of the domestic financial system, it could at the same time strengthen the channels of transmission of financial shocks arising in the "center" countries. This would be so if such banks transmit home country liquidity shocks or adopt home-country capitalization levels in response to a financial crisis. To date, however, foreign banks in these countries do not appear to have behaved differently from domestic ones in ways that would magnify their role in crisis transmission (see Cetorelli and Goldberg 2009).

Second, central banks have been strengthened as macroeconomic institutions in several of the major countries in the region. Not only have they been accorded legal independence, but they have taken responsibility for maintaining low and stable inflation rates, and to a significant extent they have achieved that goal in recent years, enhancing their credibility. The increased anti-inflationary credibility of central banks in the region has increased their scope for engaging in countercyclical policies without destabilizing inflationary expectations.

Third, many of the major countries in the region have transitioned to more flexible exchange rate arrangements, reducing vulnerability to the disruptive discrete exchange rate depreciations that are associated with currency crises and providing an automatic stabilizing effect in response to external financial shocks. Bilateral exchange rates against the US dollar indeed depreciated quickly in all of the LAC-7 countries when the external financial environment turned adverse in the fall of 2008.[5] Moreover, despite still being pronounced in some countries, financial dollarization has declined in the region, reducing the impact of a factor that has weakened or even reversed the otherwise expansionary effect of exchange rate depreciation in the past.[6]

Fourth, fiscal reforms have enhanced the flexibility of fiscal systems in some cases and many countries in the region have demonstrated both the political will and economic ability to make significant fiscal adjustments. Coupled with the reform of fiscal institutions in some countries (such as the Structural Balance Rule in Chile and the Fiscal Responsibility Law in Brazil), these reforms have enhanced fiscal credibility while at the same time strengthening the effects of automatic fiscal stabilizers.

Fifth, the combination of fiscal restraint and healthy growth performance for several years before the outbreak of the crisis resulted in significant reductions in public debt stocks as a proportion of GDP in the LAC countries as a group. The average ratio of public debt to GDP for a group of countries representing more than 90 percent of regional GDP declined from over 60 percent in 2003 to about 37 percent by 2007.

[5] In addition to the standard expenditure-switching channels, such depreciations have played a stabilizing role in some countries (especially Mexico) by increasing the domestic-currency value of workers' remittance flows.

[6] To the extent that currency mismatches are induced by fixed exchange rate regimes combined with lax financial regulation, improved regulation and more flexible exchange rate management could be behind the reduction in the extent of such mismatches in Latin America.

In addition to these institutional reforms and improved performance in the financial, monetary, exchange rate, and fiscal policy areas, a specific policy decision has also contributed to reducing the region's vulnerability to adverse external shocks: the accumulation of large stocks of international reserves. These reserves increased tenfold from 1990 to 2008 (from about US $50 billion to about US $500 billion). They have been accumulated both to prevent undesired appreciation of domestic currencies as well as to serve as self-insurance against sudden stops of capital inflows (i.e., to serve as "rainy day funds"). They now represent large stocks of liquid public sector assets that can be deployed to prevent excessive exchange rate depreciation, if desired, or to finance temporary fiscal deficits or other fiscal outlays to support recovery, if necessary.

Moreover, these reserves were quickly strengthened by liquidity agreements with the US Fed (Brazil and Mexico benefited from liquidity commitments of $30 billion each) and massive IMF resources pledged by G20 countries to be used in new low-conditionality programs. Though these liquidity arrangements have since expired, they signify favorable changes in the international environment from the perspective of the region's access to external sources of liquidity in crisis times.

All of these factors explain why the very large external shock that the international crisis represented for Latin America proved to be less disruptive in many countries than the region's history might have led one to expect. In this new environment, the traditional sudden disruptions associated with banking and currency crises have been rendered less likely in Latin America. Most important, perhaps, is that policy has been empowered: financial and macroeconomic policy institutions have more credibility (thereby making short-run deviations from medium-term policy stances less disruptive to expectations), and policymakers have means at their disposal to counter shocks – in the form of large reserve stocks – that have not been available in the past.

On the other hand, it would be easy to exaggerate the region's resiliency. First, aside from increased financial and real openness, some countries have implemented reforms that have made them *less* resilient in the face of the types of shocks that the region has been experiencing. For example, formal dollarization in Ecuador and El Salvador have deprived these countries of monetary and exchange rate policies as stabilization instruments. Second, the reforms mentioned

above have not been carried out uniformly throughout the region, and in many cases they are both recent and fragile – i.e., it may be too early to take credibility gains for granted. Finally, and perhaps most importantly, although public debt stocks have been reduced significantly relative to the size of the relevant economies, they remain uncomfortably large for many countries in the region, and few countries have achieved a state of safe fiscal solvency. This not only makes the perceived solvency of their governments vulnerable to increased public sector debt-servicing costs, but also makes it more difficult to undertake a countercyclical fiscal response, as we shall discuss below.

3. Countercyclical policies in Latin America: Pros and Cons

The policy response to the crisis in industrial countries focused on restoring the health of the financial system where that was perceived to have been imperiled, and attempting to sustain aggregate demand in order to avoid a continued sharp contraction of real economic activity. Inflation initially dropped off the radar screen as a primary policy concern – in fact, if anything, *deflation* became a more prominent worry.[7] Outside Latin America, some emerging-market economies – most prominently China –responded by quickly adopting expansionary monetary and fiscal policies.

The policy response in industrial countries has taken several forms:

a. Expansionary monetary policy

All of the major central banks in industrial economies have moved to near-zero policy interest rates. For example, the daily average federal funds rate in the United States was at approximately 0.2 percent in early March of 2009 and has remained there since, and the ECB, the Bank of England, and the Bank of Japan all similarly lowered their policy rates to near-zero levels.

[7] Although some observers worried that the "quantitative easing" undertaken by many central banks and the larger fiscal deficits that emerged in many industrial countries would ignite inflationary pressures, this was a distinctly minority view.

b. "Quantitative easing"

In countries where credit markets have frozen up, public agencies, especially central banks, essentially took up the financial intermediation function by purchasing the liabilities of financial intermediaries, purchasing mortgages, and even engaging in direct lending to manufacturing enterprises. In the United States, the Federal Reserve System initially funded these operations by selling U.S. government obligations, which were in high demand as the result of the international flight to safety, but after the late summer and fall of 2008 it did so by dramatically expanding the monetary base (more than doubling the size of its balance sheet), in a process referred to as "quantitative easing."

c. Recapitalization of financial institutions.

Where credit froze up because of doubts about the solvency of financial institutions, industrial-country governments moved aggressively to try to restore the health of the system by recapitalizing it, providing funds to financial institutions in return for non-voting shares. The governments of the United States and the United Kingdom in particular acquired large stakes in their countries' financial sectors.

d. Fiscal expansion.

With policy interest rates already at near-zero levels, many industrial – and some emerging market – countries undertook substantial countercyclical fiscal expansions to supplement monetary policy. The United States was been particularly aggressive in this regard, enacting a program of spending packages and tax cuts that resulted in a fiscal deficit in excess of 12 percent of GDP in 2009. Much more modest fiscal expansion packages were also implemented in Japan and Western Europe, but a relatively ambitious one, focusing on infrastructure investment, was implemented in China.

Should the crisis response in Latin America have been on a similar scale? There is at least one obvious reason to give an affirmative answer: as in many of the countries that implemented aggressive countercyclical policies, Latin America faced a sharp contraction in aggregate demand at a time of subdued inflation. As in countries such as China, Latin American countries were confronted with a very deep externally-driven contraction in aggregate demand.

At the same time, as in industrial countries, inflation was not a serious policy concern in the vast majority of Latin American countries (Venezuela was an exception). Instead, the worry was that the externally-driven reduction in aggregate demand would induce severe reductions in real economic activity, as indeed began to happen in the fourth quarter of 2008 in countries such as Brazil and Mexico. The value of fiscal and monetary flexibility – in which many countries in the region have made substantial investments – is precisely so that policy can play a stabilizing role in situations such as that in which Latin America found itself in 2008.

