# BROOKINGS

## Latin America and the Caribbean's Economic Recovery

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## Introduction

Latin American countries have a long and distressing history of economic downturns and fast subsequent economic recoveries: the 1994 Mexican debt crisis, the 1997 contagion from the Asian financial crisis, the 1998-99 currency crisis in Brazil and the 2001-2002 debt crisis in Argentina (IADB, 2008). These economic crises and recoveries have captured the attention and efforts of policymakers for more than 20 years. Due to the reform effort undertaken by the region over this time period, the global financial setback of 2008-2009 did not catch the region off-guard. Therefore, although the events of 2008 did have a considerable effect on Latin American economies, the effects were less adverse than in developed countries and milder than previous episodes of contagion.

Latin America has shown extraordinary resilience during the recent global financial crisis mainly because it experienced unprecedented international financial support and strong macroeconomic fundamentals (Izquierdo and Talvi, 2010). This time the region boasted low fiscal and current account deficits, greater degree of exchange rate flexibility, low levels of short-term foreign debt and high levels of international reserves. The combination of stronger fundamentals and a new level of competence in implementing countercyclical fiscal and monetary policies are the primary reasons why Latin America withstood the global recession. China's robust economic growth was also a factor, as commodity-exporting countries in Latin America benefited from high terms of trade with China.

Latin America has not been immune to global shocks and it would be misleading to suggest so. Historically, cycles of recession and recovery in the region have very closely followed that of the developed world. The current setback in financial markets and fears of a double dip recession in developed countries are also likely to have a prolonged impact on the region's economic performance. That said, Latin America's recent capacity to resist a severe downturn without a major financial crisis suggests that it has moved closer to attaining economic normalcy, as defined by a combination of stronger fundamentals and the capability to implement countercyclical policies (Izquierdo and Talvi, 2008).

In an effort to assess current economic trends, we constructed the Latin America and the Caribbean Economic Recovery Index (LACER) based on Eswar Prasad and Karim Foda's <u>Tracking Indexes for</u>

<u>Global Economic Recovery (TIGER)</u> for the G-20 economies. LACER combines real, financial and confidence variables for the seven largest economies in Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela. These economies represent 91 percent of the combined GDP of Latin America and the Caribbean.

This note describes the variables used, their sources and the time span for which they are available. It also explains the methodology used to aggregate the variables and to construct the overall indexes and presents the results from the real, financial, confidence and overall indexes.

#### **Methodology**

The LACER index is constructed using principal component analysis (PCA), which is a multivariate statistical technique used to reduce the number of variables in a data set into a smaller number of dimensions. This technique presupposes that the input variables are correlated and obtains uncorrelated indices which are linear combinations or components of the initial variables. Graphically, components are at right angles to each other, highlighting their uncorrelated property which means they measure different dimensions in the data (See Vyas and Kumaranayake, 2006).

The components are ordered so that the first component explains the largest possible amount of variation in the original data. The second component, uncorrelated to the first component, explains additional but less variation than the first component and so forth (Vyas and Kumaranayake, 2006).

Specifically, the LACER index displays the common variance of the growth rate of a set of key economic variables and should be interpreted as an indicator that takes the pulse of their growth rates. For simplicity, the linear combination is scaled in a 0 to 100 range, corresponding to the historical minimum and maximum values. For each country we construct four indexes: one corresponding to each set of variables — real, financial and confidence — and a composite measure of these three indexes, the overall LACER index. The following tables summarize the variables used in the construction of the corresponding indexes. All data are monthly.

The information on the real economy includes the following variables: employment level, export volume, import volume, industrial production volume and GDP. In all cases, we use the 12-month growth rate (GDP is quarterly, year over year) of the seasonally-adjusted data (not adjusted in the case of GDP). Financial sector variables include the 12-month growth rate in equity prices and stock market capitalization (all in domestic currency) plus the emerging bond spread (in basis points over U.S. Treasury) and the TED spread (difference between the 3-month Libor and the U.S. Treasury). Confidence data include results from business and consumer confidence surveys (except in Venezuela where data were not available). To capture long-run trends as well as short-term fluctuations, we use monthly data (except for GDP, which is quarterly).

