Joint CQSE and CASTS Seminar

Weekly Seminar
Oct. 12, 2012 (Friday)

TIME Oct. 12, 14:30 ~ 15:30
TITLE Joint Calibration to Cross-Market Data: A Monte Carlo Approach
SPEAKER Prof. Chuan-Hsiang Han
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Abstract

We propose a novel procedure to analyze financial risks associated with interest rate, default, and volatility in order to explain market information contained in the term structure of implied volatility surface. This procedure utilizes the Monte Carlo method for pricing options under high-dimensional models. To speed up simulation, both software and hardware techniques are employed, including a variance reduction method, i.e. martingale control variate, and a parallel computation using devices of graphics processing unit (GPU), respectively. Dramatic reduces on computing time enhance the possibility of using Monte Carlo calibration to implied volatility surfaces under complex pricing dynamics. Empirical results and comparisons with some existed calibration methods, for instance Fourier transform method or perturbation method, are demonstrated.