2018 SIdE Summer School of Econometrics
SADIBA Center, Perugia

Second week: **"Recent Developments in Financial Econometrics"**

Speakers:

1. **Andrew Patton (Duke University)**
2. **Kevin Sheppard (Oxford University)**

Dates: from July 23rd through July 27th, 2018

Syllabus

Course description: The course will cover the most recent developments in financial econometrics. In particular, after setting the stage for the more standard techniques and models for volatility, more sophisticated issues will be covered, including high frequency data, and high-dimensional approaches, semivariances and semicovariances.

We will also see how to implement some of the techniques in R/Matlab/Python.

Topics covered
1. Univariate volatility models
2. Multivariate volatility models
3. MV GARCH models, estimation and testing
4. High frequency data and volatility forecasting
5. Realized covariance and kernels, vast kernels
6. Recent developments in forecasting volatility with high frequency data
7. Composite likelihood and other high dimensional approaches
8. Semivariances and semicovariances

Schedule

Session 1A (Patton): Univariate volatility models
Session 1B (Sheppard): Multivariate volatility models

Session 2A (Sheppard): More sophisticated MV GARCH models, estimation options
Session 2B (Patton): High frequency data and volatility forecasting

Session 3A (Sheppard): Realized covariance and kernels, vast kernels
Session 3B: Group computer assignment session

Session 4A (Patton): Recent developments in forecasting volatility with high frequency data
Session 4B (Sheppard): Composite likelihood and other high dimensional approaches

Session 5A (Patton): Semivariances and semicovariances

References

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Bollerslev, T., A.J. Patton, and R. Quaedvlieg, 2017, Realized SemiCovariances: Looking for Signs of Direction Inside the Covariance Matrix, working paper.

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Hansen, P.R., and A. Lunde, 2006, Realized variance and market microstructure noise, *Journal of Business and Economic Statistics*, 24, 127–161.

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Patton, A.J., and K. Sheppard, 2015, Good Volatility, Bad Volatility: Signed Jumps and the Persistence of Volatility, *Review of Economics and Statistics*, 97(3), 683-697.