Economics II

Lecture 18

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School of Economics and Management
TECHNICAL UNIVERSITY OF LISBON
SINCE 1911

Lecture 18

Summary:

9.3. Interest rate and aggregate demand

9.4. Monetary growth and inflaction

Bibliography:

Frank and Bernanke (2011), Chapter 12

Lecture Goals:

At the end of this lesson the student should be able to:

Identify investment as the main channel of transmission of monetary policy to the real economy.

Understand the functioning of monetary policy face to a cyclic deviation.

Associating growth of money supply and inflation in the long run.

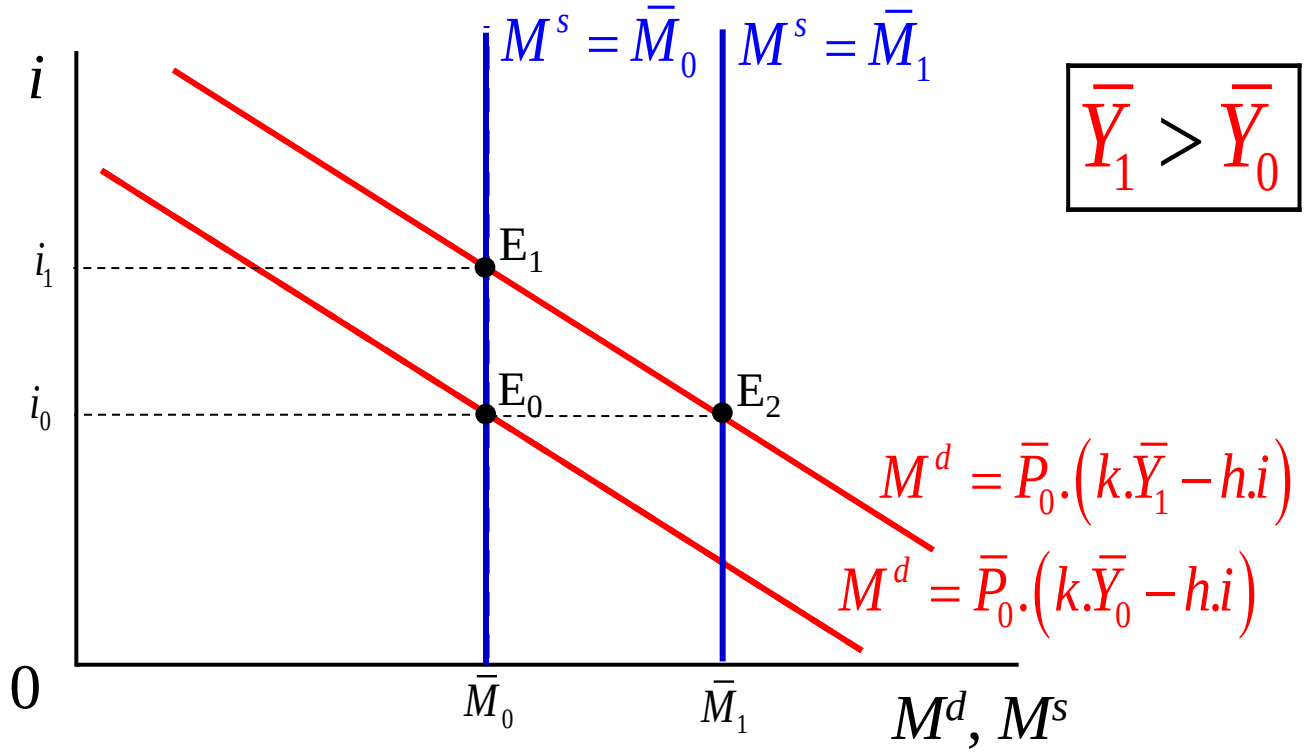
Seminar exercises:

- Exercises 7.1.-7.2. and 8.7.-8.8.

9.3. Interest rate and aggregate demand

Supposing that the Central Bank (CB) wants to control the money supply (*hypothesis 1*).

- What will happen to interest rates if the product increases?
  - This increase in economic activity stimulates the demand for money, since there is a higher volume of transactions in the economy.
- If the CB does not want to change money supply ...



$$\bar{Y}_1 > \bar{Y}_0$$

- … the interest rate increases!
- And if the CB wants to keep it unchanged?
- Then it should increase money supply!

