

# International Monetary Economics: Central Banks and Interest Rates

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# What Is A Central Bank?

Central banks usually have four defining features:

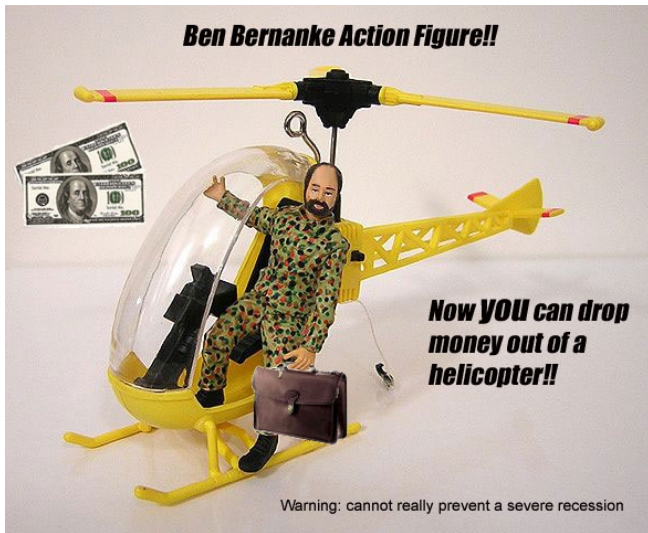
- 1 Banker's bank and payment system management: Just like the clearinghouses that we discussed last week, all banks keep reserve accounts at their central bank and use them to settle payments with other banks. ECB and Fed payments system (TARGET2 and FedWire) process huge quantities of payments every day.
- 2 Rule maker: Central banks manage the financial system by setting reserve requirements and they are usually involved in financial regulation and maintaining the stability of the financial system.
- 3 Government's bank. All governments keep their accounts at the central bank, depositing tax revenue and paying their bills from this account.
- 4 The Big One—Monopoly issuer of money. Only central banks can print legal tender. They can also create money in the form of adding to bank deposits.

# How Do Central Banks Create Money?

- Where does the cash in your pocket come from?
- Milton Friedman used to use the analogy of a “helicopter drop” of cash as a simple analogy for central bank money creation.
- But helicopter drops are not practical or fair!
- In practice, central banks create money as follows:
  - ① They purchase a security by writing a cheque.
  - ② The former security-holder then deposits the cheque at her bank.
  - ③ When her bank presents the cheque for payment, the Central Bank credits their reserve account by the amount paid for the security.
  - ④ These bank reserves can be swapped for the cash that the bank supplies to its customers. When the bank orders a delivery of cash from the Central Bank, its reserve account is deducted by that amount.
- Where does the Central Bank get the funds from to increase the bank's reserve account?
- Nowhere! This is the Central Bank “creating” money.

## Aside on Helicopter Drops

Bernanke once discussed the helicopter drop in a speech and journalists nicknamed him Helicopter Ben.



# Central Bank Balance Sheets and Fiscal Implications

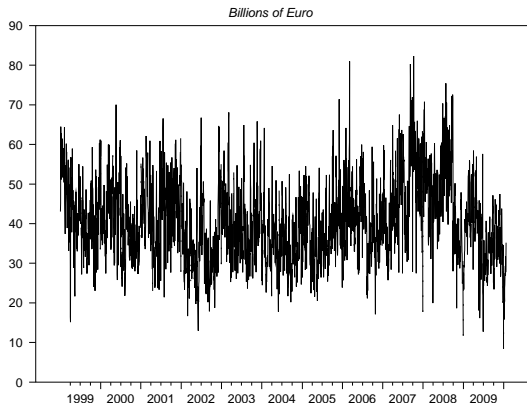
- Over the years, all this money issuance has meant that central banks have built up large portfolios of securities (usually, government bonds). They also make short-term loans to banks, which they earn interest on.
- Currently, the ECB has assets of €1940 billion and the Fed has assets of \$2040 billion.
- Fiscal implications: The profits from running a central bank (from interest on its portfolio of securities and loans) are usually paid back to central government. In countries with poorly developed tax systems, revenue from the central bank (known as seignorage) is often a key source of government funding. But this means they print a lot of money and, as we will discuss, this leads to inflation.
- As an accounting matter, central banks also have “liabilities” in the form of currency and the reserve accounts held by banks. But the liabilities are essentially fictitious. Bring a €100 note to the ECB and demand payment and you’ll receive two €50 notes.

