Economic and Financial Linkages in the Western Hemisphere
Seminar organized by the Western Hemisphere Department
International Monetary Fund
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Booms and Busts in Latin America: The Role of External Factors

Alejandro Izquierdo, Randall Romero, and Ernesto Talvi

Presented at the Economic and Financial Linkages in the Western Hemisphere
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Outline

I. Introduction and Motivation

II. Estimation Strategy and Results

III. Putting the Model to Work: Growth Performance and Global Financial Risks

IV. Conclusions

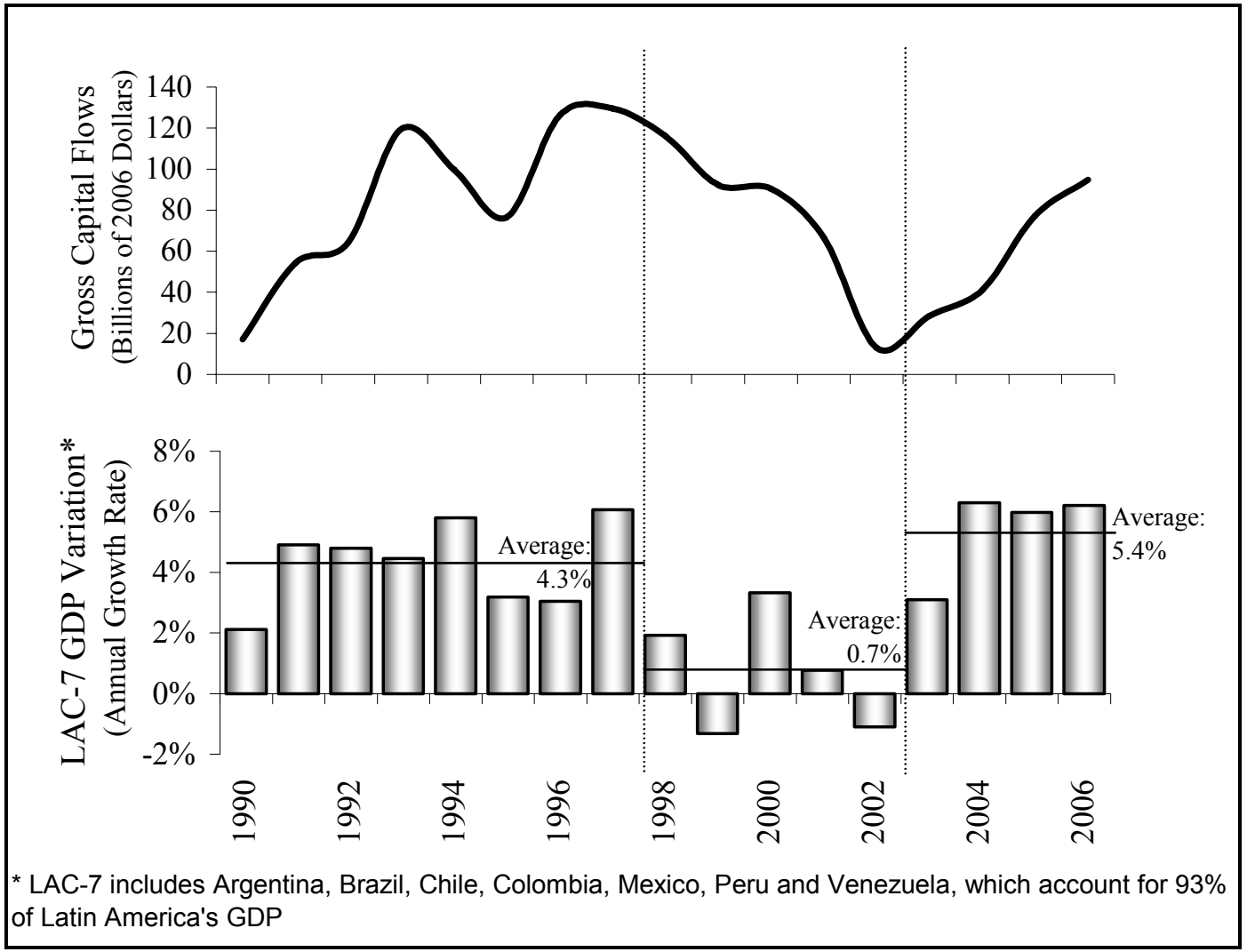
Introduction and Motivation

- Back in the early 1990s capital flows started to flow back to Latin America after the drought of the 1980s
- Result: Booming asset markets, real exchange appreciation, booming investment and strong growth performance
- This phenomenon was largely attributed to the wave of fundamental reforms the region was undertaking
- In the midst of the euphoria, Calvo, Leiderman and Reinhart (1993) warned that capital was flowing despite wide differences in macro policies and performance across countries in the region

Introduction and Motivation

- Their take: External factors, particularly financial shocks in the center were affecting the periphery (an idea stressed by Diaz-Alejandro (1983, 1984))
- Domestic reforms alone could not possibly explain the renewal of capital inflows to the region
- Their concern: What if external factors deteriorate just as easily as they had improved during the bonanza?

Gross Capital Flows and Economic Performance in Latin America: Dejá Vu all over Again?



* LAC-7 includes Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela, which account for 93% of Latin America's GDP

Aims of the Paper

Expand work in several directions:

- Rather than than focusing on capital flows and RER, we analyze the *relevance of external factors directly on output performance*
- We extend the menu of external factors to incorporate new developments in financial and commodity markets:
  - *A large international emerging bond market* (correlation between EM bond spreads and the US T-bond rate was 0.7 by end-1994 but –0.4 by end-2000)
  - *Sharp movements in terms of trade* due to the incorporation of Asia to world markets

Aims of the Paper

Use the empirical findings of this paper (which suggest that the region is still heavily exposed to external factors) to:

- Bring to the forefront the relevance of *incorporating external factors in policy evaluation analysis of Latin America*, i.e., in assessing the region's growth performance (counterfactual exercises)
- Highlight the need to *filter out external factors when assessing the strength or weakness of economic fundamentals*
- Assess the risks to the region posed by the possibility of an episode of *global financial turmoil resulting in a large re-pricing of risk*.

