



[VAR Models with Non-Gaussian Shocks](#)

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For more than seven years the US short-term nominal interest rate has remained at levels very close to zero while business cycle fluctuations gradually became less volatile following the onset of the Great Recession. Macroeconometric forecasting models have faced the challenge of accounting for such non-linearities in a meaningful and tractable way.

For example, vector autoregression (VAR) models with time-varying volatility assume smoothly drifting second moments. Therefore they are designed to capture persistent (low-frequency) changes in volatilities while being less capable of modelling transient (high-frequency) changes in volatility such as rare, fat-tailed events.

To address these issues and to challenge existing approaches, we introduce a Bayesian VAR model with non-Gaussian disturbances that are modelled with a finite mixture of normal distributions. Importantly, we allow for regime switching among the different components of the mixture of normals. Our model is highly flexible and can capture distributions that are fat-tailed, skewed and even multimodal. We show that our model can generate significant out-of-sample forecast gains relative to standard forecasting models, especially during tranquil periods.