CIR Equilibrium and Term Structure Models

Detailed outline

1. CIR equilibrium model
   (a) Production technology with stochastic constant returns to scale
   (b) Markov state variables
   (c) Identical agents
   (d) Optimal production and consumption in pure production economy
   (e) Linear factor pricing model
2. CIR term structure model
   (a) Log utility
   (b) Single state variable with mean-reverting square-root process
   (c) Markov interest rate with with mean-reverting square-root process
   (d) Closed-form bond prices

Readings

Cox, J., J. Ingersoll, and S. Ross, 1985, An intertemporal general equilibrium model of asset prices, *Econometrica* 53, 363-384.

Cox, J., J. Ingersoll, and S. Ross, 1985, A theory of the term structure of interest rates, *Econometrica* 53, 385-407.

Problem

Use martingale methods to prove Theorem 2 of CIR (1985a).