



Contents lists available at ScienceDirect

Pacific-Basin Finance Journal

journal homepage: www.elsevier.com/locate/pacfin

Role of index futures on China's stock markets: Evidence from price discovery and volatility spillover



Hong Maio^a, Sanjay Ramchander^a, Tianyang Wang^a, Dongxiao Yang^{b,*}

^a Colorado State University, 1272 Campus Delivery, Fort Collins, CO 80523-1272, United States

^b School of Economics, Shandong University, No. 27, South Shanda Road, Jinan, Shandong 250100, China

ARTICLE INFO

Keywords:

Index futures
China's stock market
Information sharing
Volatility spillover

ABSTRACT

The introduction of stock index futures in China in 2010 marked an important development in the country's financial markets. It was however not without controversy as regulators blamed the futures market for its role in the stock market crash in 2015. This paper examines the intraday price discovery and volatility spillover relationship between the CSI 300 equity index and index futures in China. Results from the study, covering the period 2010–2015, reveal that index futures plays a dominant role in contributing towards price discovery, with an average yearly information share of about 67%. The price leadership of the futures market, although found to be strong, is diminished in the presence of stringent regulatory trading curbs that were put in place as a response to the crisis. Furthermore, investigation into volatility spillover documents significant return and volatility shocks transmitted from the stock market to the futures market. The evidence, which contradicts regulatory claims, is explained in the context of the unique institutional trading structure in China.

1. Introduction

The introduction of stock index futures in China in April 2010 was hailed as one of the landmark developments in Chinese financial markets. The dominant view prevailing at that time among investors and regulators was that index futures would play a stabilizing force in China's financial markets.¹ However, these views came under harsh scrutiny when the Chinese stock market crashed in June 2015, an event that erased nearly \$2 trillion of market capitalization. In an apparent volte-face, the China Securities Regulatory Commission (CSRC) blamed the stock market collapse on “malicious short-selling” by speculators in the futures market and described index futures as “weapons of mass destruction”.² In an attempt to stem the steep decline in stock prices and restore confidence in the market, CSRC quickly intervened with several restrictive measures in the futures market. The measures included increasing trading curbs, raising margin requirements for non-hedging purposes, imposing higher transaction fees, placing limits on

* Corresponding author.

E-mail addresses: Hong.miao@colostate.edu (H. Maio), Sanjay.Ramchander@colostate.edu (S. Ramchander), Tianyang.Wang@colostate.edu (T. Wang), ydx0929@126.com (D. Yang).

¹ Several public comments by regulators support this view. On December 5, 2014, Xiao Gang, chairman of the China Securities Regulatory Commission (CSRC) remarked, “Stock index futures are sophisticated risk management tools for improving the stock market operation mechanism, providing hedging instruments, improving the investment product market system and promoting stable development of great significance.” In a different comment Huo Ruirong, Executive Vice President of the Shanghai Futures Exchange (SHFE) and Executive Director of Shanghai Institute of Futures and Derivatives (SIFD) indicated that the “innovative development of the futures market not only involves the futures market itself but also is of great significance to improving the financial market system, promoting the real economy's development, facilitating the internationalization, and strengthening the price influence.”

² The “malicious short selling” in the futures market was defined by CSRC spokesman Deng Ge as “cross-market or cross-maturity manipulation.”

same-day trading,³ and suspending trading in various company shares that accounted for nearly 40% of market capitalization. In addition, CSRC announced a high profile investigation into the trading activities of the top 50 traders in the equity index futures, and introduced a string of state-led bailout measures of the stock market.

The tumultuous market events in 2015, combined with the unique institutional trading structure in China, provide motivation for investigating several issues related to the price discovery function of financial markets. Specifically, this paper examines the effect of the market crisis and corresponding regulatory interventions on price discovery and volatility relationships between the CSI 300 stock and futures indexes. The analysis will also shed light on regulatory claims that futures trading resulted in destabilizing the spot market. The study contributes to the literature in at least three important ways.

First, as described earlier, the information rich environment in 2015 in China motivates us to examine the contribution of futures trading to the efficiency of the underlying stock market in terms of price discovery. In general, researchers attribute the informational advantage of the futures market to its greater leverage, lower transaction costs, and ability to short-sell, among other factors. However, the stability of this relationship is subject to interpretation in the presence of severe market shocks and regulatory events. Previous studies in this area do not provide adequate guidance to our analysis since most futures markets examined in the literature are relatively homogenous in terms of their investor and trading structure, and the resulting evidence is primarily drawn from mature markets. In contrast to developed markets, trading in China's stock markets is dominated by individual (retail) investors (Ng and Wu, 2007), who are believed to be not as well informed when compared with their institutional counterparts.⁴ Studies such as by Seasholes and Wu (2007) and Dhar and Zhu (2006) suggest that individual investors are less informed and therefore more susceptible to sentiment swings and behavioral biases than their institutional counterparts. Under these conditions, we posit that the stock market in China may carry only a diminutive role in the price discovery process.

