Minimization of the Total Required Capital by Reinsurance

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Abstract

Reinsurance reduces the required capital of the primary insurer but increases that of the reinsurer. Capital is costly. All capital costs, including that of the insurer and the reinsurer, are ultimately borne by primary policyholders. Reducing the total capital of insurers and reinsurers brings down the total capital cost and the total primary policy premium. A reinsurance arrangement is considered optimal—if it minimizes the total required capital. This optimal reinsurance is an attracting equilibrium under price competition. Evidence suggests an inverse relationship between the total required capital and the correlation between the losses held by different insurers and reinsurers. Examples are constructed to examine this and other properties of the optimal reinsurance.

Keywords

Required capital, capital cost, optimal reinsurance, subadditive risk measure, correlation between losses