

## INTISARI

### OPTIMISASI KOMBINASI REASURANSI *QUOTA-SHARE* DAN *STOP-LOSS* BERBASIS PENGUKURAN RISIKO *CONDITIONAL TAIL* *EXPECTATION* (CTE)

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Setiap perusahaan asuransi memiliki batas kemampuan terkait besar klaim maksimal yang dapat ditanggung sehingga diperlukan adanya perjanjian kontrak reasuransi untuk risiko yang tidak dapat ditanggung sendiri. Jenis kontrak reasuransi yang umum digunakan adalah *stop-loss* dan *quota-share*. Pada kontrak reasuransi *stop-loss*, besar premi reasuransi yang harus ditanggung perusahaan asuransi relatif besar, tetapi kontrak reasuransi ini aman dalam menghadapi klaim yang besar. Sedangkan, dalam kontrak reasuransi *quota-share*, besar premi reasuransi proporsional mengikuti besar klaim yang ditanggung, tetapi kontrak reasuransi ini tidak cukup aman dalam menghadapi klaim yang besar. Oleh karena itu, pada skripsi ini akan dikombinasikan kedua jenis reasuransi tersebut untuk menutupi kekurangan masing-masing, dengan harapan dapat mengoptimalkan proteksi terhadap risiko. Penentuan proporsi retensi *stop-loss* dan *quota-share* yang optimal dilakukan melalui optimisasi *Conditional Tail Expectation* (CTE) dengan mempertimbangkan kendala premi reasuransi. Semakin kecil nilai CTE yang dihasilkan, semakin kecil pula kerugian klaim yang harus dibayarkan oleh perusahaan asuransi. Optimisasi ini diterapkan pada kombinasi reasuransi *quota-share* setelah *stop-loss* dan *stop-loss* setelah *quota-share*. Hasil penelitian menunjukkan bahwa penggunaan kontrak reasuransi *stop-loss* murni menghasilkan nilai CTE minimum dari risiko yang ditanggung perusahaan asuransi.

Kata Kunci: Asuransi, Reasuransi *Stop-Loss*, Reasuransi *Quota-Share*, Retensi Optimal, *Conditional Tail Expectation* (CTE).

## ABSTRACT

### **OPTIMIZATION OF QUOTA-SHARE AND STOP-LOSS REINSURANCE COMBINATION BASED ON CONDITIONAL TAIL EXPECTATION (CTE) RISK MEASUREMENT**

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Every insurance company has a limit on the maximum claim size that can be covered therefore a reinsurance contract agreement is needed for risks that cannot be covered alone. The commonly used types of reinsurance contracts are "stop-loss" and "quota-share". In a stop-loss reinsurance contract, the amount of reinsurance premium that must be covered by the insurance company is relatively large, but this reinsurance contract is safe in the face of large claims. Whereas, in a quota-share reinsurance contract, the amount of reinsurance premium is proportional to the size of the claim, but this reinsurance contract is not safe enough in the face of large claims. Therefore, this thesis will combine the two types of reinsurance to cover the shortcomings of each, in the hope of optimizing risk protection. The determination of the optimal retention proportion of stop-loss and quota-share is done through the Conditional Tail Expectation (CTE) optimization by considering the reinsurance premium constraint. The smaller the resulting CTE value, the smaller the claim loss that must be paid by the insurance company. This optimization is applied to the combination of quota-share reinsurance after stop-loss and stop-loss after quota-share. The results show that the use of a pure stop-loss reinsurance contract results in the minimum CTE value of the risk covered by the insurance company.

**Keywords:** Insurance, Stop-Loss Reinsurance, Quota-Share Reinsurance, Optimal Retention, Conditional Tail Expectation (CTE).