

1046-00-1413

Hari P Adhikari* (hpadhika@mail.usf.edu), 4202 E Fowler Ave, PHY 114, Tampa, FL 33620.
American Option Pricing under Stochastic Volatility.

In this paper, we price the American option where the underlying asset follows the diffusion process and the stochastically varying volatility parameter follows the mean-reverting process.

In this method, the free boundary system for American option is converted into a fixed boundary value problem with free boundary curve incorporated into the coefficients of new PDE. Then using integral transform (Fourier/Laplace), PDE is converted into ODE which can be readily solved. The solution is transformed back to the original space which explicitly contains the free boundary curve. The free boundary curve is numerically solved and substituted in the above solution giving us the solution for the American option under stochastic volatility.

We shall compare the price solutions of American options by this approach and by some other methods, in terms of the accuracy, efficiency, and robustness. (Received September 15, 2008)