Monetary policy: Inflation targeting in a closed economy pt. 2

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Lecture 4

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Contents

1 Inflation targeting and financial stability

- Two opposing views:
  - Central banks have to reconsider the desirability of (read: abandon) inflation targeting
  - Financial stability is not relevant for monetary policy
- Woodford (2012): inflation targeting needs to be revised
- The CB cares about financial stability and wishes to set the interest rate in such a way that financial imbalances are as small as possible
- The loss function

$$L = \frac{1}{2}\left[(\pi - \pi^*)^2 + \lambda y^2 + \delta q^2\right]$$

  q is a financial variable measured as a deviation from its mean
  - High values of q (think credit) gives "high" probability of a financial crisis / recession
  - Low values of q is a sign that it is too hard to get credit
  - Woodford (2012): financial crises give loss to society and not only because it leads to a drop in economic activity

1.1 Economic mechanism

- IS and PC equations as before
- The interest rate influences the size of financial imbalances:

$$q = -\phi(r - \rho) + w$$

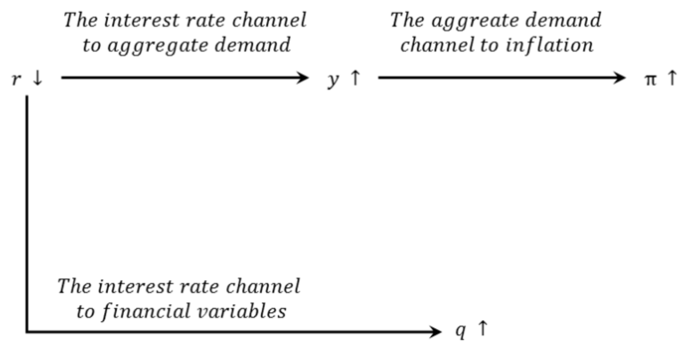
  where w is a shock to financial imbalances
- We can write the equation above as

$$q = -\phi\left(r - \widetilde{r}\right)$$

  where $\widetilde{r} = \rho + \frac{1}{\phi}w$ is the real rate that closes the financial gap

1.2 The monetary policy transmission mechanism

A reduction in the key policy rate



1.3 Optimal monetary policy

- The central bank minimizes the loss function subject to some equations
- The optimality condition becomes

$$(\pi - \pi^*) = -\frac{\lambda}{\gamma}y - \frac{\phi\delta}{\alpha\gamma}q$$

$$y = -\frac{\gamma}{\lambda}(\pi - \pi^*) - \frac{\phi/\alpha}{\lambda/\delta}q$$

- It can be written as:

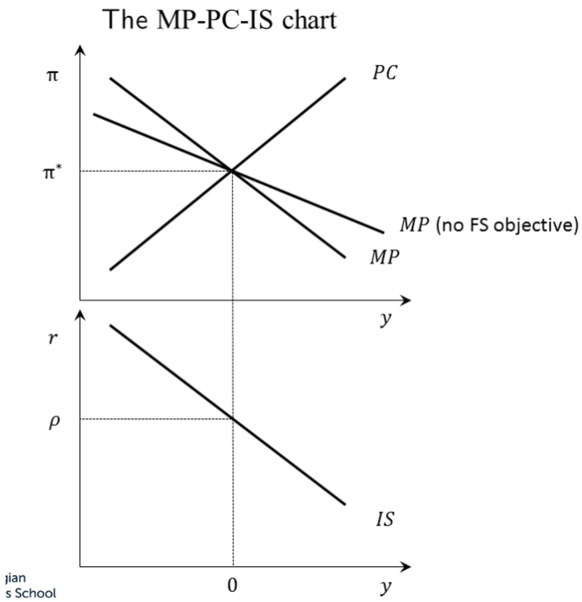
$$(\pi - \pi^*) = -\frac{\lambda}{\gamma}y - \frac{\phi\delta}{\alpha\gamma}q$$