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Estimation Strategy

Departure point: Vector Error Correction Model (VECM) :

$$\Delta y_t = c + \alpha\beta' y_{t-1} + \Gamma\Delta y_{t-1} + ... + \Gamma_{p-1}\Delta y_{t-p+1} + \varepsilon_t$$

where

$$y_t = (gdp\_lat_t \quad ip\_x_t \quad tot\_lat_t \quad financ\_x_t \quad risk_t)'$$

gdp_lat:	(log of) Simple average of GDP indices of LAC7 countries
ip_x:	(log of) G7 industrial production index
tot_lat:	principal component weighted average of (the log of) terms of trade indices of LAC 7 countries
financ_x:	Return on 10 year US T-bonds
risk:	High-Yield Bonds Spread

Estimation Strategy

- We restrict dynamics (error-correction adjustments coefficients and short-run coefficients) so that average LAC7 GDP does not have an impact on external variables:

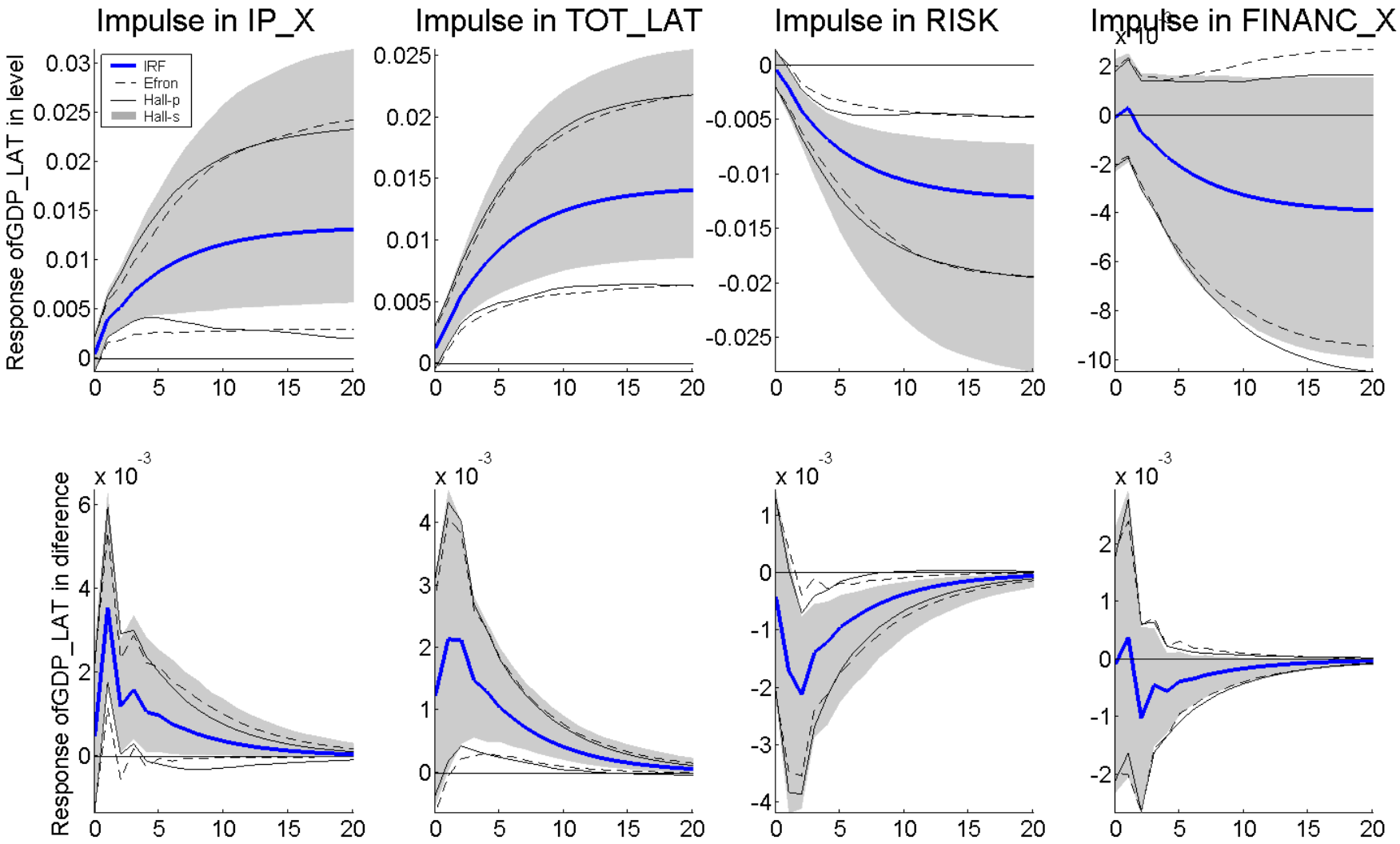
$$\alpha^{*} = \begin{pmatrix} \alpha_1 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix} \qquad \Gamma_j^{*} = \begin{pmatrix} \Gamma_{j,1,1} & \Gamma_{j,1,2} & \Gamma_{j,1,3} & \Gamma_{j,1,4} & \Gamma_{j,1,5} \\ 0 & \Gamma_{j,2,2} & \Gamma_{j,2,3} & \Gamma_{j,2,4} & \Gamma_{j,2,5} \\ 0 & \Gamma_{j,3,2} & \Gamma_{j,3,3} & \Gamma_{j,3,4} & \Gamma_{j,3,5} \\ 0 & \Gamma_{j,4,2} & \Gamma_{j,4,3} & \Gamma_{j,4,4} & \Gamma_{j,4,5} \\ 0 & \Gamma_{j,5,2} & \Gamma_{j,5,3} & \Gamma_{j,5,4} & \Gamma_{j,5,5} \end{pmatrix}$$

- We use standard tests to obtain optimal lag length
- We identify one cointegrating relationship