On the other hand, a negative answer is suggested by three considerations:

First, the shock that Latin America suffered from was different from that which afflicted countries such as the United States and the United Kingdom. Specifically, it did not manifest itself in the form of a domestic financial crisis, but of a combination of adverse real and financial external shocks of large magnitudes. This is a potentially important observation, because it plays a role in the desirability of a countercyclical fiscal policy response in the region, as discussed below.

Second, the effectiveness of countercyclical policies – particularly that of fiscal policy – is likely to be quite different in Latin America from what it is in relatively large and relatively closed industrial countries such as the United States and Japan, or in a large and relatively closed emerging economy like China. If fiscal stimulus is ineffective in open economies such as those in Latin America because it simply leads to additional spending on foreign goods, then there would be little to be gained in the form of domestic aggregate demand stimulation by adopting countercyclical fiscal policies.

Third, and most importantly, the constraints on the implementation of countercyclical policies are quite different in Latin America from what they are in the countries that have implemented large countercyclical programs to date. These constraints may substantially alter their payoff and feasibility.

The first constraint concerns fiscal sustainability and solvency. Latin American countries whose fiscal sustainability is precarious may find it very costly to undertake expansionary fiscal policies that imply larger fiscal deficits because their issuance of new debt may increase the market's perception of the risk that these governments will become insolvent. This would further increase their borrowing costs, which would intensify the fiscal sustainability challenge

that these countries face. An unsustainable fiscal path eventually entails either fiscal adjustment to retain solvency or debt restructuring, both of which are costly processes. Either way, Latin American countries that find themselves with precarious fiscal solvency may lack the "fiscal space" needed to undertake a general fiscal expansion, even though the crisis has certainly created the "macroeconomic space" for them to do so.

This constraint also applies to quasi-fiscal policies such as countercyclical credit policies to provide financial intermediation to segments of the private sector cut off from the normal flow of credit, such as exporters left without trade credit by international banks or small enterprises crowded out by large corporations turning to local bank financing after finding it difficult to secure external financing. To the extent that these policies only involve intermediation, there is no fiscal deficit and fiscal sustainability is unaltered. However, any recovery risk would amount to a contingent debt that would encumber fiscal solvency.

The second constraint concerns the high cost of borrowing. Larger fiscal deficits can be financed either by issuing new public sector liabilities or by drawing down public sector assets. The former was very costly at the outset of the crisis for all but the least risky countries in the world because of low risk appetite in international markets. A high cost of public borrowing would have been a constraint on countercyclical fiscal stimulus in Latin America because only high return expansions, including extending credit to the private sector, would be worth the financial cost of borrowing to finance them.

However, this constraint can be overcome by relying on an alternative financing modality, in the form of liquid foreign exchange reserves. Such reserves were yielding very low returns at the outset of the crisis and therefore provided an attractive means to finance countercyclical fiscal deficits. However, reserve-financed fiscal expansion is subject to two important constraints of its own.

First, to the extent that creditors' perception of sovereign risk depends on the public sector's *net* debt, the use of foreign exchange reserves to finance fiscal deficits would increase debt-servicing costs in the same way as would the issuance of new government debt to private creditors. However, if high public sector borrowing costs arose for exogenous reasons – e.g., through the "monsoon effects" of a lower international risk appetite -- it may not have been very sensitive to fluctuations over the relevant range in the size of the public sector's net debt. The

upshot is that drawing down such assets would have little effect on the public sector's debt servicing costs.

Even in this benign case, however, there is a second constraint. The true opportunity cost of reserves has two components: the financial return on reserves and the liquidity benefits that they offer, in the form of protection against a self-fulfilling "sudden stop" of financing, to which even a solvent government may be vulnerable. This protection represents an implicit "liquidity premium" on reserves, which makes them worth holding even when they offer a low financial yield. The costs of reserve financing should thus include this foregone liquidity premium. To the extent that Latin American countries remain vulnerable to liquidity crunches, this premium could be high. Since the current crisis could have developed into a full-blown liquidity crisis where access to credit markets would have been lost, the high cost of financing a fiscal expansion may remain a constraint even when reserves offer a seemingly low-cost alternative to borrowing, because prudence may suggest a limit to their use.

4. The case for constrained fiscal expansion

Combining the arguments made in the last section, a case can be made that it may *not* have been appropriate for fiscal policy to have responded countercyclically in Latin America. If fiscal policy multipliers are small (as they might be in the more open economies in the region), then the amount of domestic aggregate demand stimulus that could be obtained for any given increase in public sector indebtedness through debt-financed spending increases or tax cuts may be too small to justify a countercyclical fiscal response.[8] This argument becomes stronger when debt financing is extremely expensive. It becomes even stronger if, as is the case for some countries in the region, public sector debt stocks were already high relative to the debt-servicing capacity of the relevant governments, so that any increases in fiscal deficits would call for future fiscal adjustment and tend to threaten fiscal insolvency.

[8] However there could still be a global justification to the extent that fiscal spillovers help foreign countries in similar circumstances.

1. The benefits of fiscal expansion

However, an alternative argument makes a persuasive case for fiscal expansion, possibly even in cases such as the immediately preceding ones.

Start from the observation that the social rate of return on well-designed public sector investments is likely to be quite high in Latin America at present. There are at least two reasons to believe that this may be so: first, past resource misallocations during booms, and extended periods of fiscal stringency during busts, severely depleted the public sector capital stock in the region over the past three decades, indicating that public investments in areas such as infrastructure, health, education, and internal security may have a high social payoff (Calderon and Serven 2004); second, the opportunity cost of many of the resources that would be absorbed by such spending would have been near zero at the outset of the crisis, since the crisis created substantial unutilized productive capacity in the region.

In addition to their potential for positive aggregate supply effects, it is quite likely that the aggregate demand effects of productive public expenditures of the types described above would prove to be stronger than would be suggested by simple analyses of fiscal multipliers based on the degree of openness of these economies, for a number of reasons:

First, it matters what the government spends the money on. Expenditures on infrastructure, health, education, and internal security are likely to be heavily nontraded-intensive, providing a direct stimulus to domestic production. In the parlance of the debate over stimulative spending proposals in the U.S. Congress at the onset of the crisis, spending of this type is "job-creating."

Second, as mentioned above, the desire of private agents to move assets out of the region has created substantial pressure for nominal exchange rate depreciation in Latin America, at the same time that inflation rates have remained low. To the extent that the implied real exchange rate depreciation is allowed to happen, it would be expected to create expenditure switching in favor of domestic goods in subsequent rounds of private-sector spending induced by the initial fiscal stimulus, increasing the fraction of such spending that is used to purchase domestic goods.

Third, to the extent that productive public investment reduces bottlenecks in domestic production and/or induces favorable expectations about the domestic availability of factors that

are complementary to private physical capital, it should be expected to stimulate domestic private absorption – both consumption and investment. This creates the potential for a significant "crowding in" effect that would increase the aggregate demand impact of the fiscal expansion.

Fourth, fiscal policy in the form of credit to viable segments of the private sector cut off from normal credit channels due to the liquidity crunch, in countries where the financial system is not supporting credit demand appropriately, may also have large social returns. Depending on the countries, external credit to the private sector in Latin America saw a pronounced surge in interest rates, outstripping that of sovereign borrowing, or an outright sudden stop. Furthermore, faced with substantial macroeconomic uncertainty, in some countries local banking systems resorted to a wait-and-see lending strategy with respect to the least creditworthy segment of borrowers, which feeds into the macroeconomic slowdown.

