Freight Rates in the Tanker Shipping Market — Short-Term Forecasting of Spot Rates and Derivatives with Linear and Non-Linear Methods

Christian von Spreckelsen, Hans-Joerg von Mettenheim, Michael H. Breitner
Leibniz Universität Hannover, Koenigsworther Platz 1, 30167 Hannover

Abstract

In this paper we investigate the forecasting and trading performance of linear and non-linear methods, in order to generate short-term forecasts of spot freight rates and corresponding freight derivatives respectively Forward Freight Agreements (FFA) in the dirty tanker shipping market. We attempt to uncover the benefits of using several time series models and the potential of neural networks. Maritime forecasting studies using neural networks are rare and only focus on spot rates, with the result that only longer forecasting horizons lead to encouraging results with neural networks. We build on this kind of investigation, but we extend our study on freight rates derivatives or FFA prices and a wider range of time series models. Before we implement a simple trading simulation in order to evaluate the predicted freight rates, we compare the statistical forecasting performance of all models. The economic evaluation in a trading simulation is supposed to be a better indicator for financial purposes than conventional forecasting performance measures. Our conclusion is, that non-linear methods like neural networks are suitable for short-term forecasting and trading spot freight rates and freight derivatives, as their results match or improve on those of other models. Nevertheless, we think that further research with freight rates and corresponding derivatives is developable for decision and trading applications with enhanced forecasting models.

Keywords: Shipping Freight Market, Neural Network, Forward Freight Agreement (FFA), Forecasting Performance, Trading Performance

JEL: C45, C53, G13, G14, G17

1Corresponding author.

Email addresses: spreckelsen@iwi.uni-hannover.de (Christian von Spreckelsen), mettenheim@iwi.uni-hannover.de (Hans-Joerg von Mettenheim), breitner@iwi.uni-hannover.de (Michael H. Breitner)
URL: www.iwi.uni-hannover.de ()

Tel. +49 511 762 4982; fax: +49 511 762 4013