

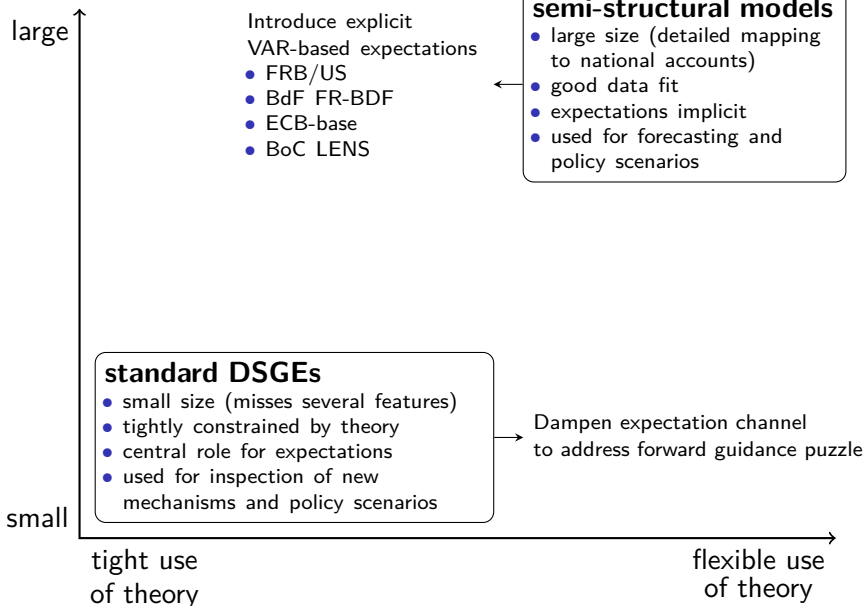
# The g3+ Model of the Czech National Bank

Discussion by Yannick Kalantzis (Banque de France)

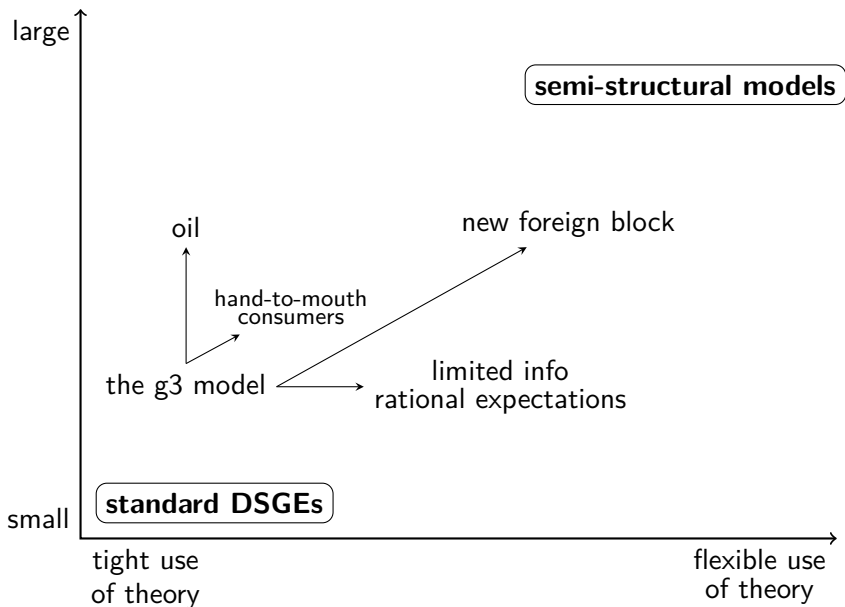
Praha, September 13, 2021

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# Modeling in policy institutions

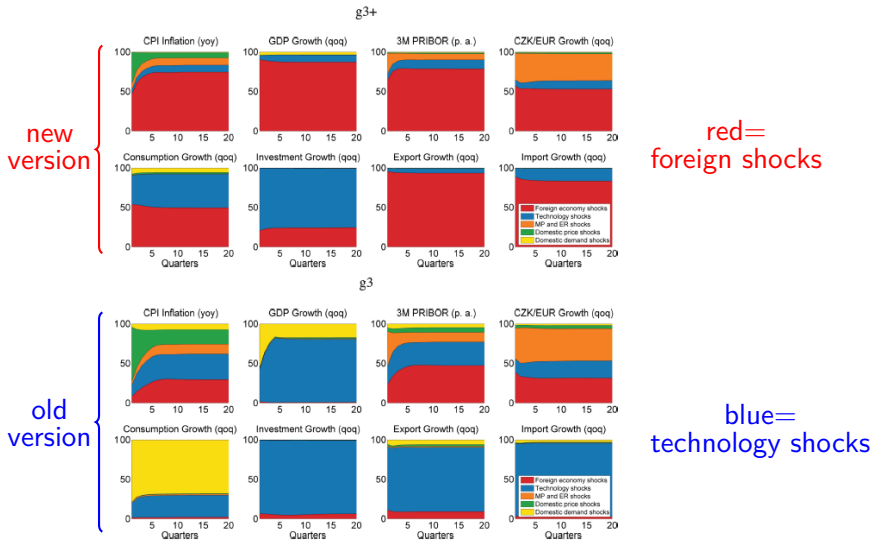


# The g3 and g3+ models



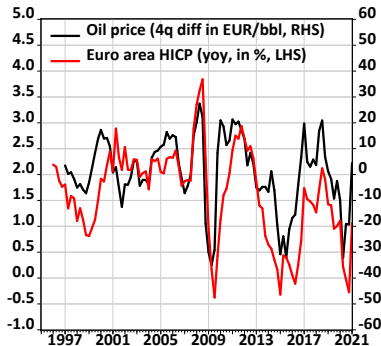
# What the new foreign block brings to the model

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)

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- 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

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

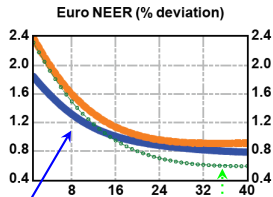
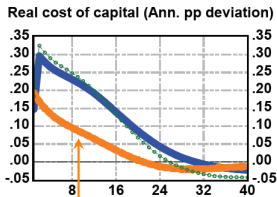
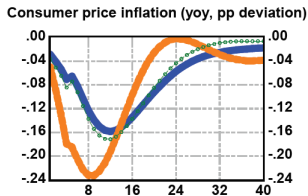
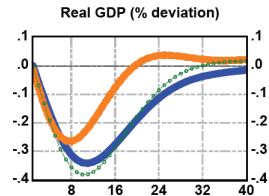
## References

- *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

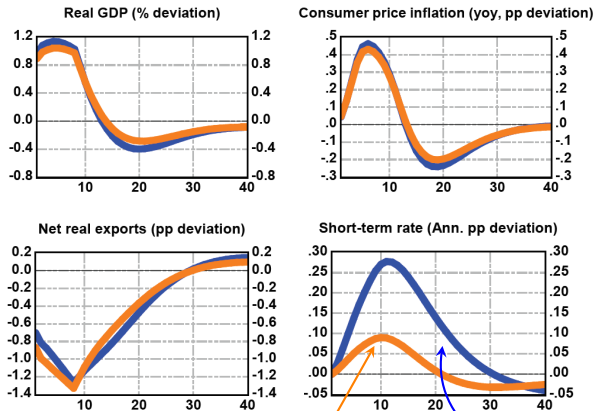
hybrid

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



asymmetric shock

symmetric shock

Positive spillovers  
from trade

almost fully offset by  
negative spillovers from  
monetary policy