



EUROPEAN CENTRAL BANK

EUROSYSTEM

Cozzi, Gabriele
Darracq-Paries, Matthieu
Karadi, Peter
Koerner, Jenny
Kok, Christoffer
Mazelis, Falk
Nikolov, Kalin
Rancoita, Elena
Van der Ghote, Alejandro
Weber, Julien
(All ECB)

Macprudential policy measures: real economy impact and interaction with monetary policy*

3 July 2019

ECB Central Banking Seminar 2019, Frankfurt-am-Main

*The views expressed here are of the authors, not necessarily those of the
European Central Bank

- 1 Technical paper on the interaction of monetary and macroprudential policy under the Research Task Force (RTF)
- 2 Main tasks:
 - showcase existing macroeconomic models that can be used to analyse the macroeconomic impact of macroprudential measures
 - examine how macropru interacts with monetary policy
- 3 Team: G. Cozzi (DG-MF), M. Darracq-Paries (DG-E), P. Karadi (DG-R), J. Koerner (DG-MP), C. Kok (DG-MF), F. Mazelis (DG-MP), K. Nikolov (DG-R), E. Rancoita (DG-MF), A. van der Ghote (DG-R) and J. Weber (DG-R)

Main questions of the Paper

- ① The transmission mechanism of a capital requirement increase: comparing the medium-scale macro models at the ECB
- ② How is the transmission mechanism of a capital requirement increase affected by the conduct of monetary policy?
- ③ How is the transmission mechanism of monetary policy affected by bank leverage and the conduct of macroprudential policy?

Main findings Q1

- Long run impact depends on the health of the banking system (benefits of higher capital requirements)
- Short run impact is negative in all models: output falls by 0.15-0.35% (bank capital channel)
- Short run bank lending impact moderated by:
 - voluntary buffer adjustment
 - sticky loan rates
 - lower bank debt funding costs
 - dividend cuts
- Output impact of lending decline moderated by ability of corporate sector to obtain non-bank financing
- 2 country model: capital requirements create spillovers and have a heterogeneous impact across countries

- A strong Taylor rule inflation response reduces the macroeconomic impact of higher capital requirements in all the models
 - maintains aggregate demand as lending and investment fall
- In an EMU setting, larger countries see a smaller fall in activity
 - larger share in EMU-wide inflation so a stronger monetary reaction

Main findings Q3

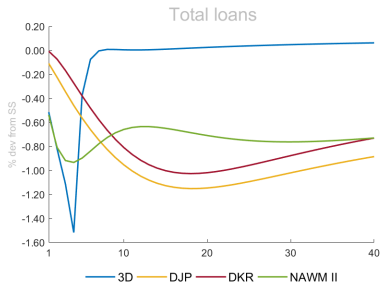
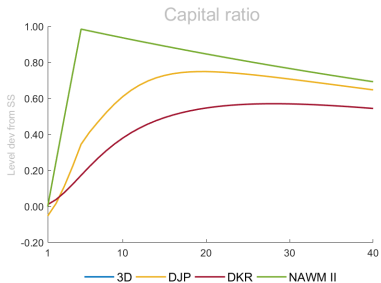
- Monetary policy stronger under high financial system leverage
 - bank capital channel is stronger
- Demand shock impact is the same in normal times
 - bigger direct shock effect but more powerful monetary offset
- ... but larger impact at the ZLB with a levered financial system
- Asset purchases more effective with undercapitalized banks
 - bank risk-taking strongest when default risk is high
- Optimal macroprudential policy increases r^* when banks are undercapitalized and reduces it when banks are highly capitalized.

