

A Two-Step Estimation on Expected Shortfall and Value-at-Risk with FZ Loss Function

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Abstract

We propose an iteratively two-stage method to jointly estimate Value-at-Risk (VaR) and expected shortfall (ES) with the class of consistent loss functions proposed by Fissler and Ziegel (2016). The first step is to estimate the VaR with a weighted tick loss. The second step is to estimate the ES conditioning on the estimated VaR. With the proposed method, we estimate various models and compare their performances of in-sample estimations and out-of-sample forecasts. We find models added with realized volatility as the exogenous variable perform better.