

This thesis is devoted to the so-called multiplicative error models (MEM), which are used to model non-negative time series, most often in the financial sector. The first chapter focuses on ARCH and GARCH models, which do not belong to the group of multiplicative error models, but are closely related to them. The second chapter focuses directly on the MEM and their further extensions, such as zero-augmented MEM (ZA-MEM) or semiparametric MEM (SpMEM). These models are first defined and then methods for parameter estimation in these models are presented. In the third chapter, which contains the practical part of the thesis, the practices from the second chapter are applied to real data in the form of a time series of claims from one of the Czech insurance companies. In the conclusion, further extensions to the the applications of the MEM to insurance or other data are proposed.