Financial econometrics

ECTS : 3

Description du contenu de l'enseignement :

This course of financial econometrics has three objectives: The first is to review theoretical aspects of the Ordinary Least Square (OLS) in order to better understand the implications of hypothesis departures and what needs to be done to correct the estimators and their precision. The second is to analyse, via simulation, the impact of hypotheses violation on estimators, on quality criteria and on regression tests. Finally, the third objective is to discuss the practice and practical implementation of these methods. The outline of the course is the following :

- Introduction: "True" model - DGP;
- Return on multiple regression Assumptions, statistical inference, quality criteria, dummy variables;
- Return on the failure of OLS assumptions, tests and correction: Heteroskedasticity, Autocorrelation, Normality, Multicolinearity, Exogeneity, Specification error;
- Alternative to OLS: Generalized least squares, 2 Stage Least Squares (2SLS), Maximum likelihood, Quantile regression (if time permits).

Compétence à acquérir :

This second course of econometrics applied to finance has three objectives: The first is to comeback to some of the theoretical aspects of econometrics in order to better understand how it works, what are the implications of assumption failures, and what to do to correct the estimators and their precision. The second objective aims to discuss the practices and the concrete implementation of these methods and their corrections as well as new estimation tools. Finally, the third objective is in the way this course is approached as it is based on simulation.

Concretely, simulating the "real" model and observing what happens when we are not in the conditions of use of an estimator, a quality criterion or a test allows:

1. to master the details of the regression tools (simulation of the data generating process - DGP -, choice of the characteristics and laws of variables, choice of hypotheses, etc)
2. to understand the consequences of any assumption failure as well as the interaction of several failures,
3. to use this knowledge to carry out empirical studies.

Bibliographie, lectures recommandées :

- Adkins, L., 2018, Using Gretl for Principles of Econometrics, 5è Edition, Version 1.0, http: http://www.learneconometrics.com/gretl/poe5/using_gretl_for_POE5.pdf
- Brooks C., 2019, Introductory Econometrics for Finance, 4è Edition, Cambridge University Press, 724 pages;
- Carter Hill R., W. E. Griffiths et G.C. Lim, 2018, Principles of Econometrics, 5è Edition, Wiley, 912 pages;
- Gudjarati D. N., 2016, Basics Econometrics, 5th Edition, McGraw Hill Higher Eduction, 922 pages.