Results: Key Characteristics of the Model

- Cointegrating vector: Terms of trade and G7 industrial production affect LAC 7 GDP positively, while T-bond rate and High-yield bond spread affect it negatively (coefficients significant at one percent level)
- Error-correction adjustment coefficient is negative (model is stable) and significant at the one percent level
- This parsimonious representation based on external variables explains 54 percent of the variance of LAC7 GDP growth

Results: LAC7 GDP Response to Impulses in External Variables



Results: Elasticities

	Largest Impact on Quarterly Growth	Difference Between Shocked & Non-shocked GDP (after 20 periods)
1% increase in G7 Industrial Production	0.6%	2.2 points
1% increase in TOT	0.11%	0.74 points
100 bps increase in HY spread	-0.36%	-2.05 points
100 bps increase in T-bond rate	-0.33%	-1.25 points

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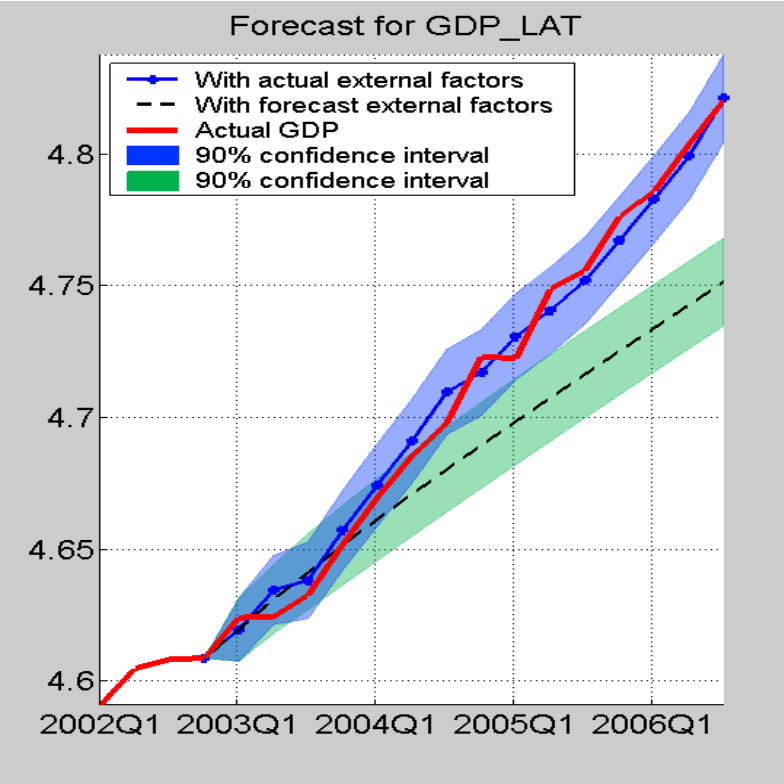
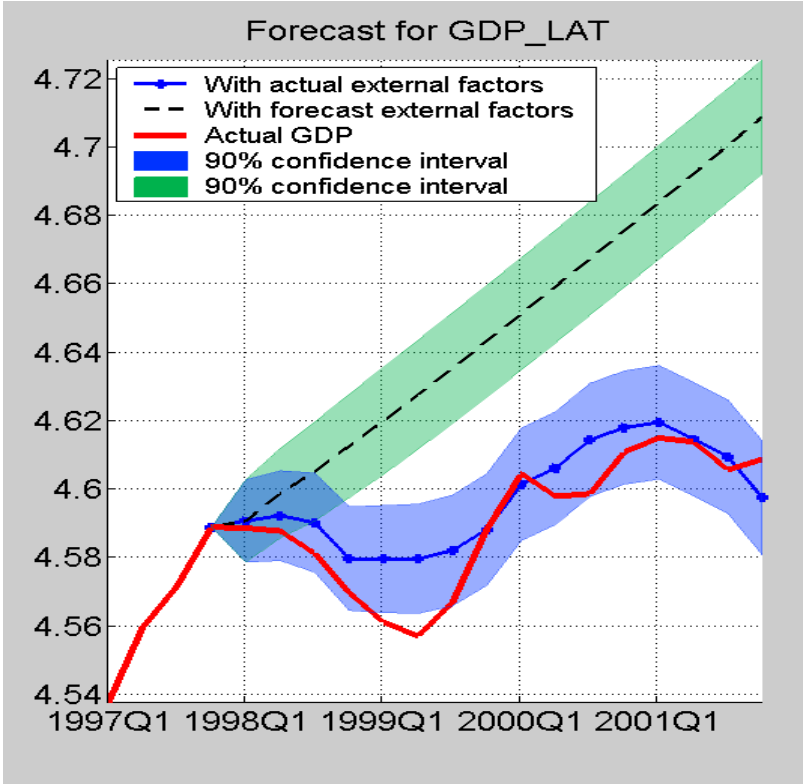
Growth Performance: GDP Forecasts Conditional on External Variables: Bonanza vs. Crisis

Bonanza



- Passive scenario – Average growth: 3.8%
- Actual average growth: 5.6%

Crisis

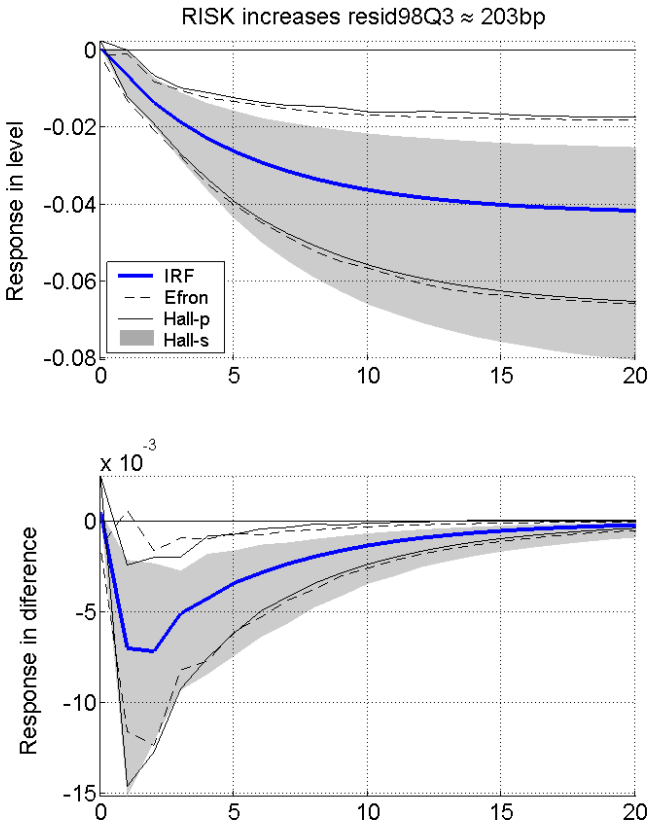


- Passive scenario – Average growth: 2.9%
- Actual average growth: 0.5%

Differences in the dynamics of external factors can account for large and significant differences in average growth performance.

