

## Understanding Differences in Growth Performance in Latin America and Developing Countries between the Asian and the Global Financial Crises

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*Latin American performance during the global financial crisis was unprecedented. Many developing and emerging countries successfully weathered the worst crisis since the Great Depression. Was it good luck? Was it good policies? This paper compares growth during the Asian and global financial crises. It finds that a looser monetary policy played an important role in mitigating crisis. It also finds that higher private credit, more financial openness, less trade openness, and greater exchange rate intervention worsened economic performance. Better macroeconomic management was key to good economic performance, which is confirmed by our analysis of Latin American countries. Finally, there is also evidence for the sample of 31 emerging markets that high terms of trade had a positive impact on resilience. [JEL E58, E63, F3]*

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**T**his time was different, very different. Compared with previous experiences Latin America's performance during the global financial crisis was quite

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**Figure 1. Per-Capita GDP during Three Crises in LATAM-5 (index = 100 two years before the crisis)**



Source: IMF-WEO April 2014.

Note: LATAM-5 is comprised of Brazil, Chile, Colombia, Mexico, and Peru. The figures are simple, unweighted, averages. Debt crisis: 1980–87, Asian crisis: 1997–2004, Global Financial crisis: 2007–14. The data for 2013 is provisional and for 2014 forecast.

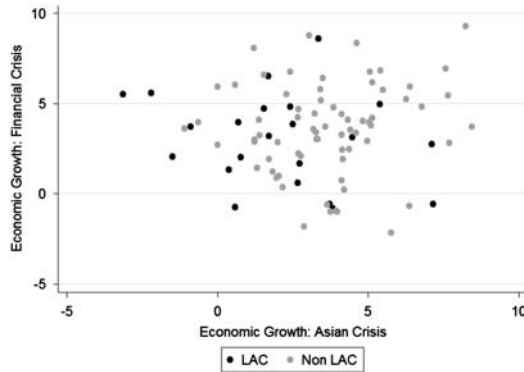
impressive. In Figure 1 we show the evolution of average per-capita GDP in three crises: the debt crisis, the Asian crisis, and the global financial crisis, for a group of five Latin American countries. These countries are Brazil, Chile, Colombia, Mexico, and Peru.<sup>1</sup> They represent about 78 percent of the total output of Latin American and the Caribbean. These five countries share some common features in terms of macroeconomic policies. After the Asian crisis, they implemented flexible inflation target regimes and flexible exchange rates. Peru has the most limited flexibility, as authorities have attempted to provide greater short-term stability given the high degree of financial dollarization. However, they have also allowed their currency to adjust to international economic conditions. These countries are representative of many countries in the region that have some form of inflation target regimes, such as Guatemala, Paraguay, and Uruguay. They are also representative of countries, mostly in Central America, which have been transiting to inflation targets and greater exchange rate flexibility, but still have some way to go.<sup>2</sup>

We exclude Argentina and Venezuela, the other two large economies in the region. They are different in that they have followed policies with much greater exchange rate rigidities and lack of inflation control. In addition, their fiscal policies are much more dependent on high commodity prices (Adler and Sosa, 2013).

<sup>1</sup>We do not weight by size in order to give an aggregate view that does not result in an excessive influence of the largest countries in the region. Brazil and Mexico represent about three quarters of the output of the five countries; hence, the evolution of the weighted average (by size) would be basically the evolution of these two countries. In addition, by limiting the number of countries we also avoid giving excessive weight to small countries. For each crisis the year “0” is the year with the first decline in output, that is, 1982 for the debt crisis, 1999 for the Asian crisis, and 2009 for the global financial crisis.

<sup>2</sup>For further details on monetary policy regimes in Latin America and the Caribbean, see IDB (2012, chapter 6).

**Figure 2. Economic Growth Rate during the Global Financial and Asian Crises  
Developing and Emerging Market Economies**



Source: World Economic Outlook database.

In recent quarters they have been subject to exchange rate tensions and have subsequently implemented controls that segmented the foreign exchange market, while inflation is running at two digits and GDP falling.<sup>3</sup>

Figure 1 shows that economic performance of Latin America during the latest crisis was remarkable. We normalize per-capita GDP two years before each crisis to 100. Five years after the debt crisis, output per-capita was similar to that of two years before the crisis. That was a lost decade in the region. During the Asian crisis these countries performed somewhat better, but their performance was poor. Asian countries faced a sharper recession, but recovered much faster.<sup>4</sup> However during the global financial crisis, Latin America had a recession, but it was mild and the recovery was fast.

The experience across the whole range of developing and emerging markets is quite disperse. Figure 2 shows growth in these countries during the Asian crisis (1998–2002) and the global financial crisis (2008–12). Latin America did broadly better in the recent crisis. The correlation across crisis is low in the whole sample. Countries that did well in the Asian crisis did not necessarily repeat that performance during the global financial crisis; hence, it is important in order to understand these events to find determinants of differences in growth outcomes. Such results will greatly inform public policy to help with future financial shocks.

This is the goal of our paper. What are the factors that explain the performance of Latin America in specific and developing countries in general during the global financial crisis, particularly compared with the Asian crisis? Was it just the result of good luck, given high commodity prices, or did policy responses matter? What explains the region’s resilience?

<sup>3</sup>Including Argentina and Venezuela would deteriorate average performance in the debt and Asian crises, while performance during the recent crisis would be similar until 2012.

<sup>4</sup>For further discussions on the Asian crisis and the policy responses, see Fischer (2001).

Our results represent associations rather than necessarily causations, especially with some initial variables that are not under direct control of authorities such as credit or may have endogeneity problems difficult to solve such as fiscal policy. However, our results are useful to understand performance and to provide policy lessons.

In this paper we look comparatively at economic performance during the Asian and global financial crises in order to assess some common factors across countries. We would have liked to extend this analysis to the debt crisis. However, data availability limits this task.<sup>5</sup> In addition, macroeconomic frameworks during the debt crisis were radically different from those of the 1990s and 2000s, so other assumptions would have to be made in order to conduct an in-depth comparison. In contrast, macroeconomic conditions were not as different during the Asian and the global financial crisis, although differences were in the policy stance and external environment.

This paper continues in Section I with a brief review of the literature. In Section II we present econometric evidence on comparative economic performance during the two crises for a sample of developing and emerging market economies. We look at the entire sample and then restrict it to emerging market economies. Results are similar, although the number of observations decline significantly when we look only at emerging markets; unfortunately there is not enough data to look exclusively at Latin America. For this reason, in Section III we look in greater detail at the policy responses and economic performance of Brazil, Chile, Colombia, Mexico, and Peru. In Section IV we present the main conclusions and summarize the findings of the paper.

## I. Literature Review

The role of policies in increasing resilience has been discussed by Kose and Prasad (2010) for emerging markets, and by De Gregorio (2014a, b) for Latin America. In this article we attempt to provide econometric evidence and compare the policy responses during the two crises. More than five years have passed since the crisis started, and we have enough data to conduct an empirical investigation covering not just the fall, but also the recovery. Initial research looked at the determinants of the decline in output during 2009–10.

An examination of the economic fall was initially done and updated by Rose and Spiegel (2011). They did not find any robust indicator that could serve as a warning for the crisis. In contrast, Frankel and Saravelos (2010) find that the level of international reserves and real exchange rate overvaluation are good leading indicators of crisis severity. Their findings indicate that exchange rate overvaluation is an early-warning indicator for currency crisis, not decline in output. They recognize the importance of having more information as time goes on

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<sup>5</sup>Some work has looked at the role of external and macroeconomic factors on economic growth instead of crises. Rebucci (2009) finds that Latin America was more vulnerable to external shocks due to weak macroeconomic policies in 1965–92. De Gregorio and Guidotti (1995), for the period 1960–85, show that credit played a negative role in economic growth in Latin America due to weaknesses in the financial system that led to crisis in the early 1980s.

to conduct empirical analysis of the crisis. Thus they argue that their results are more promising since they include the first quarter of 2009. We take similar advantage that more time has passed since the crisis took place. In a similar spirit to previous papers, Feldkircher (2012) examines 90 potential explanatory variables to predict the severity of the crisis in 2008–09, and finds credit growth as a key determinant of vulnerability. In addition, he finds that economies that were growing faster before the crisis were less resilient during it.

Taking a different approach, Gourinchas and Obstfeld (2012) estimate the evolution of relevant variables around different types of crises and then analyze amplifications stemming from a combination of different crises types. They use a discrete choice model and conclude, for the period 1973–2010, that the expansion of credit and the real appreciation of the exchange rate are the most robust predictors of financial crisis, regardless of whether the country is an emerging or advanced economy. For emerging economies, the level of reserves reduces the probability of crisis.

