MASTER M1. Time Series: Examination

May 22, 2012. 14h00-15h30

Question A: 5 points

You have to model a time series, for instance inflation, for which you have a sample. How do you proceed? Give and discuss all the steps. I do not expect calculations here. At each step, I need to know what one should do, which test to use (give the formula and its distribution), etc...

Question B: 4 points

1. What are the type of non-stationary processes that you know?
2. Among the following time series, which ones are stationary: inflation, short term of interest rate, CAC 40, GDP, GDP growth, investment?
3. How do you test the presence of unit root and a trend?

Question C: 5 points

1. How do you estimate an ARMA model?
2. How do you decide that you selected the best ARMA model? Be precise.
3. How do you combine forecasts?

Question D: 4 points

1. Consider a stationary ARMA(1,1) process without a mean. Compute its forecast at any horizon.
2. What is the limit of the forecast when the horizon goes to infinity?
3. Provide the confidence interval of the forecast at one and two steps-ahead when one assumes normality of the innovation process.

Question E: 2 points

1. What means co-integration? Be precise.
2. Why co-integration is important?