Course and Examination Fact Sheet: Spring Semester 2020

8,154: Financial Econometrics

ECTS credits: 4

Overview examination/s
(binding regulations see below)
Decentral - Group examination paper (all given the same grades) (50%)
Decentral - Written examination (50%, 60 mins.)

Attached courses
Timetable -- Language -- Lecturer
8,154,1.00 Financial Econometrics -- Englisch -- Söderlind Paul

Course information

Course prerequisites
Some basic knowledge of statistics (hypothesis testing, distributions and their moments), linear algebra (vectors and matrices) and financial theory (CAPM, market volatility, basic portfolio theory) is useful.

Learning objectives
Students are able to draw meaningful inference from financial data, based on a set of skills rich enough to write a successful Master thesis on a broad range of topics.

Course content
The following is covered in detail:

- descriptive statistics of asset returns;
- linear models estimation and testing;
- robust regressions;
- time-series models;
- estimating and forecasting volatility;
- event studies;
- panel regressions.

Lectures are accompanied by PC lab sessions using the R programming language, where students apply the gathered knowledge to real-world financial data, test dependencies between assets, come up with better forecasts, and learn how to not get fooled by financial data.

Course structure

1. Review of Statistics
   sample mean, standard error, confidence interval, covariance, correlation

2. Least Squares
   R-squared, t-statistics, outliers, hypothesis testing, autocorrelation and heteroskedasticity of residuals

3. CAPM and Linear Factor Models
   CAPM, alpha, joint test of significance, multifactor model, mean-variance
4. Time Series Analysis
white noise, autoregression, moving average, forecasting

5. Maximum Likelihood
loss function, quasi-MLE

6. Models of Autoregressive Volatility
ARCH, GARCH, GARCH variants, value-at-risk, expected shortfall

7. Univariate distributions
quantile, tails, skewness, normality test

8. Event Studies
normal return, abnormal return, CAR, structural breaks

9. Panel Data
fixed effects model, random effects model

Course literature

Required:
Lecture notes (distributed in class);

Optional #1 (theory of finance):
Elton, E. J., M. J. Gruber, S. J. Brown, and W. N. Goetzmann, Modern Portfolio Theory and Investment Analysis

Optional #2 (econometrics):
M. Verbeek, A Guide to Modern Econometrics;
William H. Greene, Econometric Analysis;

Additional course information
Language: English

Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination time and form
Decentral - Group examination paper (all given the same grades) (50%)

Remark
Problem sets (empirical)

Examination-aid rule
Term papers
- Term papers must be written without anyone else's help and in accordance with the known quotation standards, and they must contain a declaration of authorship.
- The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with
the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C. (2017), Lern- und Arbeitsstrategien (12th ed., Cornelsen Schweiz).

- For any work written at the HSG, the indication of the page numbers both according to the MLA and the APA standard is never optional.
- Where there are no page numbers in sources, precise references must be provided in a different way: titles of chapters or sections, section numbers, acts, scenes, verses, etc.
- For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B. (2018, Juristisches Arbeiten: Eine Anleitung für Studierende (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).

Supplementary aids

Examination languages
Question language: English
Answer language: English

2. Examination sub part (2/2)

Examination time and form
Decentral - Written examination (50%, 60 mins.)

Remark

Examination-aid rule
Open Book
Students are free to choose aids but will have to comply with the following restrictions:

- At such examinations, all the pocket calculators of the Texas Instruments TI-30 series are admissible. Any other pocket calculator models 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 electronic dictionaries, notebooks, tablets, PDAs, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

Supplementary aids
Lecture notes are sufficient.

Examination languages
Question language: English
Answer language: English

Examination content
All topics covered by the Lecture notes except for optional ones (marked with an asterisk) AND during the PC lab sessions.

Examination relevant literature
Lecture notes
Please note

Please note that this fact sheet alone is binding and has priority over any other information such as StudyNet (Canvas), personal databases or faculty members' websites and information provided in their lectures, etc.

Any possible references and links within the fact sheet to information provided by third parties are merely supplementary and informative in nature and are outside the University of St.Gallen's scope of responsibility and guarantee.

Documents and materials that have been submitted no later than the end of term time (CW21) are relevant to central examinations.

Binding nature of the fact sheet:

- Information about courses and examination time (central/decentral) and examination types starting from the beginning of the bidding on 23 January 2020
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for decentral examinations after the 4th semester week on 16 March 2020
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for central examinations as from the starting date for examination registration on 6 April 2020

Please consult the fact sheet again after these deadlines have expired.