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# Optimizing the monthly crude oil price forecasting accuracy via bagging ensemble models

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## Abstract

The study investigates the accuracy of bagging ensemble models (i.e., bagged artificial neural networks (BANN) and bagged regression trees (BRT)) in monthly crude oil price forecasting. Two ensemble models are obtained by coupling bagging and two simple machine learning models (i.e., artificial neural networks (ANN) and classification and regression trees (CART)) and results are compared with those of the single ANN and CART models. Analytical results suggest that ANN based models (ANN & BANN) are superior to tree-based models (RT & BRT) and the bagging ensemble method could optimize the forecast accuracy of the both single ANN and CART models in monthly crude oil price forecasting.

## Keywords

Artificial neural networks bagging (bootstrap aggregating) classification and regression trees ensemble models forecasting

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