Econ 525 — Prof. Aguilar
Advanced Financial Economics — UNC at Chapel Hill

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

Matlab HW#3 - 02/15/19 @ 5:00pm

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 QFE 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.

This is a single asset across multiple events event study. The goal of this assignment is to determine the responsiveness of various assets to the surprise in U.S. Non Farm Payrolls data (NFP) via an Event Study. You will do an event study for all of the individual assets listed below. Surprise is defined as US Non Farm Payrolls As Reported - Estimize Expectation of US NFP, for each month. You will have to go pull NFP As Reported data for the corresponding Estimize months.

Computing expected returns is analogous to examples in class where the CAPM was used. The only difference is now you will be regressing asset returns onto this surprise in US Non Farm Payrolls ($r_t = \alpha + \beta * (NFPAsReported_t - EstimizeExpectation_t) + \epsilon_t$).

- Estimation Period: May 2014 to December 2016
- Event Period: January 2017, February 2017, and March 2017
- Events: Release of US Non Farm Payrolls As Reported
- Expectations: Taken from Estimize (provided in supplemental file)
- Assets: gold, silver, RBOB gasoline, eur/usd, usd/jpy, gbp/usd, usd/cad, usd/chf, aud/usd, nzd/usd
- Database: tickhistory.mat will be provided to you, but you will be responsible for correctly extracting data and cleaning if necessary.

1. Follow the method of slide 7 in the Event Studies pdf from Sakai, where slide 7 covers a single asset across multiple events. You will use the estimation period to estimate parameters that you will use to compute expected returns for the asset. Looking at slide 7, the corresponding events for this homework will be as follows: Event 1 is January 2017 NFP release, Event 2 is February 2017 NFP release and March 2017 NFP is Event 3. You will then take the average abnormal returns across those events and the Cumulative average abnormal return. These are the last two columns on slide 7.

   Then create a table with event time as rows (-5mts, -4mts, ..., +30mts). Then add two columns: the average abnormal returns across those events and the Cumulative average abnormal return (again, these are the last two columns on slide 7). This is for one asset.

   Then repeat the same process outlined above for the second asset, the third asset, and so on.

   Combine all of your results into one table for ease of readability. The final table should have event time as rows (-5mts, -4mts, ..., +30mts) and then two columns per asset, where the first column will be the average abnormal returns across those events and the Cumulative average abnormal return (again, these are the last two columns on slide 7). (8pts)
2. Create a graph with all the FX and commodities CAR on the vertical axis and the event time on horizontal axis. Make sure to include a legend so it is clear which CAR belongs to which asset. (2pts)
3. Compute the SCAR test statistic and associated p-value ala Campbell, Lo, and MacKinlay (slide 7) for each individual asset. (4pts)
4. Comment on results from the tables above 1-2 paragraphs. (6pts)