

Abstract: This paper develops a novel and efficient algorithm for Bayesian inference in inverse Gamma Stochastic Volatility models. It is shown that by conditioning on auxiliary variables, it is possible to sample all the volatilities jointly directly from their posterior conditional density, using simple and easy to draw from distributions. Furthermore, this paper develops a generalized inverse Gamma process with more flexible tails in the distribution of volatilities, which still allows for simple and efficient calculations. Using several macroeconomic and financial datasets, it is shown that the inverse Gamma and Generalized inverse Gamma processes can greatly outperform the commonly used log normal volatility processes with student-t errors.