

A220A0000 Financial Econometrics – exam paper

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Please answer the following questions in **English** in **legible handwriting**. Try to give sufficient evidence/arguments for your claims and provide enough information to show your understanding of the subject. Too much detail is not necessary – clarity and good reasoning is preferred to quantity!

Questions:

- 1) What are the basic assumptions under which the OLS estimates of regression parameters are BLUE? State all the assumptions and briefly describe/explain each of them.
- 2) Hypotheses testing in linear regression models using the F-test – describe how it works, what kind of hypotheses can be tested (what is the use of such testing).
- 3) Autocorrelation of residuals in linear regression models - what is it, how to test for autocorrelation in linear regression models, how to deal with autocorrelation (if present).
- 4) Parameter stability testing in linear regression models – what is the parameter stability assumption? How can we test for parameter stability?
- 5) Predictions in time series models – how are they constructed, how can the quality of predictions be evaluated?
- 6) Vector autoregressive models – give an example, compare them with single equation AR models. What are impulse response tests?
- 7) Consider the following Matlab outputs. Summarize the model, write its equation(s) and comment on the model.

AR-Stationary 2-Dimensional VAR(1) Model

Effective Sample Size: 1386

Number of Estimated Parameters: 6

LogLikelihood: -3637.85

AIC: 7287.7

BIC: 7325.45

	Value	StandardError	TStatistic	PValue
Constant(1)	-0.0060108	0.0074575	-0.80601	0.42023
Constant(2)	-0.00048346	0.0068505	-0.070574	0.94374
AR{1}(1,1)	0.18675	0.021474	8.6969	3.4109e-18
AR{1}(2,1)	-0.042606	0.019726	-2.1599	0.030778
AR{1}(1,2)	-0.053926	0.023133	-2.3311	0.019749
AR{1}(2,2)	0.24059	0.02125	11.322	1.0235e-29

Innovations Covariance Matrix:

0.2216	0.1420
0.1420	0.1870

Innovations Correlation Matrix:

1.0000	0.6976
0.6976	1.0000