

Reinsurance Contract Valuation When the Liabilities are of Fractional Brownian Motion type

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Abstract

In this paper we study the valuation of reinsurance contracts for liabilities exhibiting long range dependence modelled by fractional Brownian motion. We examine both aggregated excess and proportional reinsurance contracts and we model the contract as an Asian type option. Specifically using fractional Itô calculus and ideas from option pricing theory we derive a partial differential equation the solution of which provides the value of the reinsurance policy. An analytical solution is found for this equation and the results obtained by this approach are compared with the results obtained by Monte-Carlo simulation.

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