Fifth, to date, Latin America has largely escaped the financial sector collapse and domestic credit freezes that have made the crisis so severe in several OECD countries. But financial systems in Latin America are fragile, and a sufficiently sizable real shock may be enough to threaten the perceived solvency of these systems. This is an outcome that is urgent to avoid. Not only would it substantially magnify the adverse short-run real effects of the crisis, but would also increase its fiscal costs and make its resolution much more complicated. In addition to these positive aggregate supply and demand effects, then, there may be a more urgent reason to have favored investment-intensive fiscal expansion (including active targeted credit policies) in Latin America at the onset of the crisis: if such spending can indeed ameliorate the effects of the adverse shocks on domestic economic activity, and if there are threshold effects in financial sector solvency, then minimizing the contraction in domestic economic activity to the greatest extent possible can play a critical role in protecting domestic financial systems. The objective would be to avoid having the external shock trigger domestic financial crises that would have the potential of greatly magnifying the real as well as financial effects of the international crisis in Latin America.

Finally, aside from its macroeconomic effectiveness, an additional reason to have looked favorably on an increase in public investment spending and credit policies in Latin America as a crisis response is that such measures take up less "fiscal space" than other possible expansionary

fiscal programs. Specifically, because it stimulates future output, public investment increases future tax revenues, and thus partly provides the means to service the additional debt (or make up for the lost revenue from reserves) to finance it (see Serven 2005).

2. The problem of "fiscal space"

The obvious question, however, is whether Latin America had any "fiscal space" to undertake such a program in the first place. As discussed above, an expansionary fiscal package that does not square with a credible sustainable rule going forward may trigger a harmful increase in default risk spreads. This is especially likely, of course, if the initial debt level is high relative to a government's debt-servicing capacity. There is indeed evidence that the effect of fiscal stimulus packages in high debt economies is worse than in low debt economies, and that the overall effect on growth is often negative (IMF 2008). In what follows we discuss the limits that fiscal space imposed on countercyclical fiscal expansion in Latin America as of early 2008.

The first observation to make is that, as mentioned previously, debt/GDP ratios among Latin American countries had fallen substantially by the end of 2007, suggesting that these countries may have had unused borrowing capacity at the onset of the crisis. This capacity could be enough to finance temporarily low fiscal balances resulting from the slowdown plus any additional countercyclical expansion. But the "fiscal space" implied by this unused borrowing capacity would not in itself validate a countercyclical expansion, that is to say a reduction in the structural primary surplus, if the value of the structural primary surplus in these countries was *already* low enough as to imply an increasing debt/GDP ratio in the future. According to Calderón and Fajnzylber (2009), structural primary balances rose by about 3 percentage points in the last decade despite the absence of strong fiscal rules, especially in countries with higher debt levels; the question is whether this improvement was enough to give countries a good footing looking to the future. To answer that question we need to compare the end-2007 values of the structural primary surpluses in these countries to the values that would have been required to sustain the current low debt/GDP ratios. To do so, we conduct a traditional sustainability calculation for each of the LAC7 countries.[9]

[9] To abstract away from valuation effects, we will assume in the exercise below that the relevant real exchange rate was in long-term equilibrium, so that, on average, there are no valuation changes arising from real exchange rate changes. This assumption appears reasonable; exchange rate flexibility in most countries has avoided any major real overvaluation that could cause a permanent debt explosion going forward.

The situation for the LAC7 countries in 2007 is illustrated in Table 1. The first two columns show the public debt ratio in each country as of end-2007 and their observed primary balance, respectively.[10] The next column shows the structural primary balance required for debt sustainability (the "target" structural balance), derived on the assumptions of a 3% real growth rate and 400 basis points of spread over a 3 percent real interest rate (i.e.,

Table 1. Fiscal Sustainability in LAC-7 as of 2007 (% of GDP)

				Structural Primary Balance				Default Risks
	Public Debt	Observed Primary Balance	Target Primary Balance	Traditional HP Filter*	'Chilean' Fiscal Rule	Reference	Required Structural Adjustment	EMBI Spreads
	%	%	%	%	%	%	%	b.p.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Argentina	55.6	3.2	3.2	2.4	-3.0	2.4	0.8	300
Brazil	72.9	3.3	3.9	3.9	1.7	3.9	0.1	200
Chile	14.6	9.4	0.6	6.8	1.6	1.6	-1.0	100
Colombia	48.6	3.4	2.9	2.7	3.2	2.7	0.2	150
Mexico	23.0	2.2	0.9	1.6	-1.9	-1.9	2.8	150
Peru	29.6	4.9	1.2	2.5	-0.4	2.5	-1.3	150
Venezuela	19.5	-1.2	0.8	0.1	-8.5	-8.5	9.3	350

Source: LMW, IDB 2008, and Bloomberg.
* 2006
(1) Total Public Debt % of GDP. Data end of period, 2007.
(2) LMW (2009) data in 2007
(3) Total Public Debt (% of GDP - end of period) *(0.07-0.03)
(4) y (4) from table 1 of Inter-American Development Bank, 2008 plus "Interest Payments: % of GDP" from LMW, IDB 2009.
(7) (3)-(6)
(8) Average 2007. Rounded to the nearest 50

a long-run real interest rate of 7%), with the target balance augmented by a 1 percentage point security margin for higher debt countries.[11] The next three columns provide a range of estimations of the 2007 *structural* primary balances in each of these countries. The first two

[10] Notice that, with the exception of Brazil, the initial public debt ratios in these countries were substantially below those that have recently been associated with increased perceptions of sovereign risk in industrial countries (e.g., according to the IMF's *GFS*, 110 percent of GDP for Canada, 76 percent for France, 71 percent for Germany, 116 percent for Italy, 189 percent for Japan, 68 percent for the U.K., and 74 percent for the U.S.).
[11] The security margin was added to Argentina, Brazil and Colombia, countries with debt/GDP over 30%. With that margin, these countries would reach this indebtedness target in around 20 years (19, 26 and 15 respectively). We point out that in this illustration the long-run real interest rate net of GDP growth is the same for all countries (4%), which may be unrealistic.

estimations of the structural primary balance are based on different methods to isolate structural revenues from the observed series, in one case based on a standard filtering and in the other based on a filtering method designed to mimic the Chilean fiscal rule (after adjusting for structural breaks). (See IDB 2008 for details). The first method may be appropriate for countries with temporary revenues closely associated with the GDP cycle, but would be inappropriate for countries with substantial revenues linked to volatile commodity prices, such as Chile. The second method is appropriate for Chile and may be appropriate for other countries with sizable commodity-linked revenues. In this sample of countries, Mexico and Venezuela are more sensitive than Chile to a drop in commodity prices, and Argentina, Brazil, Colombia and Peru are less so.[12] The column that follows, which we will use as our reference structural primary balance for the purpose of this illustration, selects one or the other estimate of the structural primary balance from the previous two columns, depending on whether revenues are more or less commodity-sensitive than Chile.[13]

Column (6) presents the structural adjustment that would be required to stabilize the current debt/GDP ratio, calculated as the shortfall between the estimated structural primary balance (reported in the "reference" column) and the target. By this calculation, most countries were very close to the value of their structural primary balance that would be required to stabilize their debt/GDP ratios at their 2007 values. An exception is Venezuela and, to a moderate extent, Mexico.[14] Alternatively, if the Chilean fiscal rule is used instead as a measure of structural balance for all countries except Brazil (the only one whose commodity-linked revenues do not exceed 2% of GDP), then Argentina would also fall into that group.

