RESEARCH

Fiscal and Monetary policy interactions in a low interest rate world

by Hofmann, Lombardi, Mojon and Orphanides

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Discussion by Damiano Sandri

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The model environment

- Phillips curve

$$\pi_t = \phi_\pi \pi_{t-1} + (1-\phi_\pi) E_t \pi_{t+1} - \alpha_\pi (u_t - u^*) + e_{\pi,t}$$

- IS curve

$$u_t = \phi_u u_{t-1} + (1-\phi_u) E_t u_{t+1} + \alpha_u \left(r_t^l - r^{l*}\right) + \alpha_f (pb_t - pb^*) + e_{u,t}$$

- Long-term real rates

$$r_t^l = E_t \left(\frac{1}{L} \sum_{j=0}^{L} (i_j - \pi_{j+1}) \right) + \tau_t$$

- Term premium

$$\tau_t = \tau^* - \alpha_\tau \left(\frac{b_t}{d_{t-1}} - \frac{b^*}{d^*} \right)$$

- Expectations are formed using perpetual learning (≠ rational expectations)

The model environment

- Phillips curve

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- Long-term real rates

Conventional MP

$$r_t^l = E_t \left(\frac{1}{L} \sum_{j=0}^{L} (i_j - \pi_{j+1}) \right) + \tau_t$$

- Term premium

QE

$$\tau_t = \tau^* - \alpha_\tau \left(\frac{b_t}{d_{t-1}} - \frac{b^*}{d^*} \right)$$

Fiscal policy

- Expectations are formed using perpetual learning (≠ rational expectations)

Policy rules

- Conventional monetary policy follows Taylor rule subject to ZLB

$$i_t^T = \theta_i i_{t-1} + (1-\theta_i)[r^* + \pi^* + \theta_\pi(\pi_{t-1} - \pi^*) - \theta_u(u_{t-1} - u^*)]$$

$$i_t = max[i_t^T, 0]$$

- Quantitative easing

$$b_t = \begin{cases} \zeta_b b_{t-1} + (1-\zeta_b)b^* - \zeta_c[\theta_\pi(\pi_{t-1} - \pi^*) - \theta_u(u_{t-1} - u^*)] & \text{if } i_t = 0 \\ \zeta_b b_{t-1} + (1-\zeta_b)b^* & \text{otherwise} \end{cases}$$

- Fiscal policy sets primary balance according to

$$pb_t = \rho_{pb} pb_{t-1} + (1-\rho_{pb})pb^* - \psi(u_{t-1} - u^*) + \delta(d_{t-1} - d^*)$$

Key results

- The ZLB constraint is more problematic when r^* is lower
  - Perpetual learning can lead to de-anchoring of inflation expectations at the ZLB
- QE (even if "timid") is highly effective in overcoming the ZLB constraint
  - Average unemployment falls from 4.52 to 4.07 percent (against 4.02 without ZLB)
  - Unemployment std falls from 0.89 to 0.57 (against 0.56 without ZLB)
- Debt-averse fiscal policy is damaging (although it reduces peak debt levels)
  - Fiscal stimulus at ZLB can substitute for QE, thus avoiding steep drop in term premia
- Negative interest rates and anchored inflation expectations reduce the need for QE

Comments

Comments: monetary policy

- In the model QE is highly effective. How realistic?
  - This is despite the absence of a signaling channel
  - In the model QE can generate negative term premia. How large?
- What are the costs of QE?
  - Compression of term premia (even if positive) may hurt bank profitability
  - Shortening of the consolidated public debt maturity, mixed impact on inequality
- What is the role of learning?
  - Table 1 suggests that the ZLB (even without QE) does not pose costs without learning
  - Why are economic outcomes worse under perfect anchoring than rational expectations?
- ZLB literature emphasizes the role of forward guidance
  - How does QE compare with forward guidance?
  - How does this depend on expectation formation?

Comments: monetary-fiscal interactions

- Model shows that
  - QE reduces fiscal burden because it lowers real rates and stimulates output
  - Fiscal stimulus allows for smaller QE
  - Valid insights but that also apply to conventional MP away from ZLB
- So why the growing debate on fiscal-monetary interactions?
  - QE may have reached its limits: can fiscal policy operate as a substitute?
    - What is the role of fiscal policy if QE is ineffective/inactive?
    - What if fiscal policy also targets inflation?
  - Concerns about debt sustainability: can monetary policy help?
    - What if monetary policy also targets public debt?
  - Synergies fiscal/monetary and need for coordination (e.g., monetary finance)
- Strategic interactions between monetary and fiscal authorities
  - What if fiscal policy cares less about debt stabilization when MP targets debt?