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

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

Matlab HW#5 - 03/01/19 @ 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 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.

The goal of this exercise is to forecast/nowcast GDP with market returns via a MIDAS model.

- GDP: final (i.e. revised) Real GDP q/q growth rates
- Market: 10 monthly industry portfolio returns from Ken French's website and monthly market index returns from CRSP (accessed via WRDS)
- Estimation Sample: Q2'47-Q4'16
- Evaluation Sample: Q1'17-Q4'17
- MIDAS polynomial: beta
- Model form: ADL-MIDAS with one lag
- Method: rolling window

1. Estimate an ADL-MIDAS model with the 10 monthly industry portfolio returns across horizons 1, 2 and 3.

   Hint: Make sure you use the MIDAS toolbox for Matlab and look through the user guide. Scroll down to the software usage examples in the PDF user guide for guidance. Pay close attention to how the dates and data need to be formatted prior to estimation. I highly suggest running a built in example provided in the toolbox before starting your homework.

   a. Run the model for each portfolio and each horizon. Create a table that has industry names as rows, and horizons $\{3, 2, 1\}$ as column headings, where table entries are the RMSE. See table below. (6pts)

Table 1: RMSE Forecast Results

	Hor. 3	Hor. 2	Hor. 1
industry1			
industry2			
industry3			
industry4			
industry5			
industry6			
industry7			
industry8			
industry9			
industry10			

   b. Construct a forecast combination of the results above (using the default combination scheme). (2pts)

      Hint: Make sure you use the function provided in the MIDAS toolbox.

   c. Now run the same model from part a with market index returns instead of industry returns.(2pts)

      Hint: If you are using value-weighted industry portfolio returns, make sure you use value-weighted market returns.

   d. Append two rows to the bottom of the table created in part a. Input the MSE of the default combination scheme and the MSE from the results in part c. See table below. (2pts)

Table 2: RMSE Forecast Results

	Hor. 3	Hor. 2	Hor. 1
industry1			
industry2			
industry3			
industry4			
industry5			
industry6			
industry7			
industry8			
industry9			
industry10			
combo default			
market index			

e. Interpret your findings 1-2 paragraphs. (8pts)