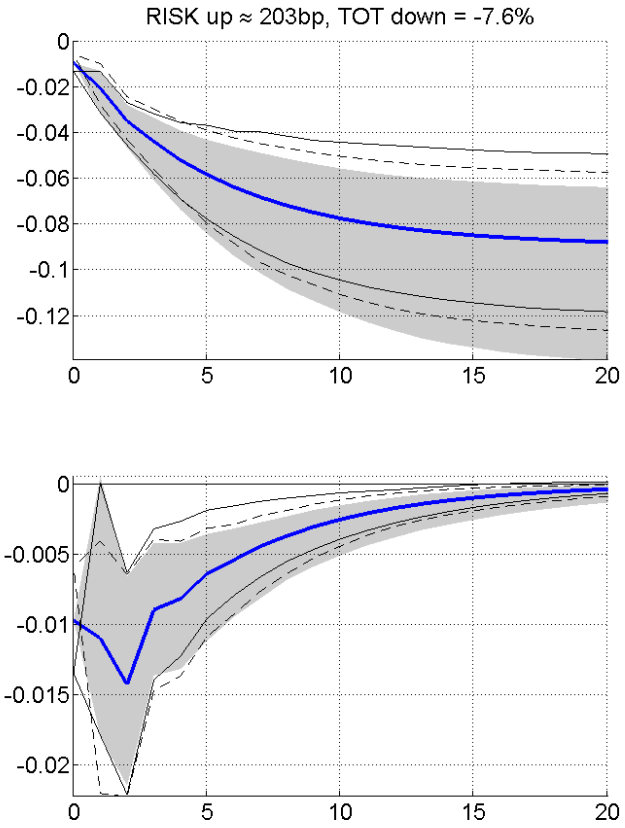
Latent Risks: Impact of Financial Turmoil on Growth Performance

Sudden Stop á la Russia



- Reduced form shock to HY spread in 1998:q3: 203bps (largest in sample)
- Highlights large and unexpected nature of SS

Sudden Stop cum TOT Deterioration



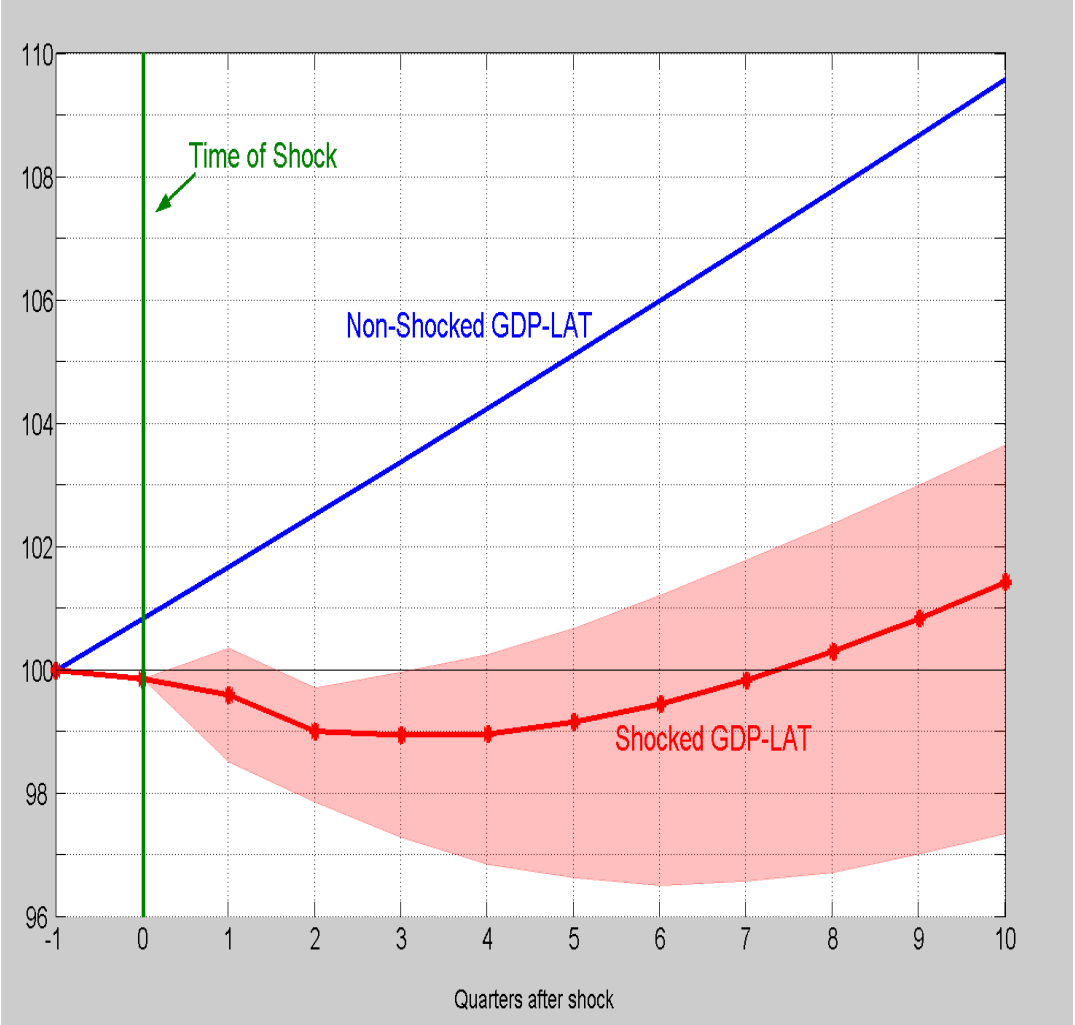
- In latest turmoil episodes, spread increases were accompanied by falls in commodity prices
- Likelihood of this event depends on impact of financial turmoil on global demand