The transmission mechanism of a capital requirement increase: comparing the medium-scale macroprudential models at the ECB

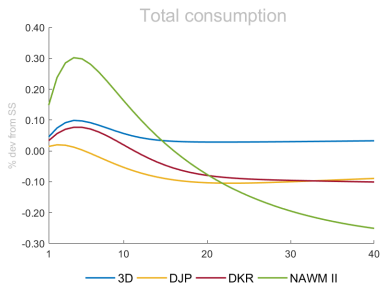
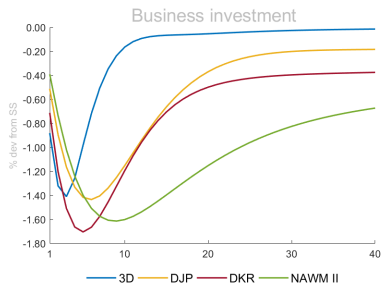
Model characteristics

	NAWM II	DKR	DJP	3D
Key features of the banking framework				
Bank failures	no	no	yes	yes
Issue new equity/cut dividends	no	no	no	yes
Change voluntary capital buffers	no	yes	yes	no
Non-bank funding sources for firms	yes	no	no	yes
Nominal rigidities				
Rigid prices	yes	yes	yes	yes
Rigid wages	yes	yes	yes	no
Rigid nominal interest rates	yes	yes	yes	no

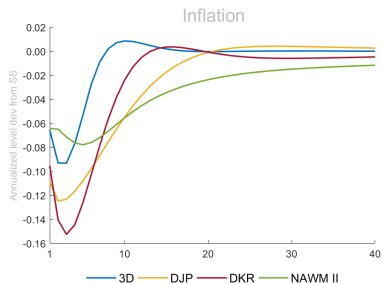
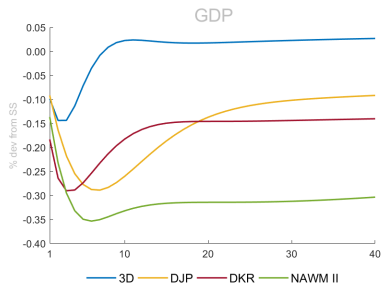
Banks' capital ratios and total lending



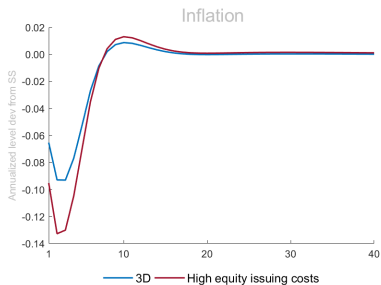
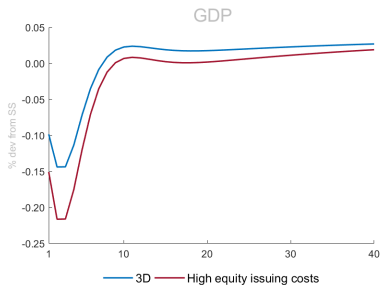
Investment and consumption



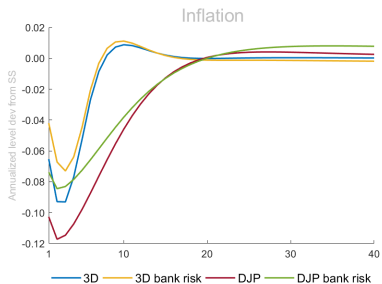
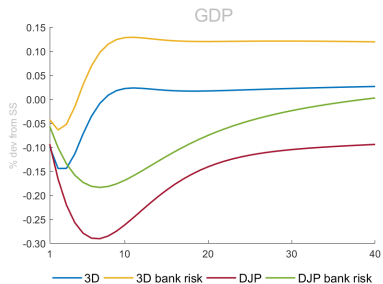
Output and inflation



