

1133-60-330

**Tao Pang\*** (tpang@ncsu.edu), Campus Box 8205, Raleigh, NC 27695-8205. *Portfolio Optimization with Stochastic Volatility and Stochastic Dividend.*

We consider a portfolio optimization model of Merton's type with one risky asset and one riskless asset. In this model, not only the price of the risky asset follows a stochastic process with a stochastic volatility given by a mean-reverting process, but also there is a random productivity output from the risk asset. This model can be used to model stock with uncertain dividend rate or real estate properties with productivity income such as rent or farm products. The goal is to choose the optimal investment and consumption controls to maximize the investor's expected total discounted utility. We derive the Hamilton-Jacobi-Bellman (HJB) equation using the dynamic programming principle. Then, using the subsolution/supersolution method, we can establish the existence result of classical solution to the HJB equation. Finally, we verify that the solution is equal to the value function, and derive the optimal investment and consumption controls. (Received July 31, 2017)