



## Course and Examination Fact Sheet: Autumn Semester 2014

### 5,272: An Introduction to Financial Econometrics

ECTS credits: 3

#### Overview examination/s

(binding regulations see below)

Central - Written examination (100%, 90 mins.)

#### Attached courses

Timetable -- Language -- Lecturer

[5,272,1.00 An Introduction to Financial Econometrics](#) -- English -- [Filipova Kameliya](#)

#### Course information

#### Course prerequisites

Solid knowledge in statistics and econometrics.

#### Course content

The class gives an introduction to financial econometrics. It is targeted at students with empirical interests in asset pricing, international finance and macroeconomics. After reviewing some basic facts of asset returns and statistical distributions important in finance, we will study notions of market efficiency and the predictability of asset returns. A second major focus are ARCH and GARCH models, which capture stylized facts like volatility clustering and dependence in absolute or squared returns often found in financial data. The class concludes by considering forecasting, aspects of market microstructure and issues with high-frequency data.

#### Course structure

1. Basic concepts of probability theory
2. Elements of linear time series analysis
3. Prices and returns
4. Stylized facts of asset returns
5. Market efficiency and predictability of asset returns
6. Conditional heteroscedasticity
7. Volatility forecasting
8. Market microstructure and high frequency data

#### Course literature

Franke, Härdle, Hafner (2004), Statistics of Financial Markets, Springer-Verlag, Chapters 3,4,10, 11, 12

Taylor, S. 2007, Asset Price Dynamics, Volatility and Prediction, Princeton University Press, Chapters 2, 4, 5, 6, 8, 9, 10

Tsay (2005) , Analysis of Financial Time Series, Wiley Series in Probability and Statistics, Chapters 1, 3

#### Additional course information

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#### Examination information



## Examination sub part/s

### 1. Examination sub part (1/1)

#### Examination time and form

Central - Written examination (100%, 90 mins.)

#### Remark

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#### Examination-aid rule

Extended Closed Book

The use of aids is limited; any additional aids permitted are **exhaustively** listed under "Supplementary aids". Basically, the following is applicable:

- At such examinations, all the pocket calculators of the Texas Instruments **TI-30** series and bilingual dictionaries without hand-written notes are admissible. Any other pocket calculator models and any electronic dictionaries are inadmissible.
- In addition, any type of communication, as well as any electronic devices that can be programmed and are capable of communication such as notebooks, tablets, PDAs, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

#### Supplementary aids

None.

#### Examination languages

Question language: English

Answer language: English

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## Examination content

1. Elements of linear time series analysis (Mean and autocovariance, autocorrelation function, stationarity, definitions of white noise, random walk, definitions of AR-, MA-, ARMA-processes)
2. Prices and returns
3. Stylized facts of asset returns (Jera-Barque test, tail index estimation, empirical properties of asset returns)
4. Market efficiency hypotheses and random walk hypotheses (Portmanteau statistics, variance ratio test)
5. ARCH and GARCH models
6. Volatility Forecasting
7. Market Microstructure (Trading mechanisms, Empirical aspects of transaction data, Roll's model of trade prices)

## Examination relevant literature

Lecture notes and problem sets / exercises (including PC-Lab exercises) as published in 2014

Franke, Härdle, Hafner (2004), Statistics of Financial Markets, Springer-Verlag, Chap 3\*, 4\*, 11.1-11.3, 11.5, 11.6, 12.1-12.2

Tsay (2005), Analysis of Financial Time Series, Wiley Series in Probability and Statistics, Chap 1, 2, 3, 5

Taylor, S. (2007), Asset price dynamics, volatility and prediction, Princeton University Press, Chap 2,3.1-3.6, 4,5,6.3.1, ,8, 9, 10

Additional background readings as made accessible on the studynet (excerpt from Campbell et al., Paper by Pesaran, 2010)

Starred Chapters are background reading.



### Please note

We would like to point out to you that this fact sheet has absolute priority over other information such as StudyNet, faculty members' personal databases, information provided in lectures, etc.

When will the fact sheets become binding?

- Information about courses and examination time (central/decentral and grading form): from the start of the bidding process on 21 August 2014
- Information about decentral examinations (examination-aid rule, examination content, examination relevant literature): after the 4th semester week on 13 October 2014
- Information about central examinations (examination-aid rule, examination content, examination relevant literature): from the start of the enrolment period for the examinations on 3 November 2014

Please look at the fact sheet once more after these deadlines have expired.