Another early cross-section study of the crisis was done by Blanchard, Das, and Faruquee (2010). They look at the relevance of trade and financial channels on unexpected growth in a sample of 29 countries. They conclude that both channels were at work, but that the financial channel was more relevant and estimations more robust particularly when measured by short-term debt. They also discuss the role of the exchange rate regime and find that it did not make a difference whether countries had a fixed exchange rate or a more flexible one during 2008. This result is confirmed by Tsangarides (2012) regarding the severity of the crisis; however, he found that floating regimes did better during the recovery than fixed ones.<sup>6</sup>

Ghosh, Ostry, and Qureshi (2013) analyze the economic consequences of different exchange rate regimes. They find that the more rigid systems are more prone to macroeconomic and financial vulnerabilities, and hard pegs more prone to growth collapses.

Another central factor in the global economy before and after the crisis was the commodity price boom. This allowed commodity exporters to improve their current accounts and gave a boost to government revenues. This contrasts with the Asian crisis, where commodity prices plunged. Abiad and others (2012) estimate resilience to external conditions of 100 countries in the last 60 years. They conclude that about three-fifths of the increased resilience of an economy is due to the country's improved policymaking, while the rest is due to a better external environment.

Another piece of indirect evidence regarding the role of external factors can be obtained by looking at the sensitivity of economic performance to world trade and global growth. Blanchard, Das, and Faruquee (2010) show that the elasticity of world growth to world trade has increased, which would suggest increased

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<sup>6</sup>Some other work has tried to look at the fall and recovery from the crisis, but a lack of data has led to the use of forecasted growth for 2010 (for example, Berkmen and others, 2012, and Didier, Constantino, and Schmukler, 2012), which of course is a partial measure, especially given the significant changes in output forecast in recent years. Additionally, 2010 was just the beginning of the recovery.

vulnerability for open economies. Nevertheless, when looking at the response of Latin American economies to world growth, Resende and Goldfajn (2013) show that the response of output to world growth has declined. In our empirical work we look at the role of terms of trade as well as financial and trade openness. We also find that more financially open economies performed the worst, but those more open to trade had better performance.

De Gregorio and Lee (2004) look at the output cost of crisis in a sample of 81 episodes and explain the difference in economic performance between Asia and Latin America during the Asian crisis. They find that a good international environment, a sound banking system, and a high level of reserves lower the cost of a crisis. In terms of policies, they find that real exchange rate depreciation and monetary policy helped in the recovery, while fiscal policy has a muted result.

## **II. Determinants of Differences in Economic Growth during Recent Crises**

In this section, we aim to determine how differences in economic fundamentals and policy-related variables could explain economic performance differences during the two recent crises. There are several studies examining the role of different factors which could explain the response of activity during the financial crisis across countries, and which were reviewed above. Most of them, however, focused only on the latest global economic crisis and look at a shorter period of time.

### **Methodology and Data**

We use a first-difference approach to investigate the factors that can explain how GDP growth performed during the two crises. Most previous studies focus on a particular crisis or did panel regressions. We look at both the Asian and global financial crisis by estimating the determinants of differences in economic growth across countries in a five-year window for both.

This approach contributes to the literature in two main dimensions. First, given that more time has passed since the global financial crisis took place, the time span is longer compared with previous studies and allows for a better assessment of performance. What happened during a few years may be contaminated by many idiosyncratic factors, so it is useful to look at a longer period. This is not a trivial point, since statistical analysis based on a short period of time may be incomplete. Take the cases of Brazil and Chile. During 2009–10, Brazil performed much better in terms of growth. In 2009 output declined by only 0.3 percent, while Chile's output fall was 1 percent. In 2010, the Chilean economy grew at 5.8 percent, while Brazil did it at 7.5 percent. In contrast, during 2011 and 2012, Chile grew at an average of 5.6 percent while Brazil did it at 1.8 percent. It is useful to have a longer time period to not be constrained by the timing and lags of the recovery.

The second advantage of using this first-difference estimation is that it provides controls for country-specific factors that may affect growth and that are constant for each country over time. For example, there is no need to make assumptions regarding the level of long-term GDP growth, the appropriate level of reserves, or equilibrium inflation rates across countries. The only assumption is that those

variables are the same across crises. The advantage of not looking too far into the past is that this assumption may not be plausible in a long time span, but can be justifiable in a 10-year period. In our investigation we treat both episodes as being of a similar nature across countries.

In our empirical approach the dependent variable is the difference in the economic growth rate between the recent global financial crisis and the Asian crisis. Our explanatory variables are economic fundamentals that are important determinants of differences in economic performance. We estimate the following model:

$$\bar{g}_{i,fc} - \bar{g}_{i,ac} = \alpha + \beta(X_{i,bfc} - X_{i,bac}) + e_i,$$

where  $\bar{g}_{i,fc}$  is the average rate of growth of GDP during the financial crisis (2008–12) and  $\bar{g}_{i,ac}$  is the average rate of growth of GDP during the Asian crisis (1998–2002). The variable  $X_{i,bfc}$  is a vector of economic fundamentals before the financial crisis (in this case 2007) and  $X_{i,bac}$  before the Asian crisis (1997). This set of variables also includes some contemporaneous policy response such as government expenditure, monetary policy, and international reserves.

The variables used in the estimation are *international reserves over GDP*, the *inflation rate*, the *exchange rate regime*, the *stock of public debt over GDP*, *private credit over GDP*, *trade openness* (imports plus exports over GDP), and *financial openness* (external assets plus external liabilities over GDP). We also include three contemporaneous variables in order to evaluate how “good luck” and policy responses help to explain economic performance. To this end we use the log of *terms of trade*, *government expenditure over GDP*, and the *monetary policy interest rate*.<sup>7</sup> In contrast to previous variables that are measured before each crisis, these three variables are averaged during the crises.

In all of our regressions, we include regional dummy variables using the World Bank’s classification to control for potential common shocks that drive differences in regional economic growth. The only region without a dummy is East Asia and the Pacific. Therefore, all dummies are measured with respect to East Asia and the Pacific, and this region is represented in the constant.<sup>8</sup>

As mentioned below, we are aware of the potential endogeneity problems in our regressions. Thus we interpret our results as associations, which do not necessarily represent causality, particularly for contemporaneous variables.

We estimate this equation for two different samples. First, we analyze the group of *developing and emerging countries* (DECs) according to the IMF convention. Second, we consider only *emerging market economies* (EMEs).<sup>9</sup> The empirical framework may be more appropriate for emerging markets, since the Asian and global financial crises both affected these economies despite the fact that the former was not a global crisis. However, the sample of emerging markets is

<sup>7</sup>The definition of the variable, the source, and descriptive statistics are shown in the Appendix.

<sup>8</sup>The classification of countries is in [www.econ.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20421402~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html](http://www.econ.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20421402~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html).

<sup>9</sup>The list of countries used in the estimation is shown in the Appendix.

relatively small, and for this reason we think it is useful to explore a broader sample to examine empirical regularities. Using DECs may be a reasonable sample since most countries were affected by the Asian shock. Moreover, there is no reason to think that the importance of fundamentals and policies depends on the level of development.

Comparing the Asian and the global financial crises in the largest sample of developing and emerging markets is an interesting exercise since it allows comparing initial conditions and policy responses in two periods where economic performance was quite different. Indeed, when correlating growth for the five years following the Asian and the global financial crisis for our sample, as shown in Figure 2, we find a small correlation coefficient that is not significant. This shows weak evidence that poor performers during the Asian crisis were also poor performers during the recent financial crisis and justifies our strategy of looking at within-country characteristics. Indeed, if the correlation across crises were high, little could be obtained in trying to explain different performance across countries due to changes in fundamentals and policies.

In principle, the Asian crisis was generated and transmitted across emerging markets, while the recent one was global with its epicenter in advanced economies. It could be conjectured that the latter could have been more damaging for emerging and Latin American markets, but this was not the case. The shock during the global financial crisis was larger and more global, and hence shock absorbers such as the exchange rate could have more limited effects, as depreciating countries would not gain competitiveness against each other. However, during the Asian crisis, currencies were not allowed to float as much as was needed, and it spread in stages. It started in Thailand with the collapse of the Thai baht in July 1997, followed by unprecedented crisis in East Asia. This caused a sharp decline in oil prices, which together with an overvalued fixed exchange rate and weak public finance triggered a financial crisis in Russia. This collapse took a toll on LTCM, a U.S. hedge fund that had to be rescued. Its aftershocks continued all across emerging markets and, of course, Latin America was included. The Brazilian real collapsed in late 1998, followed by a currency collapse and a financial crisis in Colombia in 1999. Then came the Argentinean convertibility crisis in early 2001. On the external front, this was the period that popularized the idea of sudden stop of capital flows, something that did not happen during the recent crisis despite a much larger financial shock. Economies' strength and quality of policy responses limited the external shock unlike during the Asian crisis.

## Main Results

In Table 1, we show the results of our estimation for the sample of DECs. First, and as in all of our basic regressions, we present univariate relationships between differences in each variable between crises and differences in economic performance (column 1).<sup>10</sup> Then, we include all covariates jointly (column 2). And finally, using a

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<sup>10</sup>For univariate regressions we also include dummy variables by region, but given that we show the parameter for each covariate in a single column, they are not reported. The same applies for the  $R^2$  and number of observations.



