Modelling and forecasting economic time series with mixed causal-noncausal models

Propositions accompanying the thesis

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1. *Wait a minute, Doc. What is wrong with my future?* – Marty McFly (Back to the Future Part III)

2. In many applications, valuable information would be lost if we were only using backward-looking AR models. (Chapter 2, 3)

3. During an explosive episode, a point forecast (conditional expectation) of an MAR(0,1) process can be in fact unlikely to be observed due to the bi-modality of the predictive density. (Chapter 2)

4. When asked what he meant by a miracle: *Oh, anything with a probability of less than 20%.* – Enrico Fermi (1901-1954)

5. ROC curves can help select adequate probability thresholds based on the trade-off between wrong and true positives. (Chapter 4)

6. Not finding a closed-form expression does not prove there are none. (Chapter 5)

7. Multivariate MAR models have the interesting characteristic to have two distinct representations of the same process. This allows to choose either one of them based on the research question. (Chapter 6)

8. Non-Gaussianity is required for identifying MAR models. For that, we can thank financial crises, wars, the COVID-19 pandemic... This assumption is now observed in the majority of series.

9. Modelling and forecasting a series with nonlinear dynamics are difficult tasks. Diverse models intend to do so and MAR models offer a suitable alternative. They can be estimated in a linearised manner and can capture non-linear dynamics in a strictly stationary setting.

10. Some econometricians enjoy tormenting others by creating unnecessary difficult notations for their models.

11. A PhD candidate will learn so much once they teach the courses they were supposed to have understood during their Bachelor.