

# FACTOR MODELS & RISK MANAGEMENT TOOLS

## GENERAL DESCRIPTION

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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 Factor Models & Risk Management Tools course is to provide participants with a comprehensive overview of the principal methodologies, both theoretical and applied, adopted for risk analysis and risk management. To this end, the course focuses on the implementation of both factor models and principal components analysis for the identification of specific asset, country and global risk factors and on risk management tools/measures.

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

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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

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

## PROGRAM

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### SESSION I: FACTOR MODELS

1. Static and dynamic factors, factor estimation, determining the number of factors, nonstationary factor models;
2. Identifying global, asset related and country specific factors in data with a large number of assets with principal component analysis and static and dynamic factor models;
3. Applications of factor analysis to (bond and asset) portfolio management, stock liquidity and its determinants.

### SESSIONS II: RISK MANAGEMENT TOOLS

1. Portfolio Value-at-Risk (VaR):
  - Definitions
2. Approaches for estimating VaR:
  - Parametric VaR, Historical simulation VaR
  - Monte Carlo VaR
3. Expected Shortfall (ES) and Tail Risk (TR)
4. Backtesting procedures:
  - Unconditional coverage
  - Independence
  - Conditional coverage
  - Duration based tests of independence

## COURSE LEADER

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

## SUGGESTED READING (PRE - AND POST-COURSE)

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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

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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 14th-15th of September from 10:00 am to 1:30 pm Central European Summer Time (CEST).

## REGISTRATION FEES

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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](mailto:training@tstat.eu)) to TStat by the **7th September 2022**.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at <https://www.tstattraining.eu/training/factor-models-risk-management-tools-ol/>.

## CONTACT INFORMATION:

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