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Credit in times of stress: lessons from Latin America[1]

The 2007–09 global financial crisis disrupted the provision of credit in Latin America less than previous crises. We identify key initial macroeconomic conditions that contributed to the higher resilience of real credit in Latin America during this episode. These relate to economies' capacity to withstand an external financial shock and the scope for countercyclical macroeconomic policies. We also show that in most cases current macroeconomic fundamentals have deteriorated relative to those in 2007.

JEL classification: E65, G2.

Credit growth in Latin American economies during the 2007–09 global financial crisis was more resilient than in previous crisis episodes, when financial stress elsewhere ushered in banking crises and credit crunches in the region.

In this special feature we identify macroeconomic conditions that contributed to this higher resilience of real credit growth.[2] To do so, we compare the development of real credit in selected Latin American countries during the most recent stress episode to that in the aftermath of the Asian and Russian financial crises in 1997–98. While real credit growth fell by about 25 percentage points after both episodes, it recovered much more quickly after the most recent crisis than it did in the late 1990s (Table 1). It took Latin American economies only four to six quarters on average to recover half of the 2007–09 drop in credit growth, compared to well over three years in most countries after 1997–98. Furthermore, no major banking crisis occurred in the region after 2007–09, compared with major domestic financial crises in Brazil and Argentina in 1999 and 2001, respectively.

Credit growth during the global financial crisis also fared better in Latin America than in other emerging market regions. Based on a sample of emerging

[1] The views expressed in this article are those of the authors and do not necessarily reflect those of the BIS or the Center for Global Development. We would like to thank Claudio Borio, Stephen Cecchetti, Ramon Moreno and Christian Upper for helpful comments. Alan Villegas provided excellent research assistance. Most of the analysis of this article is based on Montoro and Rojas-Suarez (2012).

[2] Cecchetti et al (2011) analyse the factors behind the macroeconomic performance during the 2007–09 global financial crisis for a sample of advanced and emerging economies.

Credit behaviour in Latin America during recent crisis episodes

	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Latin America[1]
1998 crisis							
Drop in credit growth[2]	–17	–17	–5	–19	–41	–18	–25
No of quarters to recover half of drop[3]	>12	>12	2	11	>12	>12	
2007–09 crisis							
Drop in credit growth[2]	–24	–34	–12	–25	–15	–20	–24
No of quarters to recover half of drop[3]	4	4	6	5	5	4	

[1] Weighted average of the economies shown, based on 2005 GDP and PPP exchange rates. [2] Q4 1999 (Q4 2009) minus Q4 1997 (Q4 2007); in percentage points. [3] Number of quarters after Q4 1999 (Q4 2009) that it took for credit growth to recover half of its drop.

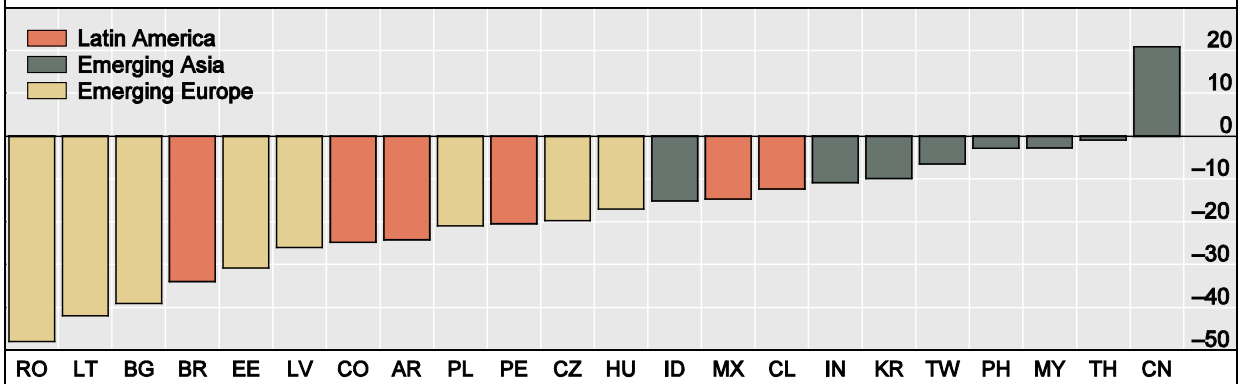
Sources: IMF; Bloomberg; Datastream; national data. Table 1

market economies, Latin America ranked between emerging Asia and emerging Europe in terms of the size of the reduction in credit growth (Graph 1).