REAL VARIABLES					
Variable	Description	Source			
Employment	12-month growth rate of total employment levels; quarterly data for Mexico. Argentina and Venezuela not included given data limitations.	International Labor Organization			
Exports	12-month growth rate of 3 month moving average of seasonally adjusted volume. Venezuela not included given data limitations.	World Bank, Global Economic Monitor			
Imports	12-month growth rate of 3 month moving average. Seasonally adjusted volume.	World Bank, Global Economic Monitor			
Industrial Production	12-month growth rate of 3 month moving average. Seasonally adjusted volume.	World Bank, Global Economic Monitor			
GDP	Quarterly, year-over-year real growth rate. Each month in quarter is equal to quarterly rate.	Economic Intelligence Unit			

FINANCIAL VARIABLES							
ariable	Description	Source					

Equity Markets	12-month growth rate of share price index in domestic currency	World Bank, Global Economic Monitor			
Stock Market Capitalization	12-month growth rate in domestic currency	CEIC Data Company, Ltd.; Bloomberg (Chile, Colombia and Venezuela)			
Emerging Bond Spreads	Basis points over US treasury	World Bank, Global Economic Monitor			
TED Spread	Difference between 3- month LIBOR and U.S. Treasury, basis points	World Bank, Global Economic Monitor and US Dept. of Treasury			

The data to construct the confidence index were taken from different sources and were modified so that all surveys are comparable. All balances are normalized so that their range is between 0 and 100 and in a manner such that 0 corresponds to the month for which the specific survey had the most unfavorable answers, and 100 is the historical maximum for favorable responses. The re-scaled balances were obtained with the following equation.

$$New Balance = \frac{original \ balance - \min(original \ balance)}{\max(original \ balance) - \min(original \ balance)} * 100$$

CONFIDENCE VARIABLES							
	Country	Description	Source				
Business Confidence	Argentina	Balance index. Perceptions over the next 12 months: economic situation, investment climate, unemployment and credit availability; not included in overall calculus given data limitations.	Deloitte Barometro de Empresas- Deloitte Argentina				
	Brazil	Data taken from OECD- smoothing, centering and adjusting amplitude.	OECD				
	Chile	Balances of business confidence levels. (Balance=Favorable-unfavorable). Difussion Score Balance=(Balance +100)/2 . This procedure rescales the results between [0,100] where 50 is a neutral score, less than 50 a non-favorable score, and more than 50 a favorable score. The final indicator is constructed as a weighted average of 4 indicators of sectorial confidence: manufacturing, comerce, construction and mining. The weights correspond to the participation of such sectors in the GDP.	Universidad Adolfo Ibáñez- Business School				
	Colombia	Index of Industrial confidence. Balance index (Balance=%favorable-%unfavorable), and range [-100,100].	Fedesarrollo				
	Mexico	Data taken from OECD- smoothing, centering and adjusting amplitude.	OECD				
	Peru	Balances Index; Balance=(% favorable- %unfavorable-1)*50. Range [0,100]; not included in overall calculations given data limitations.	Banco Central de la Reserva del Perú				
	Venezuela	N/A	N/A				
	Argentina	Balance Index; Balance= 50*(positive-negative).	Universidad Torcuato di Tella -Finance Research Center				
	Brazil	Data taken from OECD- smoothing, centering and adjusting amplitude.	OECD				
Consumer Confidence	Chile	Balance Index, constructed from the public's responses to 5 questions regarding their personal economic situation, the country's economy, the world economy in the long run, and expectations about household consumption. Range [0,100].	IPEC				
	Colombia	Index of Consumer Confidence. Balance index; Balance=%favorable-%unfavorable, and range [-100,100].	Fedesarrollo				
	Mexico	Data taken from OECD- smoothing, centering and adjusting amplitude.	OECD				
	Peru	Balance Index; Balance= %favorable- %unfavorable+100.	Michelsen Consulting				
	Venezuela	N/A	N/A				

\*All balances rescaled such that 0 is the lowest point and a 100 the highest point.

The following table summarizes the data availability for each variable and each country. Data availability is important in the construction of the indexes because PCA takes the largest balanced panel available in its maximization process and leaves all other observations out of the calculation.

