

EVALUATING RUIN PROBABILITIES IN A DEPENDENT RISK MODEL

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We consider a collective finite-horizon ruin probability model with Poisson claim arrivals, dependent claim amounts having any joint distribution and aggregate premium income represented by any non-decreasing positive, real valued function. In this paper, we first establish some enlightening connections between the finite-time ruin probability formulas obtained by Ignatov and Kaishev (2000, 2004) and provide their unified treatment in terms of classical Appell polynomials. Secondly, we consider their efficient numerical implementation and demonstrate that these formulas are useful not only theoretically but also in computing ruin probabilities in related practical applications. As recently pointed out by Das and Kratz (2012), the need to evaluate these ruin probability formulas naturally arises in the context of designing early warning systems against bankruptcy of (insurance) companies. Another application is in computing ruin probabilities and risk capital allocation under the so called dual risk model.

This talk is based on joint work with Vladimir Kaishev and Shouqi Zhao, Cass Business School, City University London.

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