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Analysis of a bivariate risk model

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In this paper, we first introduce a bivariate compound loss model describing the aggregate losses from two lines of insurance businesses. This model allows dependencies between claim frequencies as well as among claim sizes. We then present methods of calculating the probability that at least one line of business will get ruined as well as the probability that both lines of business get ruined. Numerical examples are given to show how the dependencies between the two type of losses affect the ruin probabilities.