DATA AVAILABILITY											
Country	Employment	Exports	Imports	Ind. Prod.	GDP Growth	Equity Markets	Stock Market Cap.	Emerging Bond Spread	TED Spread	Business Confidence	Consumer Confidence
ARG	9/08	1/00	1/10	1/00	1/00	1/00	1/00	1/00	1/00	10/05	3/01
	3/10	2/10	2/10	2/10	12/09	6/10	5/10	6/10	5/10	4/10	5/10
	3/03	1/00	1/00	1/00	1/00	1/00	1/00	1/00	1/00	1/00	1/00
BKA	- 4/10	- 3/10	- 3/10	- 2/10	- 3/10	- 6/10	- 5/10	- 6/10	- 5/10	- 5/10	- 4/10
CHL	1/00	1/00	1/00	1/00	1/00	1/00	9/04	1/00	1/00	11/03	3/02
	- 12/09	- 3/10	- 3/10	- 2/10	- 3/10	- 6/10	- 6/10	- 5/10	- 5/10	- 5/10	- 5/10
COL	3/02	1/00	1/00	1/00	1/00	1/00	9/04	1/00	1/00	6/01	11/01
	-	-	-	-	-	-	-	-	-	-	-
	2/10	2/10	1/10	1/10	3/10	6/10	6/10	6/10	5/10	4/10	2/10
MEX	4/01	1/00	1/00	1/00	1/00	1/00	1/00	1/00	1/00	1/00	4/00
	- 3/10	- 2/10	- 2/10	- 2/10	- 3/10	- 6/10	- 4/10	- 6/10	- 5/10	- 4/10	- 3/09
	1/05	1/00	1/00	1/00	1/00	1/00	1/00	1/00	1/00	10/07	1/05
PER	-	-	-	-	-	-	-	-	-	-	-
	3/10	1/10	1/10	1/10	3/10	6/10	5/10	6/10	5/10	4/10	12/09
	1/00	1/00	1/00	1/00	1/00	1/00	9/04	1/00	1/00		
VEIN	- 4/10	- 8/08	- 12/0	- 12/0	- 3/10	- 4/07	- 6/10	- 6/10	- 5/10		

## **Findings**

We begin by discussing the index capturing real sector variables. After negative growth rates from the last quarter of 2008 until mid-2009, GDP, industrial production, employment and trade show a relatively fast recovery in the region. In the case of Brazil and Mexico, real growth indexes have recovered to pre-crisis levels. This does not mean that real variables (in levels) are better off now than before the crisis, simply that their compounded growth rates have surpassed their pre-crisis growth. The real indexes in Colombia, Chile and Peru have not yet reached their pre-crisis level, suggesting that overall real growth remains at 50 percent of its pre-crisis peak. Argentina and Venezuela were experiencing a declining real index for

some time before the recent crisis and as early as 2004. Argentina has shown some recovery, whereas Venezuela is imploding.

After a plunge in mid-2008, financial variables are recovering and have reached similar or higher growth rates than those of the pre-crisis period. All of the countries' indexes seem highly synchronized, especially during and after the crisis. In more recent months and particularly after the Greek debt crisis, Latin American equity markets have experienced considerable setbacks. This pattern is captured in the country indexes as well as in the composite financial index.

In summary, financial variables have recovered faster than the real sector and confidence indicators. However, financial markets are experiencing yet another downturn which has had a negative impact on Latin America. So, the region has not been immune to the problems in Europe.

In terms of the confidence indexes, Brazil shows a strong positive trend unaffected by the recent crisis. Mexico's confidence index hit a historical low during the global recession in January 2009 and since then has been recovering but has not reached the pre-crisis values. The same applies to Colombia and Argentina. In Chile and Peru, confidence has recovered to close to pre-crisis levels.

The composite LACER index is still well below its highest point reached in January 2005. The situation can be partly attributed to the fact that the real economy index is still significantly below the mean of the pre-crisis era, except in Brazil. This is especially true in Venezuela, which is well below its past maximum value. The region is also lagging because of confidence indicators.

Differences in economic performance within Latin America are evident. Some countries are recovering quickly (Brazil and to some extent Mexico), others are moving forward but not quite yet at cruising speed (Colombia, Chile and Peru), while Argentina and Venezuela are lagging behind. The diverging trends reflect a range of factors, but domestic policies exert the most significant influence in explaining the differences.

