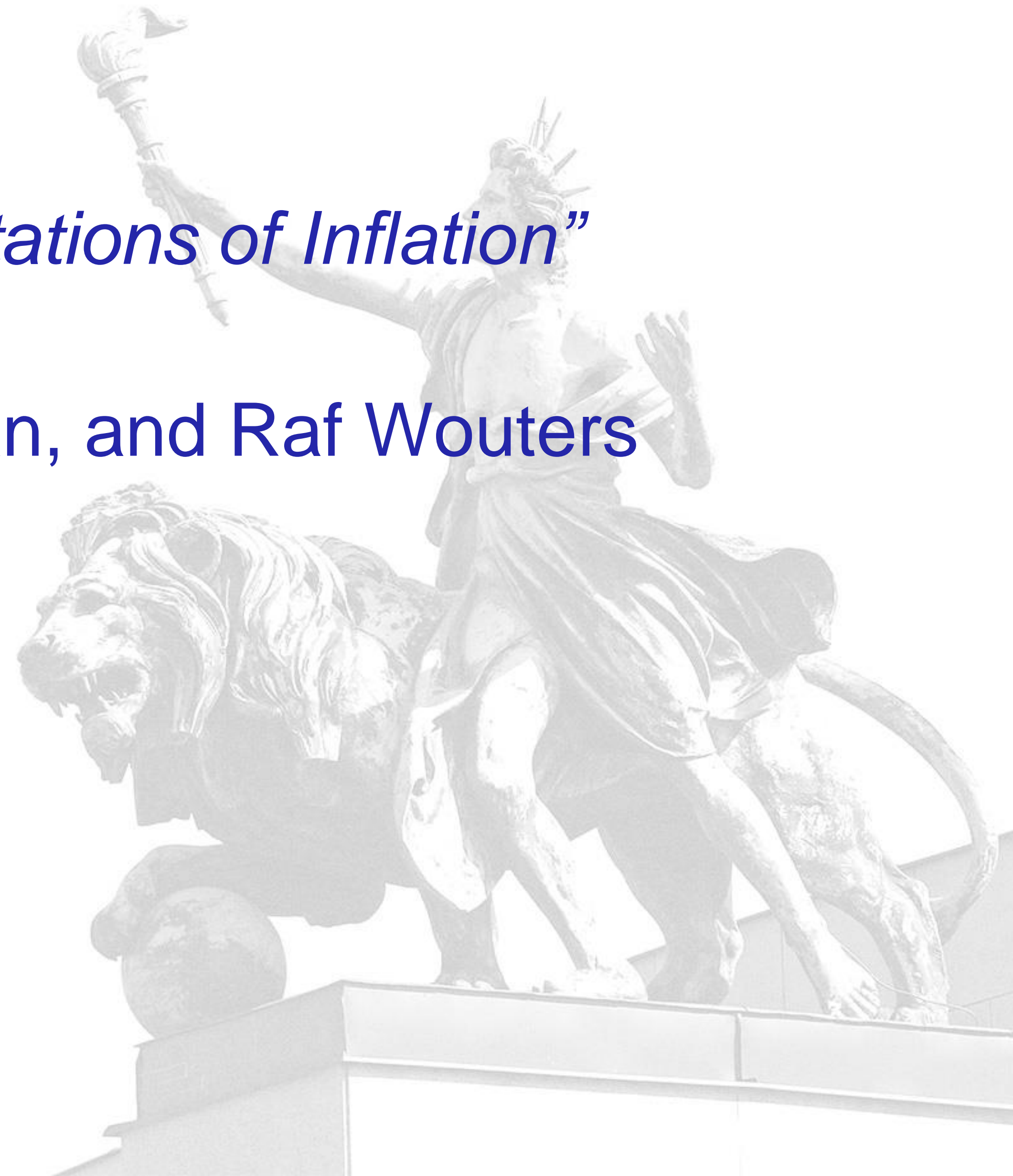CNB CZECH NATIONAL BANK

Discussion of
"Adaptive Learning and Survey Expectations of Inflation"

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Summary+Comments

Inflation expectations play a key role in the monetary policy conduct:

- how to utilize SPF in our forecasts?