What does this imply about 'fiscal space' in the region at end-2007? In relation to countries not far off their sustainable target, there is nothing particularly desirable about structural primary surpluses that would sustain current debt/GDP ratios in these countries. Because debt/GDP ratios came down fairly dramatically for the LAC7 countries as a group from 2003 to 2007, smaller-than-sustainable values of the structural primary deficit – i.e., values that would have implied an *increase* in the debt/GDP ratio –would have been unlikely to impair perceived fiscal solvency in most of these countries as long as they were transitory, unless there

[12] Even though, with the exception of Brazil, their public commodity revenue exceeds 2% of GDP.
[13] This discrimination between commodity and non-commodity structural revenue is in the spirit of Vladkova-Hollar and Zettelmeyer (2008).
[14] Alternatively, with an adjustment rule forcing high debt countries to converge to an expected 30% debt-GDP in 10 years, their target primary balances would be higher: Argentina 4.4%, Brazil 6.6% and Colombia 3.5%. In that case, Argentina and Brazil would also require a moderate adjustment similar to Mexico's.

are other risk factors. Since the analysis above shows that most LAC7 countries were not exploiting this fiscal space, it suggests that there was room for transitory fiscal expansions.

An alternative, market-based indicator of available fiscal space is given by the perceived default risk on external debt, as revealed by sovereign spreads. As indicated in column (7), in 2007 Argentina and Venezuela were in a class of their own (their spreads were about twice as large as the other countries'), even prior to the recent global increase in spreads of risky securities that pushed theirs to default levels. While this may be a noisy signal of sustainability (because it may also reflect a transitory bias towards a preference for not adjusting to make debt payments), it is nevertheless a relevant one for our purposes and it is largely consistent with our findings when indebtedness indicators are combined with sustainability calculations.

Our analysis therefore suggests that countercyclical fiscal policy should not reasonably have been ruled out as a valid policy aspiration in Latin America on grounds of inadequate "fiscal space," although the scope for such policies may indeed have been constrained by solvency concerns in some countries. Specifically, the evidence above suggests that Chile was in a relatively comfortable situation in which fiscal space was clearly not a constraining factor, while Brazil, Colombia and Peru also had fiscal space for countercyclical expansion, though it was more limited than in Chile. In the case of Mexico fiscal policy already implied a pace of increase in the debt/GDP ratio that would have suggested caution about further expansion, unless it was limited and of short duration, although Mexico's low debt level may have afforded it some leeway. For Argentina, any fiscal stimulus package expanding spending beyond its trend (countercyclical spending) would probably have added to a deviation from the target structural primary balance and may reasonably have been deemed too risky in light of the country's debt level and its previous fiscal experience. Finally, Venezuela was very far off fiscal sustainability and would probably have been ill-advised to consider further fiscal expansion. [15]

We take this exercise as an illustration of the kind of considerations that countries should take into account to determine their fiscal space and the extent to which countercyclical fiscal policy would be appropriate in their circumstances. The above evidence is not enough to reach firm conclusions except in the most extreme cases, but it is enough to show that the question of

[15] Calderon and Fajnzylber (2009) construct an index of "lack of fiscal space" that takes into account debt burden, commodity dependence, financing costs and constraints, initial primary deficits, and expenditure rigidity for a set of countries that includes the LAC-7. Their results are similar to ours, with Venezuela and Argentina being most constrained -- and Chile by far the least constrained -- among the LAC-7, while the other countries face only moderate constraints.

how to have participated in the multilateral effort of countercyclical fiscal policy in this global crisis was indeed relevant in Latin America.

What the analysis above shows is that for most of the major economies in Latin America, a modest temporary fiscal expansion would not have resulted in an important deviation from the fiscal stance required to stabilize their current low ratios of debt to GDP. Moreover, the analysis is conservative for at least two reasons. First, it fails to allow for any positive growth effect of well-chosen infrastructure investments. Any such effects would tend to reduce the required structural primary balance, and thus generate more fiscal space. Second, it fails to allow for dynamics in future fiscal policy. Any form of shoring up future fiscal discipline that would allow for discretionary fiscal contractions during future booms would serve the purpose of relaxing the sustainability constraint and allowing more current fiscal stimulus. For example, there is evidence in G7 countries that discretionary countercyclical policy is asymmetric and generates a debt bias but automatic stabilizers such as unemployment insurance do not (IMF 2008). The reason is that automatic stabilizers are temporary, while discretionary policy tends not to be reversed after the downturn. Therefore, the introduction of automaticity in fiscal policy (contingent rules) contributes to the credibility of discipline. More generally, addressing some of the long-term imbalances such as deficits in pension programs would also help to shore up sustainability and open more space for fiscal action in this downturn. In particular, the space for beneficial countercyclical fiscal policy would be larger if countries were able to credibly commit to a change in the fiscal policy regime – specifically, to a fiscal policy rule that delivers larger structural balances in the upturn than have been recorded in recent years, instead of one that spends a fraction of the temporary revenues in boom periods because temporarily high revenues make fiscal balances look misleadingly healthy.

5. Was this crisis the “rainy day”?

One objection to the “fiscal space” analysis of the previous section is that it ignores the temporarily high real borrowing costs that countries in the region faced. With the implication that fiscal expansion, even if prudent, would have been expensive. However, such costs would

have been borne only if larger fiscal deficits had been financed by issuing new debt. That was not the only option available to these countries at the outset of the crisis.

As indicated in Section 2, Latin American countries have accumulated large stocks of foreign exchange reserves in recent years. The motivation for this accumulation has in part been as a form of self-insurance – i.e., as "rainy day" funds. The opportunity cost of these reserves can be measured in two ways: as the foregone domestic investment that they could otherwise have financed, or as the cost of the additional public debt that would have been required to sterilize their monetary effects. We have argued in previous sections that the social rate of return on productive public spending or targeted credit policies may have been particularly high under early-crisis conditions, and have documented that the cost of public sector debt in Latin America has been increased by the crisis, at the same time that the crisis itself, as well as the monetary policy response in industrial countries, has reduced interest rates on public sector securities in the United States. The upshot of these arguments is that, however measured, the opportunity cost of reserves in Latin America became very high at the same time that their *financial* returns became very low. Ignoring for the present the liquidity premium on reserves (but see below), the implication is that *there was a case for reserve-financed countercyclical fiscal policy in Latin America at the onset of the crisis*, since the governments of the region could "borrow" more cheaply by drawing down reserves than by issuing debt on market terms. In other words, the "rainy day" for which the reserves were accumulated was at hand: the crisis represented an opportune time for Latin America to convert a significant portion of its foreign exchange reserves into productive public spending. The large stocks of foreign exchange reserves accumulated in recent years provided the needed funding for such investments, and the aggregate demand contraction resulting from the crisis provided the "macroeconomic space."

Why not use reserves to finance countercyclical fiscal expansion? There are two arguments to avoid doing so.

1. Fear of floating

The first argument is that reserves are needed to avoid exchange rate depreciation. If the central bank seeks to defend the exchange rate in the face of a desired change in the composition of private portfolios from domestic assets to U.S. government liabilities, it would have to

accommodate the private sector's increased demand for foreign securities by absorbing domestic securities in exchange for some part of its foreign exchange reserves. If the central bank does *not* accommodate this desire, then the domestic currency would depreciate until the private sector is once again expecting a risk-adjusted rate of return on domestic securities that is commensurate with what it can expect to earn on foreign securities. In the first case the central bank's reserve stock would be at least partially depleted, while in the second case it would not. If reserves are *not* depleted by central bank intervention in the foreign exchange market – i.e., if the nominal exchange rate is allowed to depreciate to accommodate the shift in the private sector's portfolio preferences, then the existing stock of foreign exchange reserves is available to finance deficit spending by the government.[16]

This scenario assumes a floating exchange rate, though one which would absorb only the initial depreciation associated with the increase in risk premia, and not the additional depreciation that would be implied by central bank financing of fiscal deficits.

