Advanced Monetary Economics

Lecture 2

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Questions we want to answer

1. What is money?

2. Why has money value?

3. What determines the value of money?

1 What is money?

- A definition of money: “Money is anything that is generally accepted in payments for goods or services or in the repayment of debts.” (Mishkin, The economics of money, credit, and banking)

- A narrow definition of money: currency (coins and paper money)

- A broader definition of money
  - currency (coins and paper money)
  - overnight and similar deposits

- The sum is the monetary aggregate M1.

- One further monetary aggregate:

$$\begin{aligned} M2 &= M1 \\ &+ \text{deposits (up to 2 year maturity)} \\ &+ \text{deposits redeemable in 3 months} \end{aligned}$$

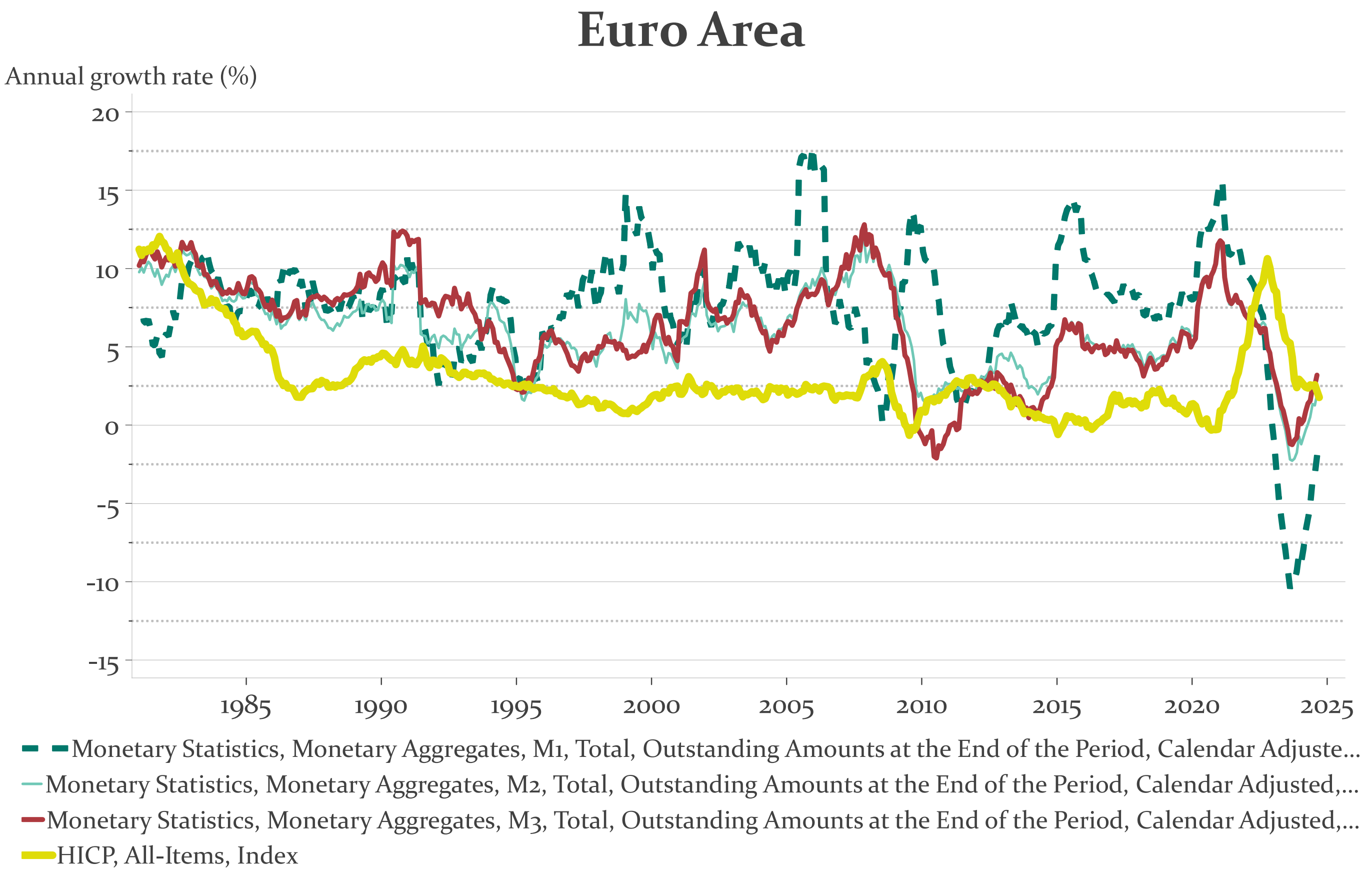
- For further definitions and data see `https://www.ecb.europa.eu/stats/money_credit_banking/monetary_aggregates/html/index.en.html`.

- Usually, money is not wealth. Wealth can also include houses, cars, stocks, bonds or land, among other.

- Money is usually defined more broadly than currency, but narrower than wealth.

- The definition and evolution of monetary aggregates matter for monetary policy. If central banks want to boost GDP and prices, they increase the money supply, so they need to now, which monetary aggregates best predict and affect the economy.

- Evolution of monetary aggregates and inflation in the euro area:



Functions of money I: medium of exchange

- Main function that makes money different from other assets like stocks or bonds

- Consider the opposite (a barter economy): $\longrightarrow$ goods and services are exchanged directly, requires double coincidence of wants

- Money promotes economic efficiency:
  - lowers transaction costs
  - allows specialization and division of labour

Functions of money II: unit of account

- Money measures value of goods and services
- for example, in Euro, Pound, US-Dollar; like using kilometres or grams to measure distance or weight
- Money as a unit of account promotes efficiency:
  - in an economy with 10 goods and money, there are 10 prices
  - otherwise there would be 45 prices
- Prices of goods and services are easy to compare.

