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## Ruin Probabilities in Cox Risk Models with Different Types of Claims

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摘要

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## Ruin Probabilities in Cox Risk Models with Different Types of Claims

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**Abstract** In this paper we consider risk processes with two classes of business in which the two claim-number processes are dependent Cox processes. We first assume that the two claim-number processes have a two-dimensional Markovian intensity. Under this assumption, we not only study the sum of the two individual risk processes but also investigate the two-dimensional risk process formed by considering the two individual processes separately. For each of the two risk processes we derive an expression for the ruin probability, and then construct an upper bound for the ruin probability. We next assume that the intensity of the two claim-number processes follows a Markov chain. In this case, we examine the ruin probability of the sum of the two individual risk processes. Specifically, a differential system for the ruin probability is derived and numerical results are obtained for exponential claim sizes.

**Key words** [Cox risk model](#) [ruin probability](#) [Markov process](#) [infinitesimal generator](#)

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