Sensitivity 1: higher equity issuance costs

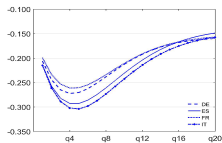


Sensitivity 2: higher bank risk

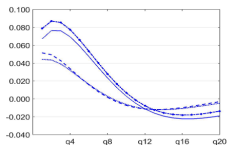


2 country DKR model: 1pp increase in CR

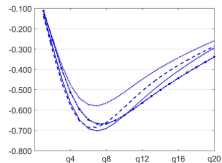
Domestic real GDP



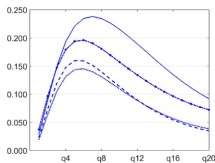
Foreign real GDP



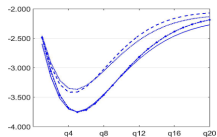
Domestic credit



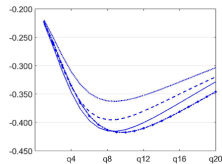
Foreign credit



Policy rate

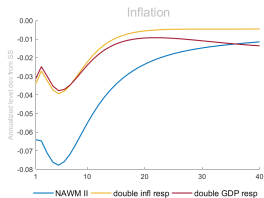
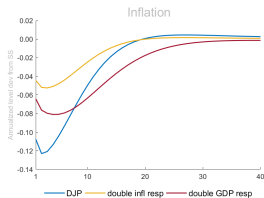
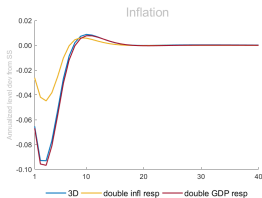
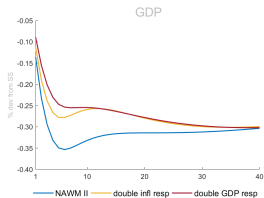
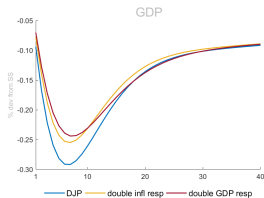
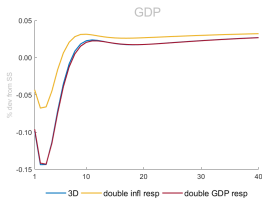


Domestic inflation



How is the transmission mechanism of a capital requirement increase affected by the conduct of monetary policy?

The conduct of monetary policy



How is the transmission mechanism of monetary policy affected by bank leverage and the conduct of macroprudential policy?

Three key transmission channels

- ① The bank capital channel, bank leverage and monetary policy
 - Variants of the GK model
- ② The bank risk taking channel and the impact of asset purchases
 - Variant of the DJP model extended for unconventional monetary policy
- ③ Macroprudential policy, endogenous risk, precautionary savings and the natural real interest rate
 - Continuous time GK model with endogenous risk

How does financial system leverage affect the response of the economy to shocks?

① Gertler and Karadi (2011):

- monetary shock more amplified when banks are levered
- greater ability to offset demand shocks in normal times
- larger impact of demand shocks at the ZLB

② Mazelis (2018):

- a version of the GK model with a shadow banking sector
- a levered shadow banking system amplifies shocks at the ZLB