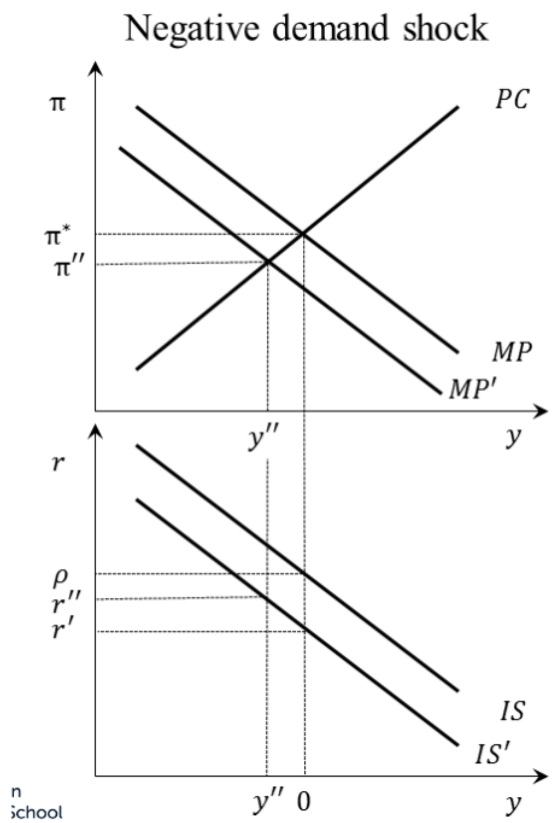
$$= -\frac{\lambda + \delta\left(\frac{\phi}{\alpha}\right)^2}{\gamma}y - \frac{\phi\delta}{\gamma\alpha^2}(\alpha w - \phi v)$$

1.4 Graphical analysis

- To simplify, we assume $\pi^e = \pi^*$
- We will use two diagrams:
  1. (y, π)-diagram with two equations:
     - The Phillips curve (PC) with positive slope γ
     - Monetary policy (MP) - with negative slope $-\frac{\lambda+\delta\left(\frac{\phi}{\alpha}\right)^2}{\gamma}$
  2. (y, r)-diagram with one equation:
     - IS-equation solved wrt. the real interest rate

$$r = \rho + \frac{1}{\alpha}v - \frac{1}{\alpha}y$$





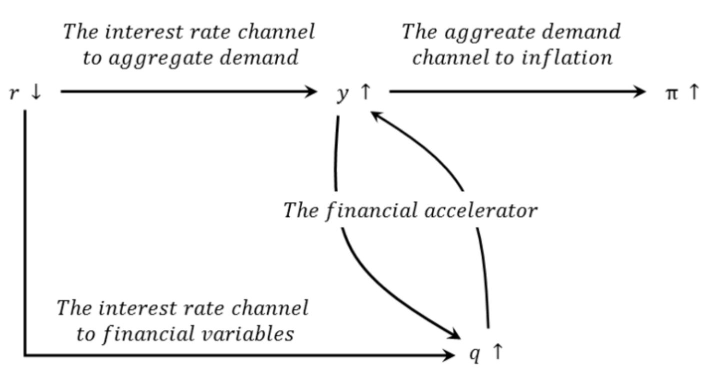
1.5 A more realistic model

- Financial imbalances tend to build up in booms
- Financial variables feed back to the level of activity and we get a financial accelerator
- More specifically, we assume the following:

$$q = \tau y - \phi(r - \rho) + w$$
$$y = -\alpha(r - \rho) + \chi q + v$$

while the rate of inflation is still given by the old equation

A reduction in the key policy rate



- Our equations can be rewritten as

$$y = -\frac{\alpha + \chi\phi}{1 - \chi\tau}(r - \bar{r}) = -\bar{\alpha}(r - \bar{r})$$
$$q = -\frac{\tau\alpha + \phi}{1 - \chi\tau}\left(r - \widetilde{r}\right) = -\bar{\phi}\left(r - \widetilde{r}\right)$$

  where $\bar{r} = \rho + \frac{1}{\alpha+\chi\tau}v + \frac{\chi}{\alpha+\chi\tau}w$ and $\widetilde{r} = \rho + \frac{\tau}{\tau\alpha+\phi}v + \frac{1}{\tau\alpha+\phi}w$

- The optimality condition becomes

$$(\pi - \pi^*) = -\frac{\lambda}{\gamma}y - \frac{\bar{\phi}\delta}{\bar{\alpha}\gamma}q$$