Discussion of “Managing Monetary Policy Normalization” by Gianluca and Pierpaolo Benigno

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Idea

- NK model

$$
\begin{aligned}
\hat{\pi}_t &= \beta E_t \hat{\pi}_{t+1} + \kappa \hat{y}_t \\
\hat{y}_t &= E_t \hat{y}_{t+1} - \sigma \left(i_t^B - E_t \hat{\pi}_{t+1} - r_t^n \right)
\end{aligned}
$$

- $i_t^B \neq i_t^R$ (policy rate) because of financial frictions, credit risk, term premia, risk premia, convenience yields, liquidity
- Use policy instrument that targets $i_t^R - i_t^B$, especially if i_t^R at ELB

"Liquidity" story

- Reserve requirement ρ
- Central bank controls reserves R_t and interest on reserves i_t^R
- Banks pass i_t^R on to deposit rate i_t^D
- Household gets utility from real liquid assets $U\left(C_t, \frac{D_t + B_t^h}{P_t}\right)$

$$\frac{1 + i_t^D}{1 + i_t^B} = 1 - \frac{U_{q,t}}{U_{c,t}}$$

- If $\rho = 0$ then $i_t^D = i_t^R = i_t^B$
- How to think about $\rho = 0$ and/or excess reserves?

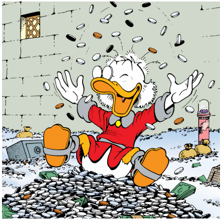
Alternative derivation

- Household problem

$$\max E_0 \sum_{t=0}^{\infty} \beta^t U\left(C_t, \frac{D_t}{P_t}\right)$$

$$s.t.$$

$$P_t C_t + D_t + N_t + T_t \leq (1 - i_{t-1}^D) D_{t-1} + Y_t + \Psi_t$$



- Consumption Euler equation

$$U_{c,t} = \beta E_t \left(U_{c,t+1} \frac{1+i_t^D}{\Pi_{t+1}} \right) + U_{D,t}$$

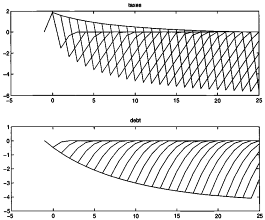
- Wealth in utility function model, Michaillat and Saez (2021)
- Discounted Euler equation, McKay, Nakamura and Steinsson (2016)

Optimal policy

The optimal combination of reserves and interest rate policy requires an increase in liquidity (reserves) a few quarters after the policy rate is set at the effective lower bound. Removal of accommodation requires that quantitative tightening starts before the liftoff of the policy rate.

Intuition from Eggertsson and Woodford (2004)

- Shock drives down r_t^n and i_t^R hits ELB



- Taxes rise then fall
- Debt falls then recovers
- Manage fall and recovery of liquidity with $R_t \uparrow$ then $R_t \downarrow$
- Results predicated on optimal fiscal policy. How robust?

Sequencing

Normalization ... entails strategic choices in terms of the timing, the pace and the sequence of policy interventions.

- Other reasons to manage liquidity when exiting ELB
- Bank of England weather vane connected to Court Room
- Sang Seok Lee (2020) on information and disorderly exits
- UK mini-budget of September 2023