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Has there been any change in the comovement between the Chinese and US stock markets?

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ABSTRACT

This paper examines the comovement between the Chinese and US stock markets over the period between January 4, 2000 and January 13, 2012. We show that there is no cointegration relationship between the two markets, even when allowing for structural change. Their conditional correlation fluctuates around an upward trend, which has shifted upward since the recent financial crisis, and the short-run fluctuations are driven by volatility shocks from the two markets. We also find a strong impact of the US market on the Chinese market, especially when the latter undergoes extreme movements. These findings should have important policy implications for Chinese regulators.

1. Introduction

Incentives for investing in international stock markets arise from lower correlations between international asset returns than between domestic ones (Grubel, 1968). Due to developed financial markets that are believed to be highly integrated, investors have turned to emerging markets for the benefits of international diversification because they perceive relatively low correlations between developed and emerging markets. Empirical studies to date have confirmed this perception, encouraging investors from developed countries to move their funds into financial markets opened by emerging economies. An immediate and relevant question is: Will the historically low observed correlations between emerging and developed markets continue in the long term? The present paper contributes to the existing literature by addressing this question.

In doing so, we choose China and the US, and empirically investigate the comovement between their stock markets over the period that includes the recent global financial crisis. The Chinese stock market has experienced rapid growth since its inception at the end of 1990. Especially since China joined WTO in 2001, the market has attracted growing interest from international investors and has begun to play an increasingly important role in the global economy. We can argue with hindsight that this change was largely due to three reforms pursued in China. The first is the Qualified Foreign Institutional Investor (QFII) reform that was launched in 2003, which allows licensed foreign investors to buy and sell RMB-denominated A-shares. The second is the reform of non-tradable shares engineered in May 2005. The third is the Qualified Domestic Institutional Investor (QDII) reform that was instituted in July 2007, which permits eligible domestic financial firms to access foreign financial markets. All these financial reforms have fueled the rapid

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liberalization of the Chinese stock market, making it increasingly more open to international investors and also granting Chinese investors increasingly greater access to foreign assets. However, the process of rapid financial liberalization also suggests that the Chinese stock market can no longer stay immune to external economic and/or financial shocks. Put in the context of this study, the comovement between the Chinese and US stock markets may no longer be as insignificant as historically observed. These implications motivated the present study. In particular, we propose that the 2008 financial crisis, which had a far-reaching contagious effect, has considerably strengthened the comovement between these two markets.

Our selection of China and the US for empirical investigation is also based on several other considerations. First, in terms of market capitalization, trading volume and the number of shares listed, the US certainly possesses the largest developed stock market, and China's stock market can be characterized as one of the largest emerging stock markets. Thus, we consider the US–China stock market linkage to be representative of the linkages between developed and emerging stock markets on the whole. The results about whether the former has strengthened, especially since the outburst of the 2008 financial crisis, should be relevant for the latter in general.

Second, assessing comovements among international stock markets constitutes the main ingredient of assessing the international diversification gain of a portfolio comprising, for example, equities from China and the US. Schmukler (2004) notes that a lack of financial integration among world markets seems to be one of the main factors that investors take into account when making investment decisions because this feature is related to how much benefit can be obtained from diversifying internationally. It is safe to say that international portfolio managers with interest in the two markets care about research findings on the strength of their comovements. Our study will thus help them to better understand the pattern of comovements between the Chinese and US stock markets and help them make more informed investment decisions regarding portfolio formation.

Third, in order for China's financial regulators to unveil and implement new precautionary policies, understanding the following is required: (1) the changing comovement pattern of domestic and foreign financial markets; (2) how shocks originating in the latter are propagated to the former; and (3) when investors might transfer their funds from the latter to the former. In summary, our findings should also be of interest to Chinese policymakers.

Previous studies have identified two main theoretical reasons that stock markets may comove. The first is related to economic fundamentals. Solnik (1974) and Stulz (1981) emphasize the role of common fundamental factors, arguing that there are some common fundamental variables at the macroeconomic level. These variables can concurrently influence several stock markets across different economies. Ross (1989) argues that market volatility contains information flows, including public information. Public information flows, if associated with higher volatility, would induce stronger comovements. Connolly and Wang (2003) provide empirical evidence that stock market linkages between America, Britain and Japan can be explained by the release of macroeconomic news in these countries. The second theory pertains to market contagion. Using this theory, King and Wadhwani (1990) predict that trading of stocks in one market affects stock prices in other markets, even if the source of trading is purely noise. The “economic fundamental” argument is more appropriate for long-term comovements among stock markets, while the “market contagion” hypothesis is more relevant for short-term comovements among stock markets. In line with these two theories, our study attempts to examine both long-run and short-run comovements between the Chinese and US stock markets.

Comovements of stock markets have become a hot research topic on which the literature is growing steadily. Hamao, Masulis, and Ng (1990) study volatility spillovers among the US, the UK and the Japanese markets. They find that volatility spills over from New York to Tokyo, from London to Tokyo, and from London to New York. Becker, Finnerty, and Friedman (1995), using daily closing prices of the Nikkei index and the S&P 500 index, show that there exists a strong correlation between the US and Japanese stock markets. Blackman, Holden, and Thomas (1994) examine the stock markets of 17 countries (including developed and developing countries), and report that the linkages among them were very weak in the 1970s but increased significantly during the 1980s. Janakiramanan and Asjeet's (1998) research work investigates the Pacific Rim countries and regions. Their results suggest that the US stock market's fluctuations can affect the trends of other stock markets, but these markets' fluctuations do not have any significant impact on the US stock market. Cha and Seeking (2000) focus on four emerging economies of Asia (Hong Kong, Taiwan, South Korea and Singapore), and document that the comovements of these markets with the US and Japan have increased since the US stock market crash in 1987, and have become even stronger since the Asian financial crisis in 1997. Tay and Zhu (2000) test the price and volatility spillover effects for the Pacific Rim markets. They find that the information which induces market volatility in one area can be quickly transmitted to an adjacent region or to the most efficient and open markets, resulting in significant comovements among the markets in the region. Bonfiglioli and Favero (2005) present a methodology to confirm the interdependence and comovements between equity markets, mainly including the US and Germany. Chan, Lien, and Weng (2008) reveal that over the post-crisis and post-9/11 periods, there was a one-way causality from the US market to the Hong Kong market.

With the rapid development of the Chinese economy and stock market, academics have widened their research interest to include China. Huang, Yang, and Hu (2000), employing daily indexes of the stock markets in mainland China, Hong Kong, Taiwan, Japan and the US from October 1992 to June 1997, find that there was no cointegration relationship between the mainland Chinese stock market and others. Chakravarty, Sarkar, and Wu (1998) investigate the degree of segmentation for the pricing of cross-listed stocks in Chinese A- and B-shares. Hsiao, Hsiao, and Yamashitac (2003) conclude that the sharp fall of the US stock market had no significant impact on the mainland Chinese market. Su, Chong, and Yan (2007) examine cointegration between the stock markets of mainland China and Hong Kong. Applying Gregory and Hansen (1996)'s techniques, they detect structural breaks around the advent of QFII policies. However, these studies use earlier data, and their results may therefore not apply to the recent periods. Lin, Menkveld, and Yang (2009) find low correlations between the mainland Chinese markets and major Western markets over the 1992–2006 period. Lai and Tseng (2010) investigate extreme and conventional dependences between the Chinese and the G7 stock markets, and their results reveal that the Chinese stock market has been not only a hedge but also a safe haven for the G7 stock markets. Wang, Chen, and Huang (2011) study the dependence structure for the Chinese and other major world markets. They document that the Chinese market has