

MODELLING VOLATILITY AND CONTAGION IN FINANCE

GENERAL DESCRIPTION

The growth in financial instruments during the last decade has resulted in a significant development of econometric methods (financial econometrics) applied to financial data. The objective of our Modelling Volatility and Contagion in Finance course is to provide participants with a comprehensive overview of the principal methodologies, both theoretical and applied, adopted for the analysis of risk in financial markets. To this end, the course focuses on the modelling and forecasting of financial time series of asset returns; the modelling of cross market correlations, volatility spillovers and contagion in financial asset markets. During the course, a number of alternative GARCH models and models of conditional correlations will be reviewed.

In common with TStat's training philosophy, throughout the course the theoretical sessions are reinforced by case study examples, in which the course tutor discusses current research issues, highlighting potential pitfalls and the advantages of individual techniques. The intuition behind the choice and implementation of a specific technique is of the utmost importance. In this manner, course leaders are able to bridge the "often difficult" gap between abstract theoretical methodologies, and the practical issues one encounters when dealing with real data. At the end of the course, participants are expected to be able to autonomously implement the theories and methodologies discussed in the course.

TARGET AUDIENCE

The course is of particular interest to: i) Master and Ph.D. Students and Researchers in public and private research centres, and ii) professionals employed in risk management

in the following sectors: asset management, exchange rate and market risk analysis, front office and research in investment banking and insurance, needing to acquire the necessary econometric/statistical toolset to independently conduct an empirical analysis of financial risk.

PREREQUISITE

Participants should have a knowledge of the inferential statistics and introductory econometric methods illustrated in Brooks (2019).

PROGRAM

SESSION I: VOLATILITY MODELS - GARCH

1. Analysis of financial time series features:
 - Stationarity
 - Autocorrelation
 - Conditional heteroscedasticity
 - Fat tails
2. Modelling and forecasting asset returns volatility with univariate ARCH and GARCH models:
 - ARCH, GARCH, GARCH-in-mean
 - Integrated GARCH
 - Risk Metrics
 - Modelling asymmetric shock impacts on volatility with asymmetric GARCH models:
 - SAARCH
 - EGARCH
 - GJR
 - TGARCH
 - APARCH
 - News Impact Curve

SESSIONS II: MULTIVARIATE VOLATILITY (MGARCH) MODELS AND CONTAGION

1. Multivariate GARCH models:
 - Diagonal VECH (DVECH)
 - Constant Conditional Correlation (CCC)
 - Dynamic Conditional Correlation (DCC) models
2. Assessing contagion in financial markets:
 - Measuring cross-market correlation coefficients
 - Higher moments contagion
 - Estimating Markov switching regressions
3. Empirical applications:
 - Forecasting volatility and correlations in financial markets
 - Contagion between markets

COURSE LEADER

Professor Giovanni URGA, Faculty of Finance and Centre for Econometric Analysis, Bayes Business School, London (UK).

SUGGESTED READING (PRE - AND POST-COURSE)

Introductory Econometrics for Finance. Brooks, C., (2019). Cambridge University Press, 4th edition.

Financial Econometrics Using Stata. Boffelli, S., and G. Urga (2016). Stata Press Publication.

DATES AND LOCATION

Due to the ongoing Public Health situation, the 2022 edition of this training course will be offered **ONLINE** on a part-time basis on the 12th-13th of May from 10:00 am to 1:30 pm Central European Summer Time (CEST).

A 45 minutes informal evening Study Group session will also be scheduled, during which participants are encouraged to discuss further issues arising from either the arguments addressed or practical sessions undertaken. The course leader will also be available during this session to offer feedback and guidance on how to deal with specific research issues.

REGISTRATION FEES

Full-time students*: € 355.00

Ph.D. Students: € 455.00

Academic: € 505.00

Commercial: € 675.00

*To be eligible for student prices, participants must provide proof of their **full-time** student status for the current academic year. Our standard policy is to provide all **full-time students**, be they Undergraduates or Masters students, access to student participation rates. Part-time master and doctoral students who are also currently employed will however, be allocated academic status.

Fees are subject to VAT (applied at the current Italian rate of 22%). Under current EU fiscal regulations, VAT will not however applied to companies, Institutions or Universities providing a valid tax registration number.

The number of participants is limited to 8. Places will be allocated on a first come, first serve basis. The course will be officially confirmed, when at least 5 individuals are enrolled.

Course fees cover: teaching materials (handouts, Stata *do files* and datasets to used during the course) and a temporary licence of Stata valid for 30 days from the beginning of the course.

Individuals interested in attending this course must return their completed registration forms by email (training@tstat.eu) to TStat by the **2nd May 2022**.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at <https://www.tstattraining.eu/training/modelling-volatility-contagion-ol/>.



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