

Student Name: _____
PID: _____
Honor Code Signature: _____

Matlab HW#9 04/12/19 @ 5:00pm

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Instructions:

- You must state and justify any and all assumptions you make in the assignment.
- Your submission must be a professional presentation of your work.
- Students may collaborate, but each student must follow the honor code, and submit their own work. Obvious instances where more than one student utilizes the same spreadsheet or commentary will not be tolerated.
- This assignment must be completed using Matlab.
- Your deliverable should be a single m file with the following naming convention: “FirstName-LastName-HW#.m”.
- This m file should be submitted to the 525 sakai dropbox by the due date and time stated above.
- The m file should include code for importing the data, as well as producing the requested figures.
- Provide any files (Excel, csv, etc) that are necessary for the m file to run.
- The m file should be heavily commented, detailing every step of your calculations. Please include the answers to the questions below within these comments.
- Please include the following in the preamble of your code:
 - * %Purpose:
 - Econ 525-Spring2019
 - * %Note:
 - This m-file is dependent upon xyz files.
 - * %Author:
 - %Name — Date
 - %UNC Honor Pledge: I certify that no unauthorized assistance has been received or given in the completion of this work.

Suppose you are managing a currency futures portfolio. Use the following information to answer the questions below.

- Database = BarChart Futures via Quandl (see sakai for API key)
 - Assets = Currency Futures: Australian Dollar Futures, British Pound Futures, Canadian Dollar Futures, and Euro Futures, all with December 2018
 - Frequency = Weekly
1. Conduct EDA (exploratory data analysis), including sample statistics, histogram, correlogram of returns, correlogram of squared returns, one white noise test, and a test of ARCH effects.
 2. Set your estimation period as 1/1/2000 to 12/31/2017, and your holding period to the first trading week of 2018. Forecast returns and volatility of returns using an ARMA(1,1)-GARCH(1,1) with Gaussian innovations for your holding period.. Estimate optimal portfolio weights using these forecasts.
 3. Roll your estimation and holding periods forward by one week. Repeat the forecast and optimization procedure.
 4. Repeat this rolling window until the end of 2018.
 5. Track the performance of your 1 week ahead rolling portfolio by i) creating a performance graphic of a notional \$100 investment in this portfolio, ii) descriptive statistics, iii) VaR using “normal” method, iv) VaR using “historical” method. Provide 1-2 paragraph discussion of your results.