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Fitting a Two Phase Threshold Multiplicative Error Model

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Abstract

The recent literature on financial time series analysis has devoted considerable attention to nonnegative time series, such as financial durations, realized volatility, and squared returns. The class of models, referred to as the multiplicative error models [MEM], is particularly suited to model such nonnegative time series. We develop a lack-of-fit test for fitting a two-phase threshold model for the conditional mean function in an MEM. The proposed testing procedure can also be applied to a class of autoregressive conditional heteroscedastic threshold models. We evaluate the test in a simulation study. The testing procedure is illustrated by using two data examples.

JEL Classifications: C12, C52.

Keywords: Lack-of-fit test; martingale transform; Kolmogorov-Smirnov.

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