In the remainder of the chapter we present macroeconomic indicators that could help explain the relatively good performance of Latin American economies after the 2007–09 financial crisis. However, there are two caveats to our analysis. First, we study only two crisis episodes and do not have the full set of indicators available for all countries over the entire sample. This means that we cannot perform clean statistical tests of how the vulnerability measures we consider affected the drop in credit growth. Our findings are therefore more indicative than conclusive. Second, the resilience of credit growth to an external shock depends on a variety of factors, including real and financial exposures[3] to particular regions and the strength of the financial sector.[4]

Change in real credit growth during the crisis

Difference in year-over-year percentage change for Q4 2009 and Q4 2007; in percentage points



AR = Argentina; BG = Bulgaria; BR = Brazil; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; EE = Estonia; HU = Hungary; ID = Indonesia; IN = India; KR = Korea; LT = Lithuania; LV = Latvia; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RO = Romania; TH = Thailand; TW = Chinese Taipei.

Sources: IMF; Datastream; national data. Graph 1

[3] For example, Avdjiev (2011) presents some indicators using data from the BIS international banking statistics to evaluate the potential impact of deleveraging by euro area banks on emerging market economies.

[4] An analysis of other variables for the global financial crisis period can be found in Montoro and Rojas-Suarez (2012).

A set of indicators of macroeconomic strength

Resilience depends on macroeconomic strength …

We select a set of macroeconomic variables that are key for explaining the resilience of credit in emerging market economies to external financial shocks. A first dimension of macroeconomic strength is an economy's capacity to withstand a shock. At the macro level, this will depend, inter alia, on a country's current net external financing needs, its external indebtedness, its external liquidity position and its aggregate exposure to exchange rate risk. We assess these characteristics by looking at: (i) the current account balance as a ratio of GDP; (ii) the ratio of total external debt to GDP; (iii) the ratio of short-term external debt to gross international reserves; and (iv) the currency mismatch ratio, given by the foreign currency share of total debt divided by the ratio of exports to GDP.[5]

… and ability to implement offsetting policies

A second dimension of macroeconomic strength is the scope for countercyclical policy that could offset the effects of an external shock. From a macroeconomic perspective, this corresponds to the capacity to implement countercyclical fiscal and monetary policies. We measure this as: (v) the ratio of general government fiscal balance to GDP and (vi) the financial pressures-adjusted monetary policy stance that takes into account both price stability conditions and the degree of financial stability pressures (see box).[6] This indicator captures both the extent to which inflation is not under control and the size of financial imbalances, which in turn reflects the fact that monetary policy tends to be less effective during a financial bust. We do not explicitly consider another constraint for monetary policy, the proximity of nominal rates to the zero lower bound, because we believe that inflationary constraints are more important in countries where policy rates are typically fairly high and well above the lower bound.

Macroeconomic strength prior the 2007–09 crisis

Macro factors explain resilience …

The six variables discussed above can explain a significant part of the variation across countries in the change in real credit growth after the crisis. Graph 2 shows the cross-country correlations between the macroeconomic variables and the change in real credit growth. The highest correlation coefficients were found for current account / GDP (0.77) and the currency mismatch ratio (–0.67).[7] The correlation coefficients of financial pressures-adjusted monetary policy stance (0.50) and total external debt / GDP (–0.48) were also relatively significant.

… and variation across regions

The macroeconomic vulnerabilities also varied considerably across regions. For example, debt ratios (both total and short-term external debt) were

[5] See Goldstein and Turner (2004). The time series of this and other measures of currency mismatches for 27 countries are available on request from bilyana.bogdanova@bis.org.

[6] This indicator also captures that credit was growing too rapidly in some economies before the global financial crisis and some slowdown may have been desirable.

[7] These two variables explain 73% of the cross-country variation in the change in real credit growth after the crisis.

