

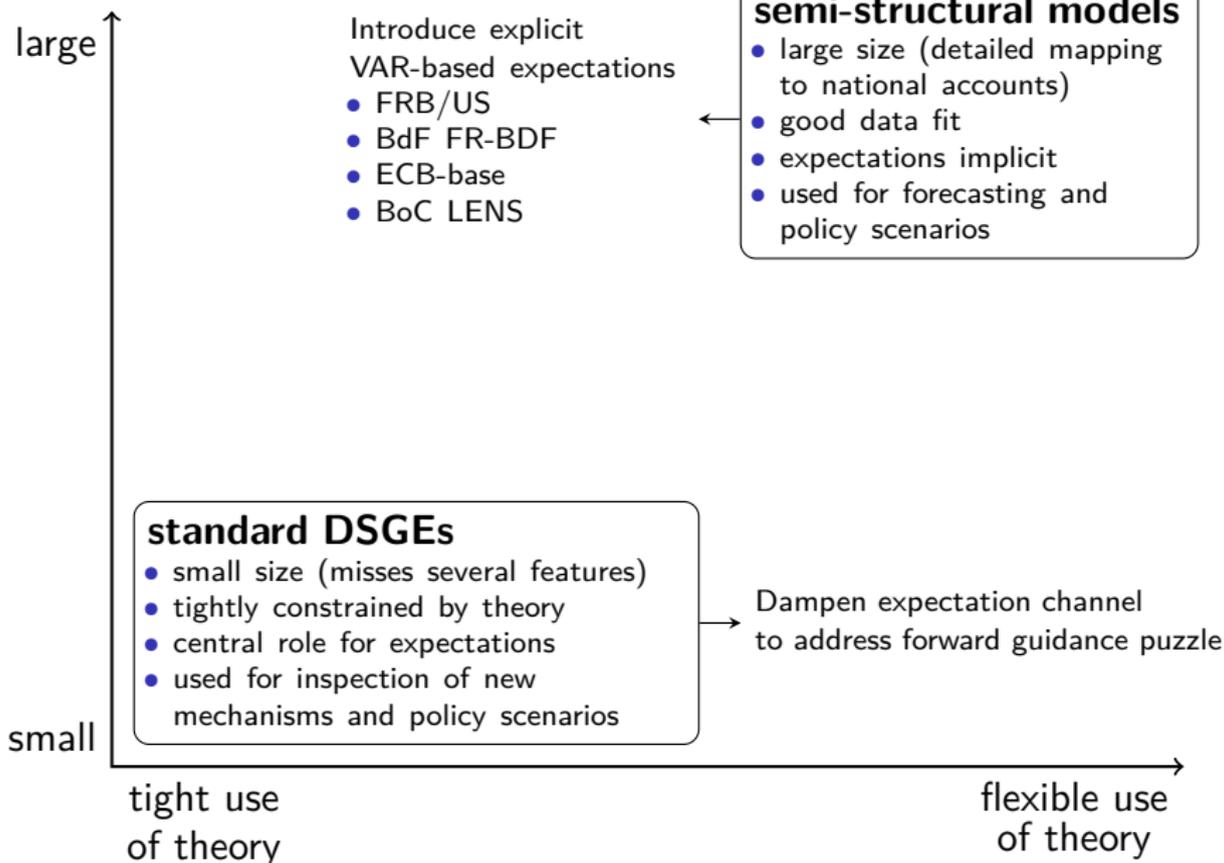
The g3+ Model of the Czech National Bank

Discussion by Yannick Kalantzis (Banque de France)