Implications for GDP Levels

- GDP response in very much in line with recent evidence of fast bounce-back to pre-crisis levels following a Sudden Stop (Calvo et al (2006), but no convergence to pre-crisis trends (Cerra and Saxena (2005)
- Given that fluctuations in external conditions strongly affect the path of output, the evaluation of macroeconomic fundamentals should account for cycles in external conditions

Evolution of GDP Level Consistent with Impulse-Response

(Sudden Stop cum Terms of Trade Shock)



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Message I

- Differences in the dynamics of external factors can account for large and significant differences in growth performance
- Care should be exercised when passing judgment on the success or failure of domestic macro policies and reforms, i.e., judgment should not be made in a vacuum, but rather, by factoring in external conditions before signaling thumbs up—or down
- The region might be currently surfing on a wave of unjustified euphoria that is not necessarily a consequence of good policies, but the result of a string of good luck

Message II

- Given that external conditions strongly affect the path of output, actual levels of fundamentals such as the fiscal position, or the public debt could be completely misleading when the external environment is unusually favorable

- A proper assessment of structural fiscal balances and structural debt levels should account for cycles in external factors[1/]

- It is important to make the effort to incorporate these issues into the public debate and into performance indicators to avoid praising those lucky enough to ride the bonanza, and punish the unlucky, irrespective of their abilities

1/ See for example Izquierdo, Ottonello, and Talvi (forthcoming) "If Latin America were Chile: A Comment on Structural Fiscal Balances and Public Debt"

Message III

- Although we do not discuss this directly in the paper, it is crucial to distinguish between transitions that are a by-product of level effects and sustained growth
- The nature of the estimated model suggests that one time increases in commodity prices or reductions in interest rates spreads generate level effects on output, that may translate into relatively prolonged above-average growth phases given frictions implicitly captured by the error correction term
- However, these should not be interpreted as sustained growth

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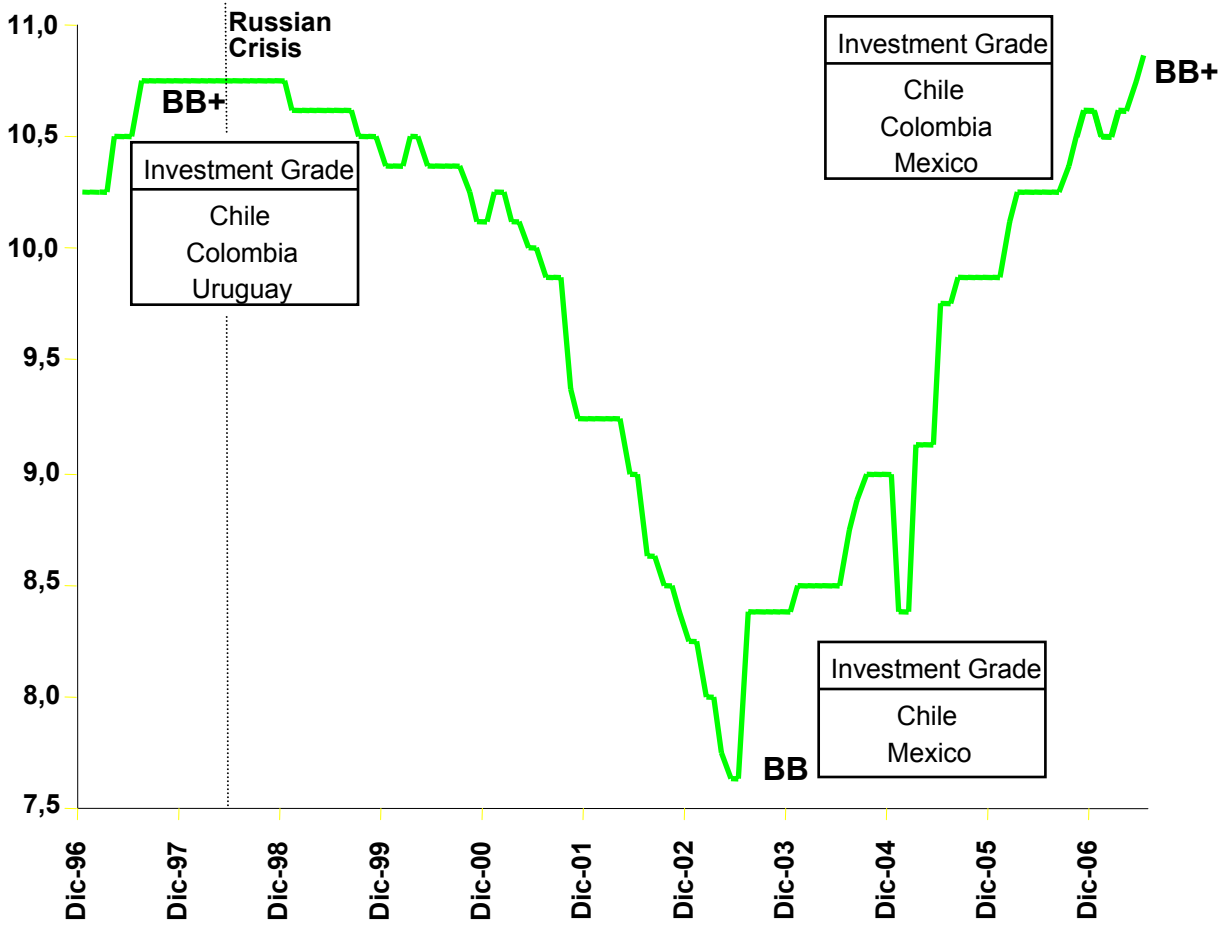
Credit Ratings Agencies Verdict

