

My final thesis firstly addresses basic knowledge of the theory of stochastic processes. This is firstly due to the author's effort to make the thesis more comprehensible, and also due to the need for introduction of key concepts. The autoregressive model AR(1) is defined in the thesis through basic linear time series models, and in this model, the estimation of model parameter by the method of least squares is introduced. For this estimation, the theoretical findings of the thesis are extended through the classical limit theory. Furthermore, the models with their parameter dependent on number of observations are introduced and models of NIAR (1) are defined. Classical limit theory for least squares estimation is then enriched by the limit theory in these models. The category of more general models is introduced and using the acquired knowledge, the features for the model AR (1) are derived. This thesis deals with this issue in models of NIAR (1) and its area of interest is also the bootstrap. The theoretical part of the thesis is supplemented by a practical part represented by numerical studies.