APPLIES TO ACADEMIC YEAR 2014/2015

DRE 7018 Econometric Theory for Structural Inference in Finance

Programme
Finance

Responsible for the course
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Department
Department of Financial Economics

Term
According to study plan

ECTS Credits
2

Language of instruction
English

Introduction
This is an advanced econometric course for PhD students, who are interested in research in structural inference in corporate finance and asset pricing, but it should be of interest to other fields as the methods are very general. Indeed, structural inference has been used in lot of other areas such as empirical industrial organization (e.g, Berry, Levinsohn and Pakes, 1995), marketing (e.g., Sudhir, 2001, nominated INFORMS Long Term Impact Award) and macroeconomics (e.g., Gali and Gertler, 1999). Moreover, the econometric theory used in structural inference encompasses most of the nonstructural econometric methods. In this course, we say that an inference is structural when the assumptions required by econometric theory for inference are implied by the economic model of interest.

Learning outcome
The aims of this course are to i) introduce students to the econometric theory needed for structural inference, ii) make students able to start a research project that relies on structural inference iii) make students able to read and assess *critically* research papers that rely on structural inference methods iv) make students understand the main potential advantages and drawbacks of structural approach to inference versus a nonstructural (e.g., reduced-form, descriptive, quasi-experimental a la Angrist and Pischke) approach.

Prerequisites
Admission to a PhD Programme is a general requirement for participation in PhD courses at BI Norwegian Business School.
External candidates are kindly asked to attach confirmation of admission to a PhD programme when signing up for a course with the doctoral administration. Other candidates may be allowed to sit in on courses by approval of the courseleader. Sitting in on courses does not permit registration for courses, handing in exams or gaining credits for the course. Course certificates or conformation letters will not be issued for sitting in on courses

Compulsory reading

Other:
Newey, Whitney, and Daniel McFadden. 1994. Large sample estimation and hypothesis testing. North-Holland: Amsterdam. Vol. 4 . pp. 2111-2245. Robert Engle, and Daniel McFadden, ed.: Handbook of Econometrics. It is available online.

Recommended reading
Books:
Singleton Kenneth. 2006. Empirical Dynamic Asset Pricing: Model Specification and Econometric Assessment. Princeton University Press

Articles:
Strebulaev, Ilya A. and Whited, Toni. 2012. Dynamic Models and Structural Estimation in Corporate Finance. 1-163. Available at SSRN: http://ssrn.com/abstract=2091854 or http://dx.doi.org/10.2139/ssrn.2091854

Other:
Newey, Whitney, and Daniel McFadden. 1994. Large sample estimation and hypothesis testing. North-Holland: Amsterdam. pp. 2111-2245. in Robert Engle, and Daniel McFadden, ed.: Handbook of Econometrics, . ().

Course outline

1) A warm up: Why and when can econometrics work?*

Ø Econometrics vs Probability

Ø LLN and CLT

Ø Incorporating time dependence

Ø Other asymptotic results: Slutsky theorems and Delta method

2) A general framework: theory of extremum estimator

Ø Uniform convergence and compactness

Ø Consistency theorem

Ø Asymptotic normality

Ø The trinity: LM, LR and Wald*

3) A bird's eye view on some particular cases of the theory of extremum estimator

Ø GMM

Ø OLS, IV, standard linear panel models

Ø MLE

Ø Standard linear time series models (e.g., AR and VAR models)

4) Variations and extensions

Ø Indirect inference and simulated method of moments

Ø Calibration

Ø Generalized Empirical Likelihood estimators (GEL)

* indicates a topic that is more regarded as a review of prerequisites than as an introduction of new material

Computer-based tools
R or Matlab or any other software with similar capabilities.

Learning process and workload

Workload (2ECTS):

Lectures:	10 hours
Specified Learning Activities (including reading)	25 hours
Autonomous Student learning (including exam preparation)	25 hours
Total:	**60 hours**

Examination
Written exam (3 hours) which will be graded pass/fail

Examination code(s)
DRE 70181

Examination support materials

Re-sit examination

Re-takes are only possible at the next time a course will be held. When the course evaluation has a separate exam code for each part of the evaluation it is possible to retake parts of the evaluation. Otherwise, the whole course must be re-evaluated when a student wants to retake an exam.

Additional information

Honour Code

Academic honesty and trust are important to all of us as individuals, and represent values that are encouraged and promoted by the honour code system. This is a most significant university tradition. Students are responsible for familiarizing themselves with the ideals of the honour code system, to which the faculty are also deeply committed.

Any violation of the honour code will be dealt with in accordance with BI's procedures for cheating. These issues are a serious matter to everyone associated with the programs at BI and are at the heart of the honor code and academic integrity. If you have any questions about your responsibilities under the honour code, please ask.