The Spillover Effects of the Global Financial Crisis on Latin America

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Introduction

The financial crisis that erupted in the United States has spurred the global financial crisis and stunted growth in the global economy. Industrial production and merchandise trade in both advanced economies and emerging markets (EM) plummeted quickly as purchases of investment goods and consumer durables were hit by credit disruptions (WEO, 2009). During the fourth quarter of 2008, advanced economies experienced an unprecedented 7.5 percent decline in real GDP and the EM's real GDP contracted 4 percent (IMF, 2009).

Because of their financial linkages with advanced economics, EM has also been hit hard by the crisis. IMF study shows a significant financial stress transmission from advanced economies to EM with an average of 70% of stress in advanced economies is transmitted to EM within the duration of one or two months.

Despite its limited exposure to structural financial products and low level of financial integration, the rest of the world (all countries less advanced economies and EM) has also been cited to have been affected by the crisis. The main impact will be inflicted via reduced trade as most of these countries have been basing their economic growth on exports. The expected declines will come through a reduction in demand for their goods from developed countries. The second impact will be reduction in financial flows such as foreign direct investment (FDI).

Objectives

The objective of this study is analyze the impacts of the global financial crisis on Latin American Economy, emphasizing on agricultural exports and GDP. Three main reasons for the study are proposed.

(1) Many of the largest U.S. banks and European banks were heavily exposed to Latin America via syndicated loans to sovereign borrowers; and therefore, it is likely that financial crises that occurred in the United States or United Kingdom will be transmitted to these countries (IMF, 2009).

(2) Recent economic downturn in the developing nations is an indication of linkages between advanced economies and these countries.

(3) Agriculture is an important component of many economies in Latin America and provides international competition to the United States. At the same time, Latin American markets are important to U.S. agriculture. Therefore, it is important to determine the extent to which financial market crises cause significant, adverse impacts on Latin American agriculture.

Data and Methodology

Ghosh et al. (2009) suggest that spillovers can take place through (1) a collapse in export demand for good and services, (2) a decline in remittance inflows, and (3) a sudden stop of capital inflows. This study focuses on exports of agricultural products and overall GDP of Latin American countries. The analysis is conducted through regressing exports of agricultural products and gross domestic product (GDP) on the financial stress index (FSI), a measure of financial crisis developed by IMF. Because of data limitation on FSI, 8 countries are included in the analysis: Argentina, Brazil, Chile, Colombia, Mexico, Peru, Ecuador, and Venezuela. FSI data for the first 6 countries are from Balakrishnan et al (2009) and those of the last 2 countries were estimated. Many countries have also reformed their financial system (FR), including Latin America. This variable is also included in the model. Abiad et al. (2008) constructed FR index from 1973 to 2005. We assumed that from 2006 to 2009, there was no significant reform in the financial system and, therefore, the index values of FR for this period are the same as those in 2005. We also include other control variables including oil prices, commodity prices, and GDP of rest of the world (ROW). Data on GDP and commodity prices are from IMF and data on oil prices are from US Department of Energy. Data for estimating FSI for Ecuador and Venezuela are obtained from Bloomberg and Data Streams. The models are estimated using GMM estimator.

FSI at a Glance

Figure 1 depicts FSI in 8 Latin American countries. The spike between 1997 to 2001 is a response to the Asian crisis. Recent spike is owing to the current financial crisis. The Argentine default in 2002 also contributed to intensifying the stress.

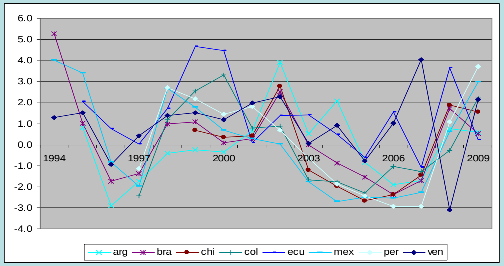
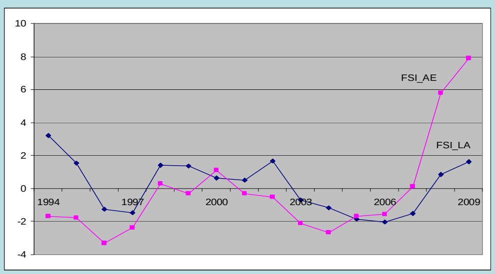


