Stochastic Volatility Models

Week 2:

J. C. Hull and A. White, The Pricing of Options on Assets with Stochastic Volatilities, The Journal of Finance, 1987, 42, 281-300,

J. B. Wiggins, Option Values under Stochastic Volatility, Journal of Financial Economics, 1987, 19, 351-372,

Week 3:

H. Johnson and D. Shanno, Option Pricing when the Variance is Changing, Journal of Financial and Quantitative Analysis, 1987, 22, 143-151,

A. Melino and S. M. Turnbull, Pricing Foreign Currency Options with Stochastic Volatility, Journal of Econometrics, 1990, 45, 239-265,

L. O. Scott, Option Pricing when the Variance Changes Randomly: Theory, Estimation, and an Application, Journal of Financial and Quantitative Analysis, 1987, 22, 419-438,

E. M. Stein and J. C. Stein, Stock Price Distributions with Stochastic Volatility: An Analytic Approach, The Review of Financial Stuides, 1991, 4, 727-752

Week 4: J. C. Hull and A. White, An Analysis of the Bias in Option Pricing Caused by a Stochastic Volatility, Advances in Futures and Options Research, 1988, 3, 29-61,

S. L. Heston, A Closed Form Solution for Options with Stochastic Volatility with Applications to Bond and Currency Options, Review of Financial Studies, 1993, 6, 327-343,

Week 5: Y. Maghsoodi Exact solution of a martingale stochastic volatility option problem and its empirical evaluation Mathematical Finance Volume 17, Issue 2, pages 249265, April 2007

The SABR model: see the wikipedia entry.

Further topics

Pricing in stochastic volatility models:

R. Frey, Derivative Asset Analysis in Models with Level-Dependent and Stochastic Volatility, CWI Quarterly, 1997, 10, 1-34,

Avellaneda, M., Levy, A. and Paras, A., Pricing and hedging derivative securities in marklets with uncertain volatilities, *Applied Mathematical Finance*, **2**, 73-88, 1995.

Bergman, Y., Gundy, B.D. and Wiener, Z., General properties of option prices, *Journal of Finance*, **LI**, 1573–1610, 1996.

Henderson, V., Analytical comparisons of option prices in stochastic volatility models, *Mathematical Finance*, **15**, 49–59, 2005.

Lyons, T.J., Uncertain volatility and the risk-free synthesis of derivatives, *Applied Mathematical Finance*, 2, 117–133, 1995.

Pricing pathologies:

Sin, C., Complications with stochastic volatility models, Advances in Applied Probability, 30, 256–268, 1998.

Lewis, A.L., *Option valuation under stochastic volatility*, Finance Press, Newport Beach, California, 2000.

Andersen, L.B.G. and Piterbarg, V.V., Moment explosions in stochastic volatility models, *Finance and Stochastics*, **11**(1), 477-492, 2007.