**Table 1. Developing and Emerging Economies (DECs)**

Variables	(1)	(2)	(3)	(4)	(5)
Reserves	0.0390 (0.0280)	-0.00784 (0.0338)		-0.00841 (0.0311)	
Inflation	-0.000416 (0.00166)	-0.000362 (0.00115)		-0.000289 (0.00113)	
ER Regime	0.00552 (0.105)	0.158 (0.113)		0.135 (0.123)	
Public Debt	-0.00790 (0.00537)	0.00532 (0.0113)		0.00122 (0.0106)	
Private Credit	-0.0317*** (0.00879)	-0.0149 (0.0109)	-0.0233*** (0.00702)	-0.0152 (0.0107)	-0.0233*** (0.00702)
Trade Openness	0.0151 (0.0110)	0.0317** (0.0159)	0.0314** (0.0146)	0.0297* (0.0152)	0.0314** (0.0146)
Cap. Account Openness	-0.144 (0.132)	-0.104 (0.274)		-0.111 (0.257)	
Public Expenditure	0.0475 (0.0476)	-0.0369 (0.0531)		-0.0321 (0.0514)	
Interest Rate	-0.0770** (0.0372)	-0.155*** (0.0218)	-0.141*** (0.0193)	-0.144*** (0.0242)	-0.141*** (0.0193)
Terms of Trade	1.388* (0.754)	1.145 (1.039)			
Commodity Exporter				0.753 (0.620)	
ECA		-5.355*** (1.409)	-4.324*** (0.598)	-5.074*** (1.549)	-4.324*** (0.598)
LAC		-1.754 (1.391)		-1.660 (1.443)	
MENA		-2.117 (1.290)		-1.926 (1.371)	
SA		-0.309 (1.359)		-0.972 (1.432)	
SSA		-1.182 (1.510)		-1.408 (1.540)	
WE		-2.656 (1.817)		-2.650 (1.765)	
Constant		1.243 (1.249)	-0.0287 (0.434)	0.977 (1.416)	-0.0287 (0.434)
Observations		92	92	92	92
R <sup>2</sup>		0.493	0.431	0.491	0.431

The dependent variable in all the tables is the difference in the economic growth rate between the recent global financial crisis (2008–12) and the Asian crisis (1998–2002).

Robust standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

ECA = Developing Europe and Central Asia, LAC = Latin America and the Caribbean, MENA = Middle East and Northern Africa, WE: Western Europe, SA = Southern Asia, and SSA = Sub-Saharan Africa.

stepwise general-to-specific specification, we search for covariates that are statistically significant at 10 percent (column 3). We can thus check which variables are more robustly associated with differences in economic growth during both crises. Columns 4 and 5 are discussed later as part of the extensions.

For the sample of DEC countries, the univariate regressions show that lower private credit growth, interest rate reductions, and more favorable terms of trade are associated with higher economic growth during the global financial crisis. In the multivariate regressions, we find that in addition to the previous variables, greater trade openness is positively associated with economic performance in this sample. Thus, greater trade openness is not related to greater vulnerability. Other difference with univariate regressions is that the change in terms of trade is no longer statistically associated with economic performance differences across crises.

We show the results for the sample of EMEs in Table 2. The sample size declines to 31 countries, but we obtain a large  $R$ -squared of about 0.8. Similar to previous estimations, we find that changes in private credit and interest rates cuts show a significant association with differences in economic growth. There are, however, some differences compared with the previous estimations. In the sample of EMEs, we find that four new variables become significant in explaining differences in economic growth. Our results suggest that higher economic growth in the recent crisis is positively associated with a lower inflation before the crisis and with improvements in terms of trade. The combination of low inflation and good luck due to the rise of commodity prices were important for the successful performers in the later period. An unexpected but not robust result is that higher public debt is positively associated with better relative economic performance during the financial crisis. Finally, in this smaller sample of countries, we find that capital account openness is negatively related with differences in economic growth.

It is interesting to note that the only regional dummies that are significant in both tables, and with negative coefficient, are those for emerging Europe. The dummies are not significant in Latin America, which indicates that beyond the effects of the explanatory variables there are not other factors accounting for differences in economic performance across crises between Latin America and East Asia and the Pacific.

In sum, these regressions show that differences in growth performance are associated with some economic fundamentals. Also, and consistent with previous findings by Rose and Spiegel (2011), results tend to differ depending on the sample used. However, there are some interesting and robust findings that we can highlight. First, in most of our regressions, the evidence suggests that *better performance would be positively associated with lower private credit growth, trade openness, and monetary policy loosening*. Second, for the sample of emerging markets *there is some evidence for “good luck” as an explanation of good performance, as improvements in the terms of trade were associated with better performance in the recent crisis. There is also evidence that countries with lower financial openness performed better in the recent crisis.*<sup>11</sup> The positive relationship

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<sup>11</sup>In a previous version of this paper we estimate these regressions for a sample including advanced economies. We found that exchange rate flexibility significantly helped to reduce the effects of the latter crisis. These results, however, is mostly driven by countries in the euro zone. We have excluded this analysis since advanced economies were not as affected by the Asian crisis.

**Table 2. Emerging Economies (EMEs)**

Variables	(1)	(2)	(3)	(4)	(5)
Reserves	-0.0248 (0.0423)	-0.0207 (0.0463)		-0.0183 (0.0419)	
Inflation	-0.000466 (0.00131)	-0.00324 (0.00215)	-0.00518*** (0.00128)	-0.00231 (0.00198)	
ER Regime	0.0881 (0.109)	0.0944 (0.143)		0.0855 (0.105)	
Public Debt	0.0131 (0.0195)	0.0417 (0.0302)	0.0688*** (0.0213)	0.0292 (0.0240)	
Private Credit	-0.0454*** (0.0146)	-0.0347* (0.0196)	-0.0333** (0.0126)	-0.0221 (0.0186)	
Trade Openness	0.0128 (0.0299)	0.0348 (0.0274)		0.0450 (0.0302)	0.0656** (0.0241)
Cap. Account Openness	-1.834*** (0.575)	-1.626** (0.736)	-1.457* (0.707)	-1.697** (0.749)	-1.831*** (0.562)
Public Expenditure	-0.0816 (0.109)	0.0563 (0.0932)		0.0618 (0.0666)	
Interest Rate	-0.152*** (0.0389)	-0.125** (0.0455)	-0.104** (0.0465)	-0.0934* (0.0501)	-0.0872** (0.0383)
Terms of Trade	0.943 (1.242)	1.441 (1.389)	1.574* (0.852)		
Commodity Exporter				2.383* (1.218)	2.764*** (0.943)
ECA		-3.323 (2.452)	-3.493* (1.733)	-2.337 (2.465)	-3.788*** (1.108)
LAC		0.134 (2.548)		0.338 (2.108)	
MENA		-1.098 (2.106)		-1.151 (1.835)	-2.655*** (0.919)
SA		0.857 (1.459)		-0.882 (1.669)	-2.135** (0.837)
SSA		0.337 (2.456)		-0.619 (2.224)	-2.874*** (0.833)
Constant		0.752 (1.530)	1.357** (0.602)	-0.734 (1.468)	-0.472 (0.747)
Observations		31	31	31	31
R <sup>2</sup>		0.841	0.794	0.873	0.828

The dependent variable is the difference in the economic growth rate between the recent global financial crisis (2008–12) and the Asian crisis (1998–2002).

Robust standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

EAC = Developing Europe and Central Asia, LAC = Latin America and the Caribbean, MENA = Middle East and Northern Africa, WE = Western Europe, SA = Southern Asia, and SSA = Sub-Saharan Africa.

between economic growth and changes in terms of trade is consistent with a cursory look at Latin America's performance, but the regression results suggest they were not the most important factor. In the extension, we use a dummy variable for commodity exporters in order to check the robustness of this result across country samples.

Regarding the role of reserves, our regressions show that the change between crises does not play a role in explaining cross-country differences in resilience. However, as we will discuss in the next section, this evidence should not be surprising given that countries might “over-accumulate” reserves in periods of strong exchange rate pressures. Therefore, the lack of significance of reserves cannot be used as evidence that they play no role on resilience, but may indicate that they may be in excess of the required for protection against curtailment of capital inflows.

Finally, and aware that we cannot make causal implications, we find a positive correlation between expansionary monetary policies during the crisis and economic performance without any correlation with fiscal policy. This said if there were a bias due to the endogeneity of monetary policy, it should tend to reduce the parameter’s estimate in absolute value. If countries that grew less have more expansionary monetary policies, the estimate on the interest rate would be biased, in absolute value, downward. Therefore, this result highlights the role of monetary policy in reducing the negative impact of external crisis on output.

The results for fiscal policy are somewhat more difficult to interpret. We do not find that increased government expenditure during the crisis resulted in higher growth. Here, the problem of endogeneity could be more serious, since countries with low growth could have had more expansionary fiscal policy, biasing the result toward zero.<sup>12</sup> We used several alternative specifications to look in more detail at the impact of fiscal variables. We used fiscal deficit and the index of procyclicality calculated by Frankel, Vegh, and Vuletin (2013) and do not find any significant relationships between these variables and differences in economic growth. We also used interactions between government expenditure changes during the crises and changes before it, and the results do not change. It would have been better to look at structural balances but data are not available for the Asian crisis.

