"Smooth Transition Autoregressive Stochastic Volatility (STAR-SV) Modeling--Bayesian Inference Through C++ Programming"

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ABSTRACT

Smooth transition autoregressive stochastic volatility (STAR-SV) model is believed well fitted in modeling nonlinear financial time series. The modeling of financial data normally involves a large amount of calculation and C++ among many other programming languages has been found good applications in the financial world. In this study, we first developed a C++ Gibbs sampling program and then applied it to STAR-SV modeling of simulated data sets from a Bayesian perspective. We used logistic function as the smooth transition function and tested using h_t -1 and y_t -1^2 as the transition variables. The effect of using different prior distributions on the posterior estimation was investigated. The Markov Chain properties with regard to sampling algorithms were also discussed.