Quiz 5

Number of participants: 79

1

By checking "I confirm", I do confirm that I am present in the Lecture Zoom meeting at the moment and am doing this quiz individually and without sharing my answers with anyone.

✓ I confirm		100%	79 votes

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Slide

Quick Instructions

- **Remain muted** in Zoom during the whole quiz time
- If you have **a question, type it in the Zoom chat**
- The time is limited, please **follow the timer** displayed in Zoom
- Each question of the quiz has **exactly one correct answer**
- You must **press the "Submit" button** after answering every question
- $GRADE = \min(10, \text{number of correct answers})$

3

Terms "FORECAST" and "PREDICTION" are in general perfectly inter-changeable

TRUE	37%	29 votes
✓ FALSE	63%	50 votes

4

The function $L(e) = |e|$ is...

✓ a legit symmetric loss function	86%	68 votes
a legit asymmetric loss function	10%	8 votes
not a loss function	4%	3 votes

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What is true about the loss function

$$L(e) = 1_{\{e<0\}} - 2 \times 1_{\{e>0\}}$$

it punishes more for under-prediction	28%	22 votes
it punishes more for over-prediction	45%	35 votes
it is symmetric	4%	3 votes
✓ it is not an appropriate loss function	23%	18 votes

6

"MSE-optimal forecast" means that...

the forecast error is zero in expectation	4%	3 votes
the expected squared forecast error is minimized	19%	15 votes
✓ both of the above must hold	77%	61 votes

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For a TS, the MSE-optimal forecast is the conditional expectation

✓ YES, either the TS is stationary or not	22%	17 votes
YES, but only for stationary TS	61%	48 votes
YES, but only for linear TS	13%	10 votes
NO, it can be something else	5%	4 votes

8

Consider AR(1) process: X(t)=0.4+0.2X(t-1)+e(t), e(t) is WWN. The long-run MSE-optimal forecast ...

can't be found	6%	5 votes
= 0.4	9%	7 votes
✓ = 0.5	44%	35 votes
= 0.6	8%	6 votes
not enough data	33%	26 votes

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Consider MA(2) process: X(t) = 1+e(t)+0.5e(t-1)-0.9e(t-2). The long-run MSE-optimal forecast ...

✓ = 1	79%	62 votes
= 0	14%	11 votes
= 0.4	4%	3 votes
= 2	3%	2 votes

10

Consider ARMA(1,1) process: X(t) = 1.5+e(t)+0.5e(t-1)-0.5X(t-1). The long-run MSE-optimal forecast ...

can't be found	14%	11 votes
= 0	14%	11 votes
✓ = 1	36%	28 votes
= 2	5%	4 votes
not enough data	31%	24 votes

11

By "MEAN REVERSION" of forecasts we mean that

optimal forecast are some expectations	1%	1 vote
✓ conditional expectations converge to unconditional at the infinite horizon	63%	50 votes
forecast errors are zero in mean	13%	10 votes
long-run forecasts are some constants	23%	18 votes

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"Forecast ERROR BANDS are a kind of confidence interval for the prediciton"

YES, but not exactly it, as confidence level is unknown	53%	42 votes
YES, it is exactly prediction confidence interval	24%	19 votes
NO, it's for the forecast error, not forecast itself	23%	18 votes

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Consider a RW process $X_t = X_{t-1} + e_t$, where e_t is WWN. What is the MSE-optimal h-periods ahead forecast at time point t (for $h < \infty$), given the X_t value is known?

can't be found	16%	13 votes
zero	22%	17 votes
✓ X_t	29%	23 votes
hX_t	24%	19 votes
not enough data	9%	7 votes