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The transmission of US systemic financial stress: Evidence for emerging market economies

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We provide empirical evidence that US systemic financial stress shocks (US-SFSSs) are an important driver of economic dynamics and fluctuations in EMEs. Applying a structural vector autoregression, we analyze the international transmission of US-SFSSs to eight EMEs using monthly data from 1999 to 2012. US-SFSSs are identified as unexpected changes in the financial conditions index of the Federal Reserve Bank of Chicago. Findings indicate that a typical emerging market real economy experiences similar negative effects to those seen in the US real economy in response to US-SFSSs. For international transmission, our results emphasize that financial interconnectedness with the US is important relative to trade relations. The analyzed cases of Latin American economies suggest that indirect linkages are also important for transmitting the negative effects of US-SFSSs. In general, US-SFSSs act as a crucial driver of volatility in the emerging world; also at business cycle frequencies.

"… the [global financial] crisis has been a bitter reminder that, for all their benefits, deeper trade and financial linkages can serve as a mechanism for magnifying shocks and intensifying their effects on the real side of a nation's economy."

(Kose and Prasad, 2010, p.4)

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1. Introduction

Emerging market economies (EMEs) share, in contrast to the advanced world, two distinct properties: first, EMEs are characterized by a high degree of fluctuation in economic fundamentals, and second, EMEs are strongly vulnerable to external shocks. For instance, their volatility of GDP has been about 50% higher than the respective figure for advanced economies from 1960 to 2008 (Kose and Prasad, 2010). External factors may actually explain parts of this high variability, i.e., international financial market transactions such as foreign capital flows have proven to be important determinants of booms and busts in EMEs (Calvo et al., 1993; Calvo, 1998). The last global financial crisis remarkably emphasized the relevance of external factors, when the financial shock that originated in the US spread *rapidly* and *intensively* to the emerging world. Deeper trade relations and international financial linkages may have contributed to the extent of the contagion. Fig. 1 shows the growth rates of output for a group of emerging market countries and the US from the first quarter of 2006 to the fourth quarter of 2009. The synchronized performance of both time series underlines how quickly the US financial shock spread to the group of EMEs. However not only this event, but also past episodes of financial stress have highlighted that financial conditions in the US play an important role for the macroeconomic dynamics in EMEs. Thus, the analysis of *financial vulnerability* is the key to guiding future research and policies.

In this study we address the relevance of US systemic financial stress for EMEs. In particular, we provide empirical evidence relevant to the following three questions: (1) How does US systemic financial stress affect the dynamics of macro-variables in EMEs? (2) Are *trade* or *financial* linkages with the US more important for the transmission? (3) How important is US systemic financial stress for explaining the high volatility in the emerging world?

We examine the role of US systemic financial stress for EMEs by employing a structural vector autoregression (VAR), which is estimated via Bayesian techniques. Our data set contains monthly data from 1999 to mid-2012 for eight EMEs (Brazil, Chile, Korea, Malaysia, Mexico, the Philippines, South Africa, and Thailand) and we conduct the study on a bilateral basis with the US and one emerging market country at a time. US systemic financial stress shocks (US-SFSSs) are identified as unexpected changes in the National Financial Conditions Index (NFCI). This financial conditions index is published by the Federal Reserve Bank of Chicago and contains systemically relevant financial variables from different US financial sectors. The NFCI comprises important information on risk, liquidity, and leverage in the money markets, debt and equity markets, and the banking system. The advantage of a financial conditions index is clearly

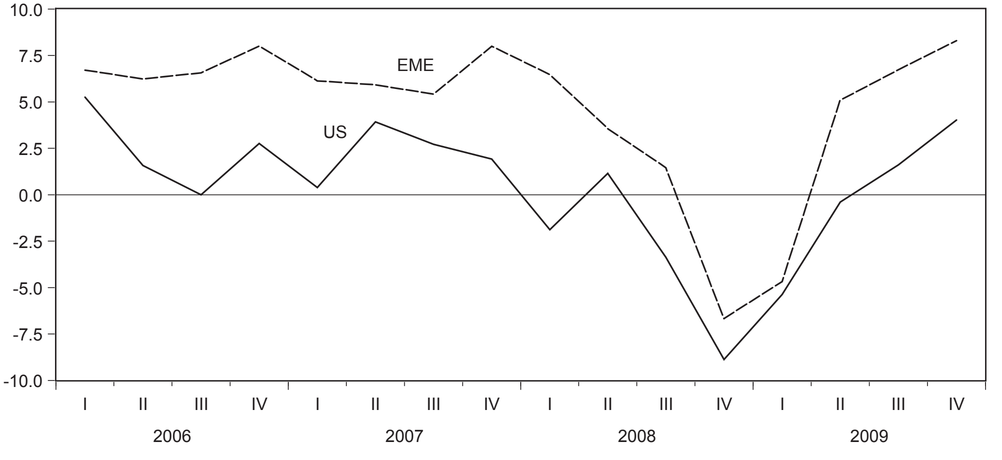

Fig. 1. Growth in GDP in emerging market economies and the United States, 2006–2009. *Notes*: This figure shows the annualized quarter over quarter real GDP growth rate, which is constructed as a weighted by GDP at purchasing power parity average. The EME series is based on 20 emerging market countries: Argentina, Brazil, Chile, Colombia, Estonia, Hungary, India, Indonesia, Korea, Latvia, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Thailand, Turkey, and Venezuela. All of these countries, except for Korea, are classified as EMEs according to the IMF. Data are obtained from the IMF.