

SMALL PERTURBATIONS WITH LARGE EFFECTS ON VALUE-AT-RISK

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Abstract

We show that in the *delta-normal* model there exist perturbations of the Gaussian multivariate distribution of the returns of a portfolio such that the initial marginal distributions of the returns are statistically undistinguishable from the perturbed ones and such that the perturbed V@R is close to

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the worst possible V@R which, under some reasonable assumptions, is the sum of the V@Rs of each of the portfolio assets.

Keywords: Gaussian perturbation, value-at-risk, delta-normal model.

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