Abstract

This diploma thesis deals with properties of ACD process and methods of its estimation. First, the basic definitions and relations between ARMA and GARCH processes are stated. In the second part of the thesis, the ACD process is defined and the relation between ARMA and ACD is shown. Then we show the methods of data adjustment, estimation, prediction and verification of the ACD model. After that, the particular cases of ACD process: EACD, WACD, GACD, GEVACD with its properties and the motivational examples are introduced. The numerical part is performed in R software and concerns the precision of the estimates and predictions of the special cases of ACD model depending on the length of series and number of simulations. In the last part, we apply the methods stated in theoretical part on real data. The adjustment of the data and estimation of the parameters is performed as well as the verification of the ACD model. After that, we predict few steps and compare them with real durations.