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Optimal reinsurance-investment problem under mean-variance criterion with n risky assets.
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Summary: Based on the mean-variance criterion, this paper investigates the continuous-time reinsurance and investment problem. The insurer's surplus process is assumed to follow Cramér-Lundberg model. The insurer is allowed to purchase reinsurance for reducing claim risk. The reinsurance pattern that the insurer adopts is combining proportional and excess of loss reinsurance. In addition, the insurer can invest in financial market to increase his wealth. The financial market consists of one risk-free asset and n correlated risky assets. The objective is to minimize the variance of the terminal wealth under the given expected value of the terminal wealth. By applying the principle of dynamic programming, we establish a Hamilton-Jacobi-Bellman (HJB) equation. Furthermore, we derive the explicit solutions for the optimal reinsurance-investment strategy and the corresponding efficient frontier by solving the HJB equation. Finally, numerical examples are provided to illustrate how the optimal reinsurance-investment strategy changes with model parameters.

MSC:

[91G05](#) Actuarial mathematics

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