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The Jacobi stochastic volatility model

We introduce a novel stochastic volatility model, where the squared volatility could be bounded and follows a Jacobi process. This model comprises the Heston model as a limiting case. The price of a European call option admits a closed form series representation. This representation involves the moments of the log price of the asset, which are given in terms of a linear ordinary differential equation. We demonstrate that the numerical computations are robust and perform particularly well. In addition, we present theoretical bounds for the error in the price approximation. The proposed pricing method has important implications as it could be applied to a wide range of European type claims. This is joint work with Damien Ackerer and Damir Filipovic.