

Regime-Switching Stochastic Volatility and Short-Term Interest Rates

In this paper, we introduce regime-switching in a two-factor stochastic volatility model to explain the behavior of short-term interest rates. The regime-switching stochastic volatility (RSV) process for interest rates is able to capture all possible exogenous shocks that could be either discrete, as occurring from possible changes in the underlying regime, or continuous in the form of 'market-news' events. We estimate the model using a Gibbs Sampling based Markov Chain Monte Carlo algorithm that is robust to complex non-linearities in the likelihood function. We compare the performance of our RSV model with the performance of other GARCH and stochastic volatility two-factor models. We evaluate all models with several in-sample and out-of-sample measures. Overall, our results show a superior performance of the RSV two-factor model.

Key Words: Short-term interest rates, stochastic volatility, regime switching, MCMC methods.

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