Monetary policy has a larger impact at higher bank leverage

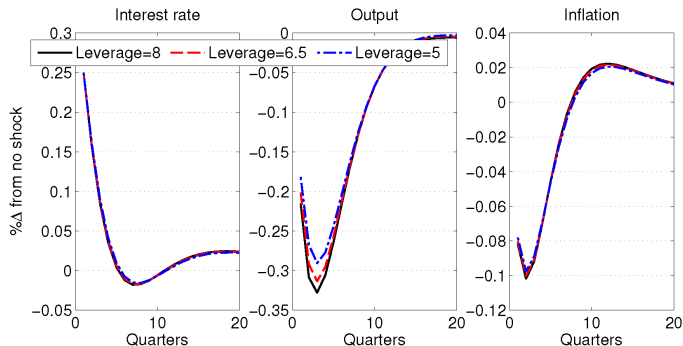


Figure: Response to a monetary policy shock

No change in the impact of a demand shock

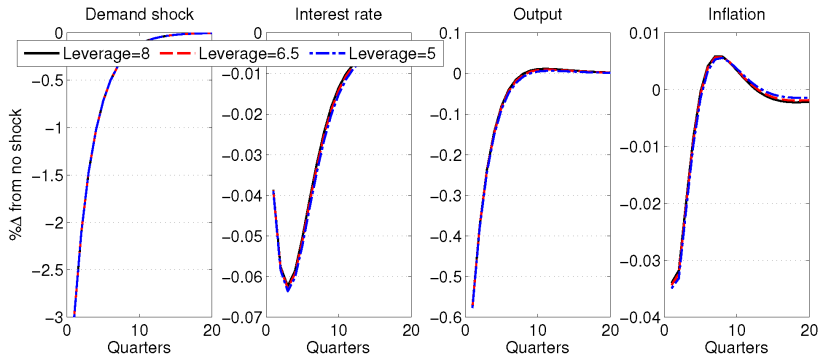


Figure: Response to a demand shock

... unless we hit the ZLB

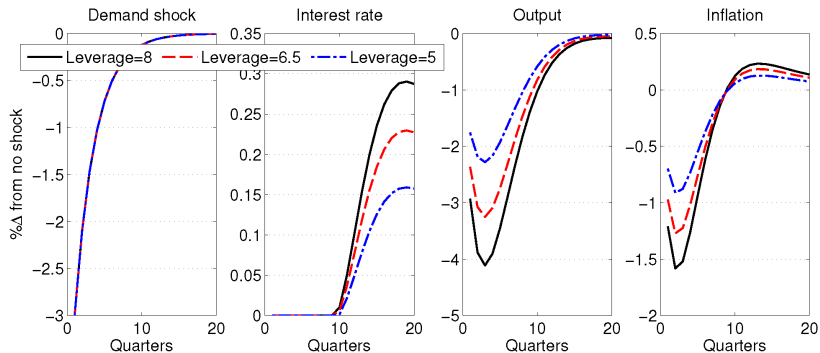
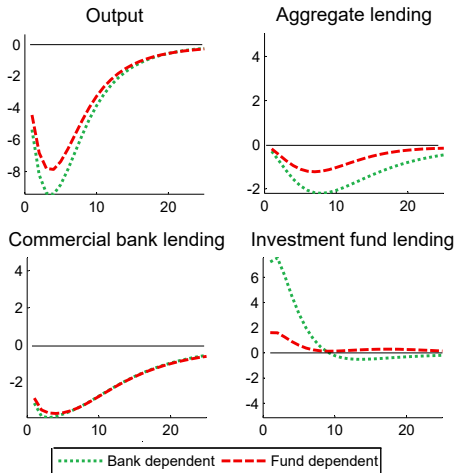


Figure: Response to a demand shock at the zero lower bound

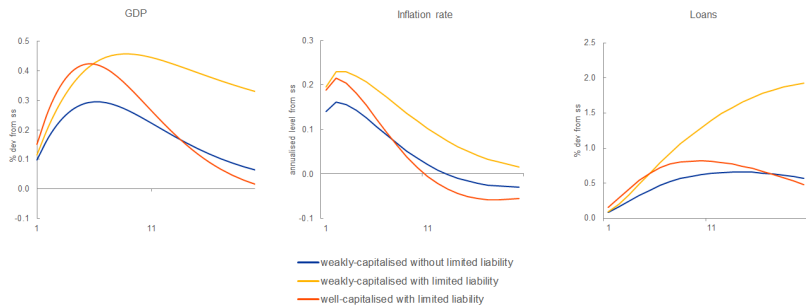
Levered shadow banks amplify demand shocks at the ZLB



How does macroprudential policy affect the transmission of central bank asset purchases?

- Bank risk taking channel amplifies the impact of asset purchases
- Stronger when banks have a high failure risk

Non-standard monetary policy: comparing weakly capitalised and well-capitalised banking sector



More

Implications of macro-prudential policy for the frequency, duration, and intensity of liquidity traps

- Macroprudential policy affects endogenous risk and hence r^*
- Bad times: less endogenous risk hence higher r^*
- Good times: binding capital requirements hence lower r^*
- Liquidity trap episodes less severe but more frequent

Optimal macro-prudential policy in van der Gote (2018)

