

## **FINE-TUNING RISK ASSESSMENT THROUGH HIDDEN REGULAR VARIATION**

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A Gaussian dependence structure implies asymptotic independence in the sense that, two correlated risk factors which are jointly normally distributed are extremely unlikely to take very high (or low) values together (unless their correlation is 1). This phenomenon can be observed in many other dependence structures which are not necessarily Gaussian in nature. We concentrate on multivariate regularly varying distributions (our paradigm for multivariate heavy-tailed distributions) which often exhibit a similar property of asymptotic independence. Under asymptotic independence, though a joint extreme event is quite unlikely, yet it is still possible. We provide a formulation of hidden regular variation to find the part that is missed under the cruder normalization of multivariate regular variation in such cases and discuss some statistical estimation procedures for assessing probabilities of such joint risk events under this definition of hidden regular variation. (This talk is based on joint work with A. Mitra and S. Resnick.)