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Estimation of stochastic volatility by using Ornstein-Uhlenbeck type models.

Maria C. Mariani*, Md Al Masum Bhuiyan†
and Osei K. Tweneboah‡

Abstract

In this study, we develop a technique for estimating the stochastic volatility (SV) of a financial time series by using Ornstein-Uhlenbeck type models. Using the daily closing prices from developed and emergent stock markets, we conclude that the incorporation of stochastic volatility into the time varying parameter estimation significantly improves the forecasting performance via Maximum Likelihood Estimation. Furthermore, our estimation algorithm is feasible with large data sets and have good convergence properties.

Keywords: Stochastic volatility; Ornstein-Uhlenbeck processes; Financial time series; Maximum likelihood estimation

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