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Return and volatility spillovers effects: Evaluating the impact of Shanghai-Hong Kong Stock Connect

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ABSTRACT

This study investigates the impact of the recently introduced Shanghai-Hong Kong Stock Connect. Using high frequency data and dynamic forecasting techniques, we find that the new Stock Connect does contribute to the increasing importance of the Chinese mainland stock market and economic activity. A weak and unstable cointegration relationship is found after this event. Additionally, the Stock Connect has also increased the conditional variance of both stock markets. We observe a leading role of the Shanghai stock market to the Hong Kong stock market in terms of both mean and volatility spillover effects after the Stock Connect. Our study indicates that the opening up of stock markets in China could enhance the leading power, influence the risk level and improve the market efficiency of the Chinese mainland stock market, since the volatility spillover effect from Shanghai to Hong Kong is strengthened. Besides, our results have important policy implications, especially on how policy makers should deal with the increased market interconnectedness and for portfolio managers in choosing potential hedging instruments. The success of Shanghai-Hong Kong Stock Connect provides valuable operational experience for the forthcoming Shenzhen-Hong Kong Stock Connect which could further improve the market efficiency in China.

1. Introduction

Economic globalization and the increasing process of financial liberalization make international financial markets more integrated and correlated than ever before. Many authors (see for example Bekaert and Harvey (1997)) have argued that openness in financial systems can increase the international financial linkage and enhance stock markets correlation. Strong linkages between different stock markets globally can reduce the isolation of local markets, increase the ability to react rapidly to the news from other markets and reduce the benefit of international diversification. A spillover occurs when price changes in one market produce a lagged impact on the other markets. The spillover effect can exist among different countries and also among different financial markets within one country. Since the US October Crash (the famous Black Monday 19 October 1987), research on the spillover effects between different equity markets have been widely undertaken. Many researchers have observed spillover effects in relations to returns and volatility between different financial markets. Some studies have found short term or long term interdependence and causality of the returns among different stock markets. In this regard, Eun and Shim (1989) use daily stock returns to examine financial innovation transmission mechanisms and observe return spillovers from the US to the nine largest stock markets. In addition to the influence on market returns, the flow of information can have a major influence on volatility patterns. Therefore, understanding return and volatility spillover effects across different markets is important, as it can enable investors, governments and financial institutions to have a better understanding of the dynamic relationships among different stock markets and impacts of the information flow across markets. Understanding the spillover effects is also helpful in devising market policies, making asset and investment allocation decisions and designing appropriate hedging strategies. Although the existing literature focuses on developed financial markets, it is important to extend spillover effect analyses to emerging markets as they develop fast and become the big players in the global economy. It is this aspect that China, being the largest emerging financial market, becomes a suitable research market to re-examine return and volatility spillover dynamics.

China, as the largest developing country and the second largest economy in the world, plays an increasingly important role in the global economy. Over 30 years of economic reforms which started in 1978 have a huge influence on the Chinese economy and financial markets. After the rapid development of the economy, China becomes

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one of the main drivers in the global economy. In the early 1990s, China established two stock markets, namely the Shanghai stock market and the Shenzhen stock market. After the establishment of these two stock markets, both stock markets experienced a rapid development and have become more influential regionally and globally. The Chinese stock market became the second largest stock market in the world after its capitalization surpassed Japan in 2007. However, China has still not fully opened up its financial markets to the rest world and some restrictions still exist with unique characteristics. In the process of integrating its financial markets, the Chinese government has taken several steps to liberalize its financial markets. For example, China divides its stock markets into different categories, where the A share market is for Chinese domestic investors and the B share market is for foreign investors. In order to balance advantages and disadvantages of fully opening up Chinese financial markets to the global citizens, China has developed two programs: QDII (Qualified Domestic Institutional Investors) and QFII (Qualified Foreign Institutional Investors) which allow only qualified domestic institutional investors to invest abroad and qualified foreign institutional investors to invest in Chinese domestic financial markets. As a result of these changes, Chinese financial markets are now more correlated with the rest of the world. On the other hand, Hong Kong is one of the largest and most liquid financial markets in Asia. The Hong Kong stock market, just behind China and Japan in terms of market capitalization, is China's closest financial hub and has a significant economic, political, and geographical interrelationship with the mainland. Therefore the regions have close ties and are expected to exhibit high levels of market linkages. Given the presence of similar investor groups and cross-listed regional companies, the connection between mainland China and Hong Kong has a significant influence on Hong Kong's return (Yi et al., 2009). In order to link Shanghai and Hong Kong stock markets, a pilot program (Shanghai-Hong Kong Stock Connect) was launched on 17 November 2014. As a result, restrictions on both domestic and international investors were relaxed and it is expected that the two stock markets will become more integrated. Given the launch of Shanghai-Hong Kong Stock Connect and the availability of high frequency data, it is timely to investigate the interdependence and linkages between mainland China and Hong Kong stock markets. Although there exists some studies on spillover effect between China and other countries, for example Johansson and Ljungwall (2009) and Zhou et al. (2012), there has been very little research on the impact of significant events on return and volatility spillovers between China and Hong Kong. Furthermore, it should be noted that Shanghai-Hong Kong Stock Connect provides the first opportunity to retail investors outside mainland China to trade on the Chinese A share market. The impact of this event would result in a significant increase in the capital flows between the Shanghai and Hong Kong stock exchanges in both directions. This significant event motivates this research and provides a real opportunity to examine whether the mean and volatility spillover effects change after the introduction of Shanghai-Hong Kong Stock Connect. While focusing specifically on the event of Shanghai-Hong Kong Stock Connect, this study aims to fill the gap in the literature by examining the influence of Shanghai-Hong Kong Stock Connect on the market returns and volatility. We use the stock market price indexes to investigate the integration of the Shanghai and Hong Kong stock markets and consider the price movement, mean and volatility spillover effects, and the volatility behaviour of the market integration before and after this event. We break the sample into two sub periods: Pre- and Post-Shanghai-Hong Kong Stock Connect periods using various GARCH models. Our analyses contribute to the literature by shedding new light on the dynamic relationships between the Shanghai and Hong Kong stock markets.