There is nothing magical about this particular combination, however. In principle, fiscal expansion and real exchange rate depreciation could *both* have been called upon to stimulate domestic economic activity in Latin America -- as indeed they were -- so one could argue that fiscal expansion should not be reserve-financed, but rather money-financed – i.e., the central bank should not sterilize the monetary effects of the government securities that it purchases to finance larger fiscal deficits. Indeed, one could go further and suggest that the central bank could be even more aggressive in pursuing an expansionary monetary policy – not only refrain from sterilizing, but actually intervene in the *opposite* direction by purchasing not just newly-issued government securities, but existing ones as well. In other words, central banks in the region could have emulated the Fed by increasing the size of their balance sheets to provoke additional depreciation of the domestic currency. Under early crisis conditions one could argue that this was unlikely to be inflationary.

[16] From a textbook perspective, this could be accomplished by the sale to the central bank of the government securities required to finance such deficits. When the government spends the proceeds of those sales, the central bank would prevent further depreciation of the currency beyond what is required to accommodate the initial portfolio shift by re-absorbing the increase in the base through sales of dollars in the foreign exchange market, resulting in a depletion of reserves with an unchanged base. The upshot is that the exchange rate depreciates by the amount required to accommodate the initial portfolio reallocation, and the subsequent government deficits are financed by drawing down reserves. Legal constraints on direct central bank lending to the government (a legacy of Latin America's high-inflation past) may rule out the textbook approach in some countries. However, the same result can be achieved indirectly, through central bank intervention in secondary government securities markets, indirect lending through the commercial banking system, or the transfer of a portion of reserves to sovereign wealth funds that would absorb the government bond emission.

Such a policy runs into at least two potential constraints, however, not faced by the Fed: those posed by currency mismatches and by the past inflationary history of many countries in the region.[17]

The extent to which exchange rate depreciation can complement fiscal expansion in stimulating aggregate demand in individual countries depends on the degree to which currency mismatches in such countries would cause exchange rate depreciation to create domestic financial disruption by impairing the net worth of domestic financial institutions, firms, and governments with foreign currency liabilities that exceed their foreign currency assets. Such vulnerability creates a ceiling beyond which the price of foreign exchange would trigger a domestic financial crisis, and thus affects not just the desirable mix between fiscal expansion and exchange rate depreciation, but also the extent to which debt-financed fiscal expansion is feasible. Countries that are highly vulnerable to dislocations arising from such mismatches require larger minimum reserve levels than those that are not so vulnerable, and they will have devoted more of their original cumulated reserve stocks to preventing the exchange rate depreciation associated with the portfolio shift implied by the increase in risk premia on domestic assets.[18]

The inflationary history of many countries in the region could also limit the effectiveness of this strategy. If exchange rate pass-through remains important, or if monetary expansion undermines the anti-inflationary credibility of central banks, upward pressures on domestic prices could emerge even in the context of deficient capacity utilization. This would not only diminish the extent of real depreciation stimulation that would be associated with any degree of nominal depreciation, but would also compound the macroeconomic challenge by adding the problem of inflation to that of recession.

However, recent changes in Latin America substantially diminish the force of both of these objections. The evidence suggests both that currency mismatches have been substantially reduced in the region, and that central banks have acquired significant anti-inflationary credibility (see IMF 2008). Moreover, the point at which these constraints become binding

[17] These constraints have figured prominently in the "fear of floating" literature (see Calvo and Reinhart 2002).

[18] In extreme cases, the reserve-financed fiscal program proposed in the last section would simply not be feasible for such countries. If public investment is nevertheless perceived as highly productive, their fiscal options would be to undertake such spending on a pay-as-you-go basis (i.e., through balanced-budget spending), to incur high-cost debt (if possible) in order to fund higher-return projects, or to rely only on automatic stabilizers.

depends on the impact of the crisis on the demand for monetary base in Latin American countries. To the extent that the crisis has expanded the demand for base money, this would have facilitated the financing of fiscal deficits through seignorage, rather than by drawing down foreign exchange reserves. If the opposite is true, then some of the central banks' foreign exchange reserves would have been required to limit the extent of exchange rate depreciation to what it would have been in the absence of a change in the demand for base money, leaving correspondingly less room for reserve-financed fiscal deficits.

2. Exposure to future liquidity risk

The second argument is that a strategy of spending reserves is too risky, because it would leave countries exposed to future liquidity risks. This can be viewed as a claim that the "rainy day" analysis above undervalues the opportunity cost of reserve financing by ignoring the liquidity premium – i.e., by implicitly assuming that financing is always available for prospectively solvent governments on normal terms. But liquidity risk could clearly become a major consideration if, say, a W-shaped recovery from the global financial crisis threatens to produce a temporary sudden stop of external financing. In this case countries with difficult or no access to financing - that is, those undergoing a sudden stop - would be forced to rely on their own reserves to finance their flow payment obligations with a stock, and would therefore become increasingly exposed to liquidity risk as time passes.

Vulnerability to such creditor panics actually varies substantially across countries in Latin America. An important factor underlying such vulnerability across countries is the maturity profile of their public debt. Table 2 shows indicators of the public sector financing gap that would have emerged for various countries if, on top of expected fiscal deficits, market debt were not rolled over (short-term debt plus amortization payments on other debt falling due in 2009/10 plus the estimated fiscal deficit).

As the table indicates, there were a number of countries with a sizable potential financing gap for which the dominant factor was public market debt amortization to be rolled over (short term debt at remaining maturity). The wide range of variation of sovereign risk spreads across countries in the region may indeed partly reflect vulnerability to liquidity risk, rather than more conventional solvency considerations. For perspective, it is worth noting that the regular public

Table 2: Liquidity Risk in LAC countries

Spread (EMBI) (May 2009)	Public Sector Financing Gap (% of GDP, Average 2009-2010)* Under no Market Debt Roll-over >10	>4 & <10	<4
>800	Jamaica	Argentina Venezuela Dominican Republic	Ecuador Belize
>400 & <800		El Salvador	Guatemala Uruguay
<400	Brazil	Costa Rica Colombia Mexico	Panama Peru Chile
n.a.	Guyana Barbados	Suriname Nicaragua Haiti Bolivia	Paraguay Honduras

Source: own elaboration based on country statistical offices
Note: Short Term public commercial (external + internal) debt at remaining maturity plus financial deficit as % of GDP
*Trinidad & Tobago and Bahamas not available.

sector financing needs described in this table (a yearly average of about $300 billion) dwarf the funding needed for moderate countercyclical fiscal policy, which for the region as a whole would have amounted to less than $30 billion, or 10% of the total (see estimations in Izquierdo and Talvi, 2009).[19]

What are the implications of this regional exposure to liquidity risk? An obvious interpretation is that the liquidity premium on reserve holdings was quite high indeed, implying that market borrowing, even at high rates and short maturities, would have been preferable to – less expensive than - drawing down reserves to finance countercyclical fiscal policies. But the

[19] Moderate countercyclical policy is defined as an autonomous expansion of 2% of GDP, the target proposed by the US to G20 countries, which for Latin America is about a yearly average of about $30 billion. However, because of its stimulative effects, the net expansion in the fiscal deficit can be conservatively estimated to be smaller than $30 billion. In fact, considering a spending Keynesian multiplier of 1.8 and a revenue-GDP elasticity of 0.9, such expansion would imply revenues expanding by some 1% of GDP (from a basis of about 30% of GDP), or an yearly average of $20 billion.

recommendation to passively continue with market financing as long as it is accessible (i.e., until a liquidity crunch occurs) is not unassailable. The reason is that the indicators of financial vulnerability in Table 2 may actually be rather misleading, in several ways.

