Financial Data and Statistics (COMP0040)

Description
Aims:
The module is aimed at introducing to financial data analytics. The module is primarily focused on the understanding of financial market dynamics of both individual assets and collective group of assets. Students will learn how to individuate regularities, patterns and laws from a statistical perspective. Instruments to analyse, characterize, validate, parameterize and model complex financial datasets will be introduced. Practical issues on data analysis and statistics of high frequency and low frequency financial data will be covered.

Learning outcomes:
On successful completion of the module, a student will be able to:
1. analyse main statistical features of complex financial datasets;
2. identify the probability distributions of financial returns;
3. understand how to characterize, parameterize and validate these distributions;
4. understand the quantify inter-dependency/causality structure between financial assets;
5. understand how to use the outcome of data-analytics to develop better tools for forecasting, valuation and risk management;
6. validate modelling and forecasting tools quantifying performances;

Content:
Empirical investigation of financial market-data:
- Essential practical familiarization with financial data. Typical challenges with real financial data. Basics on data acquisition, manipulation, filtering, graphical representation and plotting; Statistical properties single financial asset:

Key information
Year 2019/20
Credit value 15 (150 study hours)
Delivery PGT L7, Campus-based
Reading List View on UCL website
Tutor Prof Tomaso Aste
Term Term 2
Timetable View on UCL website

Assessment
Report: 55%
MCQ Exam (departmentally managed): 15%
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Find out more
For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

Disclaimer: All information correct as of August 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
validation. Applications to measures of risk;
Scaling laws:
Persistence, anti-persistence and autocorrelation in financial signals. Hurst exponent, definition and characterization of multiscaling signals; Statistical properties of groups of financial assets:

Requisites:
In order to be eligible to select this module, a student must be registered on a programme for which it is a formally-approved option or elective choice AND must (i) be familiar with fundamental probability and statistics concepts; (ii) be familiar with mathematical analysis.