

Comparative VaR Backtesting: GARCH-EVT versus GARCH-UGH

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Abstract

We compare the value-at-risk (VaR) forecasting ability of a recently proposed method (GARCH-UGH) with famous GARCH-EVT method by McNeil and Frey (2000, *J. Empir. Finance*). GARCH-UGH considers bias correction for extreme value index estimator and is observed to show good performance in extreme quantile prediction, see Kaibuchi, Kawasaki and Stupfler (2022, *Quant. Finance*). This talk especially focuses on comparative backtesting devised by Diebold-Mariano test. VaR is an elicitable risk measure but the corresponding score function is not unique, so we try two different popular specifications. Our empirical analysis (60 cases in all) shows that in 44 to 50 out of 60 cases GARCH-UGH performed better than GARCH-EVT. This talk is based on a joint work with Hibiki Kaibuchi (Mizuho-DL Financial Technology) and Gilles Stupfler (ENSAI, France).

Keywords:

Extreme Value Theory; Financial Time Series; Value-at-Risk (VaR); Backtest; Elicitability.