First and foremost, in contrast to the past, an external sudden stop of market financing would not necessarily have implied a sharp fiscal contraction this time around. Domestic debt is now the prevalent form of public market debt for many countries in the region, including Brazil and the rest of the larger countries, which are shown in Table 2 as facing relatively high liquidity risk. Aggregate market rollover needs in Latin America have been less than 15% external in recent years. Therefore it can be argued that the above risk spreads, which are applicable to external debt, are not revealing of potential risks associated with access to financing for such countries. In fact, domestic sources of finance are often captive (e,g. pension funds). To some extent this may make them more a form of taxation than of market borrowing, but in any case this leaves them in the role of providing funds when needed, and therefore of protecting against sudden stops of external funds.[20]

Second, a sudden stop in external *market* financing does not mean a sudden stop in external financing. As indicated previously, official creditors played an important role in ameliorating a potential liquidity crunch in the current crisis. Official lending stepped up to the plate in this global crisis and increased financial support to several countries, thus alleviating the constraint imposed by costly and unreliable external market debt. This holds true for the IDB and the WB, which rapidly expanded their lending programs to sovereigns all across Latin America for fiscal and quasi-fiscal spending purposes. It also holds true for the IMF, which received very substantial new funding at the April 2009 G20 meeting to back up the international reserves of developing countries, and to lend if need be, and quickly signed agreements with several Latin American countries for more than $60 billion.[21] These efforts followed the $30 billion credit

[20] However it is not clear that these tax-like sources of finance can be stretched much further, and if they cannot be then the risk information on external debt may still be a relevant indicator of liquidity risk at the margin. Argentina is an example of a country in which there is a solid domestic anchor to ensure the bulk of the required fiscal financing despite a lack of access to external credit, but that still faces a challenge in finding sources of finance for its stimulus package.

[21] The low conditionality associated with some of these facilities may ease the stigma that has been associated with recourse to IMF funding in the recent past.

lines that the US Fed made available to Mexico and Brazil. The point is that the weakness of external credit markets has been offset by a strong response by official creditors.[22]

Third, even if a sudden stop of overall external market funding materializes and mandates a current account adjustment, the economic damage likely to be done by that adjustment is likely to be much smaller than in the past. This is so because countries in LAC are not currently running large current account deficits, implying smaller required changes in real exchange rates (and current accounts) if a sudden stop materializes, as well as because the reduction in the severity of currency mismatches in many countries of the region implies that such real exchange rate adjustments as would be required would tend to be much less financially disruptive than they have been in the past.

Fourth, in any case, as mentioned above, countries accumulated substantial reserves to meet financing needs in a downturn like the current one, amassing reserve stocks to the tune of half a trillion dollars in the aggregate, a figure that is very high by historical standards. A clear example is Chile, which saved the temporary portion of copper-related revenues during the boom years in a $20 billion fund which was available to finance its fiscal spending and would go a long way to achieve that even if Chile had suffered from a sudden stop. As a consequence of these reserve stocks, liquidity indicators were at record highs in the early stages of the crisis. Chart 1 shows the evolution of international reserves (R) relative to all external debt coming due in 2008, or short-term debt at remaining maturity (S). This liquidity indicator r = R/S is in the spirit of the so-called Guidotti-Greenspan indicator, which has a conventional associated safety threshold of 100%. Chart 2 shows current values for individual countries; almost all of which exceed that threshold.[23]

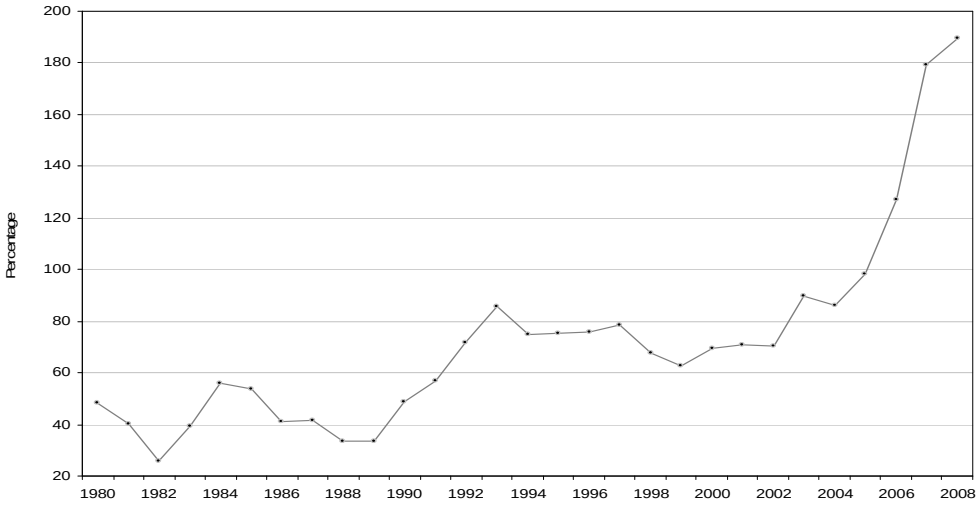
Finally, given the values of reserve stocks and countries' flow financing needs, the liquidity value of reserve stocks at the margin (and thus the size of the liquidity premium) depends on the duration of any sudden stop of external financing. A countercyclical stimulus package of some 2% of regional GDP over 2009-10, under conservative assumptions on its net

[22] Official lenders able and willing to extend financial assistance under these circumstances would be enabling countries not only to implement appropriate countercyclical policies but, in some cases, to avoid enormous unnecessary costs associated with fiscal retrenchment in a severe recession. Multilaterals have an important countercyclical role to play in relaxing a financing constraint that may condemn countries to inaction or even to procyclical adjustment when a more active fiscal policy would be advisable.

[23] This indicator underestimates the situation in countries with sizable short-term foreign bank deposits (included in the denominator) offset by bank international reserves (excluded from the numerator), such as Uruguay.

impact on the fiscal deficit, would have entailed a reserve loss of less than 10 percent of the total. Assume that 10 percent of end-2007 reserves were indeed used to finance such a package. If the

Chart 1: Aggregate External Liquidity (Guidotti-Greenspan Indicator)

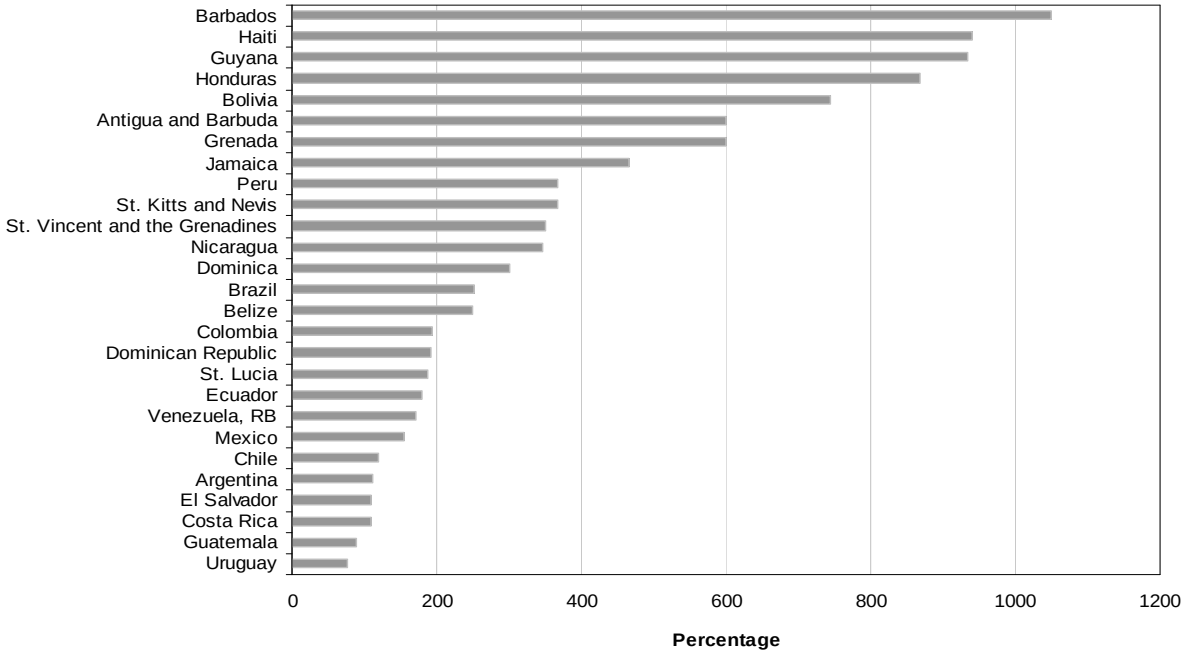


Source: WEO, April 2009. Aggregate stock of reserves at year-end as percentage of aggregate outstanding short-term debt at remaining maturity.

duration of any liquidity crunch was sufficiently short as to nevertheless leave ample reserves even after such reserve use, the foregone liquidity benefit of such reserves (and thus the liquidity premium that should be attached as a cost to their use) is essentially zero. The same is true if the crunch were to last long enough to exhaust reserves even without reserve financing of the fiscal expansion. Abstaining from a fiscal response in order to hoard reserves would therefore be useful – and reserve use should therefore be charged a liquidity premium at the margin - only in the very unlikely event that the liquidity crunch is just the right size, neither too small (no need) nor too large (no use).[24]

[24] In the latter case the adjusting variable would have to be either special financing from official creditors willing to support multilateral demand stimulus or debt restructuring.

