

1116-35-319

Michael Oyesola Okelola* (oke1o1a@ukzn.ac.za), University of KwaZulu-Natal, School of Mathematics, Statistics & Computer, Private Bag X5400, Durban, KwaZulu-Na 4000, South Africa, and **K S Govinder**, University of KwaZulu-Natal, School of Mathematics, Statistics & Computer, Private Bag X5400, Durban, KwaZulu-Na 4000, South Africa. *Analytical solutions to the partial hedging of the HJB model in a stochastic volatility environment*. Preliminary report.

We look at the problem of hedging a portfolio, modeled as a nonlinear Hamilton Jacobi Bellman equation, in a stochastic volatility environment. Previous studies have either dealt with the physically non-relevant cases of constant and time dependent volatility or of obtaining numerical solutions to the stochastic volatility case.

The problem which is a partial differential equation with four independent variables is addressed via the Lie group approach. We obtain an analytical solution for the problem in a stochastic volatility environment and also show the physical implications of our result by using a simulated portfolio form. (Received August 25, 2015)