

## ABSTRACT

The work consists of 113 p., 19 fig., 6 tables, 2 append 21 sources.

The theme: «Information system for forecasting volatility of the financial processes».

AR, ARCH, AUTOREGRATION WITH TREND, GARCH, EGARCH, LSM, RLSM, SSE, MAPE, COEFICIENT TAIL, DURBIN–WATSON STATISTIC, NONLINEAR NON-STATIONARY PROCESSES, ADEQUACY CRITERION.

In this paper, an information system for forecasting the volatility of financial processes is implemented, a study is conducted on the behavior of prices of shares of firms of world scale, data analysis and forecasting. Volatility is a heteroscedastic process, that is, the process in which the variance changes over time, therefore, this information system deals with non-stationary and nonlinear financial processes. Many volunteers are being attracted to predict volatility today due to the fact that this is quite promising, but for the study of non-stationary processes it is necessary to use appropriate models and appropriate estimation methods, because different models show mixed results for different data.

Using this information system, an analysis was made using autoregression (AR (q)), autoregression with the trend of the specified order, auto regression with conditional heteroskedasticity (ARCH) and generalized ARCH (GARCH). The estimation of model parameters was carried out using the least squares (LSM) and recursive LSM (RLSM) method. During the work, the results of these methods were compared. The criteria for evaluating the quality were used, namely, the determination coefficient, the error squares, and the Darbin-Watson statistics. The criteria for estimating the quality of forecasts were the sum square error (SSE), the mean absolute percentage error (MAPE) and the Tayla coefficient.

The information system is developed in the Matlab programming language. All calculations are done using own software product.