

COMPLETION REPORT

Volatility Spillovers between Stock and Exchange Rate Markets: Evidence from China and Japan

Dr. Zhaoyong Zhang
Professor of Finance & Economics
Edith Cowan University

1. Outcomes:

This research project aims to investigate the dynamic volatility spillover effects of the Chinese stock and exchange rate markets on the Japanese and other East Asian markets by using high frequency data from 1990 to the most recent year and to examine the mean and volatility transmission mechanism between exchange rates and stock market return in China and Japan. With a well-established theoretical framework in a multi-country and multi-market settings, we have constructed various news sentiment measures based on the event sentiment and news novelty and employed the Dynamic Conditional Correlation GARCH (DCC-GARCH) model and the modified Multivariate Generalized Autoregressive Conditional Heteroskedastic-in-Mean Vector Autoregression (MGARCH-M VAR) model to assess the impacts of news flows and sentiment on RMB volatility and volatility spillovers between Chinese and Japanese equity and exchange rate markets by using the high frequency news data. Even with the reduced budget amount and despite the recent COVID-19 outbreak, I've managed to complete this project with great success. A series of articles have been produced and published in international academic journals (two papers are still pending for further revisions).

The major findings of this project are: (1) It is found with strong empirical evidence that there exist co-volatility effects among the financial markets in China and Japan during the period in 1998–2018, and the volatility of RMB exchange rates contribute to the co-volatility spillovers across the financial markets. (2) The return shock from the stock markets can also generate co-volatility spillover to the foreign exchange markets. The bidirectional relationship reveals that both the fundamental hypothesis and the investor-induced hypothesis are valid. (3) The results also show that the spillover effects led by the stock market in Japan are stronger than that from the foreign exchange markets and the Chinese stock markets, implying that market with higher accessibility has greater spillover effects onto other markets. (4) We also found that the average co-volatility spillover effects among the RMB exchange markets and the stock markets in Japan and China are generally negative. These findings have important policy implications for risk management and hedging strategies. (Qin, Zhang and Zhang, 2018, *Risks*)

I have also conducted some research related to this project to investigating some research issues on other East Asian financial markets, for instance, examining the efficiency of the Chinese stock market, Singapore (non-)CPF investment schemes and foreign exchange rate markets, as well as impact of China's internationalization process, and got them published with an acknowledgement of financial support from the Foundation.

In conclusion, this project has been very productive and successful, and led to a series of important publications in international academic journals.

2. The Future Plan:

I'm planning to continue the current research on the East Asian financial market integration, with a particular focus on the two largest markets of China and Japan, to comprehending and advancing our understanding of the spillover effects of China's rise and RMB internationalization on the regional financial market integration, and the bilateral economic interaction between China and Japan. This will contribute to the existing literature on how the public information flows affect the foreign exchange value of the regional currencies and how the cross-market spillover effects affect Sino-Japanese firms' operations as well as the bilateral trade and investment between China and Japan. We look forward to the Foundation's continued support in the future.

Once again, many thanks for the financial support from the Sumitomo Foundation which has made this research project a great success.

Publication of the Results of Research Project:

Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.)

1. The preliminary results of this research project entitled "News release and volatility spillover effects in the Chinese stock index spot market and index future market" were presented in an academic seminar at Shandong University, China, on 19th December 2019. Presenter: Zhaoyong Zhang
2. The preliminary results of a paper entitled "Uncertainty Effects of Chinese Renminbi on Asian Exchange Rate and Stock Return: A Bivariate GARCH-in-Mean VAR Analysis" coauthored by Sheue Li Ong, Kiyotaka Sato and Zhaoyong Zhang, were presented in The 4th International Conference On China's Rise and Internationalization: Challenges and Impacts Regionally and Globally in Ningbo, China, 7-8 December 2018. Presenter: Sheue Li Ong
3. The preliminary results of this research project entitled "News and Return Volatility of Chinese Bank Stocks" were presented in The 86th International Atlantic Economic Conference in New York, United States, 11-14 October 2018. Presenter: Zhaoyong Zhang

Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.)

1. F.M. Qin, J.R. Zhang and **Z.Y. Zhang** (2018), "RMB Exchange Rates and Volatility Spillover across Financial Markets in China and Japan", *Risks* (MDPI: Web of Science and Scopus), 2018, 6, 120 1-26; doi:10.3390/risks6040120. **(Indexed in Scopus (Elsevier), Web of Science, ABDC)**
2. K.Y. Ho, Y.L. Shi and **Z.Y. Zhang** (2018), "Public Information Arrival, Price Discovery and Dynamic Correlations in the Chinese Renminbi Markets", *The North American Journal of Economics and Finance* (Elsevier), 46, 168-186. <https://doi.org/10.1016/j.najef.2018.04.005>. **(Indexed in Scopus (Elsevier), SSCI, Web of Science, ABDC)**
3. J.H. Qi, Z.Y. Zhang and H. Liu (2018), "Pioneers versus Followers: The Internationalization Process of Chinese MNCs", *The North American Journal of Economics and Finance*, (Elsevier), 46, 272-285. <https://doi.org/10.1016/j.najef.2018.04.012>. **(Indexed in Scopus (Elsevier), SSCI, Web of Science,**

ABDC)

4. K.Y. Ho, Y.L. Shi and Z.Y. Zhang (forthcoming), “News and Return Volatility of Chinese Bank Stocks”, *International Review of Economics & Finance* (Elsevier), <https://doi.org/10.1016/j.iref.2018.12.003>. (**Indexed in Scopus (Elsevier), SSCI, Web of Science, Q1, ABDC**)
5. X.Y. Shen, Albert K. Tsui and Z.Y. Zhang (2019), “Volatility Timing in CPF Investment Funds in Singapore: Do They Outperform Non-CPF Funds?” *Risks* (MDPI: Web of Science and Scopus), 2019, 7, 106: 1-16; doi:10.3390/risks7040106. (**Indexed in Scopus (Elsevier), Web of Science, ABDC**)
6. J.Y. An, K.Y. Ho and Z.Y. Zhang (2019), “What drives the liquidity premium in the Chinese stock market?”, *The North American Journal of Economics and Finance* (Elsevier), <https://doi.org/10.1016/j.najef.2019.101088>. (**Scopus (Elsevier), SSCI, Web of Science, ABDC**)
7. J.H. Qi, H. Liu and Z.Y. Zhang (forthcoming), “Exchange Rate Uncertainty and the Timing of Chinese Outward Direct Investment”, *International Review of Economics & Finance* (Elsevier). (**Indexed in Scopus (Elsevier), SSCI, Q1, Web of Science, ABDC**)
8. JR Zhang and Z.Y. Zhang (accepted), “CSR, Media and Stock Illiquidity: Evidence from Chinese Listed Financial Firms”, *Finance Research Letters*, (Elsevier). (**Indexed in Scopus (Elsevier), SSCI, Web of Science, Q1, ABDC “A”-rank**)

Book (Publisher and Date of the Book, Title and Author of the Book, etc.)