Chart 2: External Liquidity Indicator for Individual Countries, 2008.



Source: WEO, April 2009. Percentage of stock of reserves at year-end, to short-term debt outstanding, remaining maturity basis. TTO, PRY, PAN, BHS and SUR not displayed (exceed 1250%)

Abstaining from active fiscal policy to hoard reserves is therefore a largely arbitrary way to deal with the exogenous uncertainty of a continuing (or deepening) global liquidity crisis. Another implication of the same observation is that in order to safeguard against a prospective future liquidity crisis fiscal policy should actually turn sharply contractionary under current circumstances, rather than simply abstaining from fighting the slowdown: it does not appear plausible to deny otherwise appropriate countercyclical fiscal policy on grounds of financial prudence without at the same time concluding that there is instead a need for drastic *procyclical* fiscal adjustment.

3. Reserves and liquidity

In any event, irrespective of the extent to which countercyclical fiscal policy is implemented, given the size of public sector borrowing requirements, the policy question remains whether, on the margin, countries should borrow from markets or utilize reserves

instead. It is useful to note in this comparison that the liquidity squeeze produced by reserves-financed spending is not necessarily far greater than that resulting from debt-financed spending when debt becomes "precarious" in the terminology of Izquierdo and Talvi (2009), because in that case rolling over debt is also costly in terms of liquidity. Perhaps surprisingly, if the maturity of debt rolled over is sufficiently short, using reserves may actually be a preferable option in terms of liquidity as measured by the liquidity indicator.

Consider, for example, the benchmark steady state case in which the liquidity indicator r = R/S is constant period after period, where short-term debt at remaining maturity S is a fraction 2/(m+1) of overall debt (here m is the average maturity of total debt; see the appendix). Then as long as debt is rolled over at the same maturity m, r remains constant. Now consider a shock in which debt is instead rolled over at a shorter maturity m'. If the credit crunch is severe and only short-term loans, say m'=1, are available, the liquidity gap between reserve and loan financing is (r - (1+p*))/p*(1+p*), where p* = (m-1)/m. Then, if the initial liquidity ratio is large, utilizing reserves to pay off debt instead of rolling it over may actually *increase* the liquidity ratio. The appendix shows that if rolled over debt is all short term (m'=1), this surprising result is guaranteed to obtain when initial liquidity is above 200% (r > 2).[25] The upshot is that in a liquidity crunch, the additional liquidity cost of using reserves instead of refinancing with short-term debt when reserves are plentiful may be small.

Our arguments in this section for reserve financing rather than issuing new debt can readily be given a simple formal interpretation. Let F = amortization + budget deficit be the amount that a government needs to finance each period by using reserves or rolling over debt. Suppose that M is the amount of new market debt issued (for now we assume that there is no non-market lending) and W the amount financed with reserves. Between the two they have to satisfy the total public sector financing requirement, so that M + W = F. The level of reserves in the subsequent period is (R – W) and the stock of short-term debt in that period is (a + M), where a is predetermined amortizations, to which amortization of new borrowing M is added (to simplify notation, the unit period coincides with its maturity, so by definition m'=1 and amortization is full). The liquidity indicator in the next period is therefore given by r = (R - W)/(a + M). Let the (net) cost of borrowing be cM, where c >0 is the gap between the market

[25] As time passes, the conditions for this result become tighter.

interest rate on new debt and the financial return on reserves. Suppose that the liquidity value of reserves is given by qr, where q is a parameter that determines the weight given to the liquidity indicator r. The value of q would depend on the various factors discussed in this section, such as the actual costs associated with any credit crunch and the likelihood that such a crunch would actually become binding. The optimal financing decision can therefore be expressed as the solution to the following problem:

$$\underset{\{M,W\}}{Max} \quad qr - cM \qquad\qquad where \;\; r = (R - W)/(a + M)$$
$$s.t.\; M + W = F$$

In this formulation we take financial needs F as given and focus on the portfolio allocation of funding sources. The solution is given in the appendix. For very large q, only liquidity matters. Barring the case mentioned above in which initial reserves are so plentiful that using them is the best way to protect liquidity, in the "normal" case (identified in the appendix) reserves would therefore not be used. In fact, new borrowing would cover not just full debt rollover plus the budget deficit, but also additional borrowing in order to accumulate reserves (W<0). In other words, an extreme focus on liquidity risk ought to lead to a policy recommendation of full market debt rollover and more. However, when the various reasons discussed above cause the weight q assigned to liquidity risk to be moderate (or more precisely, when the cost of market borrowing is very large relative to the return on reserves, so that q/c is moderate), the optimal strategy is a mixed solution involving some use of reserves and some borrowing. In that case, it is important to notice that, *ceteris paribus*, a larger initial stock of reserves R leads to a higher use of reserves W, and therefore less market borrowing M, in the optimal solution.

Official financial support would ease the liquidity crunch by providing financing at medium and long-term maturities (and low cost). To simplify, let's assume that official lending L has a grace period so that it does not impact next-period amortization, and that its cost is equal to the return on reserves, so that we need not keep track of its net cost. Let's assume (without loss of generality as we will see) that official creditors lend to reserves, so that initial reserves are now R + L. Then, replacing R by R + L, the maximization problem above remains the same. In

particular, the effect would be that financing out of reserves (W) increases. Alternatively, if official creditors lend for budget support, so that there is a new funding source L in the constraint (M+W+L=F), it is easy to see that the problem would be unchanged. In fact, solving the constraint for W and substituting, in both cases r = (R + L + M - F)/(a + M), and therefore nothing changes. Lending for reserve support (or backing them up) is the same as lending for budget support (or "refinancing short term market debt"). The way in which official creditors provide liquidity is irrelevant to the country's decision to borrow from markets.[26] Under any form, official financial support boosts "effective" reserves.

The model above is incomplete because it is conditional on public financing requirements F, which is of course a policy variable at the center of the question of countercyclical fiscal policy. A more complete model would recognize that there is a tradeoff between its financing costs, minimized above, and its benefits f(F), assumed to be subject to decreasing returns (f'>0, f"<0). Expressing official lending L as an additional financing item, the model becomes:

$$\underset{\{M,W,F\}}{Max}\ qr - cM + f(F) \qquad \text{where } r = (R - W)/(a + M)$$
$$s.t.\ M + W + L = F$$

This model is solved in the appendix. The model previously considered concentrates the problem on a given spending F. The new piece added by this more complete model is how exogenous variables affect the determination of optimal fiscal policy F* and, consequently, its financing. As mentioned, it is easy to check by substituting W from the budget constraint into the function, that official lending L and initial reserves R play the same role: what matters is R+L. The appendix shows that when either reserves or official lending increases, optimal fiscal policy F* is larger but market borrowing M* is smaller: expanding fiscal policy would be financed by official lending and reserves. Multilateral lending, whether for reserve support or for budget support, contributes to the "rainy day" case argued in this paper as an optimal response.