Nevertheless, we cannot conclude from this evidence that fiscal policies are not relevant for explaining differences in economic growth. The endogeneity problem may be relevant. Additionally some studies show that expansionary fiscal policy was an important response. Chari and Blair Henry (2013) show that fiscal stance is important in understanding the differences in the postcrisis paths of Asia and Europe during the two recent crises. It is also the main idea behind the analysis of Céspedes and Velasco (2013) and Frankel, Vegh, and Vuletin (2013) that present evidence that stronger institutions have led to less fiscal procyclicality, and indirectly, although not tested, to higher resilience during the last crisis.

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<sup>12</sup>To deal with endogeneity, we could follow Corsetti, Meir, and Muller (2012) using deviations from policy rules for looking at the impact of discretionary changes in fiscal and monetary policy, but data are not available for the large sample of developing and emerging countries in our analysis. This procedure is also debatable in terms of the specification of the fiscal policy rule.

## Robustness

In this section we perform some extensions to further explore the impact of fundamentals and policies on crisis resilience and check the robustness of our results.

### *Commodity Exporters*

To explore whether commodity exporters were less affected during the recent crisis than in the previous one, we replace the terms-of-trade shocks' variable with a dummy for countries classified as commodity exporters. The results are shown in columns 4 and 5 of Tables 1 and 2 for the two samples. Column 4 shows all regressors and column 5 indicates the covariates that are significant at 10 percent. For the sample of DECs, this dummy, although positive, is not statistically significant (Table 1). This is consistent with finding not any significant effects for terms of trade. Furthermore, its inclusion does not change the main results reported in previous estimations.

It is only in the sample of EMEs that the dummy is positive and statistically significant, suggesting that during the recent crisis and within EMEs, commodity exporters had better performance (Table 2). This result indicates that *within* EMEs, those that experienced greater trade gains' terms did better.

As shown in Table 2, the inclusion of this dummy variable for commodity exporters does not affect our findings of a positive association between economic growth and lower financial openness and a reduction in the interest rate. The positive effect of trade openness for EMEs becomes significant. In contrast, inflation rates, private credit, and public debt become insignificant. The dummy for Latin America is still not significant.

### *Components of Capital Account Openness*

For the sample of EMEs, we find that more financially open economies grew less during the global financial crisis compared with the Asian one. In the case of DECs, the parameter is also negative but not significant. Consistent with our specification, this result suggests that countries that increased financial openness between these two periods performed worse during the financial crisis, since they were more exposed to financial turmoil. Thus the decline in global asset prices would have resulted in a larger external shock.

In Table 3, we show the results of multivariate regressions for the two samples. We divide assets between reserves and other assets. In turn, we separate liabilities into their three main components: portfolio and equity, FDI, and banking. As in previous estimations, higher international reserves are not related with differences in economic performance for any of the analyzed samples. In all cases, it seems that higher levels of other external assets are responsible for the negative relationship between financial openness and economic growth. This can be explained because a large stock of international assets resulted in a larger negative wealth shock as asset prices significantly declined all around the world, particularly investments in advanced economies. As can be observed in Table 3, our previous results for

**Table 3. Components of Capital Account Openness**

	DECs		EMEs	
	Multivariate	Only significant	Multivariate	Only significant
Reserves	-0.0239 (0.0342)		-0.0174 (0.0650)	
Other assets	-0.0216* (0.0117)		-0.0665* (0.0341)	-0.0160* (0.00923)
Port. Equity Liab.	0.0223 (0.0275)		-0.0990 (0.0625)	
FDI Liab.	0.0120 (0.0168)		0.0336 (0.0387)	
Banking Liab.	0.0204* (0.0119)		0.0640 (0.0402)	
Inflation	0.000446 (0.00128)		-0.00277 (0.00329)	
ER Regime	0.171 (0.109)		0.150 (0.193)	0.240** (0.101)
Public Debt	-0.00717 (0.0125)		0.0260 (0.0362)	
Private Credit	-0.0256** (0.0122)	-0.0233*** (0.00702)	-0.0422* (0.0227)	-0.0251** (0.0117)
Trade Openness	0.0361* (0.0201)	0.0314** (0.0146)	0.0703* (0.0376)	0.0447** (0.0191)
Public Expenditure	-0.0455 (0.0533)		-0.0157 (0.119)	
Interest Rate	-0.161*** (0.0239)	-0.141*** (0.0193)	-0.221*** (0.0598)	-0.180*** (0.0261)
Terms of Trade	1.509 (1.175)		2.739 (1.922)	
ECA	-6.019*** (1.592)	-4.324*** (0.598)	-9.438** (3.661)	-5.131*** (0.837)
LAC	-1.845 (1.527)		-1.557 (2.808)	
MENA	-2.486* (1.282)		-2.992 (2.287)	-1.045* (0.556)
SA	-0.425 (1.361)		-0.0629 (1.512)	
SSA	-1.104 (1.467)		1.366 (2.964)	
WE	-1.383 (1.479)			
Constant	1.525 (1.212)	-0.0287 (0.434)	2.620 (2.071)	0.103 (0.444)
Observations	92	92	31	31
R <sup>2</sup>	0.516	0.431	0.851	0.773

The dependent variable is the difference in the economic growth rate between the recent global financial crisis (2008–12) and the Asian crisis (1998–2002). Robust standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . ECA = Europe and Central Asia, LAC = Latina America and the Caribbean, MENA = Middle East and Northern Africa, NA = North America, SA = Southern Asia, SSA = Sub-Saharan Africa, and WE: Western Europe.

private credit, trade openness, and interest rates are robust to the inclusion of external assets and liabilities components. The exchange rate regime becomes significant for EMEs, indicating again that greater flexibility mitigated the global crisis' effects.

### *The Extent of Exchange Rate Intervention*

In previous estimations we have found no effects of the *de jure* exchange rate regime; however, the extent of intervention is a factual proxy for flexibility. To analyze whether the extent of international reserve utilization could have reduced the cost of the crisis, we include the change in the extent of intervention during both crises, measured as the difference between the level of reserves at the beginning of the crisis and the minimum during it.

Countries may have intervened to compensate for a sudden stop of foreign capital, mitigating the financial effects of a reduction in foreign financing, or avoiding a depreciation of their currency due to the fear of floating. We are aware of potential endogeneity problems. This could be more relevant if our dependent variable was, for example, currency crisis. Since we look at growth in a five-year period, we think this problem is not serious.

The results for the two samples of countries are presented in Table 4. In contrast with what could have been expected if reserves were used as insurance for a decline in foreign inflows, our findings indicate that the extent of intervention is negative and significantly related with differences in economic performance in both crises. This evidence suggests that foreign exchange intervention was contractionary. Within the sample of EMEs, there is not a significant relationship between economic growth and intervention; most of them became floaters over time.

Exchange rate flexibility turns out not to be significant for all samples. This suggests that reserve intervention would be a proxy for the *de facto* exchange rate regime. Reserve utilization that limits exchange rate adjustments would not be an appropriate method to reduce the negative impact of the financial crisis and would not contribute to resilience. This result supports the idea that letting the exchange rate to adjust increases resilience, but says nothing about intervention in the other direction, which could blur the definition and potential effects of the exchange rate regime. Indeed, the results are silent regarding reserves accumulation when facing an appreciation. This is consistent with the fact that the level of reserves is not significant in our regressions. In contrast, other variables such as trade and financial openness and the extent of interest rate cuts remain significant and have the same signs as in the baseline regressions.

### *Additional Robustness Checks*

We have made several robustness checks for our results.<sup>13</sup> There are two main concerns that need to be addressed. First, differences in economic performance

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<sup>13</sup>Owing to space considerations, we discuss only the main findings from these additional estimations, but a complete Appendix with the corresponding tables is available in the working paper version of this paper, (Alvarez and De Gregorio, 2014).

UNDERSTANDING DIFFERENCES IN GROWTH PERFORMANCE

**Table 4. International Reserves Intervention**

Variables	DECs		EMEs	
	Multivariate	Only significant	Multivariate	Only significant
Res. Intervention	-0.132** (0.0500)	-0.131*** (0.0381)	-0.0325 (0.0903)	
Inflation	-0.00134 (0.000974)		-0.00338 (0.00212)	-0.00518*** (0.00128)
ER Regime	0.111 (0.119)		0.117 (0.143)	
Public Debt	0.0138 (0.00977)		0.0447 (0.0276)	0.0688*** (0.0213)
Private Credit	-0.00900 (0.0118)		-0.0353* (0.0193)	-0.0333** (0.0126)
Trade Openness	0.0302* (0.0153)	0.0388*** (0.0138)	0.0281 (0.0255)	
Cap. Account Openness	-0.404 (0.284)	-0.440*** (0.0943)	-1.594** (0.736)	-1.457* (0.707)
Public Expenditure	-0.0671 (0.0550)	-0.0793* (0.0451)	0.0493 (0.0958)	
Interest Rate	-0.143*** (0.0225)	-0.132*** (0.0185)	-0.117** (0.0432)	-0.104** (0.0465)
Terms of Trade	1.377 (0.959)		1.583 (1.644)	1.574* (0.852)
ECA	-4.702*** (1.393)	-3.935*** (0.685)	-2.761 (1.857)	-3.493* (1.733)
LAC	-1.879 (1.323)		0.450 (2.143)	
MENA	-2.272* (1.320)	-1.168* (0.639)	-0.641 (1.480)	
SA	-0.203 (1.243)		1.255 (1.190)	
SSA	-1.107 (1.386)		0.790 (1.732)	
WE	-0.526 (1.680)			
Constant	1.508 (1.138)	0.358 (0.430)	0.429 (1.069)	1.357** (0.602)
Observations	91	91	31	31
R <sup>2</sup>	0.545	0.488	0.841	0.794

The dependent variable in all the tables is the difference in the economic growth rate between the recent global financial crisis (2008–12) and the Asian crisis (1998–2002).