A rich paper with many results

This paper re-estimates 2 seminal work-horse macro models: Smets and Wouters 2007 (RE) and Slobodyan and Wouters 2012 (AL) under various specifications to show:

- incorporating SPF improves the quality of forecasts
- how to extract more informational value from SPF forecasts
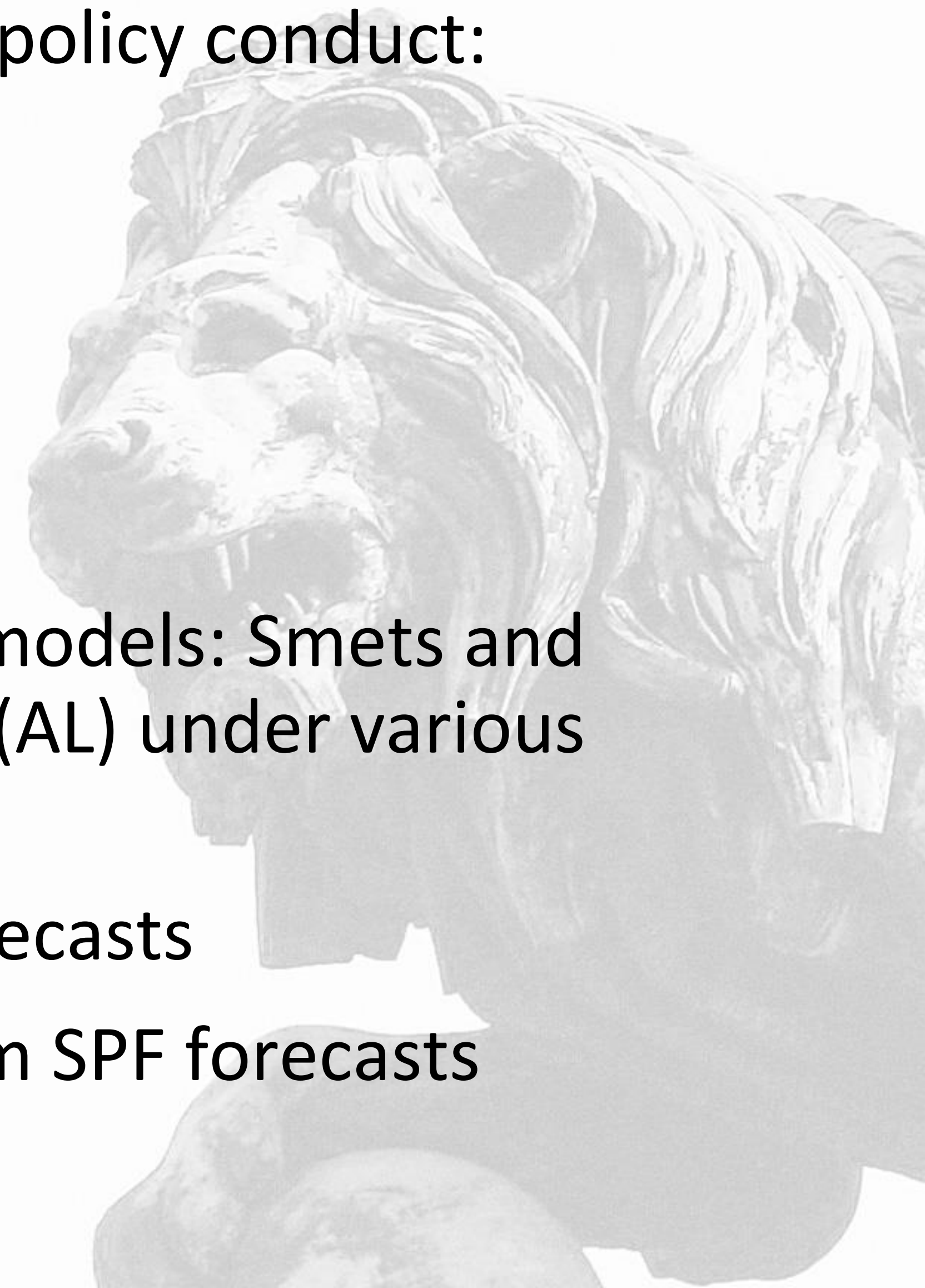
1. First estimate two models with real time data and longer horizon (up to 2019)