[26] Official creditors could only influence such decisions by imposing conditionality that distorts the country's perceived optimal tradeoff.

6. Conclusions: Was Latin America right to conduct expansionary fiscal policy this time around?

Before the Great Recession, many countries in Latin America accumulated very large chests of international reserves that could serve as "rainy day" funds against adverse macroeconomic events, partly at the expense of productive public investments that could otherwise have been implemented with those funds. The rainy day arrived in 2008, with the collapse of Lehman Brothers in September. By and large, Latin American countries responded with fiscal expansion. Countercyclical spending measures were concentrated on infrastructure investment, programs to support small- and medium-sized enterprises weakened by the crisis, and social safety net programs (see CEPAL 2009 for details). Barring Venezuela, which we found to be lacking sustainability preconditions, the LAC-7 countries analyzed in the text carried out substantial fiscal expansion (e.g. 3.6 points of GDP in Perú) and where necessary reformed rules to facilitate such policies (e.g. Chile's structural budget target was temporarily lowered). In fact, on average, these seven countries engineered a deterioration of their structural fiscal balance of 0.6% of GDP (IDB 2010).[27] Forty percent of the expansion of fiscal spending in these countries consisted of capital expenditure. Until dwindling private credit recovered, they financed these measures using accumulated reserves and official credit. In fact, the systematic accumulation of international reserves over the years stopped and actually went into reverse in the first quarter of 2009, when about 5% of the stock of reserves was spent (amounting to also about 5% of quarterly GDP). Reserve depletion only stopped in the second quarter after the G20 London meeting securing official liquidity and credit to cash-strapped countries, to resume accumulation as private markets kept normalizing. On top of official commitments and market normalization, actual official net

[27] The observed fiscal balance deteriorated by 3.4% of GDP, a full point above that of the typical Latin American country. This fiscal expansion underestimates the power of countercyclical fiscal policy in countries with active credit policies through public banks. In Brazil public banks were capitalized by some 3% of annual GDP and their credit grew by half in 2009, to become the main source of bank credit.

financial flows to Latin America in 2009 increased by some 40 billion dollars, which amounts to almost 10% of international reserves or 2% of GDP.[28]).

The question is whether it was appropriate to follow expansionary policies and use these contingency funds at that time to cushion domestic economies against the consequences of the most severe international crisis since the 1930s. While this issue has been controversial, this paper has argued that it was indeed appropriate to do so *ex ante*. Well-managed reserve-financed public investment programs in Latin America could be designed to fill an important deficiency in the availability of productive public goods while stimulating domestic aggregate demand, thereby minimizing the effects of the adverse external shocks that the crisis has generated on real economic activity. By doing so, it would have safeguarded the health of domestic financial sectors, avoiding the triggering of mechanisms that could potentially have greatly magnified both the real and financial effects of the crisis in the absence of the Asian emerging markets recovery. The amount of "fiscal space" available to undertake such spending varied from country to country, but the cushion afforded by the foreign exchange reserves that were accumulated during pre-crisis years provided a source of financing that could be advantageously drawn upon by countries that were not constrained by currency mismatches or extensive exchange rate pass-through.

The increased resources for multilateral liquidity provision that were deployed by the international community reinforce the case for reserve financing of active fiscal policy. This would have been true irrespective of whether official lending took the form of reserve support or budget support; this distinction is irrelevant for the country's decision concerning financing with reserves or through market borrowing.

[28] According to the April 2010 *World Economic Outlook*, this amount includes not only official credit but also transactions in external assets and liabilities of official agencies.

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Appendix

Shock to the steady-state liquidity case.

Suppose that a country contracts new loans each year in the amount S, with a uniform maturity of m years. In steady state, the outstanding debt D consists of the sum of the surviving principals S/m, 2S/m,…,mS/m=S on the debt contracted over the previous m years. The amortization due each period (on loans contracted over the previous m periods) is S = 2D/(m+1) (we refer to this as "short-term debt at remaining maturity"). As long as debt due S is rolled over at the same maturity m, S and D remain constant and, assuming reserves R are constant as well, so does the liquidity ratio r = R/S.

In a credit crunch, however, new loans are available only at maturity m'< m.

We consider the following two alternatives:

1. Roll over debt.

   In this case, in the next period $S'= S(1+p)$, where $p = (m-m')/mm'= p =1/m'-1/m > 0$. This is obtained as the sum of new amortization S/m' and predetermined amortization of the loans contracted over the previous m -1 years $(m-1)S/m = p^*S$. Liquidity in the following period becomes $r(1) = r/(1+p) <$ r**.** Notice that when there is no change (m'= m), the steady state obtains (p = 0). In the extreme case in which m'=1 (short term rollover), $p = p^* = (m-1)/m$.

2. Pay with reserves.

   In this case reserves diminish by the amount of the amortization payment due, to $R'= R - S$, while payments due in the following period diminish to $S' = Sp^*$ (only predetermined amortization). Therefore $r(2) = R'/S' = (R – S)/Sp^* = (r -1)/p^*$.

When maturity contraction is maximal (p = p*) and therefore the liquidity concern is at its highest, the liquidity gain of paying with reserves is

$$r(2) - r(1) = (r-1)/p^* - r/(1+p^*)$$

$$= [(r-1)(1+p^*) - rp^*]/p^*(1+p^*)$$

$$= (r-1-p^*)/p^*(1+p^*)$$

Perhaps surprisingly, in this case, r > 2 is a sufficient condition for the use of reserves to improve the liquidity indicator in the following period – i.e., for *r(2) > r(1).*

Optimal funding of public sector borrowing requirements

The public sector solves:

$$\underset{\{M\}}{Max} \quad (q/c)r - M \quad where \;\; r = (R + M - F)/(a + M)$$

$$Let\ k = (a - R + F) > 0.\ Then$$
$$r = k/(a+M)^2 > 0\ and$$
$$r'' = -(2k)/(a+M)^3 < 0$$

$$FOC: (q/c)r' - 1 = 0$$
$$SOC: (q/c)r'' < 0$$

When k > 0 (the "normal" case), liquidity improves when debt is rolled over instead of paid off (r' > 0) and the above problem has a unique interior solution M*. It is easy to check that M* is directly related to the weight (q/c): *dM*/d(q/c)) > 0.*

The comparative statics with respect to initial reserves R yields *dM*/dR < 0*. To see this, consider the derivative with respect to R of the FOC which, apart from the factor q/c > 0, yields $-1/(a+M)^2 < 0$.

The complete model, again substituting W into the function yields:

$$\underset{\{M,F\}}{Max} \quad qr - cM + f(F) \;\; where \;\; r = (R + M - F)/(a + M)$$

$$FOC\ M: \quad qr_M - c = 0$$
$$FOC\ F: \quad qr_F + f' = 0$$

$$r_M = \frac{a-(R+L-F)}{(a+M)^2} > 0 \qquad \text{("normal case")}$$

$$r_{MM} = \frac{-2r_M}{a+M} < 0 \qquad r_{MF} = \frac{1}{(a+M)^2} > 0$$

$$r_F = \frac{-1}{a+M} < 0 \qquad r_{FF} = 0$$

Assuming that f(F) is sufficiently concave (reducing spending to gain liquidity is increasingly costly), the SOC of the enlarged problem ensures an interior minimum $\Delta = q\, r_{MM}\, f'' - q^2\, r_{FM}^2 > 0$.

Totally differentiating the FOCs with respect to L (or R) and solving, it is easy to check that the comparative statics with L (or R) yields:

$$dF^*/dL = \quad dF^*/dR = \quad \frac{q^2\, r_{MF}^2}{\Delta} > 0$$

$$dM^*/dL = \quad dM^*/dR = \quad \frac{q\, r_{MF}\, f''}{\Delta} < 0$$