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The Case for Open-Market Purchases in a Liquidity Trap

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The case for expanding the monetary base

(1) It increases the price level.

(2) It increases the inflation tax, depreciates the public debt, and allows a reduction of other distortionary taxes.

Comments

- Focus on (1): Not convincing.
  - Empirical test: Japanese monetary base up 40% since Dec 2000.
  - Theory: Future monetary-base expansion not credible.
- Regarding (2): Not controversial, if (1) holds (and suitable initial conditions).

Main result

- Assumption 1:

$$\begin{aligned} i_t &= 0 \qquad (0 \leq t \leq T-1) \\ i_t &> 0 \qquad (t \geq T) \end{aligned}$$

- Under flexible prices:

$$m_T \uparrow \Rightarrow p_0 \uparrow$$

- Under sticky prices:

$$m_T \uparrow \Rightarrow p_{1|0} - p_0 \uparrow,\ r_0 = 0 - (p_{1|0} - p_0) \downarrow,\ y_0 \uparrow$$

- Assumption 2:

$$m_T = m_0 + a$$

- Then $m_0 \uparrow$ has the same consequences as $m_T \uparrow$

Theory

- Fisher equation

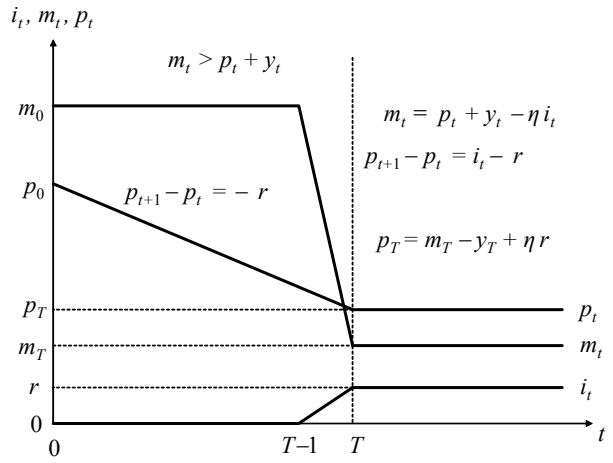
$$i_t = r_t + p_{t+1|t} - p_t$$

- Money demand

$$\begin{aligned} i_t &> 0: \qquad m_t = p_t + y_t - \eta i_t \\ i_t &= 0: \qquad m_t \geq p_t + y_t \end{aligned}$$

($\eta \geq 0$; cash in advance: $\eta = 0$)

- Simplifying assumptions
  1. Flexible prices
  2. $m_t = m_T \qquad (t \geq T)$
  3. $r_t = r, \quad y_t = y$



More theory

- Fisher equation for p_0

$$\begin{aligned} p_0 &= p_{1|0} + r_0 - i_0 \\ &= p_{T|0} + \sum_{t=0}^{T-1} (r_{t|0} - i_{t|0}) \\ &= p_{T|0} + (T-1)r \end{aligned}$$

- Fisher equation and money demand equation for p_T

$$\begin{aligned} p_{T|0} &= p_{T+1|0} + r_{T|0} - i_{T|0} \\ &= p_{T+1|0} + r_{T|0} + \frac{1}{\eta}(m_{T|0} - p_{T|0} - y_{T|0}) \\ &= \frac{\eta}{1+\eta} p_{T+1|0} + \frac{1}{1+\eta}(\eta r_{T|0} + m_{T|0} - y_{T|0}) \\ &= \sum_{\tau=0}^{\infty} \frac{1}{1+\eta} \left(\frac{\eta}{1+\eta}\right)^{\tau} (\eta r_{T+\tau|0} + m_{T+\tau|0} - y_{T+\tau|0}) \\ &= m_T + \eta r \end{aligned}$$

- Combine

$$p_0 = m_T + \eta r - (T-1)r$$

$$\frac{\partial p_0}{\partial m_T} = 1$$

Problems

- No direct relation between m_0 and m_T: $m_0 \uparrow \not\Rightarrow m_T \uparrow$
  - $m_T \uparrow$ is not credible, expectations may not be affected
  - Krugman 98: "Commitment to future irresponsibility"
  - Commitment to future money supply (nominal government liabilities) would avoid liquidity trap (Woodford 99; Svensson 99; Benhabib, Schmitt-Grohé, Uribe 02)
  - Auerbach-Obstfeld: "[The central bank] need only commit itself not to reverse one-off increases in the money supply's level."
    - But m_T lower when $i_T > 0$.
  - No commitment in terms of money supply (no monetary targeting); instead commitment to price stability, inflation targeting
- High inflation target need not be credible
  - No current action beyond announcement?
  - Future deviation/change in inflation target?

Solution

- Open economy: Depreciate the currency (McCallum, Meltzer, Bernanke, Orphanides-Wieland, Coenen-Wieland, ...)
- The Foolproof Way (Svensson 01, Coenen-Wieland 02)
  1. Price level target
  2. Currency depreciation and temporary peg
     - Dramatic action, not just talk
     - Creates inflation expectations
     - Lowers long real interest rates
     - Jump-starts the economy
     - Creates inflation
  3. Exit strategy: Abandon peg and introduce inflation targeting when price-level target reached
- The Foolproof Way is likely to work for the U.S. and the euro area as well as for Japan (Svensson 03)