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Transmission of US financial and trade shocks to Asian economies: Implications for spillover of the 2007–2009 US financial crisis

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ABSTRACT

This paper describes an investigation of the transmission of US shocks to Asian economies with consideration of financial linkages and trade linkages. Using the sign restriction vector autoregression (VAR) approach during 2000–2012, our empirical results can be summarized as follows. First, both US financial and trade linkages exert a significant impact on production in Asian economies. Second, through both financial and trade linkages, US spillover shocks account for around 50% of the production fluctuation in Asian economies. Third, during the episodes of 2007–2009 US financial crisis, the impact of financial shocks is greater than that of trade shocks. Results suggest that (i) Asian economies are not decoupled with US; and (ii) different from conventional findings, financial linkages between US and Asian economies are strong, especially for highly developed Asian economies. Therefore, investors and policymakers of Asian economies should take account of US financial conditions.

1. Introduction

Although Asian economies[1] have improved their resilience to financial shocks by a great deal since the Asian financial crisis in 1997, the impact of the 2007–2009 (hereinafter designated as "recent") US

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[1] For these analyses, Asian economies are those of Korea, Taiwan, Malaysia, and Thailand. We intend to emphasize the industrialized countries and not resource-rich countries. Therefore, we exclude Indonesia. In addition, according to classification

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financial crisis[2] was surprisingly strong. Asian economies in general had more robust foreign exchange reserves and more flexible monetary policies and currency regimes, enabling them to absorb shocks more readily. Nevertheless, the economic consequences of the crisis have been severe. Furthermore, the damage caused by the recent US financial crisis was severe not only for the financial sector, but also for the real sector. For example, according to the National Bureau of Economic Research (NBER), the US recession began in December 2007 and ended in June 2009. It therefore persisted for over 18 months. Consequently, domestic absorption in the US decreased suddenly. Then exports around the world also decreased suddenly along with it. The damage was especially severe in economies that are important exporters of investment and durable consumer goods.

Two main known linkages are known through which the crisis might have spilled over: deterioration in financing conditions (financial shock) and reduction in demand for these economies' exports (trade shock). Especially in rapidly growing Asian economies, trade and financial integration with the US are extensive.

Regarding financial linkage, financial contagion literature summarizes transmission channels of several types: the correlated information channel, or the wake-up call hypothesis; the liquidity channel; the cross-market hedging channel; and the wealth effect channel.[3] Some recent and important papers on financial crises are the following. By applying a dynamic conditional-correlation approach, Chiang, Jeon, and Li (2007) demonstrate that contagion in stock markets were an important channel during Asian crisis in 1997 in Asian economies. Furthermore, Yiu, Ho, and Choi (2010) investigate the dynamics of correlation between 11 Asian stock markets and the US stock market and report that contagion occurred from the US to the Asian financial markets. Next, using an asymmetric generalized dynamic conditional correlation model (AG-DCC), Kenourgios and Padhi (2012) investigate both equity and bond markets of emerging economies and provide evidence of contagion related to the subprime crisis of 2007. In addition, Dimitriou, Kenourgios, and Simos (2013) empirically investigate the global financial crisis and emerging stock market contagion by multivariate Fractionally Integrated Asymmetric Power ARCH (FIAP-ARCH) dynamic conditional correlation (DCC) framework. Similarly, using the same FIAP-ARCH DCC framework, Dimitriou and Kenourgios (2013) investigate the interdependence of US dollar exchange rates expressed in other major currencies. Different from particularly addressing contagion among financial markets as described above, Gimet (2011) specifically examines the impact of recent global financial crisis on real macroeconomic variables. Furthermore, results reveal that financial linkage became less important for transmission of the recent US Financial Crisis to Asian countries using a vector autoregression (VAR) approach with identification methodology based on contemporaneous zero restrictions.

Next, in light of trade linkages, cross-border vertical linkages, i.e., international trade in intermediate goods, play a key role in trade linkage. Recently, using input–output analysis, Levchenko, Lewis, and Tesar (2010) and Bems, Johnson, and Yi (2010) reveal that sectors using intermediate inputs experienced significantly greater reductions in both imports and exports during the recent crisis. In Asian economies, as explained by Pula and Peltonen (2009) using input–output analysis, international production networks and vertical linkages with advanced economies were more developed than in any other region. Therefore, the sudden fall of demand in US final consumption goods produced amplified spillover effects on Asian economies through different stages of the sequential process. Different from input–output approaches, Abeysinghe and Forbes (2005) investigate trade linkages and output multiplier effects for Asian economies using panel VAR. The model specifically examines two types of cross-country linkages: direct effects via bilateral trade and indirect effects via output multipliers.

by the IMF, Korea and Taiwan are *advanced economies*. In addition, we define Malaysia and Thailand as *emerging economies*. Specifically, according to Penn World Table 7.1, GDP per capita of 2010 in Korea and Taiwan were 28,768 US$ and 32,294 US$. Those of Malaysia and Thailand were 13,993 US$ and 9212 US$.

[2] The collapse of Bear Stearns on March 16, 2008 and that of Lehman Brothers on September 15, 2008 triggered turmoil not only in the US financial market, but also in the global financial market. The bursting of the US housing bubble, which peaked in 2006, had a major role. Especially, values of securities tied to US real estate pricing plummeted, damaging financial institutions globally. See Baily et al. (2008) for further details related to the origins of the recent financial crisis.

[3] Forbes and Rigobon (2002) and Samarakoon (2011) separate the impact of financial shocks during normal periods, i.e. interdependence, from incremental effects associated with the crisis period, i.e. contagion.