A financial pressures-adjusted monetary policy stance

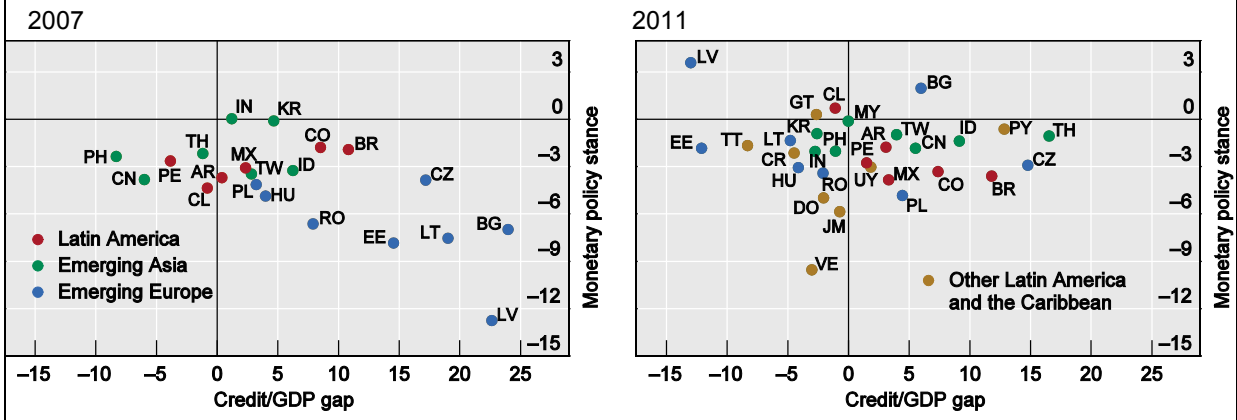
Financial imbalances can also develop when inflation is under control and output is close to potential, as these imbalances are accumulated over longer horizons than those taken into account by traditional monetary policy frameworks. To capture this, we assess monetary policy conditions along two dimensions: the "pure" monetary policy stance and the degree of financial stability pressures. We measure the former by the deviation of the policy rate from a benchmark rate designed to maintain price stability. For the latter we use the credit-to-GDP gap as an indicator of financial imbalances that signal the risk of subsequent financial distress.[1] We multiply these two factors to obtain a financial pressures-adjusted monetary policy stance. The indicator is asymmetric and non-linear to capture the greater risk from a combination of expansionary monetary policy and growing financial imbalances. More formally, our indicator is

$$e^{\left(CR/GDP_t^{gap} \times IND\right)} \times \left(R_t - R_t^{TR}\right)$$

where CR/GDP_t^{gap} is the credit-to-GDP gap,[2] $R_t - R_t^{TR}$ is the interest rate gap (deviations from a reference Taylor rule)[3] and IND equals 1 if the real credit gap is positive and the interest rate gap is negative, and equals 0 otherwise.

Financial pressures-adjusted monetary policy stance

Annual average of quarterly data, in per cent



AR = Argentina; BG = Bulgaria; BR = Brazil; CL = Chile; CN = China; CO = Colombia; CR = Costa Rica; CZ = Czech Republic; DO = Dominican Republic; EE = Estonia; GT = Guatemala; HU = Hungary; ID = Indonesia; IN = India; JM = Jamaica; KR = Korea; LT = Lithuania; LV = Latvia; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; PY = Paraguay; RO = Romania; TH = Thailand; TT = Trinidad and Tobago; TW = Chinese Taipei; UY = Uruguay; VE = Venezuela.

Sources: IMF; Datastream; national data. Graph A

Graph A shows the two components of the financial pressures-adjusted monetary policy stance indicator for 2007 and 2011. In 2007, most of the emerging market economies in our sample were in the southeast quadrant of the panel, implying a dangerous combination of accommodative monetary policy and the build-up of financial imbalances. By 2011 this situation had partly reverted, with fewer economies in the southeast quadrant and smaller credit-to-GDP and interest rate gaps.