## **Individual Country Analysis**

## Argentina

Argentina is currently experiencing a very modest recovery in the real index which is mainly the result of job loss, declining trends in industrial production, and moderate GDP growth rates. The confidence index shows signs of recovery after the crisis. Financial variables have performed well, explaining why the overall recovery index shows a moderate but positive trend in recent months. However, data for 2010 are showing signs of growth and it is likely that the real index will pick up significantly in future months.

## Brazil

Brazil boasts the strongest recovery in the region. The real sector index is at its maximum historical value, indicating that growth in the composite measure of real sector variables is at its peak relative to the last decade. In addition, Brazil's confidence index is displaying superstar behavior. This is in part because contrary to what happened in many other countries in the region, the composite measure of consumer and business confidence was not affected by the 2008-2009 financial plunge. The composite economic recovery index for Brazil has outperformed its pre-crisis level, suggesting that Brazil is now in a stronger economic position than before the crisis.

#### Chile

The increasing trend in the real index in Chile was interrupted by the collapse of the global economy during the recent financial crisis. The real sector, however, is still significantly underperforming relative to the pre-crisis period. It is worth noting that Chile's financial recovery was fast and peaked in January 2010, and confidence has also performed favorably in the recent months. In spite of this, the overall recovery index is still significantly below its peak value, which implies that exports and employment are being negatively impacted by external factors.

## Colombia

Colombia has been experiencing a modest recovery. The real sector index is still well behind its past values, and confidence has recovered but less than in other countries in the region. After reaching an all time low in April 2009, the compounded index has shown signs of recovery. Still, the index is still 50 percent below its all time maximum and below the Latin American average. This situation reflects low employment and export growth, partly due to trade restrictions imposed by Venezuela.

#### Mexico

Mexico's real and financial variables have fully recovered to their pre-crisis growth rates, and its overall recovery index shows that overall economic indicators are only 10 percent below their peak. This is partly due to the financial variables which are performing better than in any other Latin American country. Nevertheless, confidence is a weak, a fact that explains why Mexico is still behind Brazil in terms of the overall recovery.

#### Peru

Confidence and financial variables recovered rapidly in Peru after having lost ground during the crisis. The real sector index has also improved, albeit at a slower pace than in Brazil and Mexico. In recent months, financial variables have been negatively impacted by economic events in the European Union, which explains why the overall index shows that although Peru is performing relatively well, it still 30 percent below its maximum historical value.

## Venezuela

The real sector index shows a declining trend, which is atypical for a Latin American economy. Financial sector variables do not show a distinctive trend, implying that non-financial forces are driving the results of the overall recovery index and that has been relatively unaffected by the financial crisis. What is remarkable about this index is its persistent negative trend since 2004. Venezuela has reached a historical low in terms of economic performance, not necessarily in levels but certainly in growth terms.

## Conclusion

Three stylized facts can be drawn from our analysis:

- Latin American recovery has gathered momentum as the real, financial and confidence indexes rebound strongly. Nevertheless, there is still room for further growth as the overall LACER index is still below its historical peak in every country, with the exception of Brazil.
- The financial sector recovered faster than the real economy and business and consumer confidence. Nonetheless, the financial indicators are recently displaying yet another downturn, implying that the region has not been immune to the problems in Europe.
- The recovery has been strong in all countries, with the notable exception of Venezuela where the overall LACER growth index has a declining trend.























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## **Appendix: Country variables**

## Argentina

## Real Economy Indicators



Jul-07 Jan-08 Jul-08 Jan-09 Jul 09

Jan-10

Jan-06 Jul-06 Jan-07

Jul-05





## **Financial Indicators**



## **Confidence Indicators**



## Brazil Real Economy Indicators









## **Financial Indicators**



## **Confidence Indicators**



#### Chile

Real Economy Indicators







## **Financial Indicators**



## **Confidence Indicators**



## Colombia

## Real Economy Indicators









## **Financial Indicators**





## **Confidence Indicators**



## **Mexico**

Real Economy Indicators







## **Financial Indicators**





## **Confidence Indicators**



## Peru Real Economy Indicators









## **Financial Indicators**





## **Confidence Indicators**



## Venezuela

Real Economy Indicators







## **Financial Indicators**