Using money supply as an instrument:

- The central bank can control the nominal interest rate.
- However, important economic decisions depend on the real interest rate.
- Decisions which relate to savings and investment.

At least in the short term, the CB strongly influences the real interest rate:

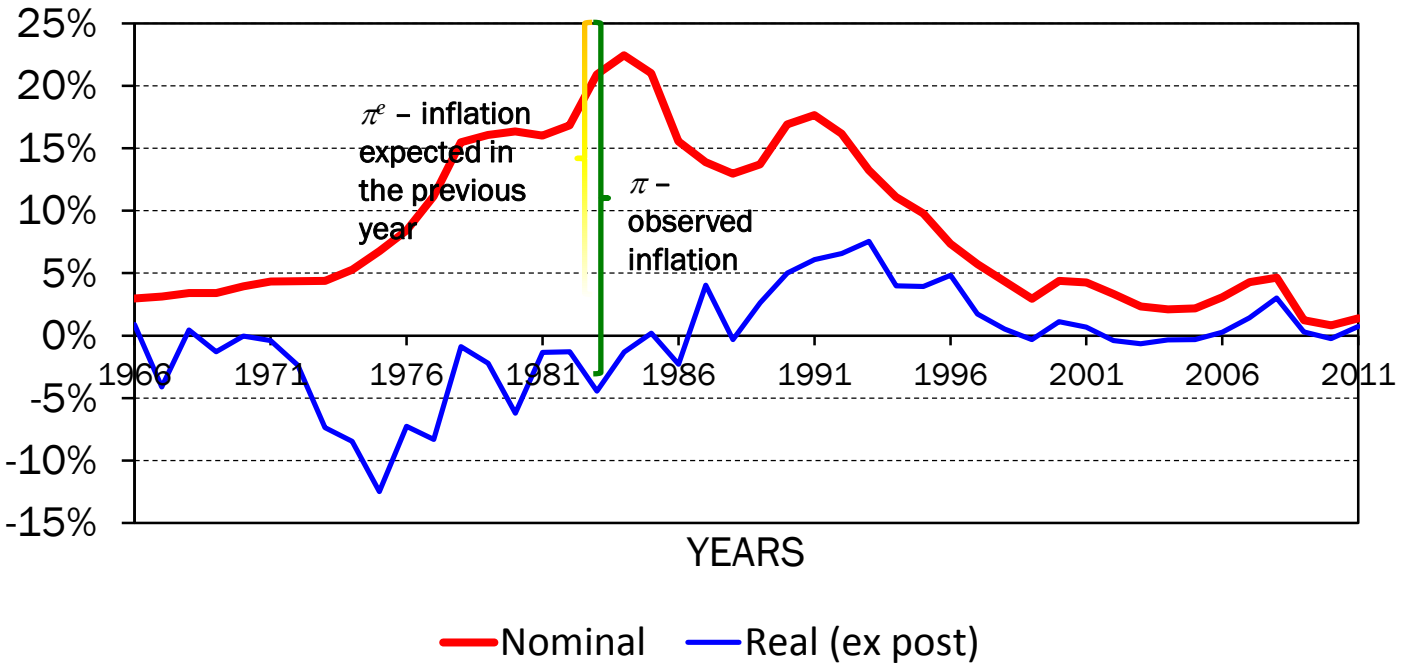
$$r \approx i - \pi^e$$

- The central bank determines the nominal interest rate (i) very precisely.
- Inflation expectations for the future (π^e) tend to react slowly to changes in the monetary policy.

As future inflation expectations tend to vary slowly:

- Variations in the nominal interest rate are variations of the same amount in the real interest rate.
- However, the real interest rate in the long run is determined by the equilibrium between savings (total) and investment (total).

Nominal and real (ex post) Interest Rate
Per year , short run
Portugal: 1966-2011



Source: European Commission (2012).

Aggregate demand (or domestic expenditure, D) depends negativly on real interest rate (r).

- This dependence is, above all, through the investment intentions:

$$I = I(r) \quad \text{com} \quad I'(r) < 0$$

- A lower (high) interest rate induces a higher (lower) aggregate demand .

Higher real interest rates :

- Increase the opportunity cost of investment (gross capital formation).

➢ The investment decreases.

