

## Financial Modelling & Forecasting Techniques

### Lecturer:

Professor Robert Cressy

### Module description

This module focuses on some key statistical techniques relating to the analysis of financial data in order to understand key financial models and to forecast financial variables. The module covers financial time series modelling, or broadly time series econometrics as applied in finance, financial economics, securities and investments. Theoretical as well as practical issues are considered.

### Module aims

This module aims to equip students with a sound knowledge of some key modern econometric techniques commonly employed in the finance literature, especially for financial modelling and forecasting. The module also aims to provide hands-on training in the use of one of the main econometric packages, EViews.

### Learning outcomes

Upon successful completion of this module, students should be able to:

- (a) discuss the standard procedures for model-building in finance, including the empirical testing of finance theories and forecasting of financial variables;
- (b) explain and demonstrate the application of the classical linear regression model;
- (c) discuss the theory and show the application of univariate time series modelling and forecasting using ARMA models;
- (d) explain the theory and show the application of multivariate models, with emphasis on VAR models as well as finance models that feature simultaneous equations;
- (e) test for unit root and cointegration in modelling long-run relationships in finance;
- (f) discuss and demonstrate the main techniques used in modelling and forecasting volatility, with emphasis on the class of ARCH models and extensions such as GARCH, GARCH-M, EGARCH and GJR formulations;

Learning outcomes (a) – (c) will be assessed by a test and an examination, learning outcomes (d) – (f) will be assessed by an examination only.