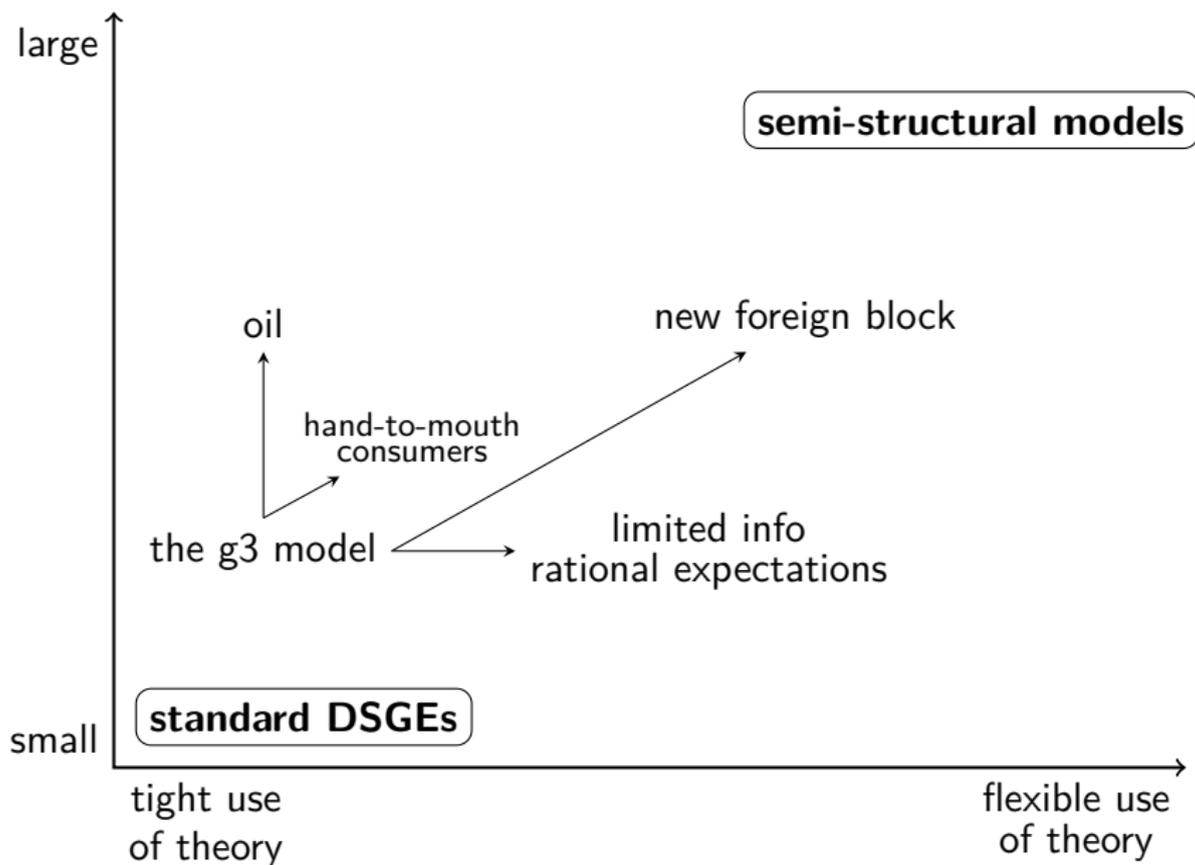
Praha, September 13, 2021

Disclaimer: the views expressed in this presentation are those of the speaker and do not necessarily reflect the views of the Banque de France.

