

Lecture 8 Homework: Time Series

(Homework Due by Lecture 9 in Chalk FINM331 Digital Dropbox or otherwise acceptable to TA/CA/Graders)

**You must show your work, code and/or worksheet for full credit.**

1. (30 points) Using real market data, of sufficient size, to test the PACF multi-linear auto-covariance regression AR(p) time series models using partial least squares or similarly modified maximum likelihood estimation method (See Lecture 8, including algorithmic formulas, pp. 51-61).
  - (a) Using only a sequence of AR(p) models for  $p = 1 : 6$  and sample size  $T > 500$ , find the best value  $p^*$  that significantly represents the data.
  - (b) Report good of fit statistics, e.g.,  $R^2$ .
  - (c) Demonstrate your best  $AR(p^*)$  with a time series plot, along with basic time series statistics, including lagged autocorrelations.
  - (d) Discuss results.