

The Calibration of Stochastic-Local Volatility Models - An Inverse Problem Perspective

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We discuss the calibration of the so-called Stochastic-Local Volatility (SLV) model. This is the class of financial models that combines the local and stochastic volatility features and has been subject of the attention by many researchers recently. More precisely, given a local volatility surface and a choice of stochastic volatility parameters, we calibrate the corresponding leverage function. Our approach makes use of regularization techniques from the inverse-problem theory, respecting the integrity of the data and thus avoiding data interpolation. The result is a stable and robust algorithm which is resilient to instabilities in the regions of low probability density of the spot price and of the instantaneous variance. We substantiate our claims with numerical experiments using simulated as well as real data.