Assignment 2

Group Assignment: Each group should have not more than 8 members

Financial Econometrics: ECO764A

Last date: 25th April 2021

Total Marks: 50

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1. Please download the time-series data of commodity futures from NCDEX (https://ncdex.com/markets/futureprices)and calculate the following:
    a. The examination of the price discovery process.
    Step 1: Download the time-series data of futures and spot (time-varying) from NCDEX website for at-least 5 years (daily observations).
    Step 2: Please note that to create time-series data, you need to download the near to maturity series and stack it contract-wise. For instance, if you are downloading the data of February contract, then the February data should be from Feb. 1 to Feb. 28 (if the contract is expiring on Feb. 28) and so on.
    Step 3: Check the presence of unit root at level and at first difference. Covert that series in logs. Make sure the data attains the stationarity I (0) after the first difference.
    Steps 4: Apply Engle-granger test on spot and futures series and establish the linkages. Refer the slides for steps.
    Step 5: Please refer to the paper titled "*Price discovery in energy markets*" by Keshab Shrestha implement the same on your set of commodities futures data including PT/GG information share measure.
    Step 6: Prepare a report mentioning your tables and their interpretation.
2. On the same dataset, create two variables list. First, spot and futures of a commodity and only futures or spot of three commodities and implement the multivariate GARCH models of BEKK, VECH, DCC and ADCC.
3. After estimating the model, please extract variance, covariance series from these models calculate dynamic hedge ratios, dynamic portfolio weights and hedging effectiveness.
4. Download the data from yahoo finance of any five stock. Calculate their descriptive: mean, standard deviation, skewness and kurtosis, serial correlation tests (Ljung-Box) and ARCH effects. Please interpret these descriptive from the investors' perspective.
5. Prepare a final report of whole volatility analysis from 2-4.

Notes: it is entirely up to you to explore any computing platform and even use the shared codes. You can submit it in soft format (word/latex).