Modeling in policy institutions

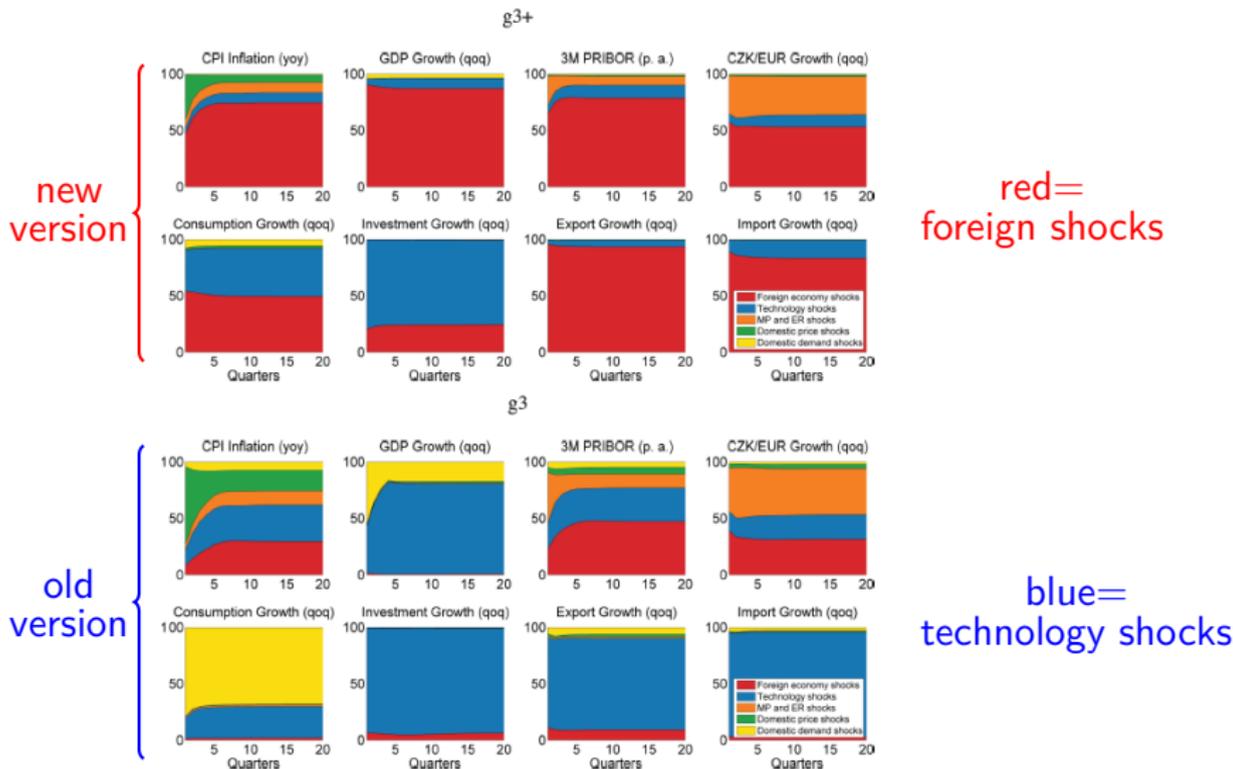


The g3 and g3+ models



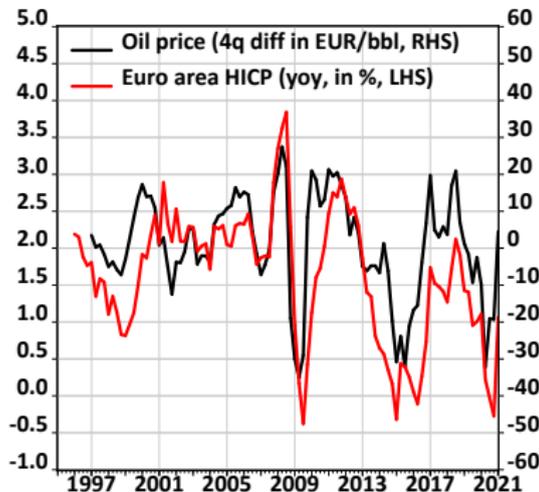
What the new foreign block brings to the model

Figure 14: Relative Variance Decomposition of Main Variables: g_{3+} vs g_3



Oil

Headline inflation is driven by oil



Strong impact on GDP as well

+10 EUR/bbl \rightarrow +0.4% on EA HICP
 \rightarrow -0.4% household real income

2015: oil dropped by 40 EUR/bbl
 \rightarrow +1.6% household real income

Oil enters production/consumption
as a (near) perfect complement



households change consumption
on non-oil goods

Oil and competitiveness in the Euro Area block

In principle, 2 channels for foreign prices in IS curve

- competitiveness: $Y \nearrow$ with $\frac{f(sp^{\text{RoW, non oil}}, p^{\text{oil}})}{f(p^{\text{EA, non oil}}, p^{\text{oil}})} \sim \frac{sp^{\text{RoW, non oil}}}{p^{\text{EA, non oil}}}$
- terms of trade: $Y \nearrow$ with $\frac{p^{\text{EA, non oil}}}{f(sp^{\text{RoW, non oil}}, p^{\text{oil}})}$

EA block of g3+ has a single channel that mixes the two

$$Y \nearrow \text{ with } \frac{s}{f(p^{\text{EA, non oil}}, p^{\text{oil}})}$$

Implicit restriction on elasticities of both channels

- ▶ try to model both channels separately?

Dampening the role of expectations

Forward-guidance puzzle: striking example of the strength of expectations in a DSGE

Theoretical proposals to fix the puzzle

- Discounting future variables (Gabaix, 2020)
- Lack of common knowledge (Angeletos and Lian, 2018)
- Level- k thinking (Farhi and Werning, 2019)
- Finite planning horizon (Woodford, 2018)

Additional constraint in practical forecasting setting:

*expectation formation should have no impact on revisions
b/w forecasting rounds*

► LIRE in g3+: way of discounting future shocks s.t. constraint

FR-BDF: the new model of the French economy

Semi-structural model with explicit expectations (as in FRB-US)

- default expectations: based on small-size VAR (estimation & forecast)
- also possible to have forward-looking model-consistent expectations
- **hybrid expectations:** model-consistent for financial markets
VAR-based for firms and households