(In more advanced models, up the 1st year, there are also:)

$$S = S\left(Y_d, r\right) \quad \text{com} \quad \frac{\partial S}{\partial r} > 0$$

- The intentions of private savings increase with the real interest rate and therefore ...

- ... the intentions of private consumption decrease with the real interest rate:

$$C \equiv Y_d - S = C\left(Y_d, r\right) \quad \text{com} \quad \frac{\partial C}{\partial r} < 0$$

- Also for this reason a lower interest rate generates greater aggregate demand.
- Note that this influence occurs via consumption (and saving), so, we have to "skip" the Keynesian function of consumption previously used.

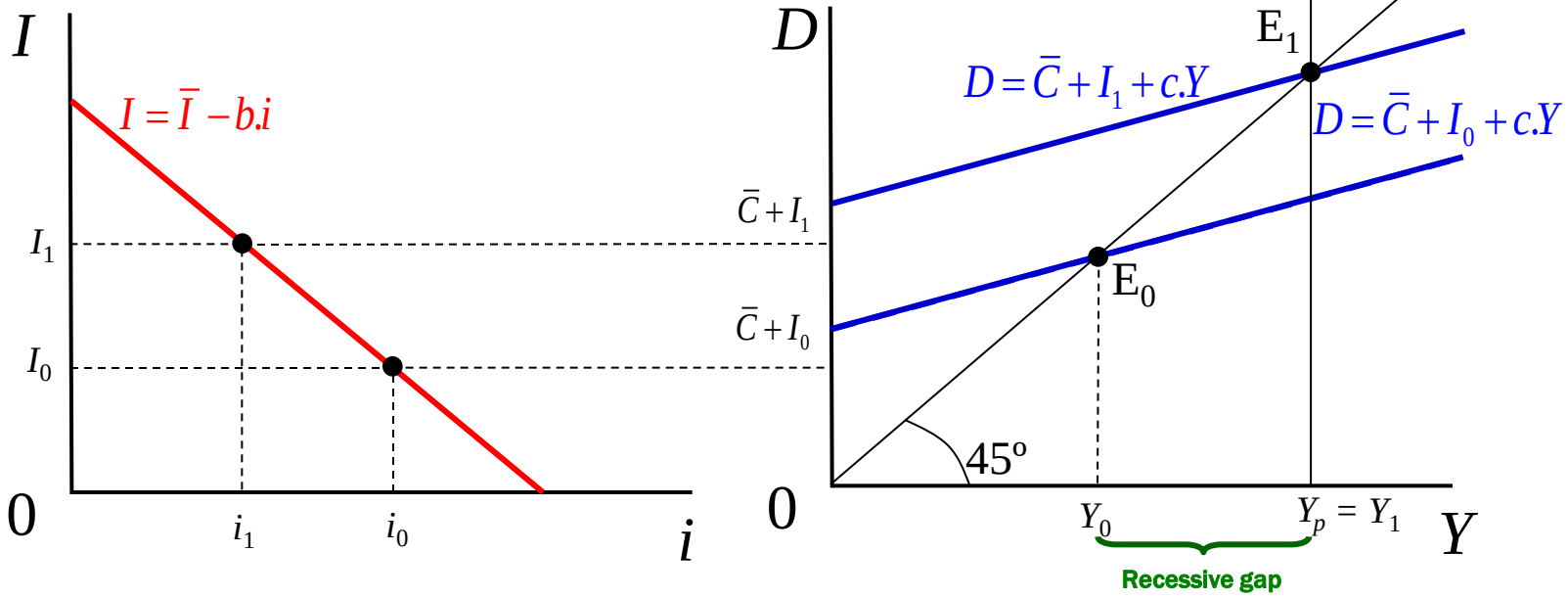
And how the CB operates to conduct its economic policy?

Faced with a recessive gap ($Y < Y_p$):

- The CB acts to reduce the nominal interest rate...
  - ... Promoting I (and C *in a general model*)...
  - ... Increasing the aggregate demand (D)...
  - ... Increasing the product and the employment.
- This is an expansionary monetary policy (or monetary expansion; monetary growth)
- The BC decreases the interest rates with the aim of reducing the recessive gap.

