

# ECONOMIC POLICY





NEW

SZÉCHENYI PLAN

# ECONOMIC POLICY

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## Week 9

Zero bound

Liquidity trap

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# Inflation inertia

- In the canonical model only forward looking exists.
- Events happened in the past do not count in the Calvo pricing scheme.
- Empirical data, however, exhibit significant persistency.
- Potential reason: nominal rigidities may not stem exclusively from the costliness of calculating optimal prices.
- There are nominal contracts.

# Inflation inertia

- In the Phillips curve equation future expectations as well as past inflation tendencies influence current inflation.
- Result: possibility of ongoing inflation.
- Output-inflation trade off worsens.
- Success of monetary policy gets harder. A larger interest rate hike is needed to eliminate the same current inflation, output loss will be larger.

# Monetary policy in the open economy

- The canonic new-keynesian model assumes closed economy.
- Open economy, pegged exchange rate: loss of monetary independency, the interest rate is determined by UIP.
- Floating exchange rate: monetary channels are more complicated, but the central bank can still manipulate aggregate demand trough raising or reducing the policy rate.



# Open economy

- The interest channel works as before.
- New transmission: through the nominal exchange rate.
- Real appreciation, expenditure switching, demand for home goods decreases. In case of depreciation the other way around.
- An increase in the policy rate appreciates the currency, a decrease depreciates it.  
(Remember why?)
- Uncovered interest parity.

# Inflation targetting

- 1990-92: New-Zealand, Canada Sweden, Great Britain
- 1998-2002: Korea, Thailand, the Philippines
- Main features of inflation targetting:
  - Numerically stated inflation target
  - Medium term inflation path
  - Transparent interest rate policy
  - Accountability

# Nominal anchor

- Money is neutral. Real equilibrium can prevail at any level of nominal prices.
- Something has to pin down the nominal unit. An anchor is needed to determine the price level.
- In the historical times it was gold. However, markets were much more underdeveloped then, frictions stabilized.

# Nominal anchor

- Inflation targeting came into fashion due to the failure of the previous anchors.
- Nominal anchors used previously: in the system of fixed exchange rates (Bretton Woods) it was the price of the foreign currency. In the world of flexible rates – up until the 90's – a monetary aggregate.
- The monetary base or some other aggregate that had a reliable measure.

# Hierarchy of monetary targets

- Tool – operative target – intermediate target – final target
- Operative target – some short run rate, the tool is open market operations.
- Intermediate target. Information on the state of the economy, on the final targets comes in too late. The authority targets a variable that is connected to the final target and we have more available information on it.

# Intermediate target

- There were two of those.
- Large countries (USA) with floating exchange rates: a money aggregate.
- It worked until the demand for money was a stable function.
- In this regime the monetary aggregate is the nominal anchor. Controlling that controls the price level.

# Why did they stop using it??

1. From the 80's several close substitutes of money were invented. There are significant switches among those, making the exact measurement of any monetary aggregate uncertain.
2. Due to forward looking expectations inflation is also influenced by expected future monetary policy. Current money supply does not determine inflation.

# Exchange rate target

- It is an alternative nominal anchor.
- In small open economies the level of nominal exchange rate has tremendous impact on inflation. Therefore the nominal exchange rate can be a nominal anchor.
- This, of course, is equivalent of the fixed exchange rate regime.
- Special features of the developing countries.



# Zero bound

- The nominal interest rate cannot go below zero.
- The nominal return on cash holdings is zero.
- Technically demand deposits can bear negative interest, however, if it did, people would prefer holding cash instead.

# Zero bound

- If  $i = 0$ , then  $r = -\pi$
- If the inflation rate is positive, it makes the real interest rate negative. This enhances demand, eliminates the negative output gap.
- If inflation is negative, however, deflation means positive real rate, that can be quite big depending on the speed of deflation. It cannot be reduced through  $i$ , because it is already zero.
- A deflation spiral can develop.

# History of economic thought

- Keynes: liquidity trap
- Demand for money is preference for liquidity.
- Portfolio decision between holding money or other assets is determined by the level of the interest rate.
- In case of zero interest money and interest bearing assets become perfect substitutes.
- Neither of those earn returns.

# History of economic thought

- A policy change of the composition of the private portfolios would not have any influence on the prices of bonds, therefore on the rate of interest.
- Monetary policy becomes ineffective.
- If the rate cannot be reduced, the negative output gap cannot be eliminated.