(LAC-9 excluding Ecuador, Standard & Poor´s Credit Ratings)

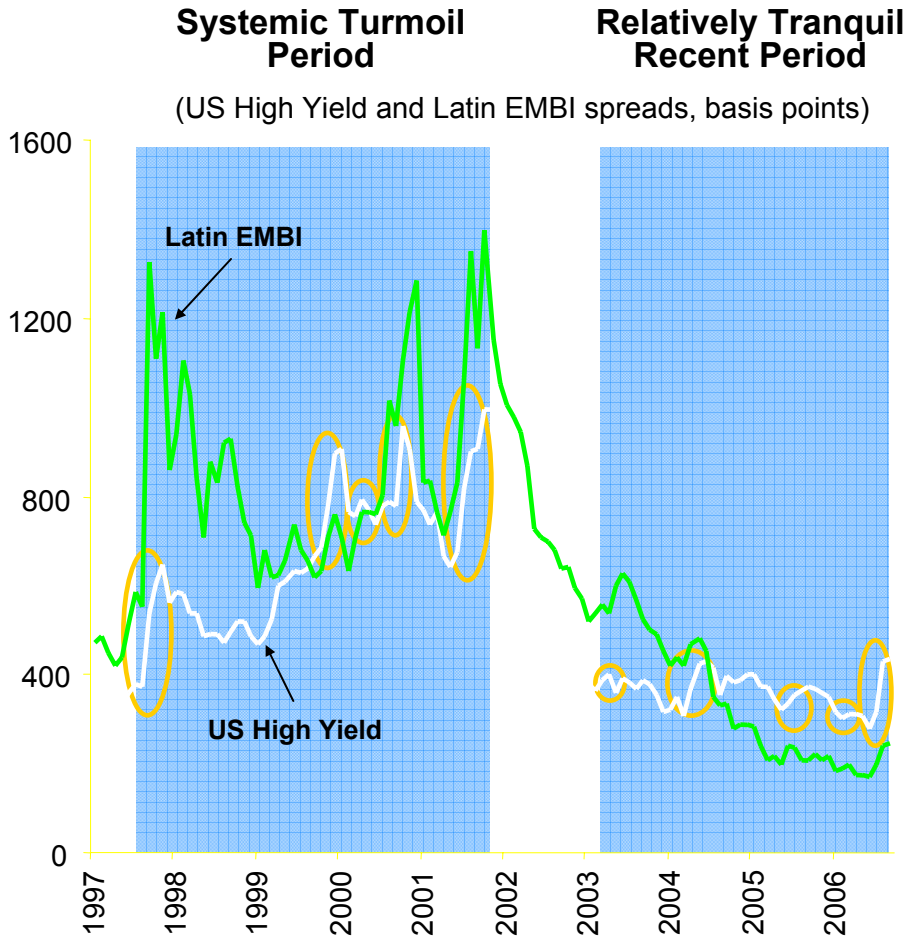


Numerical Transformation of Credit Ratings*

AAA	21	Investment Grade
AA+	20	
AA	19	
AA-	18	
A+	17	
A	16	
A-	15	
BBB+	14	
BBB	13	
BBB-	12	
BB+	11	
BB	10	
BB-	9	
B+	8	
B	7	
B-	6	
CCC+	5	
CCC	4	
CCC-	3	
CC	2	
SD	1	

*A. Powell and J.F. Martinez, (2007), "On Emerging Economy Spreads and Ratings" (forthcoming)

Let Prices Talk: EMBI Spreads Reaction to Spikes in US High Yield Spreads



(1) Dating	(2) Δ US HY Spread	(3) Δ LA EMBI Spread	(4) Naïve Beta (3) / (2)
3-Aug to 19-Oct-98	299	444	**1.5**
12-Sep to 15-Dec-00	139	109	**0.8**
7-Feb to 9-Apr-01	97	96	**1.0**
21-May to 4-Oct-01	218	430	**2.0**
10-May to 14-Oct-02	409	539	**1.3**
	Systemic Turmoil Period Average		**1.3**
19-Apr to 17-May-04	55	77	**1.4**
10-Mar to 18-May-05	158	80	**0.5**
10-May to 27-Jun-06	43	47	**1.1**
26-Feb to 7-Mar-07	30	20	**0.7**
23-Jul to 16-Aug-07	90	49	**0.5**
		Recent Period Average	**0.8**

