

significantly reduces its accuracy [11]. It is proposed to exclude anomalous predictions by using a truncated arithmetic mean [12] [13].

2. Methods based on minimizing the final forecast error by the least squares method [14].
3. Methods based on minimizing the variance of the combined forecast error (works by Bates and Granger [6], Ershov [15], Baltrushevich [16]).
4. Methods based on retrospective forecasts. This group includes the AFTER method [17]. The weights of the private forecasts are calculated based on their own past values, conditional variance, and the past values of the private forecasts. The weights are updated after each new observation. The following disadvantages of the AFTER method were noted in [8]:
 - difficult applicability in practice;
 - strong dependence of the weights on the first set value.

This group includes the following methods:

- ARM, developed by Yang [18];
 - the Bunn method [19], which assumes finding the distribution function for the weight coefficient through the beta distribution;
 - an adaptive method based on exponential smoothing [2], [20].
5. Methods based on factor analysis. These methods were proposed by Frenkel [21] and Gorelik and Frenkel [5]. The idea of using factor analysis is based on the fact that particular forecast results using a separate forecasting method are an external expression of some really existing but immeasurable forecast value, which is taken as a combined forecast [8].
 6. The method of Gupta and Wilton, based on finding the optimal weights of the coefficients of particular predictions using a matrix of pairwise preferences, has been placed in a separate group [22].
 7. Methods based on quadratic programming. The paper [23] describes a method for calculating the weights of particular predictions by minimizing the retrospective relative errors of particular predictions using quadratic programming methods.

The main advantage of the method is efficiency and ease of implementation. The main disadvantage is the obligatory preliminary selection of particular forecasting methods in order to comply with the requirement of error independence [8].

Most of the methods for combining forecasts are based on the assumptions about the independence of the absolute forecast errors and their distribution in accordance with the normal law with zero mathematical expectation and unknown variance. However, these assumptions are often not met [3], and therefore, methods based on fuzzy logic and stable statistical estimates are currently being actively developed, for example:

1. method of combining forecasts by Kovalev [24] based on a system of fuzzy rules;
2. the Davydov union method [25], based on the use of a robust M-estimate;
3. Methods for combining particular forecasts by Vasiliev [26] based on the robust Huber estimate of the truncated mean type and on the basis of the Hodges-Lehmann R-estimate.

Thus, despite a significant number of publications on the topics of forecasting methods for time series and methods for aggregating individual forecasts, the question of choosing the most appropriate aggregating method and its constituent forecasting models for the predicted time series remains.

II. Developed algorithm for calculating the aggregated forecast of time series

Figure 1 shows a schematic description of the developed algorithm for calculating the aggregated forecast of time series.

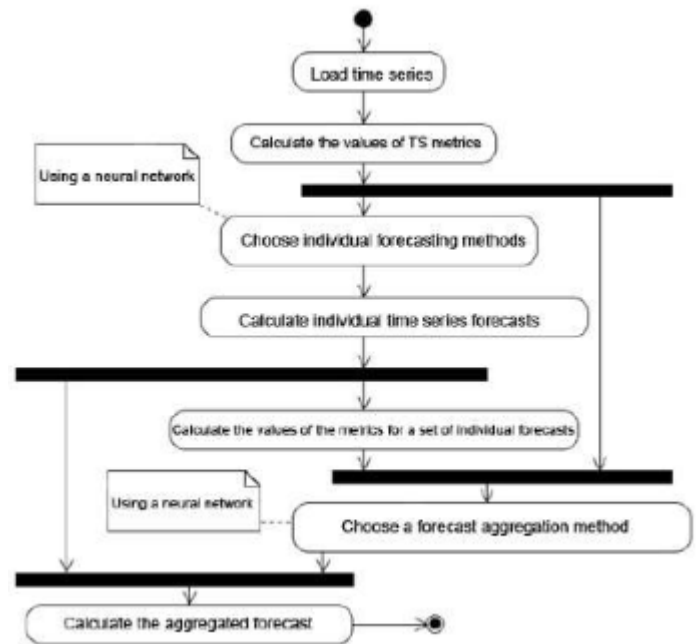


Figure 1. Algorithm for calculating the aggregated forecast of time series

In this paper, 2 methods of setting the forecast weights are considered:

- the first method is based on the values of the prediction error on the control part of the time series;
- the second method is based on the error values assumed by the neural network for choosing a prediction method.

The structure of the neural network for choosing the aggregating method is close to the structure of the neural network for choosing individual prediction methods, but it includes more input neurons corresponding to the metrics. Neurons corresponding to individual prediction