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[1] Borio and Lowe (2002a,b) discuss leading indicators of banking system distress. Drehmann et al (2011) analyse the performance of the credit-to-GDP gap as an indicator of the build-up of system-wide vulnerabilities that typically lead to a banking crisis. [2] The credit-to-GDP gap is calculated using the Hodrick-Prescott (HP) filter with a smoothing parameter λ of 400,000, as in Drehmann et al (2011). We use a broad definition of credit that captures all sources of funds for the private sector as in Basel Committee on Banking Supervision (2010). [3] The Taylor rule estimated has the following form: $R_t^{TR} = \rho R_{t-1}^{TR} + (1-\rho)\,[(R^n + \bar{\Pi}) + \gamma_\Pi\,(\Pi_{t+4} - \bar{\Pi}) + \gamma_y\,(y_t - \bar{y}_t)]$, where R_t^{TR} is the nominal benchmark rate at quarter t, R^n is the natural interest rate, $\bar{\Pi}$ is the inflation target level, Π_{t+4} is the inflation rate one year ahead and $y_t - \bar{y}_t$ is the output gap calculated as the deviation of output with respect to its potential level. The coefficients used are: $\rho = 0.75$, $\gamma\pi = 1.5$ and $\gamma y = 0.5$. The natural interest rate is estimated as the average real ex post interest rate for each country over the longest available period (which varies across countries). When no inflation target is available, we use the average inflation level (over the same period used for estimating the long-term interest rate). We calculate the potential output using the HP filter.

much lower in emerging Asia (green dots in Graph 2) and Latin America (red dots) than in emerging Europe. Moreover, while all European countries in the sample displayed current account deficits, the large majority of Asian and Latin American countries experienced current account surpluses. Similarly, most of the Asian and Latin American countries held large foreign exchange reserves (as a ratio of short-term external liabilities) and had limited external financing needs.

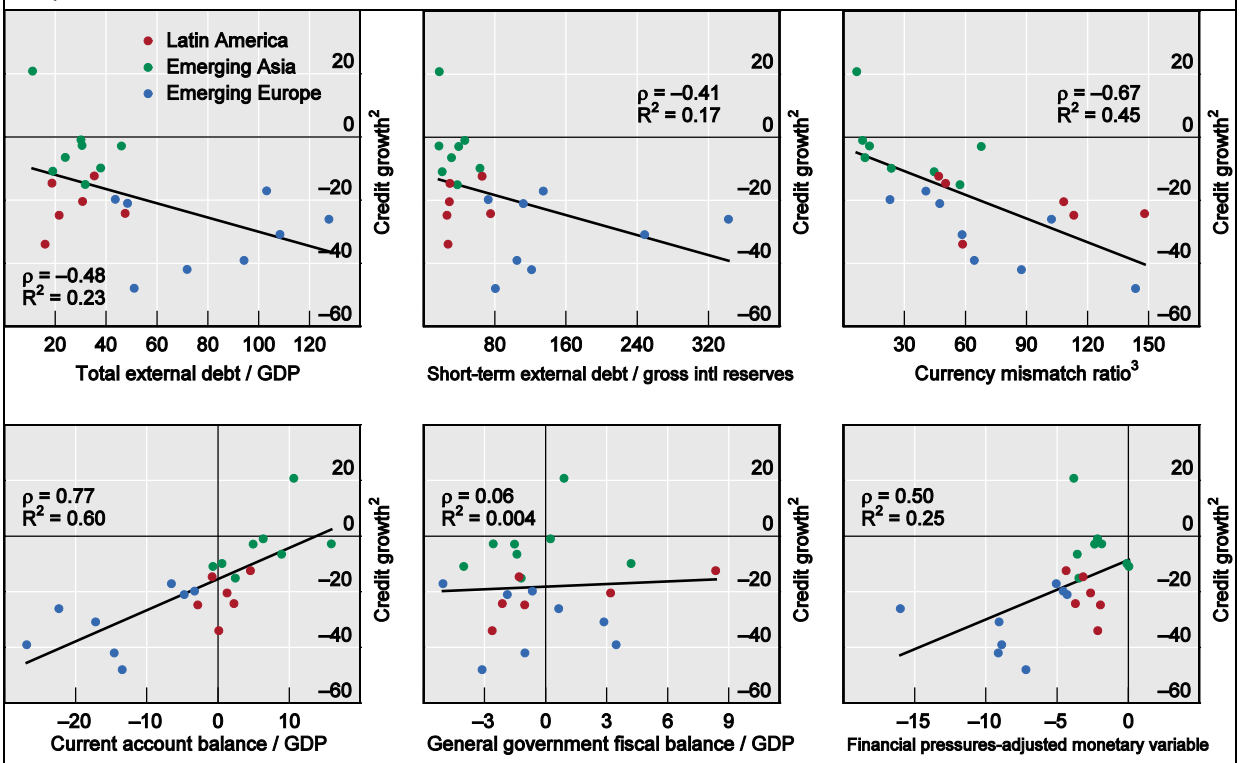
As a result of the solid external position in Latin American countries, the external shock did not raise significant concerns about their capacity to meet their external obligations. Authorities in the region were also able to pursue countercyclical policies. Chile, followed by Peru, was the best positioned in terms of its fiscal and monetary stance. Indeed, authorities in these two countries were able not only to undertake countercyclical fiscal and monetary expansions relatively fast after the shock but also to quickly reverse the expansion once the worst of the crisis was over.

