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Stochastic volatility modeling in power markets

Abstract

We propose a stochastic volatility model based on non-Gaussian Ornstein-Uhlenbeck processes for power spot prices. The model is analytically tractable, and we derive many probabilistic properties like characterisation of the stationary distirbution and pathwise properties.

Further, the forward curve dynamics is explicitly computable and we show that is allows for hump shapes explained by changes in volatility. We present an empirical study of UK gas spot prices, where a simple version of the model turns out to work reasonably well. The model can be extended to multivariate case, and we present some issues realted to this. The talk is based on work joint with Linda Vos.