Advanced Financial Econometics: Group Assignment

May 2020

Instructions: The assignment is for groups or 2 or 3. The assignment is limited to 10 pages. It is not necessary to submit the code used to complete the assignment.

1. For each of the series in the monthly M4 data set, produce forecasts using a range of simple methods, including:

   - Pure deterministic with and without seasonal effects
   - ARIMA, possibly with seasonality
   - The Theta Method
   - The Delta Method
   - The Rho Method
   - The CARD Method
   - Simple Exponential Smoothing
   - Holt or Holt-Winters
   - A few naive MAs

   Evaluate the performance of single model predictions using the out-of-sample ("test") data. Feel free to design your own pretests to eliminate models that are wholly inappropriate, or to use cross-validation to remove terrible models.

2. For any models you used in the previous steps, compare the performance of 2-way combinations using equal weighting.

3. Rewind the clock 5, 10 and 15 years be removing the final 60, 120 or 180 observations from the training samples. Repeat the exercise as if these new end dates were the end of the sample and the next 18 months were the test data. Are the best models and methods stable?