Room for manoeuvre mattered

It is interesting to note the role of trade openness in determining the relative resilience of Latin American economies. By construction, the mismatch ratio is high if the ratio of exports to GDP is low, since low exports reduce the availability of foreign exchange. The limited trade openness of Latin American countries partly explains the relatively high mismatch ratios in a number of those countries. In other words, efforts to increase the region's degree of trade

Macroeconomic strength in 2007[1]

In per cent



[1] For the financial pressures-adjusted monetary variable, annual average of quarterly data; year-end data otherwise. [2] Difference in year-over-year percentage change in real credit for Q4 2009 and Q4 2007, in percentage points. [3] Foreign currency share of total debt divided by the ratio of exports to GDP.

Sources: IMF; Datastream; Moody's; national data; BIS. Graph 2

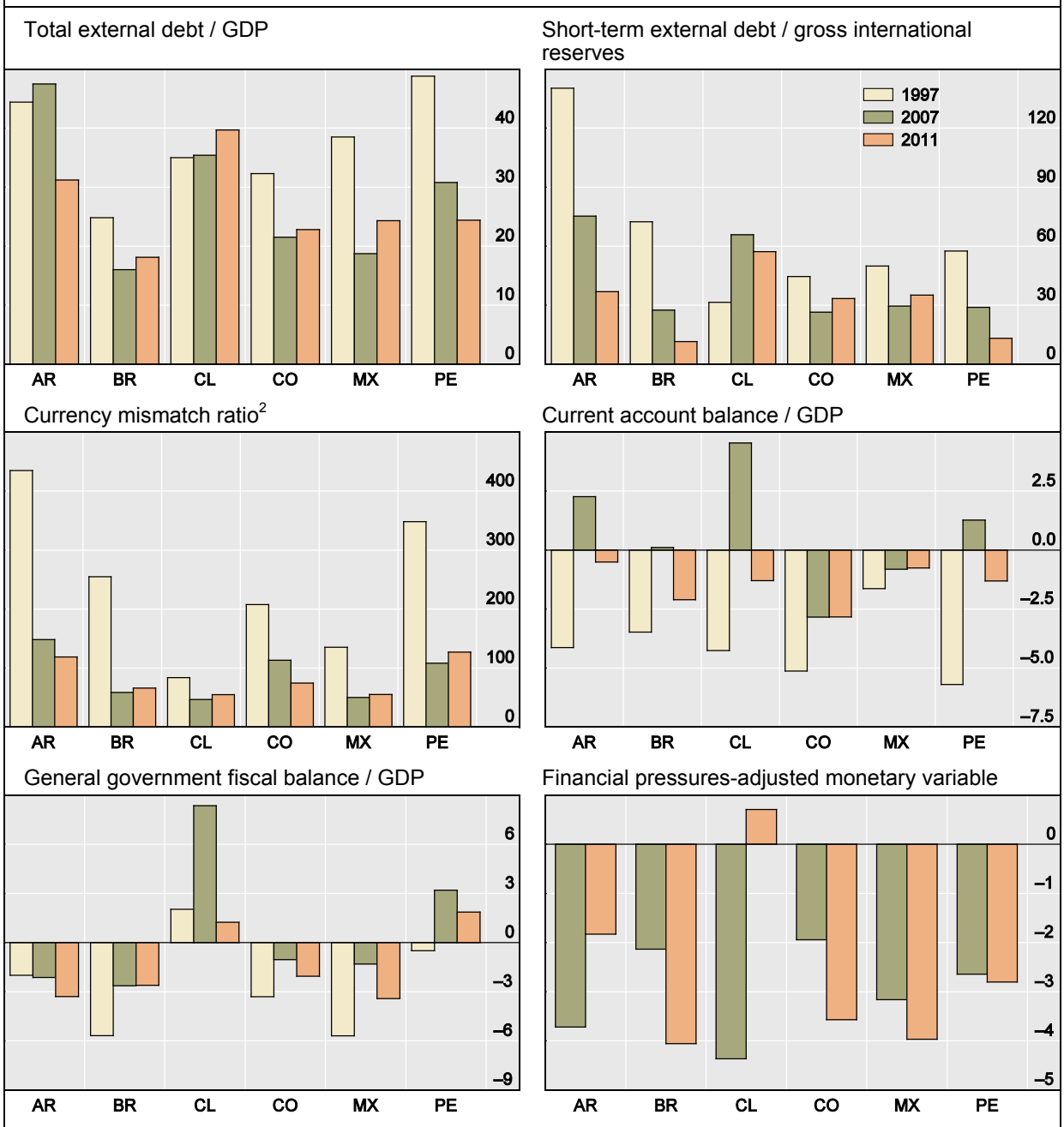
openness and local currency funding could improve Latin American economies' resilience to external financial shocks.

