
Assignment 4

From the data set assign04.dta:

Part I

1. Test whether the series spot and future are stationary series.
2. From spot and future, generate spot return (rspot) and future return (rfuture) and test whether they are stationary.
3. Estimate Autoregressive Integrated Moving Average (ARIMA(p,d,q)) model for spot return (rspot) and future return (rfuture) – determine the most appropriated order for p, d, and q using SBIC given the maximum lag equals 3.

Part II

4. Estimate VARs models using spot return (rspot) and future return (rfuture) as endogenous variables and determine the most appropriated lags models using SBIC.
5. Perform stability test and Granger exogeneity test.
6. Perform Impulse response analysis and determine which variable has more impact.
7. Perform Forecast error variance decomposition and determine variable that has more impact on each endogenous variable.

Part III

8. Estimate GARCH(p,q) for spot return (rspot) using future return (rfuture) as explanatory variable for mean equation – determine the most appropriated order p and q for variance equation using SBIC given the maximum lag equals to 2.
9. From (8), predict the variance of spot return (rspot).