Financial modelling and forecasting
Online course
Centre for Econometric Analysis
Delivered by: Professor Giovanni Urga

Course overview
The course covers several theoretical and empirical topics in financial econometrics providing a comprehensive presentation of the econometric methods applied to finance. Topics include: forecasting and forecast evaluation, estimation methods such as GMM and MLE, univariate and multivariate GARCH models, and realised and stochastic volatility models, measurement techniques and tests for contagion, principal components and factor analysis, the use of Autometrics in model selection in presence of a large number of regressors. The theory is illustrated in practice modelling interest rates, asset prices and forex time series at several temporal frequencies.

Benefits
- You will be introduced to the statistical analysis of time series, autoregressive–moving-average (ARMA) models, and forecasting evaluation criteria
- You will learn theoretical and practical tools of univariate, multivariate GARCH volatility models
- You will learn to identify and measure contagion between markets
- You will be taught theoretical and practical tools of high frequency data and the impact of market announcements
- You will practice on practical econometric and financial problems.

Target audience
This course is particularly useful to professionals working in the financial industry, consultancy firms, Central Banks, regulatory authorities, public and private research centres.

Course prerequisites
Participants are expected to have a quantitative background. Knowledge of the fundamentals of econometrics, derivatives, quantitative asset pricing theory will help participants to obtain the maximum benefit from the course.

Contents
Day 1: 4 hours online

Topic 1: Forecasting of Conditional Mean and Volatility.
- Estimation and Forecasting: ARMA (p,q) Processes, Exponential Smoothing (ES), Holt-Winter’s ES (HWES).

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Fees:
£180 City Students, Alumni, Staff
£210 External Students
£360 External
A 15% discount is available for groups of three or more participants
Empirical Applications: modelling and forecasting returns and equity premium, term structure and the bond markets, foreign exchange rates. Yield curve forecasting

Univariate GARCH models


Day 2: 4 hours online

Topic 2: Modelling Contagion and High Frequency Data

- Multivariate GARCH models
- Contagion Analysis: cross-market correlation coefficients, Markov switching regressions, higher moments contagion
- Empirical Applications: forecasting volatility and correlations in financial markets. Contagion between markets
- Realized volatility. (Macro) Announcements, jumps, cojumps. Econometric modelling with Autometrics

Recommended reading

The following textbooks and journal articles are recommended for this course:

Brockwell, P. J. and R. A. Davis (2016), Introduction to time series and forecasting, Springer.


Diebold X. Francis (2017), Forecating in economics, business, finance and beyond


Registration, payment and cancellation policy

Payment of course fees is required prior to the course start date.

In case a course is cancelled, registered participants will receive the full refund.

Registration closes 7-calendar days prior to the start of the course.

Professor Giovanni Urga


He has presented his works in several international conferences and seminars. He has been consultant in several international institutions and he is consultant for Italian investment banks.