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Quantitative Finance >

Volume 9, 2009 - Issue 2

147 2 0

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Law of large numbers and large deviations for dependent risks

Pages 207-215 | Received 10 Nov 2006, Accepted 11 Feb 2008, Published online: 12 Mar 2009



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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

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