

Problem Set 2
Econ 40357 Financial Econometrics
University of Notre Dame
Professor Nelson Mark

Thursday 15 September 2022

Due 12:30 Thursday 22 September, electronic submission through Canvas. 100 points total on this problem set. Please read the problem set carefully, especially about **what you should report** as your answers. As before, submit **a single pdf** document. The first part of the document will have the group answers. The second part will be an appendix with individual Eviews output. The first page of the solutions needs to have your group number (or group name) with a list of your group members. In the appendix, list your name on the first page of your Eviews output.

1. Consider the ARMA(1,2) model,

$$y_t = \rho y_{t-1} + \epsilon_t + \theta_1 \epsilon_{t-1} + \theta_2 \epsilon_{t-2}$$

where ϵ_t iid $(0, \sigma_\epsilon^2)$.

- (a) (15 points) Find the mean $E(y_t)$.
 - (b) (15 points) Find the variance $Var(y_t)$.
 - (c) (15 points) Find the first-order autocorrelation $Corr(y_t, y_{t-1})$.
 - (d) (15 points) Find the second-order autocorrelation $Corr(y_t, y_{t-2})$.
 - (e) (15 points) Find the forecasting rule $E(y_{t+1}|y_t, \epsilon_t, \epsilon_{t-1})$
 - (f) (15 points) Find the forecasting rule $E(y_{t+2}|y_t, \epsilon_t, \epsilon_{t-1})$
2. (10 points) For doing the write-up entirely with word processing software (i.e., nothing hand-written) and listing your group number and group members at the beginning of your submission.