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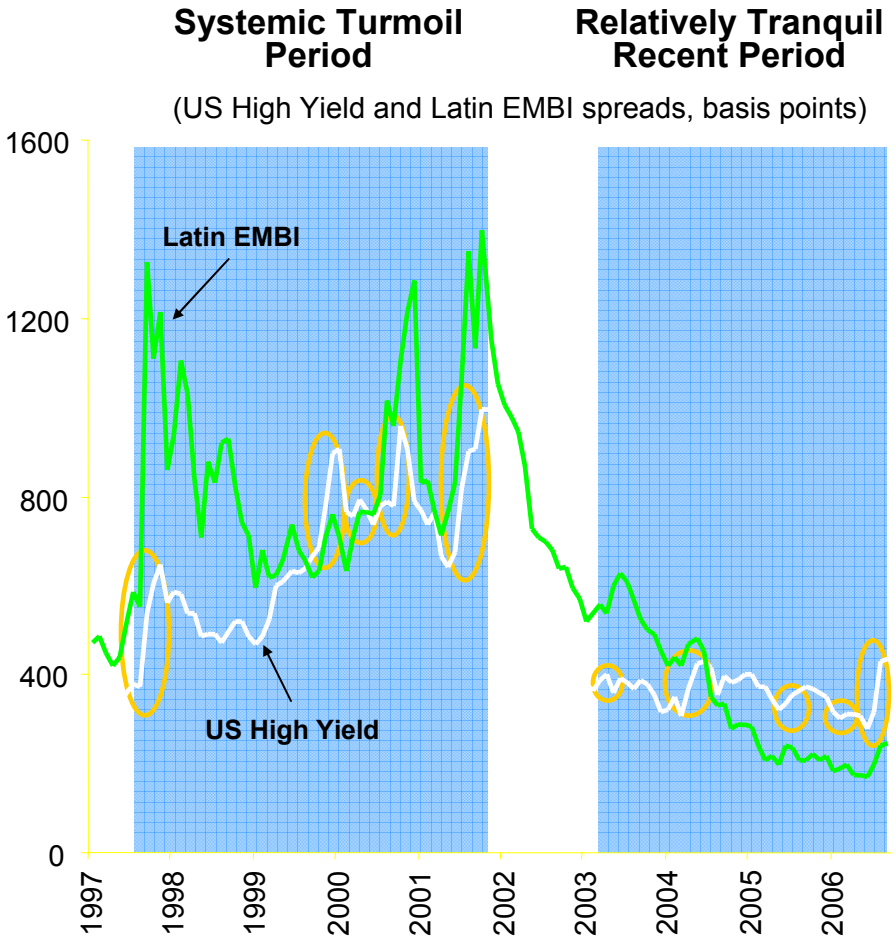
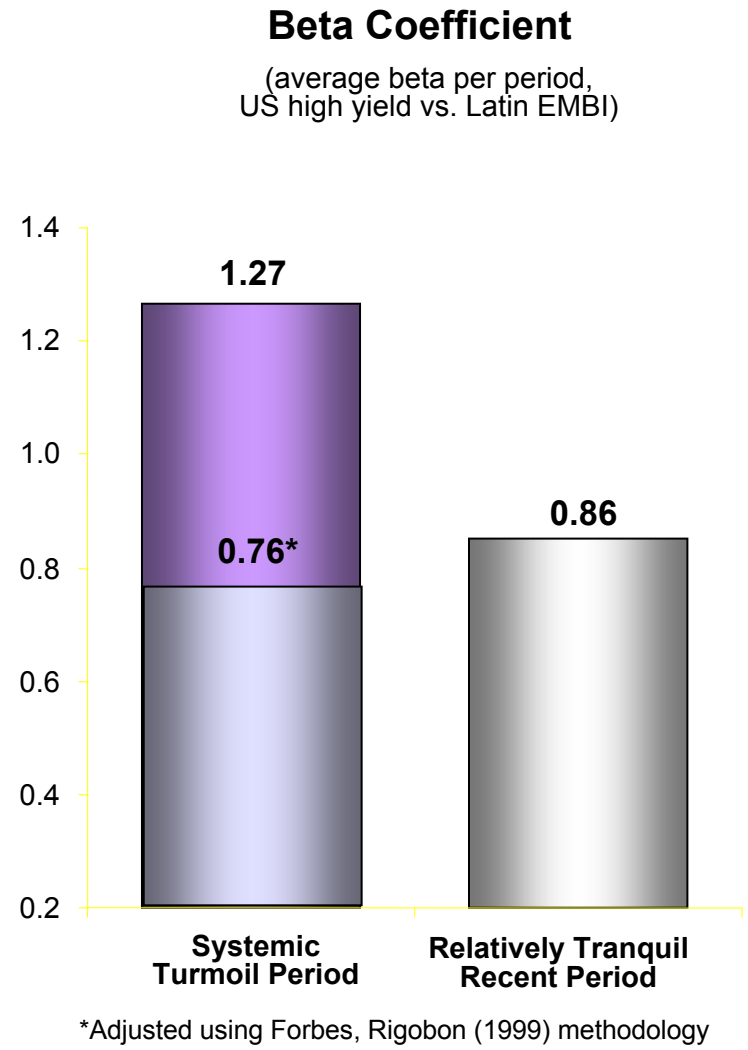
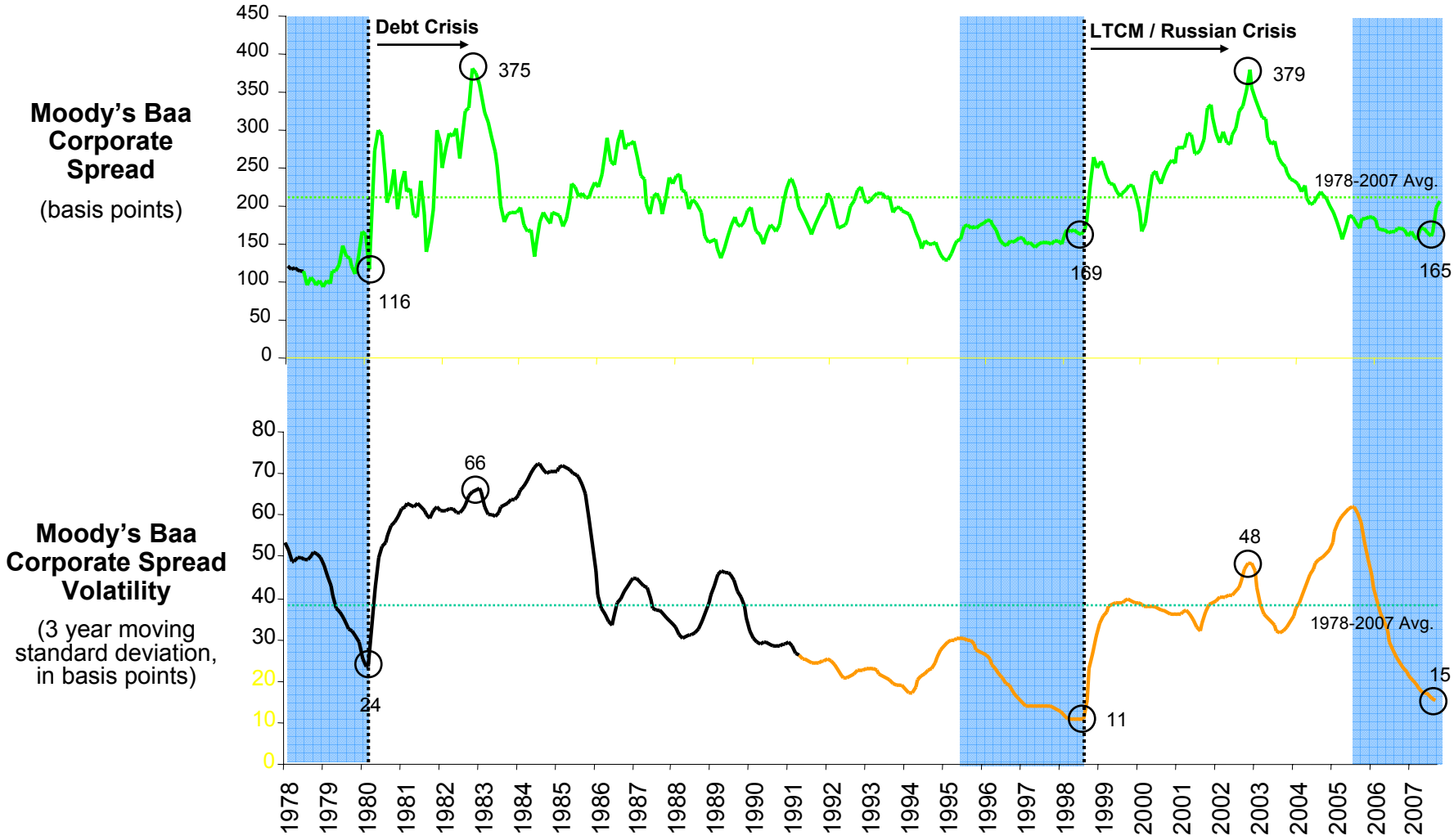


