Calibration of stochastic volatility models via second order approximation

Josep Vives

(in collaboration with Elisa Alòs, Rafael De Santiago, and Raúl Merino)

Department of Mathematics and Computer Science, University of Barcelona

In this talk we present a decomposition of the pricing formula for a plain vanilla option for a general stochastic volatility diffusion model, obtained in [2]. In particular we develop a methodology to obtain an approximation of the implied volatility. In the case of the Heston model, in [1], we use this approximation to calibrate the full set of parameters of the Heston model.

References

[1] Alòs, E., De Santiago, R. and Vives, J. Calibration of stochastic volatility models via second order approximation: the Heston case *International Journal of Theoretical and Applied Finance*, **18** (6), 2015.

[2] Merino, R. and Vives, J. A generic decomposition formula for pricing vanilla options under stochastic volatility models *International Journal of Stochastic Analysis*, ID 103647, 2015.