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

Matlab HW#2 - 02/01/19 @ 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.

The goal of this assignment is to create your own version of the SMB and HML factors. You will also estimate/interpret a model for asset prices using the Fama French method. Consider the following:

- Universe: SP500 constituents as of 1/18/2019
- Estimation Period: 2010-2018
- Return Specification: Holding Period Return; Annual
- Factors: HML,SMB;
- Database: SQL database tutorial.db file containing the following data fields:
  - Ticker (numeric): a numeric value assigned to each ticker for each asset
  - Year (numeric): year of each data point. All data can be assumed to align with June of year t in order to conform to Ken Frenchs computation method.
  - prices (numeric): closing price.
  - NumShare of Shares (numeric): Number of shares outstanding
  - BookV (numeric): book value per share.

1. Recreate the HML and SMB Fama French factor using the simulated dataset provided. Cautionary note: your results will not match those found on Ken Frenchs website since the HW2data.db file covers a different set of data for ease of computation.
   a. Create a time series chart that overlays the Small Value, Small Neutral, and Small Growth portfolios. (2pts)
   b. Provide descriptive statistics of the Small Value, Small Neutral, and Small Growth portfolios. Present the descriptive statistics in a table. Interpret your results 1-2 paragraphs. (4pts)
   c. Create a separate time series chart for that overlays the Big Value, Big Neutral, and Big Growth portfolios. (2pts)
   d. Provide descriptive statistics of the Big Value, Big Neutral, and Big Growth portfolios. Present the descriptive statistics in a table. Interpret your results 1-2 paragraphs. (4pts)
   e. Create a chart that overlays the SMB and HML factors. (4pts)
   f. Provide descriptive statistics of both SMB and HML factors. Present the descriptive statistics in a table. Interpret your results 1-2 paragraphs. (4pts)