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Volatility Transmission Between ASEAN-5 Stock Exchanges:

An Approach in the Context of China's Stock Market Crash

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ABSTRACT

This article aims to analyse risk transmission among the financial markets of China and ASEAN-5 in the context of the 2015 Chinese stock market crash. For this purpose, the authors test if (1) the volatility resulting from the 2015 stock market crash has positively influenced risk transmission among ASEAN-5 and China markets and (2) increased risk perception has led to a negative reaction from investors, both in ASEAN-5 as in China markets. The results imply an enhancement of the asymmetric effect, suggesting that during the crash, market volatility responded more significantly to bad news than to good news. In the post-crash, volatility dropped expressively. During the crisis, risk transmission was significant to the point of jeopardising portfolio diversification in the ASEAN-5 markets. In the post-crash, markets tended to balance, mitigating the risk very significantly. The authors believe that there are opportunities for international investors to readjust their portfolios in these regional markets.

KEYWORDS

Arbitrage, ASEAN-5, Comovements, GARCH Models, Portfolio Diversification, Risk Transmission, Stock Market Crash, Volatility

INTRODUCTION

The recent Chinese stock market crash (2015-2016) withstands the interest in examining the effects of volatility in ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore and Thailand) markets, providing hedge implications, asset allocation, trading strategies and portfolio diversification. From the end of 2014 to the first half of 2015, China experienced a booming market. The Shanghai-Hong Kong Stock Connect

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seemed to serve as a new channel of foreign capital entry to mainland China, possibly contributing to a significant increase in bubble creation in these regional markets. The following stock market crash was very significant. This crash stemmed from China's diminishing economic growth, which led to a significant drop in the country's imports and exports (Salidjanova and Koch-Weser, 2015).

Given China's influence on the global economy, this financial crisis is expected to have a significant impact on its trading partners, especially those in the ASEAN-5 region, especially due to its exposure to the risk arising from China's exports. Moreover, the collapse may also have been caused by the surprise of the RMB devaluation and the consequent panic in the Chinese financial market, which was eventually transmitted to other trading partners. The newly introduced circuit breaker mechanism, which aimed to avoid systemic risks, has been suspended, contributing to the collapse of the market. Therefore, it is essential to analyse the repercussions of the shocks in China and to examine the financial links in terms of source, magnitude and evolution in the volatility spillovers on these regional markets (Hung, 2019; Sanusi, Singagerda, and Septarina, 2019; Vu, 2019).

Whatever the perspective of analysis, an evident fact involving volatility, is its relationship with the instability and turbulence of financial markets, as well as with investors' behaviour. Thus, a correct analysis of volatility estimation will become important, not only for the outline of a good asset management strategy, but also for understanding the moments of uncertainty in financial markets (Potjagailo, 2017; Abad, Alsakka, and ap Gwilym, 2018).

Therefore, this study aims to analyze risk transmission among the ASEAN-5 and China markets, in the context of the stock market crash, in China, in the year 2015. The sample is partitioned into three sub-periods, comprises daily quotations of analysed markets, for the period from December 1, 2014 to January 30, 2019. To achieve the research objective, analysis is divides in two steps: *i*) volatility resulting from 2015 stock market crash positively influenced risk transmission among ASEAN-5 and China markets; (ii) increased risk perception has provoked a negative reaction from investors in the ASEAN-5 and China markets. The results suggest that, during the crash sub-period, the highlight of the asymmetric effect intensified volatility reaction to bad news, rather than to good market news, proving the presence of volatility in these regional markets. However, in the *post*-crash, volatility dropped expressively, significantly reversing the signals. During the crash, there was a significant risk transmission, to the point of questioning portfolio diversification in the ASEAN-5 markets. However, in the *post*-crash, markets tended to balance, mitigating risk in a very significant way. In view of this evidence, the authors believe that there are conditions for international investors to readjust their portfolios in these regional markets. This evidence confirm the research questions.

As mentioned above, this article analyses the behaviour of ASEAN-5 and China's financial markets before, during and after the 2015-2016 collapse, from a risk transmission perspective. Therefore, this research aims to fill this gap and contribute to the existing literature, as follows. Firstly, the authors believe that studing the possible links between China and the ASEAN-5 regional markets will create very relevant evidence on the dynamics amongst these regional markets. Secondly, the dynamic GARCH and EGARCH models are applied in order to exploit the risk concerning the six stock exchanges (ASEAN-5 and China), providing clarity on their synchronisations. Thirdly, this article uses a sample period covering the most recent chinese stock market crash, in 2015-2016, examining its impact on the ASEAN-5 financial markets.

In terms of structure, the article is organised into 5 sections. Section 1 presents the current introduction, section 2 provide a discussion based on a literature review to the topic of volatility in financial markets, section 3 describes data and methodology and section 4 shows the results and its discussion. Finally, section 5 displays the conclusion.

LITERATURE REVIEW

Volatility is a very relevant, particularity in financial markets, although it is not directly observable and therefore it is considered that, its estimation or forecast is more difficult to analyze. Binomial