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REVIEW OF METHODS OF FORECASTING OF TIME SERIES

ABSTRACT

Several last decades are the period of intensive development of forecasting methods. The following factors stimulate this fact:

• development of theory of forecasts – mainly in the area of stochastic methods and artificial neuronal networks,

• dynamic increase of capacity of computing systems,

• complexity of economic phenomena especially reflected at financial markets and availability of huge data sets in computer systems.

Existing methods allow modeling and forecasting of phenomena with significant complexity, variability and variety. However, there exists the need for further works – in the area of theory and application – in this field.

In general the best forecasts result from "superior" models, which are estimated and predicted in optimal way. Such the properties have majority of the models presented: ARIMA, Kalman's filter, ARCH, GARCH, regime switching models (threshold, Markovian), artificial neural networks, multivariate models. However, application of advanced methods is not easy - needs: experience, long series (exception is Kalman's filter) and significant computational effort. Therefore simple, and also heuristic methods, are still in use. Good compromise ensures combining of forecasts.

The reasons of application of time series forecasting

• speed and low costs,

• formalization of forecasting process and known properties of forecasts,

• limited requirements about data,

• broad spectrum of methods,

• reference point to other methods,

• component for combination of forecasts,

• often, the only formalized method of forecasting.