Robust standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

ECA = Developing Europe and Central Asia, LAC = Latina America and the Caribbean, MENA = Middle East and Northern Africa, NA = North America, SA = Southern Asia, SSA = Sub-Saharan Africa, and WE: Western Europe.



between crises could be partly due to the improved banking regulation and supervision system, better legal systems, and more transparency. In such cases, institutional factors can be used to explain the differences among countries, and their effects would be potentially captured by other variables, for example the extent of leverage, when these factors are not included.

Second, it can be argued that differences in economic growth during both crises could be simply driven by difference in growth rates before the crisis. Therefore, the better performance of these countries during the recent crisis could simply reflect a bounce back to precrisis growth trends.

To deal with both concerns, we have included two additional variables in our regressions. In the first case, we control for institutional changes by considering an available and well-known indicator of institutional quality provided by the International Country Risk Guide.<sup>14</sup> Following Chong and Gradstein (2007), we take the average of the most commonly used institutional dimensions; (i) government stability, (ii) law and order, (iii) corruption, (iv) democratic accountability, and (v) bureaucracy quality. As with the other variables, we introduce this as the difference before both crises. Similarly, to address the second concern, we introduce precrisis growth as the GDP growth average in the three-year period before each crisis and include the difference of this variable in our regressions.

The estimations show that both variables are not statically significant and their inclusion does not change the main results. There are some differences when we include institutional change in terms of private credit, but trade openness and interest rate reductions are still robustly associated with differences in economic performance. This allows us to conclude that our results are not driven by institutional improvements after the Asian crisis or by previous differences in economic growth.

We explore also the robustness of our results to a different definition of precrisis variables. Instead of using a single year before them, we take the average of the three-year period before each crisis. For the sample of DECs, there are some changes. Higher capital account openness appears to be negatively and significantly associated with economic growth in the sample of DECs, something we only found before for EMEs. In contrast, we find robust evidence that lower private credit, greater trade openness, lower interest rates, and dependence on commodities are positively associated with economic growth. For the sample of EMEs, there also some changes, but we find robust evidence of a positive association between interest rate reductions and economic growth. We also confirm that commodity exporters experienced a better economic performance during the recent crisis.

We have also included interactions between fiscal positions before the crises, using fiscal deficit and the procyclicality index and the dummy for commodity exporters to analyze whether the effect of the commodity boom was more or less important for countries with better fiscal positions. We find that the interaction terms were not significant for both samples.

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<sup>14</sup>Unfortunately, direct measures of banking regulation and supervision as reported by Barth, Gerard, and Levine (2004) are not available for the period before the Asian crisis.

### III. Latin America Now and Then

In this section we look more closely at economic performance in Latin America in light of our findings. Specifically we look at policy responses and the external environment of Brazil, Chile, Colombia, Mexico, and Peru during both crises.<sup>15</sup>

As we have discussed throughout this paper, economic performance in Latin America was much better during the recent crisis compared with previous ones. Figure 1 shows the remarkable differences. At a country level, in 2012, output in Brazil, Chile, Colombia, and Peru were 11, 17, 17, and 25 percent, respectively, above their 2008 GDP levels. These figures are significantly lower for the Asian crisis. In 2002, GDP in Brazil, Chile, Colombia, and Peru, were only 9, 10, 3, and 9 percent above 1998's levels. By all accounts, economic performance was much worse during the Asian crisis than the global financial one. Only Mexico, which was under very different external conditions due to its exposure to the U.S. economy, had similar performance for both episodes. Additionally, Mexico in the late 1990s was robustly coming out from the Tequila crisis and enjoying the benefits of signing NAFTA in early 1994. In contrast and as documented below, Mexico did not enjoy a surge in terms of trade and it was negatively affected in the 2000s by the accession of China to the WTO and competition in U.S. markets. In the following we discuss some of the more relevant differences in both episodes regarding specific policy variables.

#### Exchange Rates and Monetary Policy

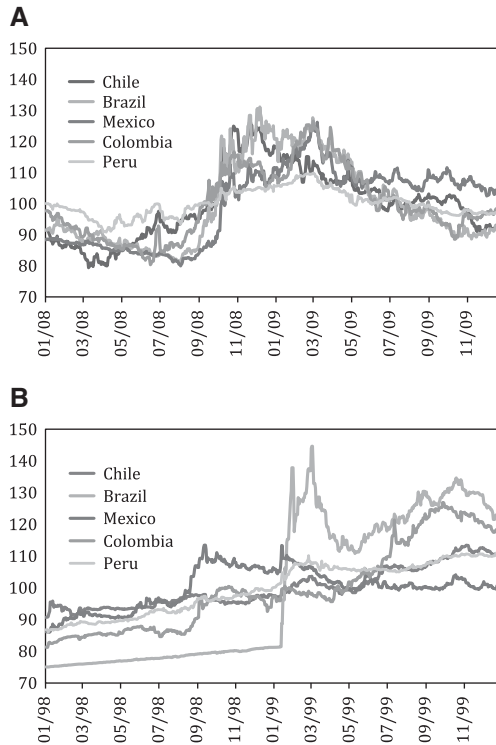
At the core of Latin America's poor past performance are the rigidities of the exchange rate regime. These rigidities subordinated monetary policy to the exchange rate. They also needed to be supported by exchange rate intervention. Figure 3 presents the behavior of exchange rates during the global financial crisis (now, Panel a) and the Asian crisis (then, Panel b) for the five Latin American countries. We consider the whole periods 2008–09 and 1998–99 and set the average within-periods at 100. We use the same scale in both panels to have a convenient comparison of exchange rate evolutions in both episodes. These countries let their exchange rate fluctuate and to play the role of shock absorbers. Monetary policy, in turn, was significantly loosened. Peru is the only one that pursued more exchange rate stability, but over the whole period there were not any other significant differences.

During the global financial crisis currencies for Brazil, Chile, Colombia, and Mexico weakened about 60 percent. In the Asian crisis, only Brazil experienced a larger depreciation, but that was the result of a currency crisis that happened after authorities fiercely attempted to avoid an exchange rate adjustment. When comparing both panels, two observations are relevant. First of all, during the global financial crisis, currency fluctuations were highly synchronized, which reveals a common source of currency weakening and a common response. Despite some minor differences in policy responses, flexibility was the rule. The second

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<sup>15</sup>For further discussions of policies in Latin America during the global financial crisis, see De Gregorio (2014a).

**Figure 3. Exchange Rates (index, period average = 100) (A) Global Financial Crisis (B) Asian Crisis**



Source: Bloomberg.

observation is that during the Asian crisis, currency weakening was gradual, but finally the currencies adjusted. At the end of the periods, exchange rates were more depreciated in the Asian crisis than in the global financial one, with the exception of Mexico. This was the result of significant terms-of-trade decline after the Asian crisis, and the need for currency realignment despite the intentions of central banks and governments.

During the Asian crisis, there was significant fear of floating (Calvo and Reinhart, 2002). The causes for this fear were twofold. First, there was a serious concern about the impact of a currency weakening on inflation. It was thought that allowing the exchange rate to depreciate would lead to high inflation. Secondly, there was the fear that severe currency mismatches in the banking and corporate sectors could lead to severe financial distress, as was the case in the past. The recent experience with the global financial crisis shows that the two reasons for a fear of floating were overcome, and, most likely, this process started in the 1990s.<sup>16</sup>

Throughout the Asian crisis, the impact of currency depreciation on inflation was muted with the exception of Brazil. The downturn on economic activity dominated the evolution of prices, as in the other four countries, inflation was lower after the crisis. There was no reason to fear a large inflationary outburst. During the

global financial crisis, the adoption of flexible exchange rates contributed to limiting the pass-through of exchange rates into inflation and generated the space for monetary policy loosening. Indeed, flexible exchange rates are accompanied by less persistent currency adjustments, which would reduce the frequency of price adjustments, lowering the pass-through (Taylor, 2000). Moreover, in a low and credible inflation environment, the impact of the exchange rate on inflation would also decline. The evidence shows that exchange rate pass-through has declined in emerging market economies.<sup>17</sup>

On the financial front, Latin American financial systems were resilient to the large currency fluctuations in the recent crisis. Despite some problems with a few large corporations in Brazil and Mexico that were engaged in exchange rate speculation through the use of complex derivatives, the overall financial systems did not go through serious distress. All Latin American countries surveyed in IDB (2005) have regulations on currency mismatches in the banking system. Those regulations range from quantitative limits to currency exposure and implications for capital requirements. Regarding corporate risk, banking regulation requires internalizing the currency exposure risk of borrowers and has consequences on provision requirements. Kamil (2012) shows that after currencies started floating in Latin America, corporations' currency exposure declined significantly.

