4.July.2011

Assignment 3

Due Date: August 4, 2011, 14:00h

Data Set 3 contains the quarterly real estate indices for 4 biggest cities between years 1977-2010 in Wunderland. Find the most appropriate stochastic time series model capturing the behavior of the real estate indices for those cities and the interactions among them by using the methods of Vector Error Correction modeling.

- 1. Analyze the level (log transformed) and the rate of change (differenced log of indices) of the series by descriptive statistics (mean, standard deviation, kurtosis, skewness, Jargue-Bera etc.) and plot the graphs to determine certain patterns.
- 2. Analyze the structure of the series by checking correlogram (ACF, PACF, Q-Statistics and p-values) and check the cut-off points from these graphs.
- 3. Perform unit root test for stationarity and check for three possible models (without intercept and trend, with trend, with intercept).
- 4. Estimate parameters (fit the appropriate model) for each series.
- 5. Make diagnostic checks (white noise in the residuals).
- 6. Determine Granger causality of the series to each other and interpret the results.
- 7. Examine the relation among series by using impulse response function and interpret the results.
- 8. Follow the steps of Engle Granger approach to determine the cointegrated series.
- 9. Estimate parameters of the VECM.
- 10. Apply a cointegration test by using Johansen approach.
- 11. Interpret the results and comment on the short term and long term relation of the indices for each cities to each other.

Remark: Each group should submit one set in draft and send a copy of the HW to the instructor by email (sevtap.kestel@vwl.uni-freiburg.de).