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## Optimal dividends and reinsurance with capital injection under thinning dependence

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### Abstract

In this talk, we adopt the variance premium principle to investigate the problem of optimal dividends and reinsurance in a diffusion approximation risk model with thinning-dependence structure. We first study the optimal problem without capital injection. We then consider the incorporation of forced capital injection into the model whenever the reserve level drops below zero. We finally turn to the general problem in which capital injection is allowed but not compulsory. For the three optimal problems, we apply the technique of stochastic control theory to obtain closed-form expressions for the optimal strategies and the corresponding value functions for two classes of insurance business with thinning dependence. We also present some numerical examples to show the effect of parameter values on the optimal policies.

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