Master 2 - Financial Markets and Intermediaries

Financial Econometrics

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Spring Semester 2014

Purpose of the Course

The last four decades of the economic literature have been characterized by an impressive growth in the use quantitative (mathematical and statistical) methods to analyze financial markets and associated asset classes like equities (stock returns), fixed income instruments (bonds), commodities or derivative securities.

Financial market participants (academics and practitioners) have routinely used advanced financial *and* econometric theories and techniques in several applications like (among others) modeling stock return volatility, asset pricing, yield curve modeling and option pricing.

The purpose of this course is to provide basic concepts, methodologies and models to understand and to study asset prices dynamics. We will mainly focus on models for interest rates and stock returns.

Organization and Evaluation

The course is organized in four lectures, and the final grade is be based on a written report (summary and critical analysis) of a relevant paper in the financial econometrics literature chosen among those listed below. The report can be written by a group of four students maximum and it has to be of no more than 10 pages.

Send the written report (pdf file) at pegoraro@ensae.fr (deadline: the 6^{th} of April, 2014).

Course Schedule

The time schedule of the lectures is as follows:

- 18 / 02 (from 9:30 to 12:30 in room MC 204; from 15:30 to 17:00 in room MH 203)
- 25 / 02 (from 9:30 to 12:30 in room MC 204; from 15:30 to 17:00 in room MH 203)
- 14 / 03 (from 14:00 to 18:30 in room MD 102)
- 19 / 03 (from 11:00 to 12:30 in room MD 105; from 14:00 to 17:00 in room MH 203)

Course Documents

The slides used during the lecture sessions will be made available on my Crest (Laboratoire de Finance-Assurance) web page (http://www.crest.fr/ses.php?user=3028). Open the pdf files using the password FP_TSE_2014.

References

The course (and its slides) will be mainly based on the following books, lecture notes and working papers:

- ☐ Filipovic, D. (2009), Term Structure Models - A Graduate Course, Springer Finance.
- ☐ Gourieroux, C., and Monfort, A., (1995), Statistics and Econometric Models, Cambridge University Press.
- ☐ Gourieroux, C., and Monfort, A., (1996), Time Series and Dynamic Models, Cambridge University Press.
- ☐ Hamilton, J., (1994), Time Series Analysis, Princeton University Press.
- ☐ Sheppard, K. (2013), Financial Econometrics Notes, University of Oxford, available online at: `http://www.kevinsheppard.com`.
- ☐ Veronesi, P. (2010), Fixed Income Securities: Valuation, Risk, and Risk Management, John Wiley and Sons, Inc.

Other useful references are:

- Bjork, T. (2004), Arbitrage Theory in Continuous Time, Oxford University Press.
- Campbell, J., Lo, A., and MacKinlay, A. C. (1997), The Econometrics of Financial Markets, Princeton University Press.
- Duffie, D. (2002), Dynamic Asset Pricing Theory, Princeton University Press.
- Gourieroux, C., and Jasiak, J., (2001), Financial Econometrics, Princeton University Press.
- Munk, C. (2012), Fixed Income Modelling, Oxford University Press.
- Singleton, K. (2006), Empirical Dynamic Asset Pricing - Model Specification and Econometric Assessment, Princeton University Press.

List of papers for the exam

- Almeida, C., Graveline, J., and Joslin, S. (2011), "Do Interest Rate Options Contain Information about Excess Returns?," Journal of Econometrics, Vol. 164, 35-44.
- Bauer, M., Rudebusch, G.D., and Wu, C. (2012), "Monetary Policy Expectations at the Zero Lower Bound", San Francisco Fed working paper 2013-18.

- Bauer, M., Rudebusch, G.D., and Wu, C. (2012), "Correcting Estimation Bias in Dynamic Term Structure Models", Journal of Business and Economic Statistics, 30(3), July 2012, 454-467.

- Bikbov, R. and Chernov, M. (2009), "Unspanned Stochastic Volatility in Affine Models: Evidence from Eurodollar Futures and Options," Management Science, Vol. 55, No. 8, 1292-1305.

- Bikbov, R. and Chernov, M. (2011), "Yield Curve and Volatility: Lessons from Eurodollar Futures and Options," Journal of Financial Econometrics, Vol. 9, No. 1, 66-105.

- Dubecq, S., Monfort, A., Renne, J.-P. and Roussellet, G. (2013): "Credit and Liquidity in Interbank Rates", Banque de France working paper.

- Christensen, J.H.E., and Rudebusch, G.D. (2013), "Modeling Yields at the Zero Lower Bound: Are Shadow Rates the Solution?", San Francisco Fed working paper 2013-39.

- Christensen, J.H.E., and Rudebusch, G.D. (2013), "Estimating Shadow-Rate Term Structure Models with Near-Zero Yields", San Francisco Fed working paper 2013-07.

- Christensen, J.H.E., Diebold, F.X. and Rudebusch, G.D. (2011), "The Affine Arbitrage-Free Class of Nelson-Siegel Term Structure Models," Journal of Econometrics, 164, 4-20.

- Christensen, J.H.E., Lopez, J.A. and Rudebusch, G.D. (2010), "Inflation Expectations and Risk Premiums in an Arbitrage-Free Model of Nominal and Real Bond Yields," Journal of Money, Credit, and Banking, 42, September 2010, 143-178.

- Christensen, J.H.E., Diebold, F.X. and Rudebusch, G.D. (2009), "An Arbitrage-Free Generalized Nelson-Siegel Term Structure Model," The Econometrics Journal, 12, 33-64.

- Diebold, F.X. and Li, C. (2006), "Forecasting the Term Structure of Government Bond Yields," Journal of Econometrics, 130, 337-364.

- Diebold, F.X., Rudebusch, G.D. and Aruoba, B. (2006), "The Macroeconomy and the Yield Curve: A Dynamic Latent Factor Approach," Journal of Econometrics, 131, 309-338.

- Jacobs, K. and Karoui, L. (2009), "Conditional Volatility in Affine Term Structure Models: Evidence from Treasury and Swap Markets," Journal of Financial Economics, Vol. 91, 288-318.

- Monfort, A., Renne, J.-P. (2013): "Default, liquidity and crises: an econometric framework", *The Journal of Financial Econometrics*, Vol. 11 (2).

- Monfort, A., Renne, J.-P. (2013): "Decomposing euro-area sovereign: credit and liquidity risks", *The Review of Finance*, forthcoming.