Equilibrium in the market for goods and services and monetary policy in the closed economy model with no state (budget):

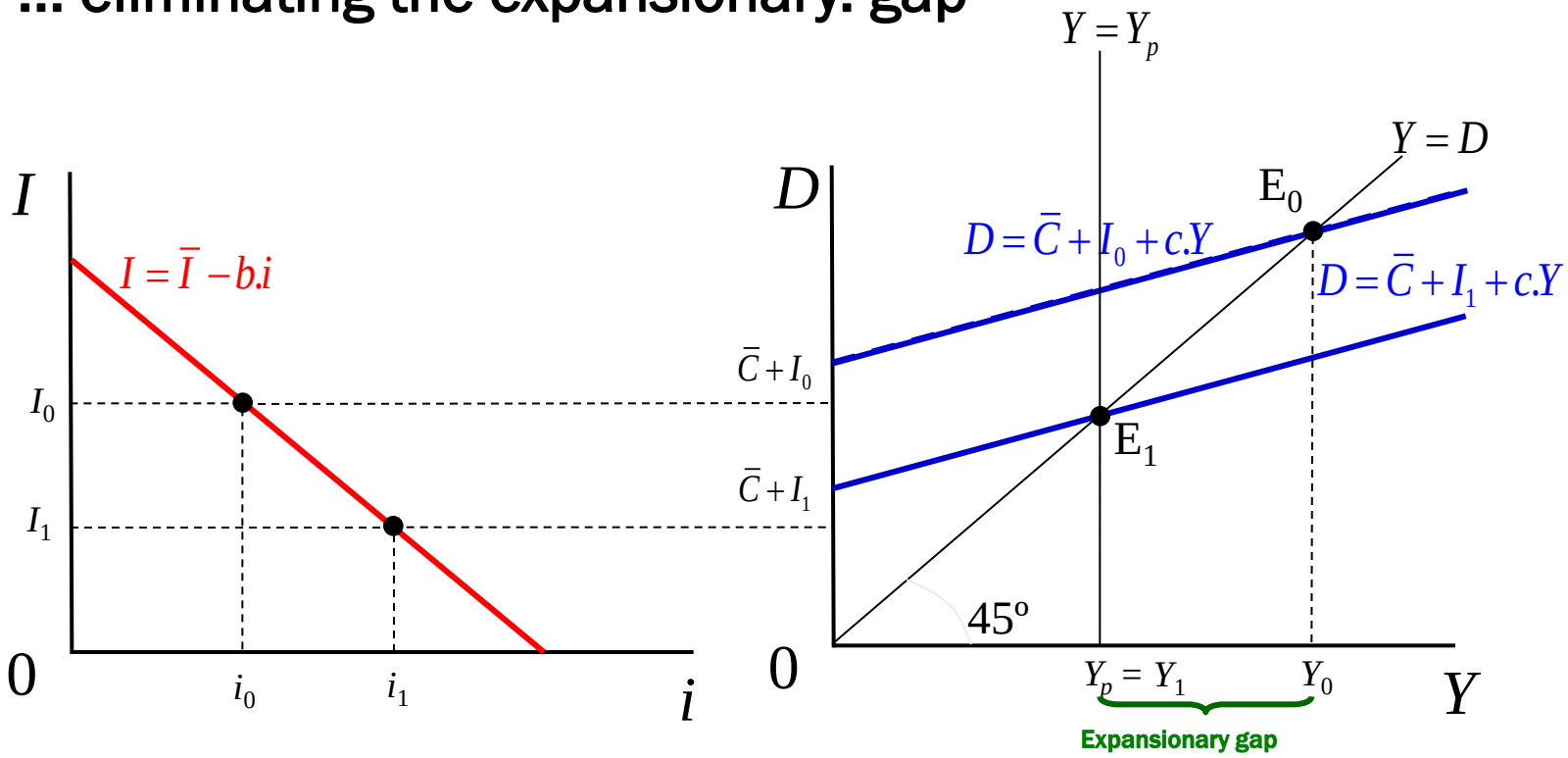
- Lowering the interest rate ...
- ... equilibrium output increases ...
- ... eliminating the recessive gap.



- And when there is na expansionary gap ($Y > Y_p$):
  - ➢ Central Bank acts to increase the nominal interest rate ...
  - ❑ ... reducing I (and in a more general model *C*) ...
  - ❑ ... decreasing aggregate demand (*D*) ...
  - ❑ ... reducing product and employment.

