

ABSTRACT

Thesis: 90 p., 34 figures, 12 tables, 20 sources, 2 appendixes

The paper investigates the behavior of prices for shares of known firms, their analysis and prediction. Financial market processes, which by their nature are nonlinear and non-stationary, are now undergoing a rigorous analysis. Therefore, to study such processes, it is necessary to use rejection models and methods for evaluating their parameters. A series of models describing nonlinear non-stationary processes are investigated in this paper.

The analysis is carried out using models: autoregression (AR), autoregression with a trend of different orders, autoregression with conditional heteroskedasticity (ARCH), generalized autoregression with conditional heteroskedasticity (GARCH), and exponential generalized autoregression with conditional heteroskedasticity (EGARCH). Model parameters are estimated using the least squares method (LSM). For the analysis of the adequacy of the models, the following criteria for the quality of evaluation were used: determination coefficient, error squared, and the Darbin-Watson statistics. For the quality of the predictions received, the following criteria were used: the mean square error (MSE), the average absolute error in percent (MAPE), and the Tayle coefficient.

All calculations are made using their own software, implemented in the C # programming language, and the Eviews statistical data processing package. On the basis of the obtained data, graphs were constructed for visual analysis of the work of the software product. A comparative analysis of the results carried out with the help of various tools is carried out.

AR, ARCH, AUTOREGRATION WITH TREND, GARCH, EGARCH, LSM, SSE, MAPE, COEFICIENT TAIL, NONLINEAR PROCESSES, ADEQUACY CRITERION