Optimal Reinsurance and Investment Strategy Under CEV Model with Fractional Power Utility Function

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Abstract	This paper studies the optimal reinsurance and investment problem for insurance companies (insurers) with a fractional power utility function. Assuming that the insurer surplus process is approximated by Brownian motion with drift, the insurer may purchase reinsurance and invest the capital in a financial market consisting of risk-free asset and risk asset whose price is modeled by constant elasticity variance (CEV) model. The insurer's objective is to maximize the expected fractional power utility from terminal wealth. The explicit expressions for optimal reinsurance-investment strategy and value function are determined by the stochastic approach, which uses the equations of Hamilton-Jacobi-Bellman. Finally, the numerical simulations are presented to show the effects of model parameters on the insurer's optimal reinsurance and investment strategies.
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