How macroeconomic strength has evolved in Latin America

Countries in Latin America consolidated their macroeconomic strength in the years prior to the global financial crisis. Graph 3 shows the set of

Macroeconomic strength in Latin America[1]

In per cent



AR = Argentina; BR = Brazil; CL = Chile; CO = Colombia; MX = Mexico; PE = Peru.

[1] For the financial pressures-adjusted monetary variable, annual average of quarterly data; year-end data otherwise. [2] Foreign currency share of total debt divided by the ratio of exports to GDP.

Sources: IMF; Datastream; Moody's; national data; BIS. Graph 3

macroeconomic variables for the Latin American countries in our sample for 1997 (the year the Asian financial crisis started and prior to the Russian financial crisis), 2007 and 2011.[8]

Latin American economies were vulnerable in 1997 …

The most important improvements from 1997 to 2007 were reductions in currency mismatches and short-term external funding. The latter halved as a fraction of gross international reserves in most countries. Also, current account balances moved from deficits to surpluses (or, in Colombia and Mexico, much smaller deficits). Thus, while high external financing needs made Latin American countries very vulnerable at the time of the Asian shock, improved current accounts seem to have contributed to these countries' credit resilience at the time of the global financial crisis. In addition, external debt ratios improved significantly in most countries in the region, with Brazil, Colombia, Mexico and Peru showing a drastic reduction.[9] With the exception of Argentina, fiscal positions were significantly stronger at the beginning of the 2007–09 crisis than before the Asian and Russian crises, and consequently governments were able to provide larger fiscal stimulus during the more recent episode.[10] Overall, these improvements in macroeconomic fundamentals supported the stronger resilience of credit growth during the 2007–09 global financial crisis in comparison to that during the Asian and Russian crises.

… and may be becoming more so today

Unfortunately, the improvement in the vulnerability indicators that took place between 1997 and 2007 did not continue in subsequent years. Our indicators suggest that the Latin American countries in our sample may have

Monetary policy rates and inflation since the Lehman Brothers bankruptcy[1]

In per cent

	Monetary policy rates[2]		Inflation[3]	
	Prior to 15 September 2008	As of 15 August 2012	August 2008	July 2012
Brazil	13.75	8.00	6.17	5.20
Chile	8.25	5.00	9.30	2.51
Colombia	10.00	5.00	7.87	3.03
Mexico	8.25	4.50	5.57	4.42
Peru	6.25	4.25	6.27	3.28

[1] 15 September 2008. [2] For Brazil, SELIC target rate; for Chile, official monetary policy rate; for Colombia, minimum rate for one-day expansion auctions; for Mexico, rate target for overnight interbank funding operations; for Peru, reference rate. [3] Annual changes in CPI.

