

Student Name: \_\_\_\_\_  
PID: \_\_\_\_\_  
Honor Code Signature: \_\_\_\_\_

**Matlab HW#6 - 03/08/19 @ 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 fit and forecast the U.S. yield curve using the Diebold-Li model.

- Maturities: Same as in class Matlab example use the following: 1 Mo, 3 Mo, 6 Mo, 1 Yr, 2 Yr, 3 Yr, 5 Yr, 7 Yr, 10 Yr, 20 Yr, and 30 Yr.
  - Databases: Treasury.gov, WRDS web pull
  - Estimation Period: 1990 to 2016.
1. Fit a Diebold-Li yield curve model to the monthly U.S. Treasury curve from 1990 through 2016. Use the same maturities specified above. (4 pts)
    - a. Use the same maturities specified above and create a plot of the factor loadings. (2 pts)
    - b. Interpret the plot of the factor loadings from part a (1-2 paragraphs). (4 pts)
    - c. Forecast the beta parameters with AR(1) specifications for all of 2017 (i.e. from 1mth ahead to 12mths ahead). (4 pts)
    - d. Compute the percent forecast error PFE as (forecast-actual)/actual. Construct a table with each month of 2017 as rows headings, each maturity examined as column headings, and table entries are PFE. See table below. (2 pts)

Table 1: Forecasts for 2017

	1 month	3 month	6 month	1 year	2 year	3 year	5 year	7 year	10 year	20 year	30 year
Jan 2017											
Feb 2017											
March 2017											
April 2017											
May 2017											
June 2017											
July 2017											
Aug 2017											
Sept 2017											
Oct 2017											
Nov 2017											
Dec 2017											

- e. Interpret your findings from part c (1-2 paragraphs). (4 pts)