2. Adaptive learning is specified as AR(2) models with time-varying coefficients:

   • Inflation forecasts considered as PLM and ALM

   • Or/and includes marginal costs to mimic the Phillips curve

3. Then add SPF on next quarter inflation as an observable variable

4. Then add additional shocks to account for slow and fast moving components of inflation expectations

5. Then add exogenous inflation target shock for RE

6. Several robustness exercises

7. Study post-Covid inflation surge
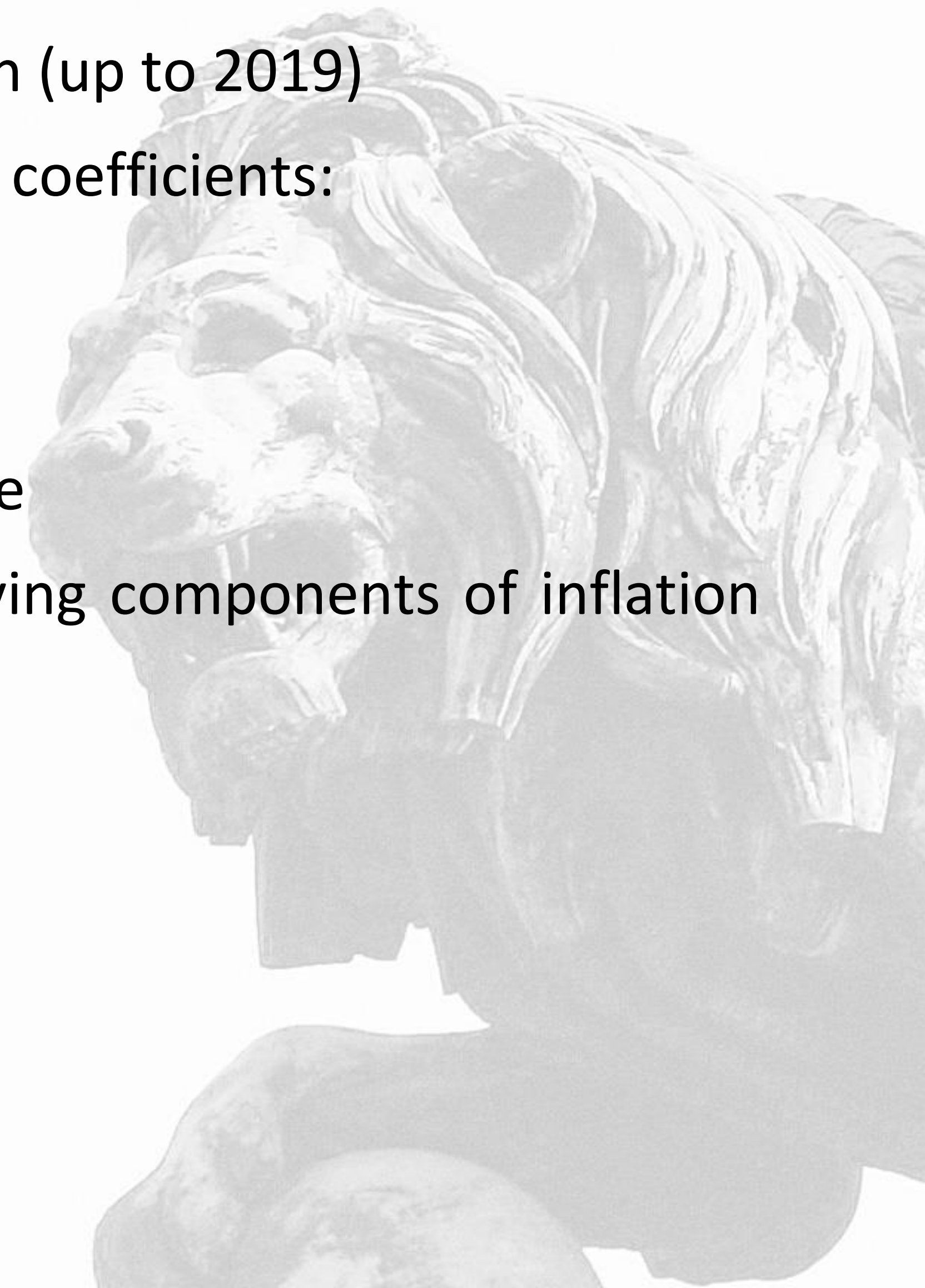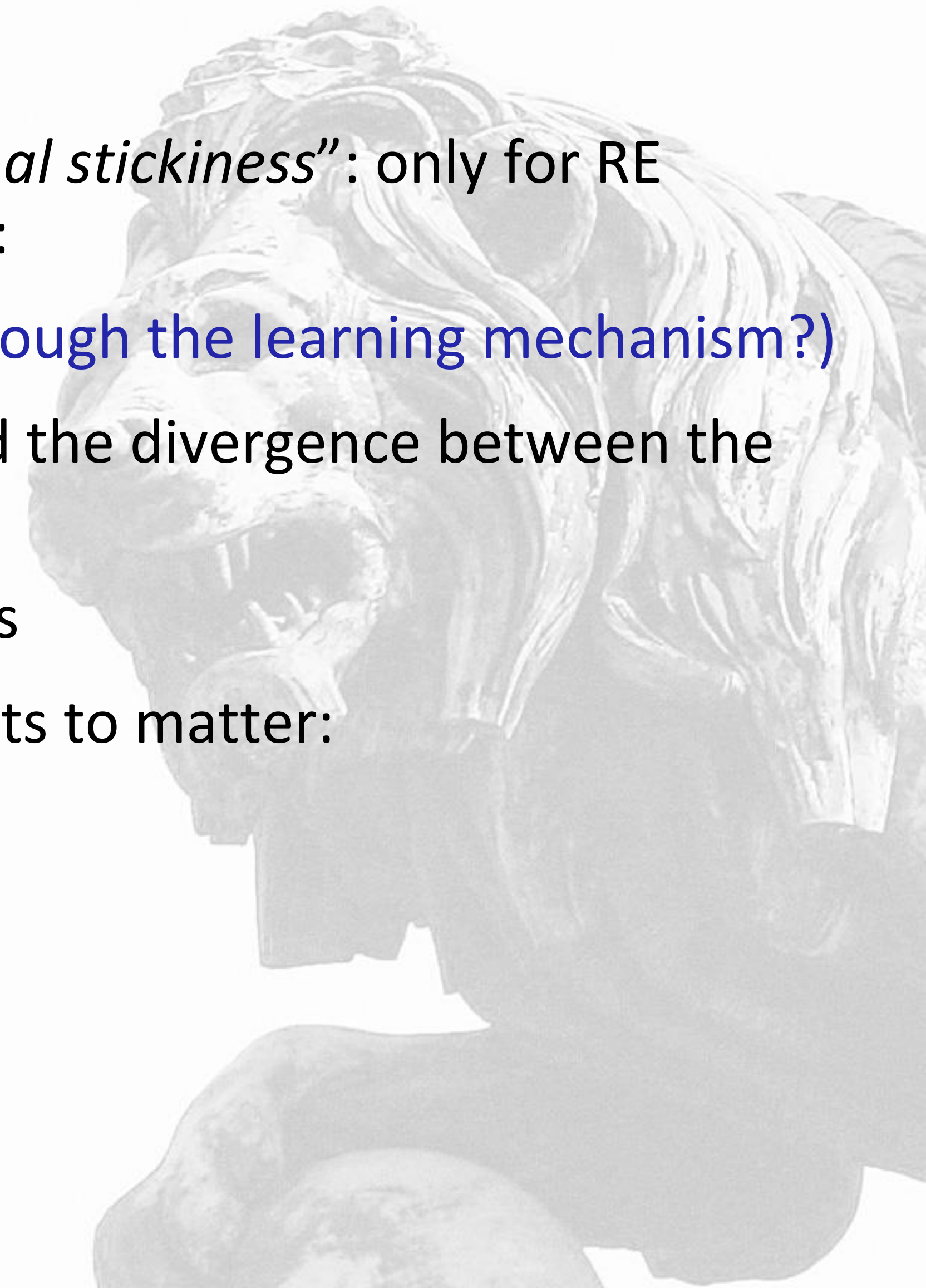
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1. First estimate two models with real time data and longer horizon (up to 2019):