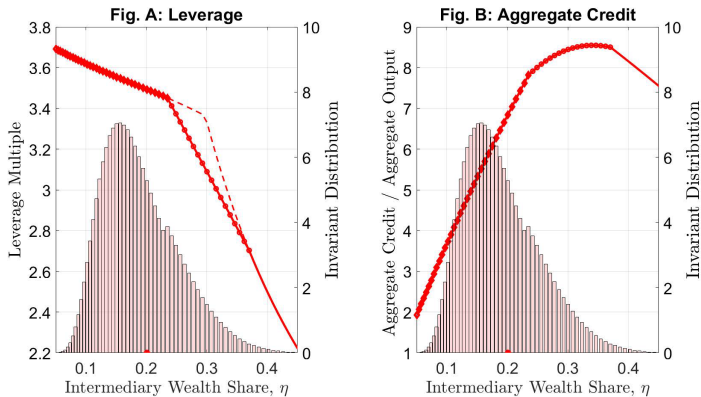


Figure: Socially Optimal Macro-prudential Policy.

Macroprudential policy and the neutral interest rate

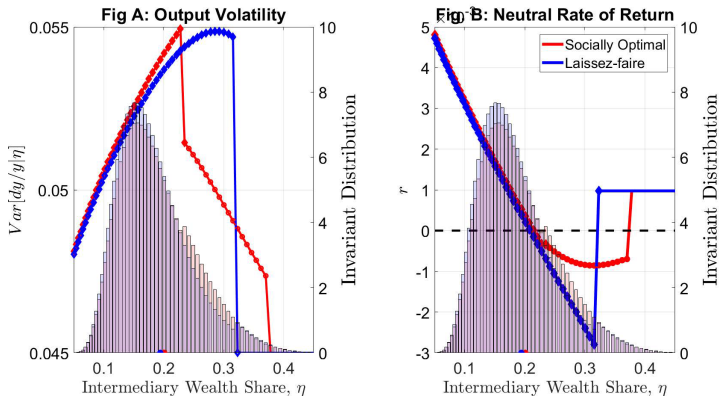


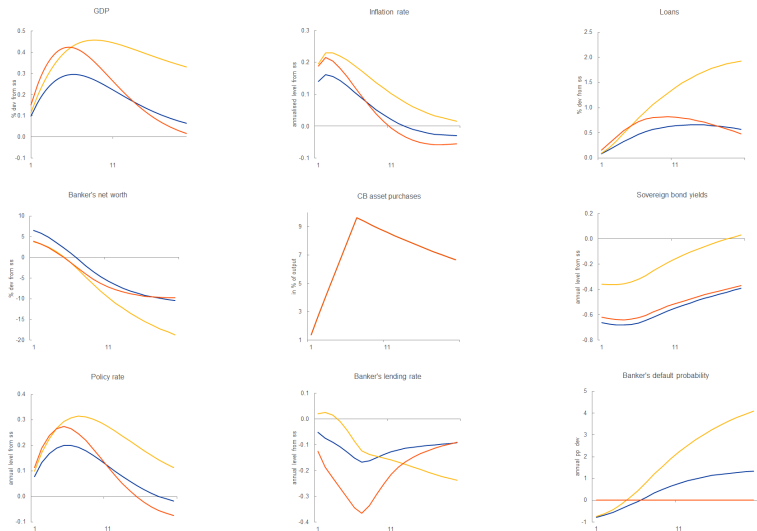
Figure: Neutral Rate under Socially Optimal and Laissez-faire Macro-prudential Policy.

Summary

- Modest ST and LT impact from higher capital requirements.
- LT impact depends on bank riskiness
 - could be positive if banks are under-capitalized
- ST impact depends on:
 - the ability of banks to adjust in ways other than cutting loans
 - the ability of firms to substitute away from bank loans
 - the reaction of monetary policy
- In an EMU setting, larger countries:
 - experience smaller ST GDP declines
 - generate greater spillovers to other countries
- Risky/levered banks amplify the impact of monetary policy
- Optimal macroprudential policy changes endogenous risk and affects the natural real interest rate

Backup slides

Non-standard monetary policy: comparing weakly capitalised and well-capitalised banking sector



Back