The differences in monetary policy between crises are remarkable. Interest rates were not only higher, but were also raised during the Asian crisis in order to avoid sharp depreciations. In contrast, monetary loosening was the rule during the global financial crisis. Monetary policy was used as a countercyclical tool thanks to the success in containing inflation and the implementation of credible inflation target regimes.<sup>18</sup> Colombia and Mexico had inflation rates over 15 percent a year before the Asian crisis. In contrast, the five countries entered the global financial crisis with single digit inflation. It is important to recall this happened in a much more challenging period since commodity prices experienced a significant boom starting in the mid-2000s. In particular, the increase in food prices had consequences on inflation in most emerging markets, as the economies were growing strongly and yet simultaneously facing an inflationary shock.

The evolution of monetary policy in both periods is presented in Figure 4. The figure is similar to that of exchange rates. We normalize the monetary policy interest rates to 100 for the period average and present them in the same scale. However it has to be noted that their levels were much lower in the recent crisis.<sup>19</sup>

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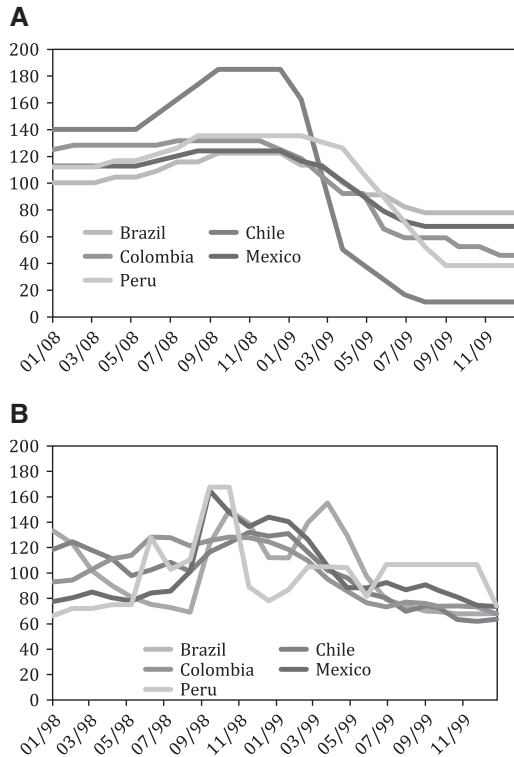
<sup>16</sup>In the case of Chile, post-Asian crisis evidence shows that already in the late 1990s, Chilean corporations, and of course banks, had very limited exchange rate exposure. Hence a sharp depreciation would not have entailed financial problems (Herrera and Valdés, 2005).

<sup>17</sup>See, for EMEs, Mihaljek and Klau (2008). For the case of Latin America Ghosh (2013) and De la Torre, Levy Yeyati, and Pienknagura (2013) report significant declines in pass-through.

<sup>18</sup>Vegh and Vuletin (2013) have shown that indeed "average" Latin American countries have graduated in terms of fiscal and monetary policy, since they were no longer procyclical during the recent crisis.

<sup>19</sup>The actual range of panel (a) goes from 0 to 16 percent, while the scale for panel (b) goes from 0 to 50 percent. Therefore in terms of percentage points, fluctuations were much sharper and volatile

**Figure 4. Monetary Policy (*index, period average = 100*)  
(A) Global Financial Crisis (B) Asian Crisis**



Source: Bloomberg.

As the figure shows most of the loosening started in early 2009, somewhat later than the loosening trend seen in advanced economies. This may be because Latin American economies were still struggling with the sharp inflationary shocks stemming from commodity prices. In most countries, monetary policy was being tightened until late 2008 as inflation was rising. Then all countries sharply loosened monetary policy as the crisis deepened and inflation pressures abated.

Colombia started this trend with a 50bp rate cut in December 2008 followed by Brazil, Chile, and Mexico in January 2009 and Peru in February. The cuts were rapid and intense. The minimum was reached in Chile with the monetary policy rate at 0.5 percent in July 2009. As economies recovered, gradual tightening started for all countries but Mexico in early 2010.

During the global financial crisis not only was monetary policy loosened, but also measures to alleviate short-term financial tightening were implemented in

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during the Asian crisis. Comparisons on a country-by-country basis for a number of relevant variables are available in the Appendix of the working paper version (Alvarez and De Gregorio, 2014).

most of the countries through significant repo operations.<sup>20</sup> Brazil, Chile, Mexico, and Peru broadened the range of collateral for open market operations to improve access to liquidity facilities and to align interbank rates with monetary policy rates. Brazil, Peru, and Colombia lowered reserve requirements. Chile implemented a longer-term liquidity facility to signal its commitment to low rates for a prolonged period of time.

The response of monetary policy helps to explain why the region's economic performance was worse in the 1990s and explains part of the difference in economic performance in the late 1990s between Asian and Latin American countries (De Gregorio and Lee, 2004).<sup>21</sup> Even though both crises had an external causes, the policy responses during the Asian crisis specifically the subordination of monetary policy to an objective of exchange rate stability, aggravated its domestic consequences.

### **The Role of International Reserves**

Another tool used to contain the depreciation during the Asian crisis was exchange rate intervention. Figure 5 presents the evolution of reserves in both episodes. During the Asian crisis Brazil, Chile, Colombia, and Peru intervened in the foreign exchange market, and by the end of 1999 they had fewer reserves than at the beginning of 1998. Only Mexico, which was recovering from its own 1994 financial crisis, did not intervene as heavily since it was in a process of building up its international reserves position.

Before the global financial crisis the same four countries were steadily accumulating reserves. As currency tensions intensified, this process was interrupted. Some reserves declines even took place in the last quarter of 2008, but the process of accumulation resumed. Brazil and Mexico intervened to stabilize their currencies after some corporations had serious financial problems due to their large exposure to currency risk. However, as shown before, the behavior of the Brazilian Real and the Mexican Peso were not very different than the behavior of the Chilean and Colombian pesos. Thus, intervention was mostly effective in providing international liquidity, but it did not fundamentally change exchange rate trends.

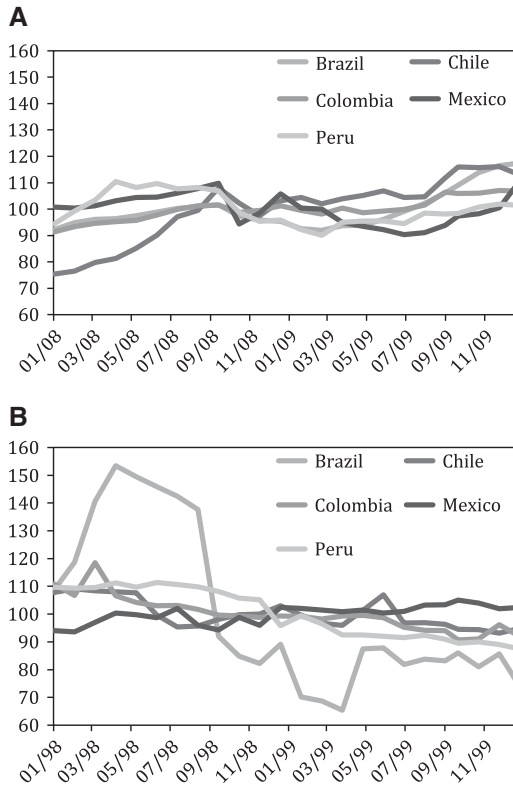
The fear of a sudden stop and severe tightening of financial conditions in emerging markets led several central banks to implement special measures to provide international liquidity without using intervention. In late October 2008 the central banks of Brazil, and Mexico (along with South Korea and Singapore) established liquidity swap lines with the Federal Reserve, amounting to U.S.\$ 30 billion per country, in order to alleviate strains in global short-term funding markets. Additionally, Brazil and Chile implemented swap operations in their foreign exchange markets. Peru reduced its reserve requirement on dollar deposits. Direct

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<sup>20</sup>For more discussion on this measures see Jara, Moreno, and Tover (2009).

<sup>21</sup>See also Corbo and Schmidt-Hebbel (2013) who claim, "the 1998–1999 recession was largely homemade, while the 2008–2009 recession was significantly caused by the global financial crisis and the world recession."

**Figure 5. International Reserves (index, period average = 100)**  
**(A) Global Financial Crisis (B) Asian Crisis**



Source: IFS.

intervention was limited, but reserves supported the creation of special liquidity facilities in dollars. These measures reduced tensions in the most complicated times of the crisis, but they were generally not effectively used.