   - SPF predictions on inflation are usually better than DSGE both under RE and AL,

   - divergence between RE and AL models during the low-inflation period:

     - consistent with RE expectations are better for long-term analysis, but AL with AR (2) models for short-term

   - surprisingly, while AL model has higher likelihood, there is no benefit of using AL for forecasting inflation even for the short-term forecasts?

   - The estimates of two models differ from two baseline models in two aspects: RT data and longer horizon (QE, low-inflation, euro sovereign crisis etc.)

   - More information on observables:

     - Shadow rates?

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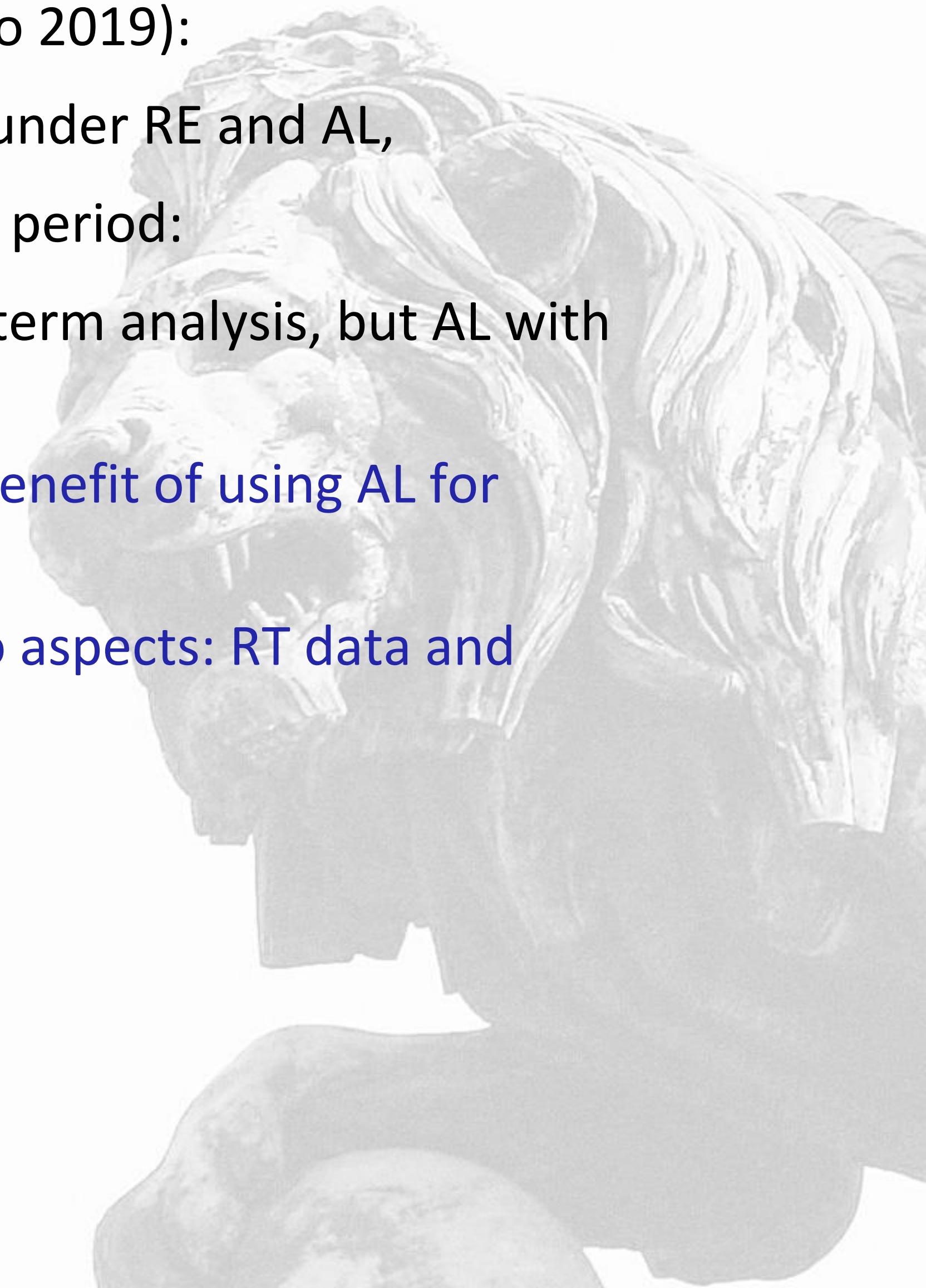
2. Then add SPF on quarterly inflation as an observable variable:

- *"The most striking changes are the higher degree of nominal stickiness"*: only for RE model, for AL still within the posterior uncertainty bounds:

    - Some internal persistence in SPFs (AL deals with it through the learning mechanism?)

- both models perform better in terms of the likelihood, and the divergence between the forecast disappears

- AL performs better for the short-horizon inflation forecasts

- Adding Phillips curve specification to agents' forecasts starts to matter:

    - Ph. Curve is relevant for SPF forecasters?

   - Is there any time variation in Ph. Curve relevance?

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3. Then add additional shocks to account for slow and fast moving components of inflation expectations:

   - The models forecasting properties are even better

   - RE models resembles SPF forecast for short-time intervals. AL model does not

4. Then add exogenous inflation target shock for RE:

   - Improves fit even further for RE model

   - How is this shock specified: ARMA? Is it estimated or calibrated? Is it subtracted from all the inflation variables and interest rate?

   - Are there benefits for adding it to the AL model, would it be possible to identify this shock under AL?

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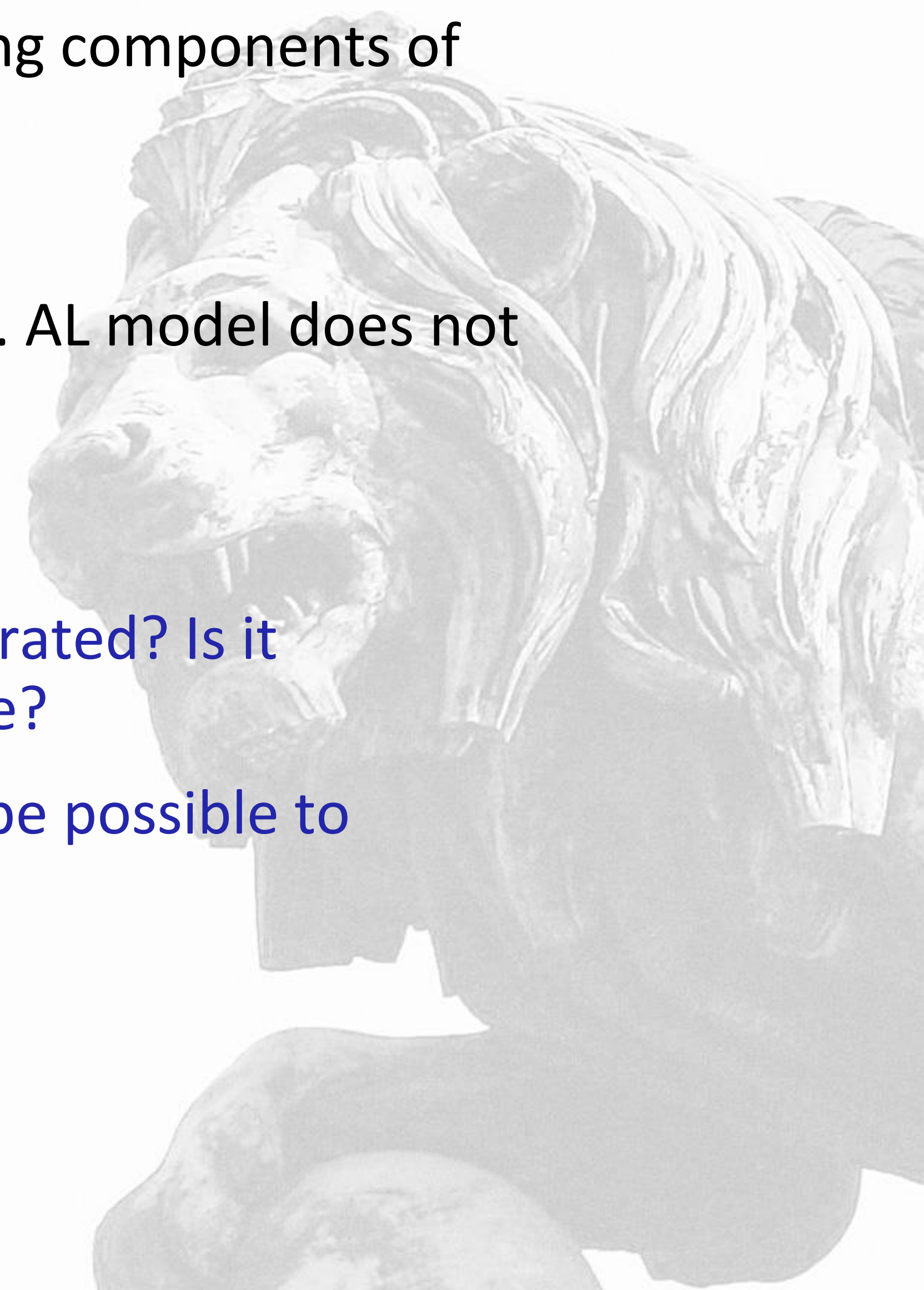
5. Several robustness exercises

6. Study post-Covid inflation surge:

- AL is usually better than RE in unconventional circumstances (high/low inflationary environment)

- Under AL during the (post) Covid episode, the importance of persistent mark-up shock is larger than under RE

- RE model: is there any role of inflation target shock (evidence on de-anchoring?)

