Time Series Analysis 2019/2020 – Home Project #1

deadline #1: 2020-07-10
deadline #2: 2020-09-10

Project description:

The aim of the project is to compare forecasts of prices of two cointegrated cryptocurrencies with: a) the VECM/VAR model and b) two independent univariate ARIMA models.

In oder to acomplish the task you should:

1. Download time series with prices of **two** cointegrated cryptocurrencies.
2. Find separately for them the most attractive univariate ARIMA models and produce forecasts for the reasonably short *out-of-sample* period.
3. Conduct the cointegration analysis which would provide evidence that the two time series are indeed cointegrated.
4. Build a VECM/VAR model for them and produce forecasts of their prices for the same *out-of-sample* period.
5. Compare those forecasts using the *ex-post* forecast error measures.
6. Prepare a short report on it.

Additional information:

1. Quotations of cryptocurrencies are available on the website:

   `www.coinmarketcap.com`

   To download these data you may use this function:

   `https://gist.github.com/pawelsakowski/4b7f54ce0da6d4e462f7d07b9b2a39e5`
2. Lengths of the *in-sample* and *out-of-sample* periods are up to you. Anyway, please explain your choice.
3. The submission should cointain a report in the `pdf` file and a zipped RStudio project with the code of your calculations and the data in the `csv` files placed in the `data/` subfolder.
4. The project should be prepared by the team of **one** or **two** students.
5. The report should include: names of the author(s), title, short abstract (4-5 sentences), aim of the study, short data description and results of the analysis.
6. If you keep the deadline #1 you will get the grade before summer vacation.