

Testing Parametric Copula Models

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The paper deals with testing parametric copula models. Often, the literature focuses on testing a parametric copula against another one. However, it is not clear whether the selected parametric copula model is supported by the data. For this purpose, one should do an alternative method, followed by few authors including Fermanian (2004, *Journal of Multivariate Analysis*), consisting in testing directly whether the parametric copula is rejected or not by the data. The paper follows this approach by proposing a generic class of moment conditions that should hold when the data generating process follows some parametric copula model. Our approach has several advantages with respect to one in Fermanian (2004) who followed a nonparametric method: our tests are constructive, meaning that a rejection of a model indicates in which direction one should modify the model; they are simple since they involve parametric techniques; they are suitable for the use of bootstrap techniques; they could be used to discrete data. The generic class of moment conditions used in the paper coincides with one of the class of moment conditions derived in Hansen and Sheinchman (1995, *Econometrica*) in the context of estimation of jump-diffusion processes. The paper is also the multivariate extension of Bontemps and Meddahi (2005, *Journal of Econometrics*) where the focus was testing normality of univariate distributions. The paper addresses the issue of optimal testing of a copula model against another one, allowing for parameter uncertainty. A simulation study is provided to assess the finite sample properties of the tests. We apply the method on hedge fund returns as in Patton (2009, *Review of Financial Studies*) in order to test the neutrality of these funds.