

Economics 870

Practice Assignment #6

- 1. D-D Ch. 11: Work through the binomial example 11.5; and the Asian Option example 11.6. What is the difference between the trees used in both examples? (Hint: think of recombining trees.)**
- 2. In Jarrow-Turnbull chapter 15 on Interest rate models and options, use a binomial tree and 3 dates to price a call option. Use the Ho-Lee model construction – what is wrong with it? (Hint: negative interest rates.) Can the model be modified to rectify the problem?**
- 3. In Jarrow and Turnbull Ch. 18 they discuss bonds with credit risk. Show that the argument to price options is an application of the general MM theorem in a stochastic multinomial framework. How would you deal with counterparty risk? (Hint: see J&T section 18.3)**
- 4. In Jarrow and Turnbull Ch. 4, they show that we can approximate Brownian motion stochastic differential equation with an appropriate binomial tree on stock prices. In Hua He's paper "Convergence from Discrete to ..."
<http://qed.econ.queensu.ca/faculty/milne/873/ECON873%20%282008%29%20Convergence%20from%20Discrete%20to%20Continuous.pdf>
sections 1-3 he uses examples to show that this approximation can be generalized to multinomial cases. See also Milne Ch 14 sections 14.1 and 14.2. Check that the Jarrow and Turnbull, and He examples are numerical examples of the general Milne argument.**