Functions of money III: store of value

- Money allows you to transfer wealth to the next period

- Not the only way to store wealth, but:
  - money is liquid – there are no transaction costs in converting money into goods and services as for, say, a house
  - money is relatively easy to store

Summary: what money is

- "Money is anything that is generally accepted in payments for goods or services or in the repayment of debts."

- Its functions are:

  1. medium of exchange

  2. unit of account

  3. store of value

- These criteria are useful to decide whether financial innovations classify as money.

- Discussion break: Is Bitcoin money?

2 Why has money value?

- An elementary question: how do you convince people to give up goods and services for something of no inherent value?

- One answer: promise that it can be exchanged for goods and services in the future.

- The value of money depends on how good the promise is.

- Use something valuable as money.

- People are willing to give goods and services up for something they attach intrinsic value to.

- It is very likely that it can be exchanged in the future.

Commodity money

- Money made out of a commodity
  - precious metal (gold and silver) or beads
  - cigarettes
  - cocoa bean
- Problems of commodity money
  1. value of money fluctuates with the value of the commodity
  2. could be difficult and heavy to carry
  3. not all sorts of commodities are long lasting

Key question and another answer

- How to convince people that money can be exchanged for goods and services in the future?

- Money as debt owed by someone wealthy

- Money here is direct promise of a future payment

- People are willing to give goods and services up for something that explicitly promises goods and services in the future.

Promissory notes as money

- Promissory notes
  - issued by a merchant, i.e. individual debt
  - circulated among traders
  - value backed by the name (and wealth) of the originator
- Problem 1: not widely acceptable and divisible
- Problem 2: becomes worthless if merchant declares bankruptcy

Improvement on simple promissory notes

- Founding of the Bank of England (1694)
- Consortium of merchants founded the bank with bank equity
- Loan to the government – which in turn promises to repay plus interest rates by future taxes
- Paper money issued backed by future payments of the government
- Paper money was accepted to pay for taxes.
- Somebody (the government) always exchanges the paper against goods and services in the future

- Balance sheet of the Bank of England after originating the loan to the government

Assets	***Liabilities***
Loan to the government	Bank equity

- Balance sheet of the Bank of England: right to issue paper money

Assets	***Liabilities***
Loan to the government	Bank equity
Further loans	Paper money

Why need merchants at all?

Assignat from the 1792 issue: 400 livres

- The assignats in France after the revolution of 1789
- Government lacked the capacity to found a bank as the Bank of England
- But, it had confiscated ecclesiastical possessions
- Difficult to liquidize to repay creditors; but could serve as bank equity
- Assignats were backed by the future income from selling the possessions

- Balance sheet of the "central bank"

Assets	***Liabilities***
Confiscated possessions	Bank equity Paper money -- Assignats

- Discussion break 2: What can possibly go wrong?

Key question and summary

- How to convince people that money can be exchanged for goods and services in the future?

- Option 1: use something valuable
  - potentially inconvenient to use

- Option 2: paper money as debt
  - loses value very (very) fast if debtor is insolvent

- The Goldstandard is a combination of both answers.

The introduction of the Goldstandard

- The Goldstandard tied the issuance of paper money to something valuable: an ounce of gold.

- It removed the possibility for the government to issue too much paper money.

- From 1870-1913 most countries in the world used the Goldstandard.

- How to convince people that money can be exchanged for goods and services in the future?

  $\longrightarrow$ Promise the holder of paper money to exchange it into something valuable at any time at the central bank

- Balance sheet of the central bank under the Goldstandard:

Assets	***Liabilities***
Gold	Bank equity
Other assets	Paper money

- Problem 1: The value of money still fluctuated with the value of the commodity.

- Problem 2: "Under the gold standard America had no major financial panics other than in 1873, 1884, 1890, 1893, 1907, 1930, 1931, 1932, and 1933 . . . " (Paul Krugman)

- Problem 3: the central bank cannot act freely to stabilize demand

- Central banking after the Goldstandard

Assets	*Liabilities*
Loans to Banks	Currency in circulation
Government securities	Reserves hold at the CB
Gold (only a little)	

Why money has value

- Money is a promise of future goods and services.
- Nowadays money is debt of the central bank.
- The central bank has to safeguard its value.
- It is legal tender and can be used to pay taxes $\longrightarrow$ somebody always has to accept it.

3 What determines the value of money

- The value of money is the answer to the question: How much goods and services are people willing to give up for one bill of paper money?

- Measured by a price index

- Basket of goods and services – here is an example: `https://www.ecb.europa.eu/stats/ecb_statistics/escb/html/table.en.html?id=JDF_ICP_COICOP_INX`

- If the price of the basket increases, the value of money decreases.

$\longrightarrow$ What determines the price of the basket?

One classic approach

- Money supply is set by the central bank
- Money demand of agents depends on the planned transactions
- Price for money is intersection between demand and supply
- If money supply increases, but money demand is not, prices increase

Another determinant of the price level

- Money is a promise for future goods and services – debt with the central bank as debtor
- How good the promise is depends on the balance sheet of the central bank
- On the asset side of central banks is no gold, but government bonds
- The fiscal theory of the price level formulates this relationship! to be continued

What determines the value of money

- The price level determines the value of money

- The intersection of money supply and money demand (can) determine the price level.

- In the fiscal theory of the price level it is the interaction between central banks and the fiscal authority.

- Diskussion break 3: What are the risks of unconventional monetary policy, that is, if the ECB buys many government bonds?