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Title of the talk:

"Joint calibration of SPX and VIX option surfaces: With applications to pricing and hedging equity and volatility linked hybrid notes."

The abstract :

Eberlein, Kallsen and Kristen (2003) argued that the VIX index is a good way to devolatilize SPX returns. Adopting this approach we construct a risk neutral model for SPX returns as a variance gamma process scaled by the VIX. We model the risk neutral evolution of the squared VIX as a mean reverting finite state continuous time Markov chain which we calibrate to VIX options and the forward variance swap curve. We derive closed forms for the characteristic function of the logarithm of the SPX as a VIX scaled variance gamma process with up jumps in the VIX directly impacting the SPX downwards. The SPX parameters are calibrated to SPX options.

Simulated sample paths are used to comment on the gap between the forward VIX in the model and the expected level of the volatility swap. The simulated path space is also used to price and statically hedge equity and volatility linked notes. The hedge is further enhanced by delta strategies extracted by an application of the SPSA technique with a view to lowering the ask price based on distorted expectations. A thrust of the paper is the demonstration of the desirability of zero cost hedging with a view to lowering the ask price required to make the unhedged risk acceptable, moving beyond hedging for replication which is viewed as too limited a perspective for realistic applications.