

Bagged Pretested Forecast Combination for Tail Risk Measures

This paper introduces a novel forecasting combination approach for downside risk measures, based on the Bagged Pretested Forecast Combination (BPFC) algorithm. The combination weights assigned to candidate models are determined by their predictive performance based on the Model Confidence Set (MCS) test. Unlike many traditional combination methods, BPFC adapts to changing market conditions while simultaneously facilitating model selection and enhancing forecast stability. We evaluate the performance of forecasting combinations for Value-at-Risk (VaR) and Expected Shortfall (ES) within the framework of consistent loss functions, highlighting the role of convexity in performance improvements. Our results show that the advantages of BPFC are especially evident when there is substantial disagreement among candidate models, a situation that commonly arises during turbulent financial periods.

To empirically validate our approach, we apply it to a dataset of 90 stocks spanning various market capitalizations and covering periods of severe financial stress, including the Global Financial Crisis and the COVID-19 pandemic. The results illustrate BPFC's ability to dynamically select and combine the most effective models from a pool of over 60 candidates, continuously adjusting weights based on model's forecasting performance and evolving market conditions.