The Intertek Group
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One-Day In-House Course

Building Sectors & Sector-based Factor Models with Clustering

DESCRIPTION

This 1-day course teaches the clustering of time series, a technique that allows to group together stocks in function of true similarities between firms, to identify predictors, and to identify critical risk conditions. Participants will learn the basics of clustering techniques and how to apply clustering to build factor models based on true correlations.

In particular, participants will learn how to:

- Evaluate the need to consider non linearities in factor models
- Cluster time series based on similarities
- Construct factor models based on clustering and assess their forecasting ability
- Construct predictors based on clustering cross sectional data

PROGRAM

Do Unique Linear Factors Exist?

- Concepts of linear factor models
- Representing factors as portfolios
- Can we add meaningful factors without insider information?
- Illustrating the pitfalls of a linear view of markets: momentum and reversals

Non-linearities in equity returns

- Non-linearities and non-normalities
- Non-linear data generation processes
- Non-linear cross-sectional relationships
- Regime shifts

Learning non-linear-patterns in equity returns

- Similarity and distance between return processes
- Finding groups of similar stocks (clustering)
- Hierarchical clustering of return processes
- Finding non-linear factors representative of groups of stocks (vector quantization)

Finding non-linear patterns in cross-sectional data

- Why use cross-sectional data?
- Corporate information and other data
- Clustering corporate and market data
- A step-by-step application of clustering return and trading volume data

RECOMMENDED READING

A classical textbook on pattern recognition theory and techniques is *Pattern Classification* by Duda, Hart and Stork (Wiley-Interscience, 2nd edition, 2000).

PROFILE OF THE LECTURER

Sergio Focardi is a partner of The Intertek Group and consults and trains on quantitative methods in equity portfolio management. Sergio is a member of the Editorial Board of the *Journal of Portfolio Management* and co-author of the CFA Institute's recent monograph *Challenges in Quantitative Equity Management* (Fabozzi, Focardi and Jonas, May 2008) as well as the Institute's *Trends in Quantitative Finance* (2006) and of the award-winning books *Financial Modeling of the Equity Market* (Fabozzi, Focardi and Kolm, Wiley, 2006) *The Mathematics of Financial Modeling and Investment Management* (Focardi and Fabozzi, Wiley, 2004) and, more recently, *Financial Econometrics* (Rachev, Mittnik, Fabozzi, Focardi and Jasic, Wiley, 2007).

Sergio has implemented long-short equity portfolio selection applications based on dynamic factor analysis. His research interests include the econometrics of large equity portfolios and the modeling of regime changes.

For more information, contact Sergio Focardi (sfocardi@theintertekgroup.com).