

Assignment 15

VARs Models

From the data set `assign_timeseries.dta`:

The following VARs models:

$$Y_t = A_0 + A_1 Y_{t-1} + \epsilon_t \quad (3)$$

where: $Y_t = \begin{pmatrix} rspot_t \\ rfuture_t \end{pmatrix}$, $A_0 = \begin{pmatrix} a_{10} \\ a_{20} \end{pmatrix}$, $A_1 = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix}$, $\epsilon_t = \begin{pmatrix} e_{1t} \\ e_{2t} \end{pmatrix}$

1. Estimate VARs models using spot return (rspot) and future return (rfuture) as endogenous variables and determine the most appropriated lags models using SBIC.
2. Perform stability test and Granger exogeneity test.
3. Perform Impulse response function analysis (irf), Orthogonal impulse response function analysis (oirf), Cumulative impulse response function analysis (coirf), make interpretation of the analysis, and determine which variable has more impact (using Cholesky order – rspot rfuture).
4. Perform Forecast error variance decomposition (fevd) and determine variable that has more impact on each endogenous variable.
5. Determine whether changing Cholesky order from – “rspot rfuture” to “rfuture rspot” will change the results of irf, oirf, coirf, and fevd. Why? or why not?