

# An empirical analysis of volatility, covariance and hedging ratio by the SIML estimation at the Osaka Securities Exchange

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## Abstract

For estimating the integrated volatility and covariance by using high frequency data, Kunitomo and Sato (2008a,b) have proposed the Separating Information Maximum Likelihood (SIML) method when there are micro-market noises. Subsequently, Kunitomo and Misaki (2012) have investigated the method when the data are randomly and non-synchronously observed. In this paper we analyze high frequency financial data in the Japanese stock market, using tick-by-tick transaction prices from the Osaka Securities Exchange (OSE). Our main purpose is to estimate daily volatility, covariance and other related quantities by using SIML estimator and to compare them to some alternative estimators. As a result, we have found that the SIML estimation provides reasonable results in any case whereas most of the examined alternatives are severely biased. Then it is suggested that the SIML estimation is useful in an actual market.

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