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Law of large numbers and large deviations for dependent risks

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Abstract

We analyse the mathematical structure of models for large risk portfolios, especially for credit risk models. These risk portfolios are modelled using a multivariate mixture model for the dependence structure between the risks. The dependence structures are characterized by latent variables Θ, which play the role of systematic risks. We show that, depending on the choice of the distribution of Θ, there are different asymptotic behaviours for the aggregated risk portfolio, namely law of large numbers/central limit theorem behaviour and large deviation behaviour.

Keywords:

Dependence structures | Copulas | Large deviation principles | Law of large numbers | Central limit theorems | Mixing distributions

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