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Using multivariate stochastic volatility models to investigate the interactions among NASDAQ and major Asian stock indices

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Abstract

In this article, we employ a multivariate stochastic volatility (MSV) model to investigate the return and volatility interactions among three major Asian stock indices and the NASDAQ index. Using Laplace approximation to simplify the calculation of the likelihood function of the MSV model, we estimate the complex dynamics among these indices relatively quickly. A interesting phenomenon of our empirical results is that all the market indices examined exhibit significant leverage effects, especially the TWSI (Taiwan) index. Moreover, the return correlations are large in links between these Asian markets, but small in links between every Asian index and the NASDAQ index. However, the volatility correlations display a totally different pattern that is large in links of NASDAQ-TWSI, NASDAQ-KOSPI (South Korea), but small among links between these Asian indices.

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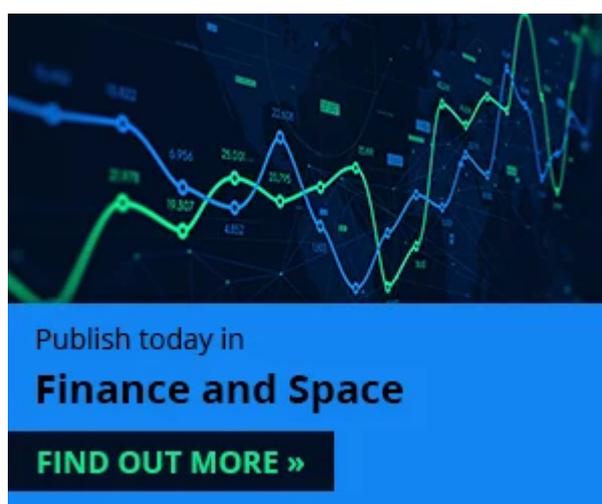Source: Applied Financial Economics

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