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## Time-Series Analysis

This part of the course is designed to introduce time series econometric tools most used in empirical work. The course covers the application of statistical and econometric methods to analyze real data by using EViews software.

### Course Outline (the approximate list of topics):

#### *Lecture 1: Modelling time series – basic concepts*

Introduction. Stylized facts of economic time series. Basic concepts in time series: stationarity, white noise, autocovariance function, ordinary and partial autocorrelation functions. Autocorrelation tests.

#### *Lecture 2: Modelling stationary time series*

Linear representation. Linear time series models: AR, MA and ARMA. Detailed analysis of AR(1) and MA(1) models. The Box-Jenkins modelling approach: specification, parameter estimation and adequacy testing.

#### *Lecture 3: Modelling unit-root non-stationary time series*

Regression model of unit-root nonstationary time series. Random walk. Unit-root testing: DF and ADF tests. ARIMA models.

#### *Lecture 4: Application of time-series methods on real data by using EViews*

### Literature:

Brooks, C. (2019), *Introductory Econometrics for Finance*, Cambridge University Press, 4<sup>th</sup> edition, pages: 246- 274, 334- 346.

Mills, T.C. (2019), *Applied Time Series Analysis*, Academic Press,

Tsay, R.S. (2010), *Analysis of Financial Time Series*, Wiley, 3<sup>rd</sup> edition, pages: 1-10, 29-34, 36-40, 46-51, 57-62, 64, 69-78.

### Grading:

The grade depends on final exam. Final exam is written and contains theoretical and empirical questions.