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Testing for structural breaks in factor copula models

Abstract

We propose new fluctuation tests for detecting structural breaks in factor copula models and analyze the behavior under the null hypothesis of no change. In the model, the joint copula is given by the copula of random variables which arise from a factor model. This is particularly useful for analyzing data with high dimensions. Parameters are estimated with the simulated method of moments (SMM). Due to the discontinuity of the SMM objective function, it is not trivial to derive a functional limit theorem for the parameters. We analyze the behavior of the tests in Monte Carlo simulations and a real data application. In particular, it turns out that our test is more powerful than nonparametric tests for copula constancy in high dimensions.