# Multivariate factor-based processes with Sato margins

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**Abstract**

We introduce a class of multivariate factor-based processes with the dependence structure of Lévy $\rho\alpha$-models and Sato marginal distributions. We focus on Variance Gamma and normal inverse Gaussian marginal specifications for their fit properties. We explore if Sato models allow to improve marginal fit while preserving correlation flexibility. Since $\rho\alpha$-models incorporate nonlinear dependence, we also investigate the impact of Sato margins on nonlinear dependence and its evolution over time. Further, the relevance of nonlinear dependence in multivariate derivative pricing is examined.

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