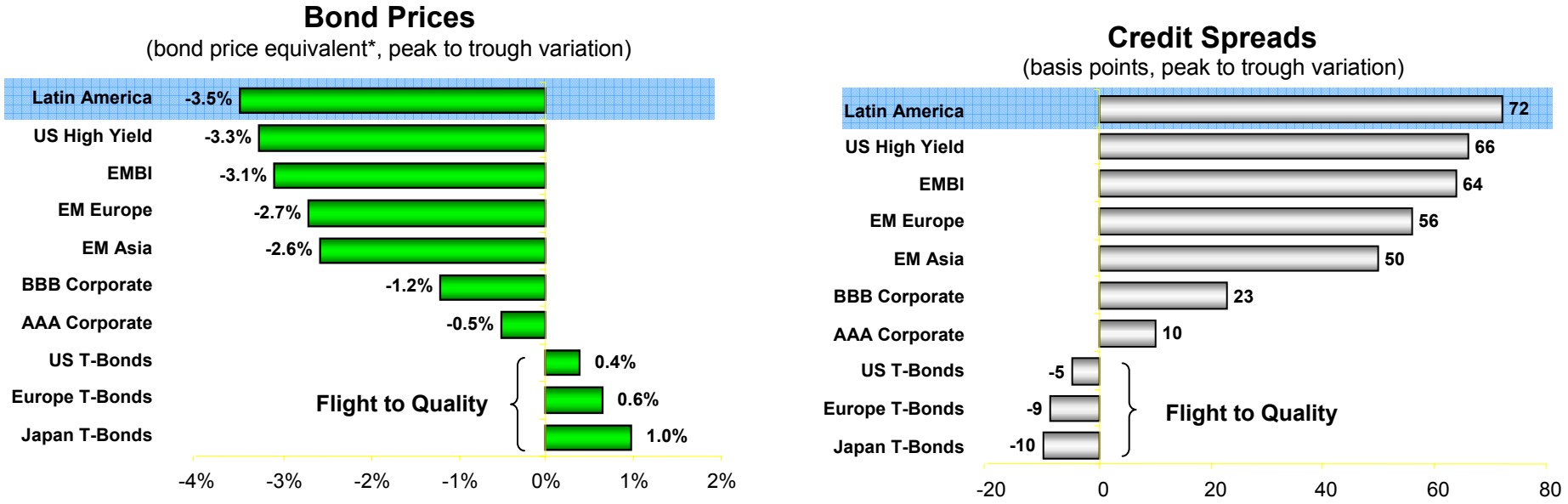


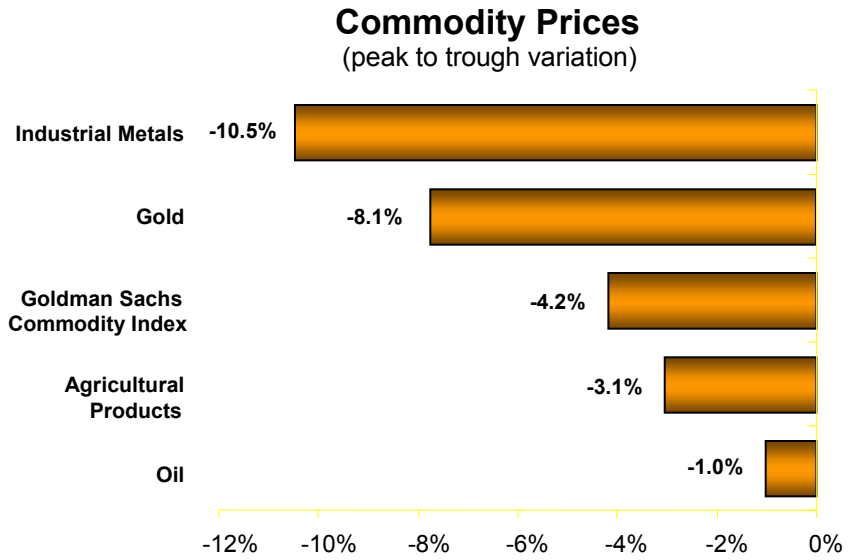
*Adjusted using Forbes, Rigobon (1999) methodology

Great Moderation or the Calm Before the Storm?



X-Ray of Recent Episodes of Global Financial Turbulence





Data Sources: JPMorgan, Bloomberg and MSCI

* Own calculations assuming an 11% coupon and 10-year maturity