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Hedging GARCH options with generalized innovations

In this paper, we study the performance of different hedging schemes when the asset return process is modelled by a general class of GARCH models. Since the minimal martingale measure fails to produce a probability measure in this setting, we construct local risk minimization (Irm) hedging strategies with respect to a risk neutral measure. Using the conditional Esscher transform and the extended Girsanov principle as our martingale measure candidates, we construct Irm delta hedges based on different distributional assumptions regarding the GARCH innovations. An extensive numerical experiment is conducted to compare these hedges to the standard stochastic volatility delta hedges for different European style option maturities and hedging frequencies.