Despite high levels of reserves in Latin American countries at the beginning of the global financial crisis, these reserves were not largely used, as they were in the Asian crisis. As our econometric evidence shows, allowing exchange rate depreciation without massive intervention in the foreign exchange market helps to explain the success of Latin America in the latest crisis.

After the intensity of the crisis declined, the reserve accumulation process resumed. This raises the issue of the role of international reserves. International reserves are accumulated for insurance and mercantilist reasons (Aizenman and Lee, 2007). The insurance aspect is building a buffer of foreign exchange liquidity in order to face sharp falls in capital inflows. In turn, the mercantilist aspect is foreign exchange intervention used to contain appreciation and promote exports.

Evidence from the global financial crisis indicates that credit constraints were not that severe for this group of countries. It also supports the mercantilist motive in the years previous to the crisis. The rise in terms of trade strengthened currencies

in many emerging market economies. The most common policy response among commodity exporters was to intervene in the foreign exchange market to protect noncommodity, exportable sectors.

However, having high reserve levels and not using them does not rule out the role of insurance. When foreign creditors see a large level of foreign exchange reserves, they will be more reluctant to withdraw international financing and speculate against that currency.

According to some econometric evidence, the economies that had higher reserves were better prepared to weather the crisis. In fact, Frankel and Saravelos (2010), Gourinchas and Obstfeld (2012), and Dominguez, Hashimoto, and Ito (2012) find that countries with higher reserves suffered less during the global financial crisis and also had a lower probability of facing a national financial crisis. By contrast, Rose and Spiegel (2011) and the evidence in the previous section do not find significant effects. However, econometric evidence at cross-country reserve levels, as discussed in the previous section, could be masked by the fact that most countries may have had reserves that were above reasonable adequacy levels for insurance reasons, since mercantilist motives also led to increase in reserves. Therefore, linear regressions cannot take into account “excess” reserves, which may vary significantly across countries. Perhaps, robust results could be obtained using panel data such as those in Gourinchas and Obstfeld (2012) or using some nonlinear technique devised to analyze this specific case.

### **Fiscal Policy, Financial Markets, and the External Environment**

Regarding fiscal policy and terms of trade, in Figure 6, we compare the evolution of government expenditure and the terms of trade in both crises in a 7-year window. The year “0” is 1999 for the Asian crisis and 2009 for the global financial one. The left panel is the evolution of government expenditure and the right panel, terms of trade. They are indices normalized to 100 for the average of 1989–2011; thus we are not only able to examine their evolution, but also the differences in levels across both crises.

On the fiscal front, all countries expanded government expenditure during the global financial crisis.<sup>22</sup> Brazil, Colombia, and Mexico ran neutral or contradictory policies during the Asian financial crisis. This contrast with fiscal policies during the global crisis is noteworthy.

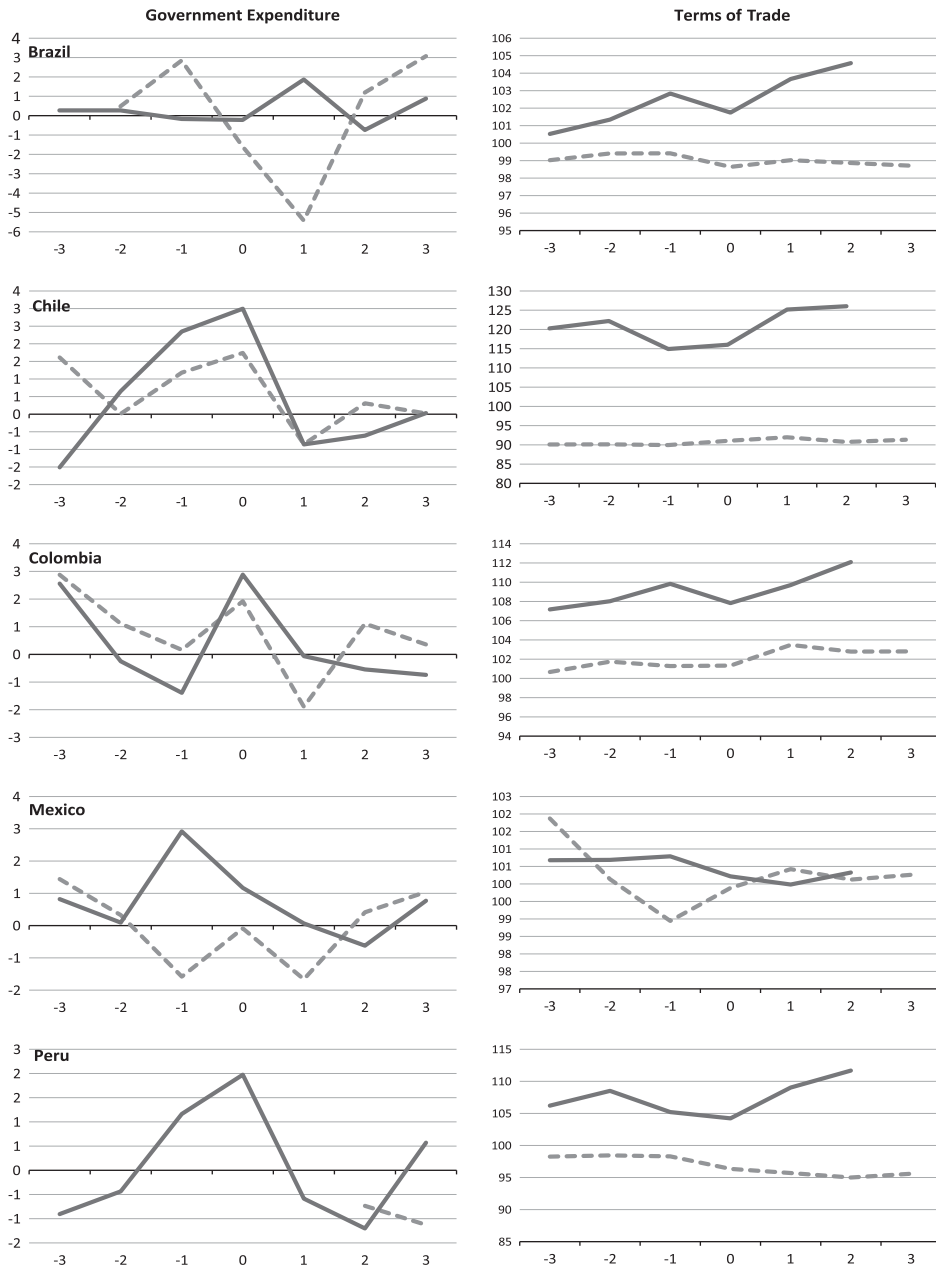
Expansions at different degrees were applied during the global financial crisis. Frankel, Vegh, and Vuletin (2013), looking at the cyclicity of fiscal policies, show that Brazil, Chile, and Mexico changed their fiscal policies from procyclical during the 1990s to countercyclical in the 2000s. Similarly, Céspedes and Velasco (2013) show that the elasticity of the fiscal balance to commodity prices has increased over time for Brazil, Chile, Colombia, and Mexico, which is also an indication that fiscal policy has become less expansionary with increasing commodity prices.

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<sup>22</sup>Peru is the only country for which we do not have complete data for government expenditure.



Figure 6. Government Expenditure (left panel) and Term of Trade (right panel)

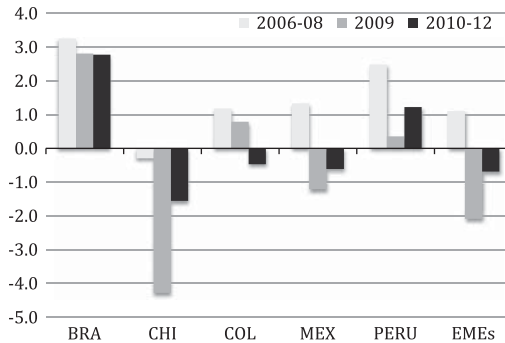


Sources: IMF-WEO and IFS.

Notes: Dotted line: Asian crisis; continuous line: Global financial crisis.

The figures show these expansions by looking at the increase in government expenditure. Considering the cyclically adjusted fiscal balance, which is only available for the recent crisis, can provide a better assessment. Figure 7 shows the

**Figure 7. General Government Cyclically Adjusted Primary Balance  
(Percent of Potential GDP)**



Source: IMF, *Fiscal Monitor*.

Notes: BRA = Brazil, CHI = Chile, COL = Colombia, MEX = Mexico, PERU = Peru, EMEs = Emerging Market Economies

cyclically adjusted primary balance for our country group and the aggregation for emerging market economies for the latest episode.

All countries reduced the cyclically adjusted primary balances. However, the withdrawal of fiscal stimulus since then has been rather incomplete. Brazil has kept the same fiscal stance, while Colombia has further increased the primary deficit. Chile, Mexico, and Peru have only partially withdrawn their fiscal stimulus. Public finances were in a stronger position before the crisis. The patterns for emerging market economies have been similar: a strong fiscal expansion in 2009, but only a partial withdrawal afterwards. They reveal a “fiscal stickiness.” This can be gauged from Figure 6 since expenditure expansions were not reversed with similar strength.