Figure 2 shows FSI in Latin American countries and advanced economies (purchasing-parity weighted average). Between 1997 and 2003, Asian crisis and Argentine default seem to intensify the stress. The spikes in the last period resonance the current financial crisis. Comparing between the two regions, the impacts seem to be lagging



Results

The regressions results for GDP and agricultural exports equations are displayed in Table 1 and Table 2, respectively. The main points are as follows:

- Estimated coefficients of financial stress (current year) are statistically significant and have the expected signs in both GDP and agricultural exports equations. The estimated long run response of GDP to FSI is about -0.10, suggesting that a 1 percentage point permanent increase in financial stress would reduce GDP in Latin American countries by about 0.10 percentage points.
- Estimated coefficient of current financial reforms in the GDP equation is not significant but it is significant for the lagged one year, suggesting that structural reforms do take time to be in effects. The estimated long-run response of GDP to financial reforms ranges from 0.87 to 1.18. Therefore, a 1 percentage point permanent increase in financial reform index would increase GDP between 0.87 and 1.18 percentage points.
- In the case of agricultural exports equation, this study found that there is not statistical evidence that financial reforms affect agricultural exports.
- Oil prices are found to be insignificant in both equations; while commodity prices are significant in the GDP equation. GDP row (rest of the world) is not significant in the agricultural export equation.

Table1. Impacts of Financial Stress and Financial Reforms on GDP

Variable	Specification 1	Specification 2
GDP_{t-1}	0.678 (11.37)***	0.642 (11.18)***
FSI	-0.033 (-4.37)***	-0.029 (-3.90)***
FSI_{t-1}		-0.004 (-0.56)
Financial reforms	0.280 (1.24)	-0.162 (-0.52)
Financial $reforms_{t-1}$		0.583 (2.03)**
Oil prices	0.023 (0.28)	0.031 (0.39)
Commodity prices	0.004 (3.11)***	0.004 (3.38)***
Constant	0.004 (0.46)	0.001 (0.09)
No. of observations	99	99
No. of countries	8	8
R^2		
Sargan test for over-identifying restrictions	0.846	0.708
Arellano-Bond test for AR(1)	0.0003	0.0007
Arellano-Bond test for AR(2)	0.822	0.846
Estimated long-run response of GDP to		
FSI	-0.10	-0.09
Financial reforms	0.87	1.18

Numbers in parentheses are estimated t-statistics with * and ** indicated statistically significant at the 1% and 5% levels, respectively.**

Table2. Impacts of Financial Stress and Financial Reforms on Agricultural Exports

Variable	Specification 1	Specification 2
Agricultural $Exports_{t-1}$	0.695 (7.87)***	0.696 (80.3)***
FSI	-0.122 (-2.84)***	-0.141 (-3.05)***
FSI_{t-1}		0.060 (1.23)
Financial reforms	-0.073 (-0.05)	-0.482 (-0.24)
Financial $reforms_{t-1}$		0.357 (0.20)
Oil prices	-0.040 (-0.09)	-0.155 (-0.33)
Commodity prices	0.002 (0.19)	0.008 (0.61)
GDP_{ROW}	0.178 (0.07)	-0.552 (-0.21)
Constant	-0.035 (-0.28)	0.012 (0.09)
No. of observations	99	99
No. of countries	8	8
R^2		
Sargan test for over-identifying restrictions	0.975	0.987
Arellano-Bond test for AR(1)	0.000	0.000
Arellano-Bond test for AR(2)	0.021	0.044
Estimated long-run response of GDP to		
FSI	-0.40	-0.26
Financial reforms	-0.24	-0.41

Numbers in parentheses are estimated t-statistics with * and ** indicated statistically significant at the 1% and 5% levels, respectively.**

Conclusions

This paper has empirically analyzed the spillover effects of the financial crisis on
Agricultural exports and overall GDP in 8 Latin American countries. The results show that FSI has significant impacts on both agricultural exports and GDP. Lagged financial reforms have significant impacts on GDP but not on agricultural exports.
The results of the analysis are useful in that they can help policymakers determine appropriate policy decisions enabling to counter possible future crisis.

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