Second, unlike other large financial markets, China tightly controls its stock exchanges through a variety of measures such as trading restrictions, regulatory curbs, high barriers for foreign investor to enter the market, constrained access to credit, among other factors. If investors in China view index futures as a vehicle to circumvent onerous trading restrictions in the stock market such as same-day trading and short-sale ban, then the futures market arguably should assert greater leadership in price discovery.

Third, the recent stock market crisis and the alleged role of the futures market in causing the crisis provide an interesting window to examine the price discovery function in Chinese financial markets. In response to the stock market crash in June 2015 the Chinese regulatory authority undertook a series of intervention measures and launched a formal investigation into the role played by the futures market in exacerbating the crisis. An analysis of specific interventions during this period will provide granular insights into the stability of the price leadership relationship between index futures and the stock market.⁵

To summarize, the presence of the differential institutional trading features in China combined with regulatory interventions in the immediate aftermath of the stock market crisis provides an interesting experimental setting to examine the price discovery role of financial markets. In line with this argument, our study also examines volatility linkages between the CSI 300 index futures and the corresponding equity index markets. Volatility linkages may arise from either common information that alter expectations, thereby affecting asset demand, or cross-market hedging that results in information spillovers. The findings here will help us evaluate regulatory claims that trading in futures market played a destabilizing role in the stock market.

The contributions of the study are framed in the context of theoretical predictions on the impact of trading costs and regulatory shocks on price discovery. Fleming et al. (1996) introduce the “trading cost” hypothesis which suggests that the cost of trading has an impact on the price leadership between futures and cash markets. Kim et al. (1999) test and confirm the “trading cost” hypothesis across various futures and cash indices. Additionally, Ito and Lin (2001) propose the “policy spillover” effect when regulatory changes such as increases in margin requirement transfer trading volume to closely linked markets. Hsieh (2004) examines the impact of market regulatory changes on information leadership and finds that both lower transaction cost and higher trading volume are associated with greater price discovery and information transmission. In our study, during the market crisis, the transaction fees for daily purchases and sales in the futures market were raised 100-fold, from 0.023‰ to 2.3‰, along with a significant increase in margin requirements for non-hedgers from 10% to 40% of the contract value. In addition, the trading volume of stock index futures declined about 90% after the CFFEX imposed position limits for all investors deemed to engage in “abnormal trading.” Therefore, according to the “trading cost” hypothesis and the “policy spillover” effect, in the presence of stringent regulatory trading curbs during the crisis, we expect that the significant increase of overall trading costs and dramatic decrease of trading volume will lead to weaker price leadership of the futures markets.

It is also important to highlight how our study differs from previous research of the Chinese stock market. We believe that our study offers the most comprehensive investigation of price discovery and volatility transmission effects in the Chinese stock market. In contrast to earlier studies that use relatively low frequency (daily or 5 min frequency) (cf. Judge and Reancharoen, 2014, Xie and Huang, 2014) and short examination windows surrounding the introduction of equity futures in China in 2010 (cf. Yang et al., 2012), our analysis benefits from a longer sample period that spans April 2010 through December 2015. Importantly, none of the earlier studies examine the crisis period in 2015. Our study employs intraday data measured at 5-s intervals thus providing an added level of granularity as well as robustness to the analysis. The start of the sample period coincides with the launch of the CSI 300 stock index

³ Among the harshest new rules included the definition of “abnormal trading” to positions over 10 contracts on a single index future. Fees for settling positions were also raised 100-fold, from 0.023‰ to 2.3‰, while margin requirements on futures contracts were also increased considerably.

⁴ According to Reuters about 85% of trades on the Chinese stock market are retail investors with increasing dependence on leverage. Not surprisingly, as noted by Credit Suisse, the market is also shown to have one of the highest turnover ratios. It has also been documented that less than 7% of urban Chinese have money invested in the stock market, with a large group of investors possessing an education level of middle school or below (see China Household Finance Survey).

⁵ We will provide a detailed discussion about the time line of regulatory interventions and their impact on information shares in Section 6.

Download English Version:

<https://daneshyari.com/en/article/5102298>

Download Persian Version:

<https://daneshyari.com/article/5102298>

[Daneshyari.com](https://daneshyari.com)