Sources: National data. Table 2

[8] The financial pressures-adjusted monetary policy stance is not calculated for 1997 due to data limitations.

[9] While the external debt ratio remained practically unchanged in Chile from 1997 to 2007, this country showed the largest improvement in current account balance among the countries in the sample over the same period. Argentina is the exception in the sample, since its external debt ratio was larger in 2007 than in 1997.

[10] In 1999 the fiscal stimulus, measured by the change in the fiscal balance, in these Latin American countries was no larger than 2% of GDP (and even negative for Brazil and Mexico). In contrast, in 2009 it was between 2 and 8% of GDP for these countries.

Macroeconomic strength in other Latin American and Caribbean countries[1]

2011, in per cent

	Total external debt / GDP	Short-term external debt / gross international reserves	Currency mismatch ratio[2]	Current account balance / GDP	General government fiscal balance / GDP	Financial pressures-adjusted monetary variable
Costa Rica	25.5	50.9	84.2	–5.2	–4.3	–2.1
Dominican Republic	22.8	26.0	103.0	–7.9	–2.5	–5.0
Guatemala	25.8	28.3	108.1	–2.8	–2.8	0.3
Jamaica	64.7	29.7	156.0	–9.9	–6.5	–5.9
Paraguay	20.5	38.4	31.8	–1.2	1.2	–0.7
Trinidad and Tobago	34.3	…	62.1[3]	20.7	0.3	–1.7
Uruguay	31.8	5.3	149.0	–2.2	–0.8	–3.1
Venezuela	34.0	167.7	101.9	8.6	–5.3	–9.5

[1] For financial pressures-adjusted monetary variable, annual average of quarterly data; year-end data otherwise. [2] Foreign currency share of total debt divided by the ratio of exports to GDP. [3] Q4 2010 data.

Sources: IMF; Datastream; Moody's; national data; BIS. Table 3

less capacity to withstand an external shock now than in 2007. External debt and currency mismatch ratios have increased. Current account balances have deteriorated relative to 2007. Only the external liquidity position, measured by short-term external debt as a fraction of gross international reserves, has improved as the economies have accumulated foreign reserves.

The findings concerning the ability to implement countercyclical macroeconomic policies are more mixed. Larger fiscal deficits indicate a lower capacity to implement countercyclical fiscal policy, but monetary policy may face fewer restrictions today than in 2007 as inflationary pressures have abated. On the other hand, policy rates currently lower than those in September 2008 indicate less room for monetary easing (Table 2).

Smaller countries in Latin America and the Caribbean are generally in a weaker position that the economies in our sample (Table 3). Debt ratios tend to be higher and, more importantly, some countries display sizeable currency mismatches, often exceeding 100%. Large fiscal deficits and expansionary monetary policy, even with moderate credit growth rates, suggest that there is little room for countercyclical macroeconomic policy.

Conclusion

A central lesson from the 2007–09 crisis is that the resilience of real credit growth to a severe external shock depends on the strength of key macroeconomic factors in the pre-crisis period. Countries that entered the crisis with lower external financing needs, lower currency mismatches in both private and public balance sheets, and enough room to implement countercyclical fiscal and monetary policies without generating macroeconomic instability were able to withstand the shock posed by the global financial crisis better than others. Improvements in these indicators could also explain why

credit growth in Latin America held up better in 2007–09 than after the Asian/Russian crisis period a decade earlier.

But there are indications that the vulnerability of Latin American economies to foreign financial shocks has increased more recently. This is important because international capital markets have, once again, been showing signs of increased stress, this time mostly from events in the euro zone. Current data indicate that macroeconomic fundamentals in Latin America, although still strong, have weakened since 2007. Particularly worrisome is the deterioration in the fiscal stance and the current account balance. While the global slowdown in economic growth partly accounts for these outcomes, Latin American policymakers could help reduce vulnerabilities by strengthening fiscal balances and implementing reforms that improve the competitiveness of their non-commodity sectors. These efforts would yield a large return in terms of economic and financial stability if another severe external shock were to materialise in the near to medium-term future.

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