

ROBUSTNESS ANALYSIS FOR STOCHASTIC VOLATILITY MODELS

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In this poster we illustrate a robustness of several stochastic volatility models with respect to the market calibration. Lately many new members of the stochastic volatility class have been proposed - some of the proposed models include jump and / or fractional processes in the assumed market dynamics. From practitioner's point of view, one is typically interested in the real-market data performance as well as in a tractability of the approach.

To assess the real-market performance we measure robustness of calibrated parameters by bootstrapping four market data sets. Each data consists of close prices of European options on Apple Inc. stock traded on NYSE option market. We depict which particular traded options effect the calibration parameters most and we also plot variance and bootstrapping errors with respect to each contract. This is illustrated for jump-diffusion and fractional jump-diffusion models and compared with the popular stochastic volatility approach - Heston (1993) model.

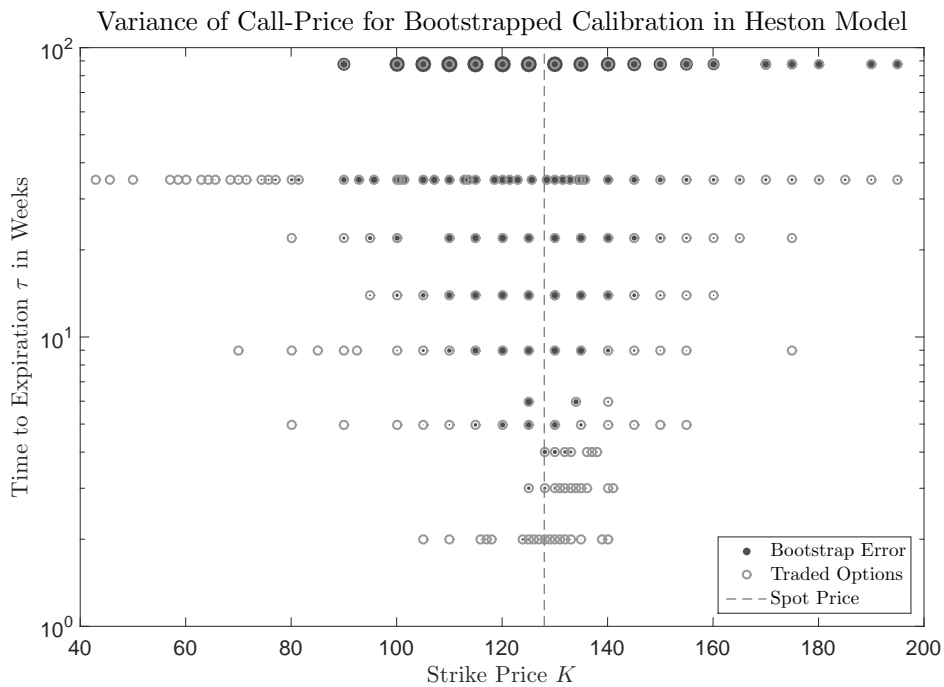


Figure 1: Variance of calibrated bootstrapped option prices (15. 5. 2015).