BRIC and the U.S. financial crisis: An empirical investigation of stock and bond markets

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A B S T R A C T
We examine empirical evidence of the behavior of stocks and bonds from BRIC nations by using daily data from January 2003 to July 2010. We present unconditional and conditional empirical results depending upon a simple measure of U.S. financial stress. In the long term, BRIC bond markets deviate much more from the U.S. financial stress measure than the BRIC bonds and stocks that deviate among themselves. Stock and bond return correlations for Brazil and Russia are significantly large and negative. The own correlations are more important in determining the evolution of the conditional correlations relative to unexpected news. Dynamic conditional correlations between stock returns, bond returns and U.S. financial stress increase after the Lehman Brothers’ event in September 2008, except for the bond returns in India.

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1. Introduction

Brazil, Russia, India and China form a small group of countries, now known as the BRIC, that have called the attention of investors and academia in the new millennium. The reasons are multiple but the common theme is that they represent a class of middle-income emerging market economies of relatively large size that could potentially provide the needed steam to enhance economic growth in the world economy. In parallel, among many other shocks, the new millennium has witnessed one of the largest and most complex financial crisis to date. One of the main characteristics of the crisis was how
rapidly it spread from the U.S. housing market to its financial market and then to the rest of the world. According to the IMF (2009a,b), developed countries had gone through a gross domestic product drop of respectively 7.2% and 8.3% on the 4th quarter of 2008 and 1st quarter of 2009. Facing a weaker external demand and illiquid financial markets, developing countries – especially after the Lehman Brothers’ bankruptcy episode on September 2008 – have suffered the consequences from the Subprime crisis, although in a less intense way when compared to the U.S. and Western Europe. Fig. 1 shows the GDP annual real growth of the G7 group and the BRIC, Brazil, Russia, India and China.

Our main motivation stems from the impact of the financial crisis on the BRIC nations relative to the source of the crisis. The main focus is on the measurement of transmission of financial shocks from the U.S. to stock and bond markets of the BRIC countries. The importance of this line of inquiry is multiple. We would like to determine whether or not this group of emerging economies can be considered insulated from the financial stress of the U.S.; whether it can provide diversification opportunities; whether it can perform the role of the locomotive in sustaining world economic growth.3

The four BRIC countries vary in their structural characteristics, economic policies and geopolitical importance. China and India are economies with most population living in rural areas, and relatively closed and state-controlled capital markets. Their development strategy is export led, based on domestic industrialization for export markets. Meanwhile, Brazil and Russia have most of their population living in urban areas. Brazil and Russia are primarily natural resource-based economies and well known commodity exporters. Their capital markets, while developed at very different periods and pace, are much more open and currently subject to relatively lower state controls.

Fig. 1. GDP (var. % 2006–2010).

Note: The growth rates of real GDP in the U.S. in the period are:
- 2006: 2.62%
- 2007: 1.89%
- 2008: -0.34%
- 2009: -3.55%
- 2010: 2.98%

GDP var. YoY % : BRIC X G7

3 In the context of this paper, see Aloui et al. (2011), Chittedi (2009), Morales (2011), Balakrishnan et al (2009). The recent papers by Bianconi and Yoshino (2010, 2012) focus on the economic effects of the U.S. on firm value worldwide and on real estate firm values in Brazil respectively.
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