2. The Status of Shanghai-Hong Kong Stock Connect

A major change in the structure of the Chinese stock markets was underway since the time Shanghai-Hong Kong Stock Connect was launched. On 10 April 2014, the China Securities Regulatory Commission (CSRC) and the Securities and Futures Commission (SFC) made a joint announcement to approve, in principle, the development of the pilot program (Shanghai-Hong Kong Stock Connect) to establish the mutual access between mainland China and Hong Kong stock markets. Seven months later, the program was officially launched on 17 November 2014. Shanghai-Hong Kong Stock Connect provides a cross-boundary investment channel between the Shanghai and Hong Kong stock markets so that investors in each stock market can trade stocks listed in the other market through the local clearing house and brokers. This is a landmark event in the reforms of the Chinese stock markets and it is able to relax restrictions and reshape financial structures of both the Chinese and Hong Kong stock markets. For the first time, Shanghai-Hong Kong Stock Connect is able to provide a feasible, controllable and expandable channel for mutual markets access between mainland China (Shanghai) and Hong Kong for a broad range of investors, paving the way for further opening up of the Chinese financial markets and RMB internationalisation (HKEX, 2015b). This pilot program is expected to significantly increase the capital flow between the Shanghai and Hong Kong stock markets in both directions given that the Chinese mainland investors will have the opportunity to invest in the major companies listed on the Hong Kong Stock Exchange. On the other hand, Hong Kong and international investors will get access to the Shanghai A share market in a less restrictive manner than ever before. This arrangement is expected to lead to both outward and inward financial markets liberalization and enable intensive interactions between the Shanghai and Hong Kong stock markets.

After the launch of Shanghai-Hong Kong Stock Connect, eligible Chinese mainland investors can purchase eligible shares listed on the Hong Kong Stock Exchange (HKSE) via their own local brokers, while Hong Kong and international investors will be able to purchase eligible shares listed on the Shanghai Stock Exchange (SSE) through their local brokers as well. In terms of the eligible stocks, only certain stocks in the Shanghai A share market will be included in Northbound Trading of Shanghai-Hong Kong Stock Connect at the initial stage. Other products like bonds, Exchange Traded Funds (ETF), B shares and other securities are not included at this stage. This trading arrangement also includes all the constituent stocks (which are reviewed from time to time) of the SSE 180 Index, the SSE 380 Index, and the SSE listed A shares that are not included as constituent stocks of the above indices but which have corresponding H shares listed on HKSE except those which are not traded in RMB and under risk alert. The number of total eligible securities is estimated to be 568 (as at 10 April 2014) and those shares account for about 90% of all SSE A Shares in terms of market capitalization and about 80% of all SSE A Shares in terms of average daily turnover.[1] For eligible stocks to be included in Southbound Trading, only equities listed on the Main Board will be included in Shanghai-Hong Kong Stock Connect. At the initial stage, trading under this pilot program will be subject to an Aggregate Quota (Maximum Cross Boundary Investment Quota) together with a Daily Quota. The Northbound Aggregate Quota and Daily Quota are set at RMB 300 billion and RMB 13 billion respectively, while the Southbound Aggregate Quota and Daily Quota are set at RMB 250 billion and RMB 10.5 billion respectively.[2]

There are several benefits for international investors to trade through Shanghai-Hong Kong Stock Connect. Firstly, investors outside of mainland China can participate in one of the fastest growing and the

[1] Market cap statistics as at end of Mar 2014; Average Daily Turnover statistics are for Jan-Mar 2014. Source: Shanghai-Hong Kong Stock Connect For investing in SSE securities.

[2] For further information see Shanghai-Hong Kong Stock Connect Information Book for Investors (2015), http://www.hkex.com.hk/eng/market/sec_tradinfra/chinaconnect/Documents/Investor_Book_En.pdf