# A simple model

- Adaptive expectations

$$\tilde{Y}_t = -\varphi(i_t - \pi_t^e - rr_t)$$

$$\pi_t = \pi_t^e + \kappa \tilde{y}_t$$

$$\dot{i}_t = \alpha \pi_t + rr_t$$

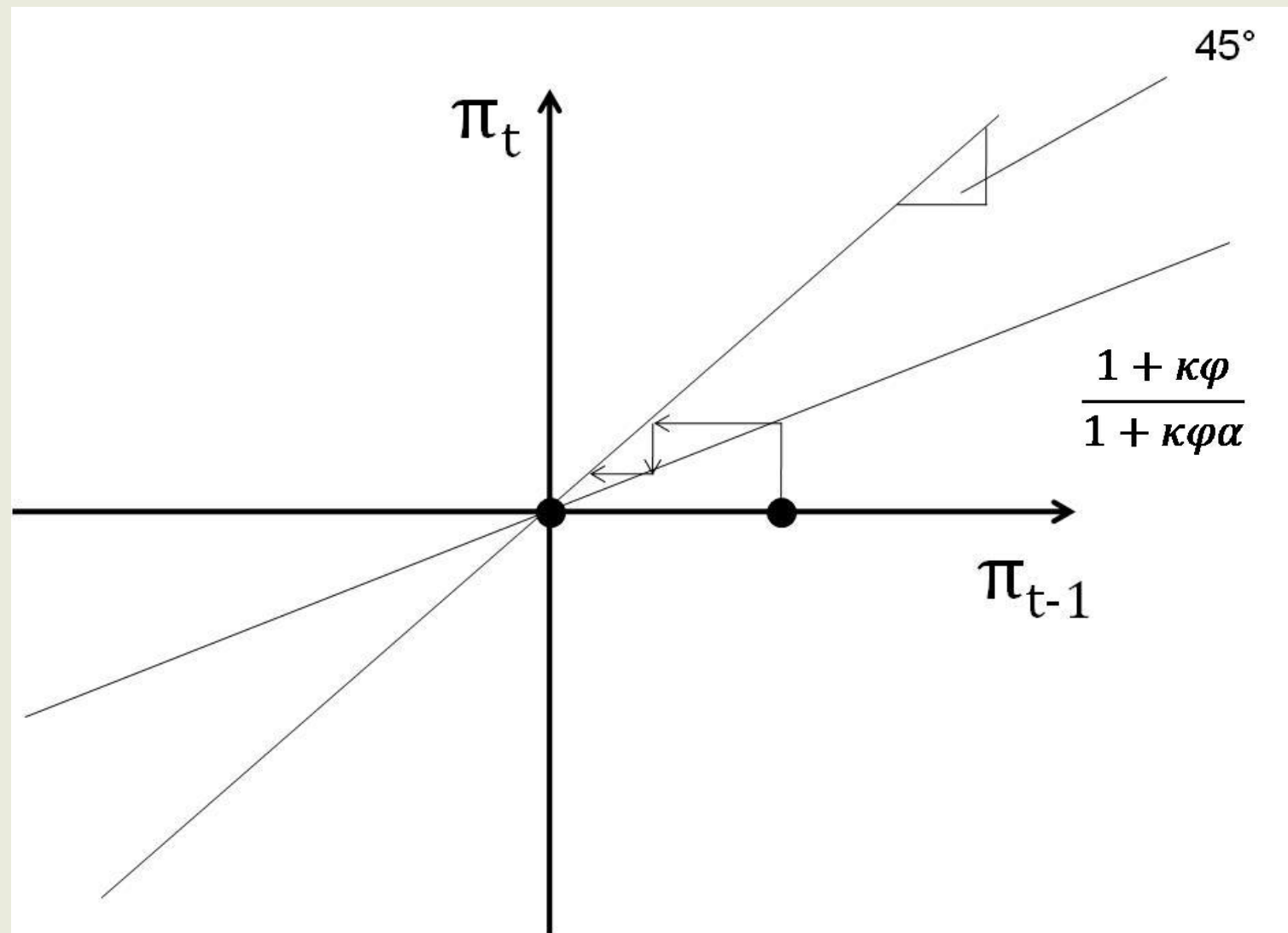
$$\pi_t^e = \pi_{t-1}$$

# Solution

$$\pi_t = \pi_{t-1} - \kappa\varphi(\alpha\pi_t - \pi_{t-1})$$

$$(1 + \kappa\varphi\alpha)\pi_t = (1 + \kappa\varphi)\pi_{t-1}$$

$$\pi_t = \frac{1 + \kappa\varphi}{1 + \kappa\varphi\alpha} \pi_{t-1}$$



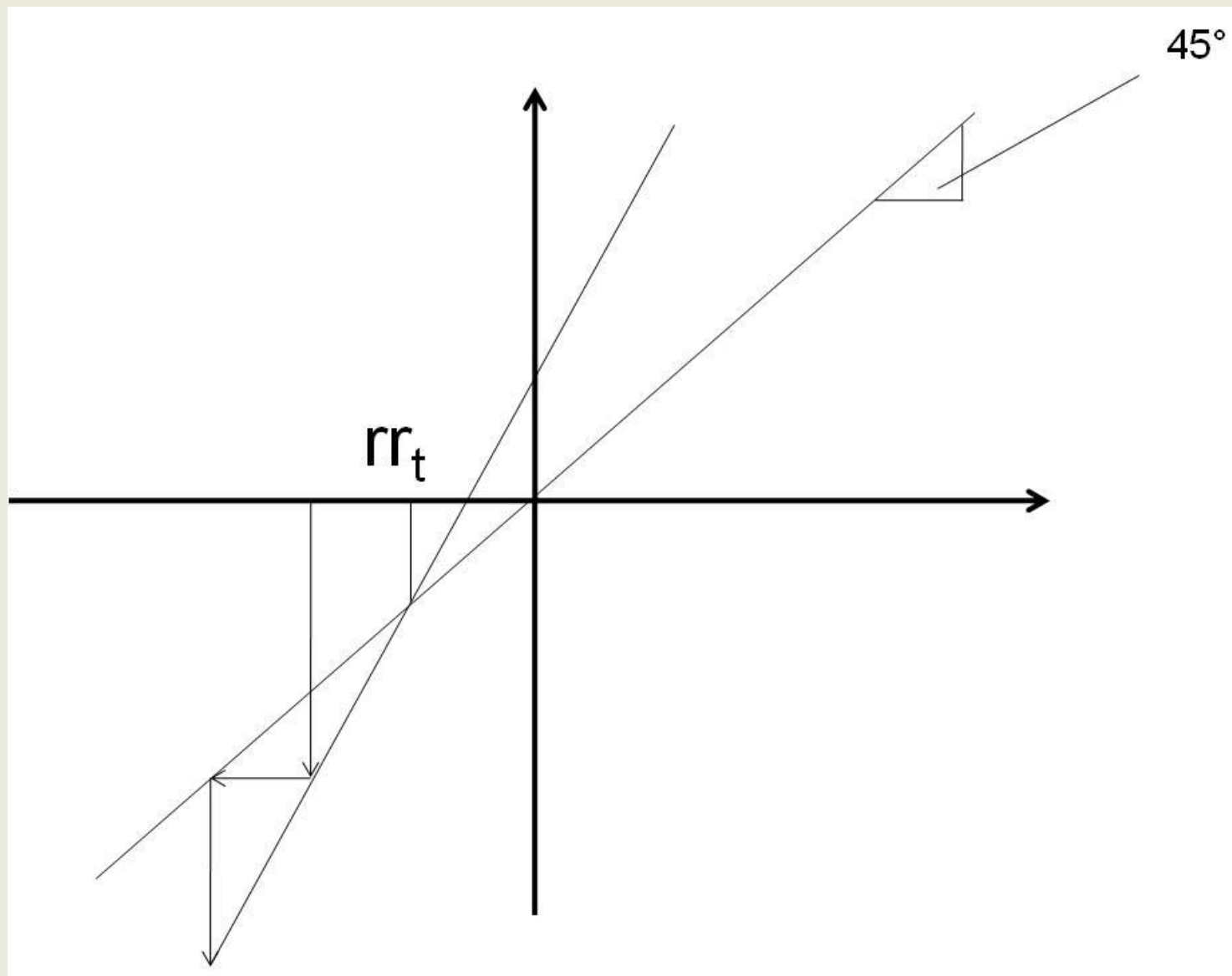
# Zero bound

$$i = 0$$

$$\pi_t = \pi_{t-1} + \kappa\varphi\pi_{t-1} + \kappa\varphi r r_t$$

- If the starting value of  $\Pi$  is smaller than  $-rr_t$  then the system does not converge towards a stable value. A deflation spiral will follow.





# Factors initiating deflation

- Credit crunch
- Collapses in the credit markets.
- In case of credit market difficulties banks restrict granting loans regardless of the actual interest conditions.
- Households still save but due to problems in the intermediation channel those acquiring loans cannot get them.

# Summary

- Three important factors can cause a deflation spiral.
  1. significant demand shock in the present,
  2. negative income expectations for the future
  3. credit crunch.

# Case study

- Stagnation in Japan
- Very high economic growth throughout the 80's
- Bursting of the asset price bubble
- Enduring crisis in the financial system
- Ageing population
- Continuous deflation

# Literature

- Ozsvald–Pete: A japán gazdasági válság – likviditási csapda az új évezredben? Közgazdasági Szemle, L. évf., 2003. július–augusztus
- Hoshi–Kashyap (2004): Japan's Financial Crisis and Economic Stagnation, The Journal of Economic Perspectives, Vol. 18, No. 1