Fiscal-stickiness may be due to a number of reasons. The first is that around the time of the crisis, countries were implementing permanent fiscal expansions by increasing social expenditure, and so on. Also, stickiness may be the result of constraints to reduce expenditures that were supposed to be transitory. Regardless of the country-by-country explanation, fiscal stickiness seems to be quite usual among emerging markets. The policy lesson is that the active use of fiscal policy as a countercyclical tool has some limits, and over time the policy could fall if it is used recurrently. This behavior may also be behind the weakness of our econometric results regarding fiscal policy. Perhaps, looking at the time-series behavior of fiscal policies and economic activity may provide a better assessment, as done in Chari and Blair Henry (2013).

The good international environment Latin America has enjoyed in recent years is more clearly revealed by the high terms of trade. Good terms of trade were central to the resilience of Latin American economies. As seen in Figure 6, the only exception was Mexico, a country that not only lacked a terms-of-trade boom, but also suffered competition from China in its main export market, the United States.

However, Mexico was also able to run expansionary macroeconomic policies during the crisis.<sup>23</sup>

As most countries are commodity producers, the commodity boom represented a significant income windfall. In most Latin American countries, terms of trade declined in 2009, but then recovered and kept growing. This was a very positive development, as it indicates that despite the serious economic crisis in the advanced world, international conditions faced by Latin American economies were sanguine.

In addition, low international interest rates added to the good international environment for Latin American, as most advanced economies aggressively pursued expansionary monetary policies, not only reaching the zero lower bound but also implementing nonconventional monetary expansions.

Latin American countries have gone through a number of credit booms and financial crisis. This was particularly the case during the debt crisis in the 1980s. However, during the global financial crisis, Latin America had a much more prudent behavior compared with other regions. Emerging markets, with the exception of the European ones, did not have credit booms before the global financial crisis, which helped to contain the negative effects from the most recent crisis.<sup>24</sup>

#### IV. Conclusions

Five years after the worst global crisis since the Great Depression, most emerging and developing countries have fully recovered, perhaps with the exception of some countries in emerging Europe. Today the policy concerns of most emerging markets economies are how to manage a slowdown and foster long-term growth, but the resilience of many of them during the crisis has been unprecedented.

This is clearly the case in Latin America, where past international crises were often magnified by policy mismanagement. We can see this during the Asian crisis, where the shocks stemming from Asia and Russia were faced with macroeconomic policy tightening and unrealistic exchange rate policies. This led to currency crises and financial vulnerabilities that caused, for example, the first financial crisis in Colombia. The performance of Latin America during the Asian crisis was much worse than the performance of the Asian countries themselves.

As we discuss in this paper, the policy responses during the global financial crisis were quite different. There were significant monetary and fiscal expansions. Exchange rates were allowed to float, and financial systems were resilient. However, the international environment was sanguine and facilitated the recovery. High terms of trade and low foreign interest rates further benefited economic activity.

We econometrically analyzed the factors underlying differences in economic performance in the global financial crisis compared with the Asian one. We conducted first-difference estimation for a cross section of countries, and examined

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<sup>23</sup>In Mexico government revenues depend strongly on oil revenues. Therefore, despite the country did not enjoy terms-of-trade gains, public finances received a boost.

<sup>24</sup>For discussion of the evidence as well as prudential policies, see Tovar, Garcia-Escribano, and Vera Martin (2012) and De Gregorio (2014a, chapter 4).

a broad sample of emerging and developing countries and then looked at a subgroup of emerging market economies.

By examining a large number of variables, we found that the most robust results, across samples and specifications, are that better performance is positively associated with greater exchange rate flexibility, lower private credit growth, and monetary policy loosening, and is negatively associated with more financial openness. The effect of the exchange rate regime is insignificant, but the extent of exchange rate intervention negatively affected performance in the broad sample of EDCs. It is difficult to classify exchange rate regimes, but the extent of intervention is a *de facto* indicator of rigidity. Previous to the crisis, most Latin American countries intervened when their currencies were appreciating. What our evidence suggests is that it is more helpful to let the exchange rate float when the pressures are for depreciation. Vulnerabilities arise when there is fear of depreciation.

Our main puzzling result is that our regressions show no effects of government expenditures. Endogeneity problems, lack of better indicators of fiscal impulse, and the dynamics of the partial withdraw of fiscal stimulus may mask the effects of fiscal expansions.

There is some evidence for “good luck” as an explanation of good performance but only for EMEs, particularly when countries are separated according to whether they are commodity exporters. There is also some evidence that increased trade openness helped to mitigate the effects of the crisis. Most of this econometric evidence is consistent with the particular analysis of the main Latin American countries’ performance during both crises.

We think that looking at economic performance in the five-year period during and after the crisis provides more information than just looking at the fall in output in the first few years. Cross-country regressions do not provide the final answer, but our results reinforce the idea that good macroeconomic policies are key to mitigating the effects of sharp negative global shocks. These policies are not enough to spur long-term growth, but provide resilience to avoid excessive dependence on external conditions.

## APPENDIX

Table A1. Data Source and Descriptive Statistics

Variable	Source	Obs	Mean	Std.		
				Dev.	Min	Max
GDP Growth	WEO	93	0.1	3.4	-7.9	8.6
International reserves/GDP	WEO	93	7.7	11.9	-30.7	64.6
Inflation rate	WEO	93	-15.3	109.4	-1053.6	12.9
Exchange rate regime	Reinhart & Rogoff <sup>a</sup>	93	-0.2	3.2	-11.0	9.0
Public debt/GDP	IMF <sup>b</sup>	93	-13.9	35.7	-163.7	66.9
Private credit/GDP	WDI	93	11.6	35.7	-53.9	243.4
Trade openness: (exports+imports)/GDP	WDI	93	13.7	22.6	-41.1	95.0
Financial openness: (ext. assets+ ext. liabilities)/GDP	Lane and Milesi Ferreti <sup>c</sup>	93	0.7	2.0	-1.4	12.3
Government expenditure/GDP	WEO	93	2.7	5.7	-12.2	19.4
Interest rate: discount or money market rate	IFS/IMF	93	-6.8	9.3	-55.4	4.4
Terms of trade: change in logs	WDI	93	0.1	0.4	-1.1	1.1

All variables are expressed in differences between the average of both crises.

WEO: Data from World Economic Outlook, IMF: International Monetary Fund, WDI: World Development Indicators, IFS/IMF: International Financial Statistics, International Monetary Fund.

<sup>a</sup>[www.carmenreinhard.com/user\\_uploads/ERA-Monthly%20fine%20class.xls](http://www.carmenreinhard.com/user_uploads/ERA-Monthly%20fine%20class.xls)

<sup>b</sup>[www.imf.org/external/pubs/ft/wp/2010/wp10245.pdf](http://www.imf.org/external/pubs/ft/wp/2010/wp10245.pdf)

<sup>c</sup>[www.philiplane.org/EWN.html](http://www.philiplane.org/EWN.html)

Table A2. Country List

Developing and Emerging Economies (Emerging Economies = 1)			
Albania	0	Lebanon	0
Algeria	0	Lesotho	0
Argentina	1	Macedonia, FYR	0
Azerbaijan	0	Madagascar	0
Bahrain	1	Malawi	0
Bangladesh	1	Malaysia	1
Belize	0	Maldives	0
Bolivia	0	Mali	0
Botswana	0	Mauritius	0
Brazil	1	Mexico	1
Bulgaria	1	Moldova	0
Burkina Faso	0	Mongolia	0
Burundi	0	Morocco	1
Cameroon	0	Nepal	0
Central African Republic	1	Nigeria	1
Chad	0	Pakistan	1
Chile	1	Panama	0
China	1	Papua New Guinea	0
Colombia	1	Paraguay	0
Congo, Rep.	0	Peru	1
Costa Rica	0	Philippines	1
Cote d'Ivoire	0	Poland	1

## UNDERSTANDING DIFFERENCES IN GROWTH PERFORMANCE

**Table A2:** (Continued)

Developing and Emerging Economies (Emerging Economies = 1)			
Croatia	0	Russian Federation	1
Cyprus	0	Saudi Arabia	0
Czech Republic	0	Senegal	0
Dominica	0	Singapore	0
Dominican Republic	0	Slovak Republic	0
Ecuador	0	Slovenia	0
Egypt, Arab Rep.	1	South Africa	1
El Salvador	0	Sri Lanka	0
Estonia	1	St. Kitts and Nevis	0
Gabon	0	St. Lucia	0
Georgia	0	Vincent and the Grenadines	0
Ghana	0	Swaziland	0
Hungary	1	Switzerland	0
Iceland	0	Tanzania	0
India	1	Thailand	1
Indonesia	1	Togo	0
Israel	0	Trinidad and Tobago	0
Jamaica	0	Tunisia	0
Jordan	0	Turkey	1
Kazakhstan	0	Uganda	0
Korea, Rep.	1	Ukraine	1
Kuwait	1	Uruguay	0
Kyrgyz Republic	0	Venezuela	1
Latvia	1	Zambia	0

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