- Monetary policy has to react stronger if takes into account AL: any role for analysis of policy mistakes?
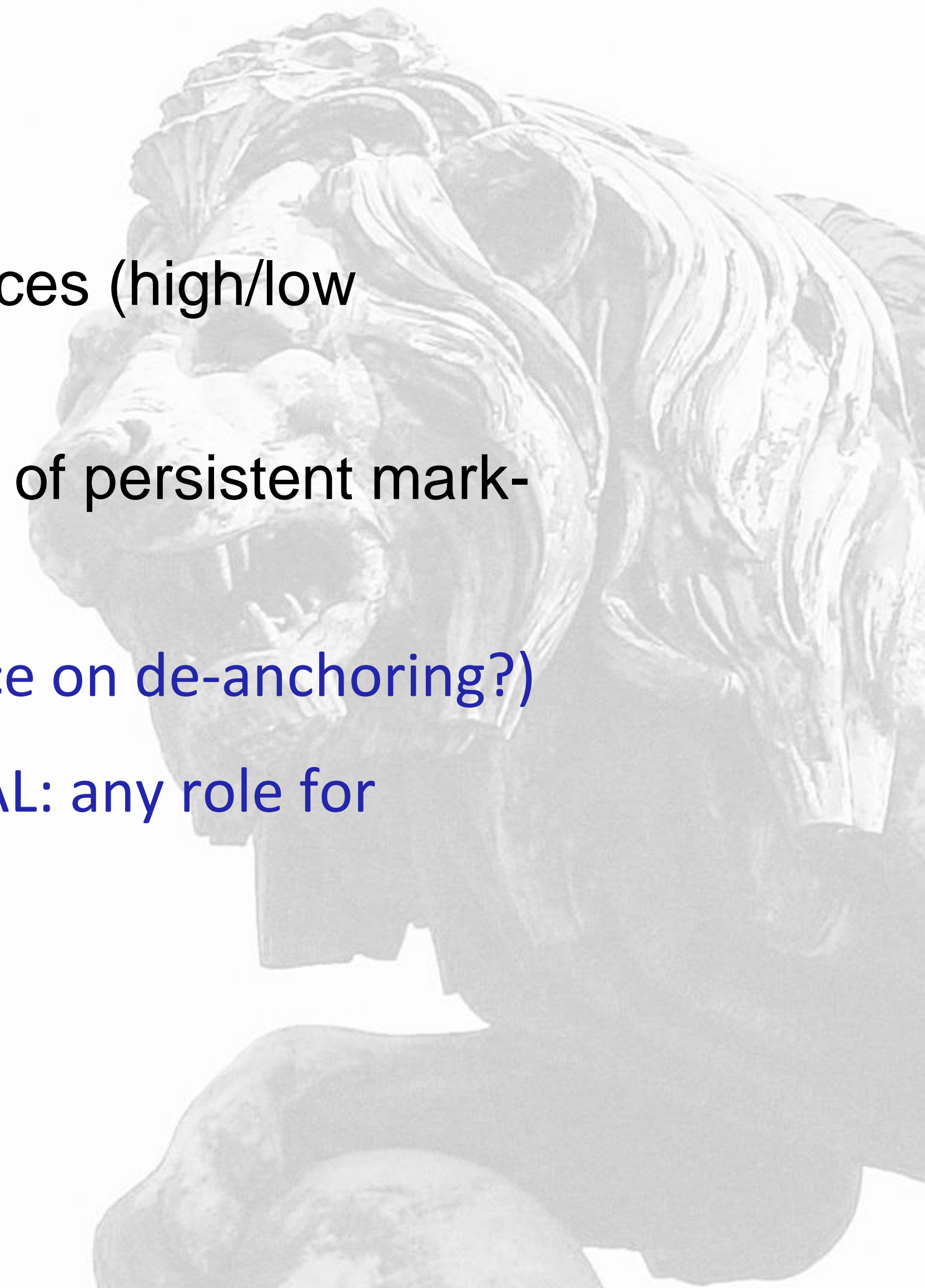
Additional thoughts (matter of taste)

- Practitioners' corner: How long does it take to estimate a model? (importance of updating)

- Why price and wage mark-up shocks ARMA parameters are not estimated under learning?

  - More discussion is needed, used to be identified in Slobodyan and Wouters (2012, AEA).

- Those who are not familiar with Slobodyan and Wouters (2012 a, b) have to wait 25 pages to understand how the learning is formulated

Minor comments

- Figures are missing from Appendix (e.g. Figure B.1.)

- It is of courtesy to the readers to repeat notes under each figure and each table.