  This is a contractionary monetary policy (or monetary tightening; monetary contaction)
  - ❑ The BC raises the interest rates with the aim of reducing the expansionary gap.

- Equilibrium in the market for goods and services and monetary policy in a closed economy model with no state (budget).
  - Increasing the interest rate ...
  - ... The equilibrium product reduces...
  - ... eliminating the expansionary. gap



The manipulation of models overestimates the precision of monetary policy:

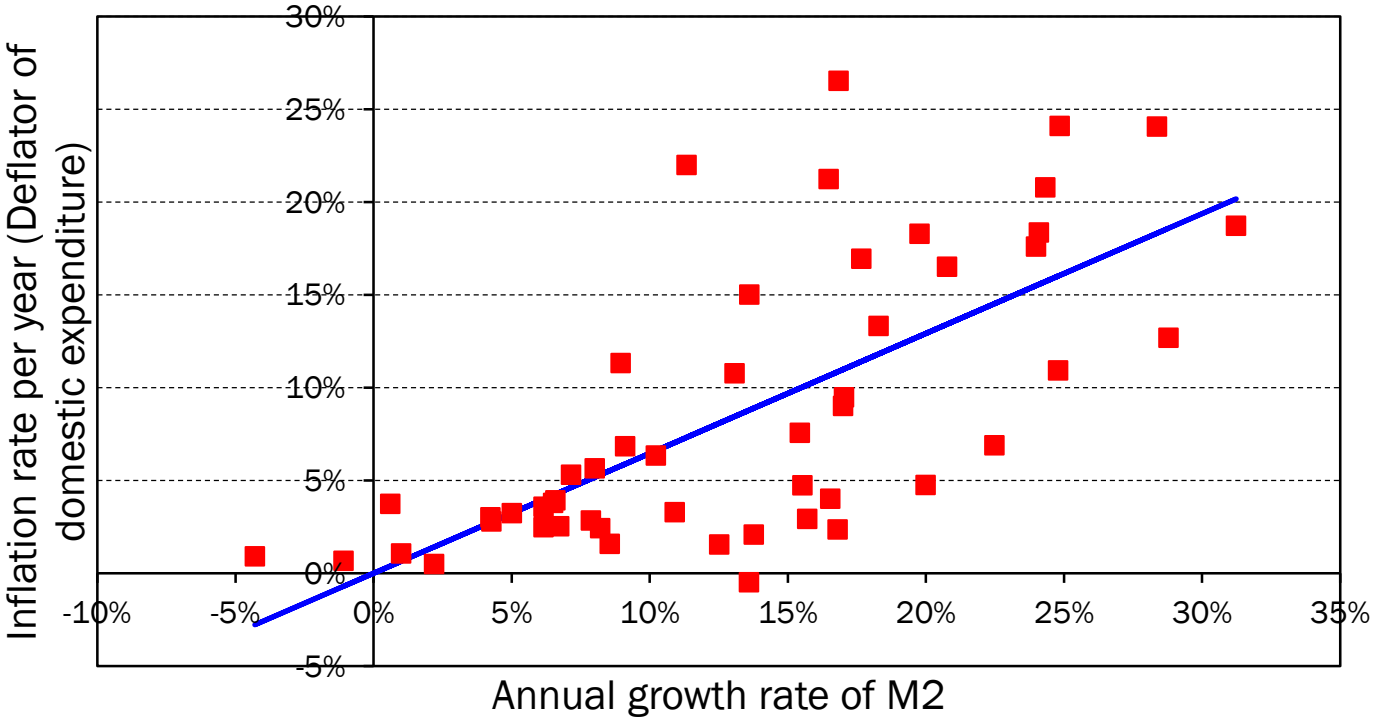
- The real world is complex and knowledge about the economy is imperfect.
- Policy makers have only a rough idea about variations in aggregate demand, output and employment resulting from changes in the real interest rate.
- Central banks operate with caution, avoiding large variations of the interest rates at once.

9.4. Monetary growth and inflation

In the long run, the expectations of economic agents react to economic policy:

- Households and companies will correct their forecast errors (some times positive, others negative).
- In the long run, there is a direct proportionality between monetary growth and inflation.
- Thus, monetary policy can have long term costs.

Inflation and Economic Growth
Portugal: 1961-2011



Sources : Banco de Portugal (2012), European Commission (2012) and Nunes *et al.* (2006)