

Regime-Switching Recombining Tree for Option Pricing

Ruihua Liu

**Dept of Mathematics
University of Dayton**
Ruihua.Liu@notes.udayton.edu

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Abstract

In this talk I will present a recombining tree for option pricing when the underlying asset price follows a regime-switching geometric Brownian motion. The tree grows linearly as the number of time steps increases. Thus it enables us to use large number of time steps to approximate both European and American option values. As an application, we construct a regime-switching model to approximate the well-known Heston stochastic volatility model and then use the tree to calculate the approximate option prices. Numerical results are provided and compared. The weak convergence of the discrete tree approximations to the continuous regime-switching process is established.