On Maximizing Dividends by Investment and Reinsurance

George S. Ongkeko, Jr.
Department of Mathematics, University of the Philippines
Diliman, Quezon City, Philippines
e-mail: gjsongkeko@math.upd.edu.ph

Ricardo C.H. Del Rosario
Department of Mathematics, University of the Philippines
Diliman, Quezon City, Philippines
e-mail: rcdelros@math.upd.edu.ph

Maritina T. Castillo*
School of Actuarial Studies
Faculty of Commerce and Economics
University of New South Wales
e-mail: tina.castillo@unsw.edu.au

A simple model of the surplus of an insurance business is considered with investments in risky and non-risky assets, whose claims are assumed to follow a Brownian motion, and "cheap" reinsurance is used to transfer risk to the reinsurer. The business surplus is controlled by the amount of reinsurance, by the proportion of wealth invested in risky and non-risky assets, and by the amount of dividend paid out. The strategy that maximizes the expected present value of future dividends is computed using the Hamilton-Jacobi-Bellman equation.

Keywords: stochastic control, Hamilton Jacobi Bellman equation, insurance

* Presenter.