Recent addition of a “Rest of the Euro Area” block

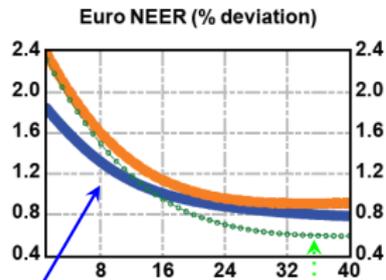
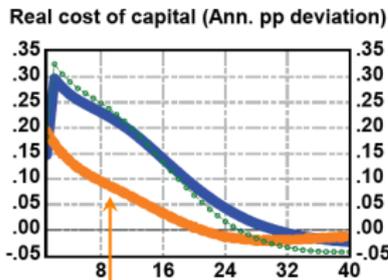
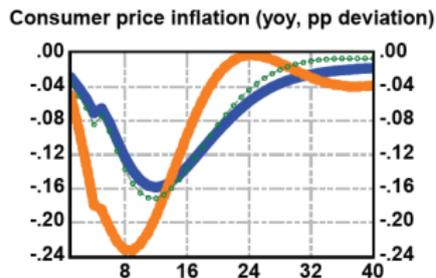
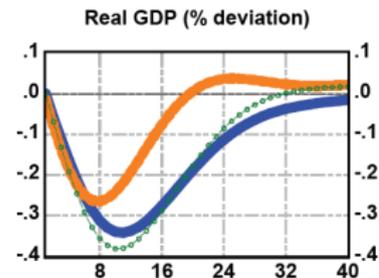
- same structure but smaller
- two-way trade interactions (thru volumes and prices)
- interaction through common monetary policy and exchange rate

References

- *The FR-BDF Model and an Assessment of Monetary Policy Transmission in France*, Lemoine et al. (2019), Banque de France Working Paper no. 736
- *Basic Model Elasticities of the macroeconomic model for France of the Banque de France (FR-BDF)*, Aldama & Ouvrard (2020), Banque de France Working Paper no. 750
- *The EA-BDF Model and Government Spending Multipliers in a Monetary Union*, Aldama et al. (forthcoming working paper)

Expectations matter but differently for different agents

Temporary monetary policy shock



forward-looking

VAR-based

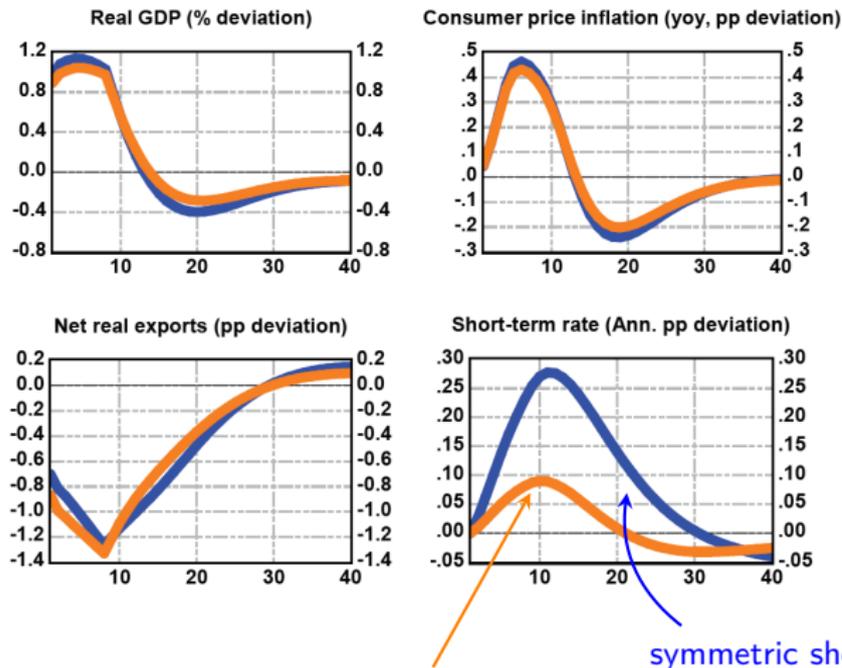
hybrid

Response to shock is
amplified by forward
looking financial
markets

— **dampened** by
forward looking
households & firms

Fiscal stimulus spillovers from rest of the Euro area

Temporary government consumption shock



Positive spillovers
from trade

almost fully offset by
negative spillovers from
monetary policy