View Report

R1

(Number of First Attempts: 91)

MCQ

Question 1

Which of the following is true of a Vector Error Correction Model (VECM)?

Average Grade: 0.99 / 1 (98.9 %)

➡ Individual variables do not need to be stationary when modelled with a VECM as long as at least 1 cointegrating relationship exists	90	(98.9 %)
All variables need to be stationary	0	(0 %)
All variables need to be stationary as long as at least 1 cointegration relationship exists	1	(1.1 %)
We render variables stationary regardless of whether a cointegrating relationship exists	0	(0 %)

Question 2

What is the main difference between vector autoregression (VAR) and univariate ARIMA?

Average Grade: 0.96 / 1 (95.6 %)

Variables do not need to undergo differencing in VAR to render them stationary	1	(1.1 %)

⇨	There are multiple dependent variables in VAR but only 1 in univariate ARIMA	87 (95.6 %)
	Univariate ARIMA typically involve a greater number of parameters than VAR	1 (1.1 %)
	None of the above.	2 (2.2 %)

Question 3

What is the best practice model selection criteria to use for (i) VAR and (ii) ARIMA respectively?

	Adjusted R square, AICC	0 (0 %)
	AICC, SIC	8 (8.79 %)
⇨	SIC, AICC	81 (89.01 %)
	AICC for both	2 (2.2 %)

Average Grade: 0.89 / 1 (89.01 %)

Question 4

Which model selection criteria has the highest penalty factor for additional hyperparameters?

	None of these	1 (1.1 %)
	Adjusted R square	0 (0 %)
	AICC	0 (0 %)
⇨	SIC	90 (98.9 %)

Average Grade: 0.99 / 1 (98.9 %)

Question 5

What is the relationship between VAR and VECM?

	None of these	0 (0 %)
	VAR is VECM with additional error correction terms and independent variables	2 (2.2 %)
	VECM is VAR with additional independent variables	1 (1.1 %)

Average Grade: 0.97 / 1 (96.7 %)

➡ VECM is a VAR with additional error correction terms added. Order of VECM is determined using same process as order of VAR — 88 (96.7 %)

Question 6

What is the explanation of cointegration?

Answer	Responses	Average Grade
➡ Two or more time series are individually not stationary, but a linear combination of them are stationary.	85 (93.41 %)	Average Grade: 0.93 / 1 (93.41 %)
Two or more time series are stationary, and a linear combination of them is also stationary	5 (5.49 %)	
A linear combination of two or more time series is stationary	1 (1.1 %)	
A linear combination of two or more time series is not stationary	0 (0 %)	

Question 7

Which of following is intuition behind VECM?

Answer	Responses	Average Grade
There is a long run relationship between a group	3 (3.3 %)	Average Grade: 0.97 / 1 (96.7 %)

of variables. Whenever spot values deviate from this, we use this to update our estimate of the long run relationship

There is a long run relationship between a group of variables. Whenever current spot values deviate from long run relationship, we can forecast mean reversion back towards the long run. This allows us to strengthen our forecasts — 88 (96.7 %)

We estimate long run relationship between a group of variables and use that to guide our joint forecast — 0 (0 %)

None of these — 0 (0 %)

Question 8

Time series A is I(1) while time series B is I(0). Can we build a VECM?

Average Grade: 0.14 / 1 (14.29 %)

No. Both time series need to be I(0) — 1 (1.1 %)

We can, but need raw levels of A and B to pass cointegration test — 0 (0 %)

We cannot, as both need to be — 77 (84.62 %)

integrated to the same order

We may be able to build a VECM on 1st difference of A and raw levels of B, but need to pass cointegration test — 13 (14.29 %)

Question 9

Which of the following is true about the number of hyperparameters in a VAR/VECM model?

Number of hyperparameters grows with the square of the order of the model	60 (65.93 %)
Number of hyperparameters grows linearly with the order of the model	27 (29.67 %)
Number of hyperparameters grows with the square root of the order of the model	3 (3.3 %)
Order of the model does not matter	1 (1.1 %)

Average Grade: 0.66 / 1 (65.93 %)

Question 10

Can we include terms involving other independent variables in a VECM?

Average Grade: 0.43 / 1 (42.86 %)

Yes, in the long run equilibrium portion of the model	39 (42.86 %)

Yes, in the error correction portion of the model	45	(49.45 %)
Yes, as a separate equation	7	(7.69 %)
No	0	(0 %)