

On a risk measure inspired from the ruin probability and the expected deficit at ruin

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Abstract

A natural extension of the dynamic VaR is the dynamic TVaR. It represents the amount of capital needed to cope in expectation with the insurance loss in the problematic cases that occur with probability less than epsilon. In ruin theory it has been common to study related but different quantities. Instead of looking at the maximal deficit that occurs over the lifetime of the process once the ruin boundary is crossed, the first crossing of the ruin boundary and its magnitude is often considered. This is why, in this talk, we consider a new risk measure, namely the amount of capital needed to cope in expectation with the first occurrence of an epsilon-event. Within the continuous-time compound Poisson risk model, we investigate for a fixed safety loading some stochastic orders inequalities on claim severities that enable to deduce the ordering of the corresponding risk measures. We identify some situations where the risk measure is subadditive and we prove that it is positively homogeneous. Moreover, we also show that it is not translation invariant. For small values of epsilon, it is proved that it fulfills similar properties than the dynamic VaR. Finally, in some particular cases, we also derive closed form expressions and upper bounds for the risk measure.

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