# Central Banks and Interbank Money Markets

- Recall that, at any point in time banks need a certain amount of liquid assets, i.e. currency or reserves at the central bank.
- Interbank markets (sometimes called money markets) exist in which banks can lend and borrow central bank reserves among themselves on a short-term basis, often overnight.
- Central banks today implement monetary policy by influencing the interest rate charged in this market.
- I will also put material on the website about how the ECB and Fed conduct monetary policy.
- Let's illustrate this with a concrete example. We'll discuss how the ECB influences interest rates in European interbank markets.

# The Euribor Market

- European interbank market known as the Euribor market. Overnight rate known as the EONIA (Euro Overnight Interest Average).
- Huge volume of activity—though less now than a few years ago.



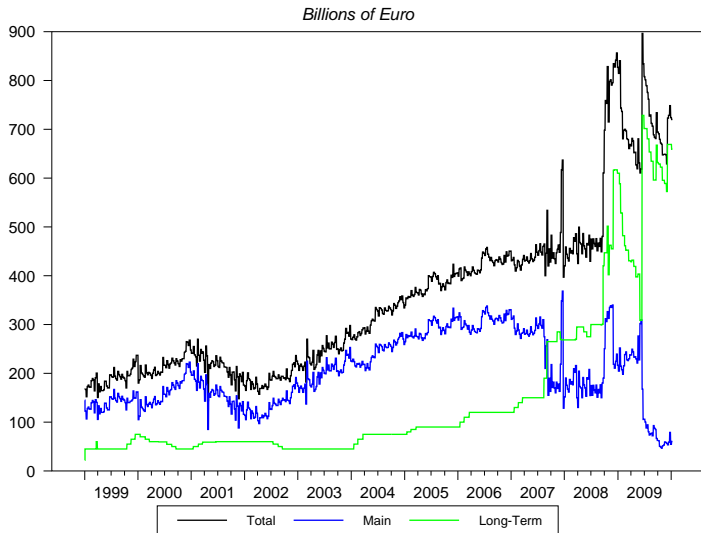
# Open Market Operations

- The ECB influences the EONIA rate by providing an alternative to the Euribor market as a source of short-term liquid funds for banks.
- It does this via *open market operations*. Two types:
  - ① Permanent: Providing liquid funds to a bank by purchasing a security from them or withdrawing liquidity from the market by selling securities.
  - ② Repurchase agreements (repos): The CB takes a security from a financial institution, provides it with a short-term loan by boosting its reserve account and sells the security back later at an agreed higher price. The security acts as *collateral* for the loan—the central bank does not incur market risk while holding the asset. (Converse operation, temporarily selling a security, is a reverse repo.)
- The Fed and the ECB largely conduct monetary policy via repos.
- Bank demand for reserves goes through temporary peaks and troughs, so short-term loans like repos are a good way to manage offset these fluctuations and maintain stability in the market for reserves.

# The ECB's Refinancing Operations

- The ECB conducts a large repo operation (“the main refinancing operation”) every week, with the funds due back a week later:
  - ▶ Normally, the ECB decides how much liquidity it is going to hand out and then conducts an auction for these funds.
  - ▶ It announces the minimum interest rate that banks will have to pay for the loans and then rations the loans by giving them out to those who are willing to pay the highest rate.
  - ▶ This “minimum bid rate on the main refinancing operation” has been the “headline” interest rate for most of the ECB's existence.
  - ▶ Since October 2008, the MRO has been conducted on a fixed-rate basis and all bidders have been allocated their requested amount of funds.
- ECB also conducts longer-term operations, lending to banks for three months, six months or even one year. This has greatly increased lately. (The big jump up in the green line on the next page corresponds to a huge one year operation the ECB conducted last summer.)
- The ECB has signalled that it will be returning to its normal lending practices this year.

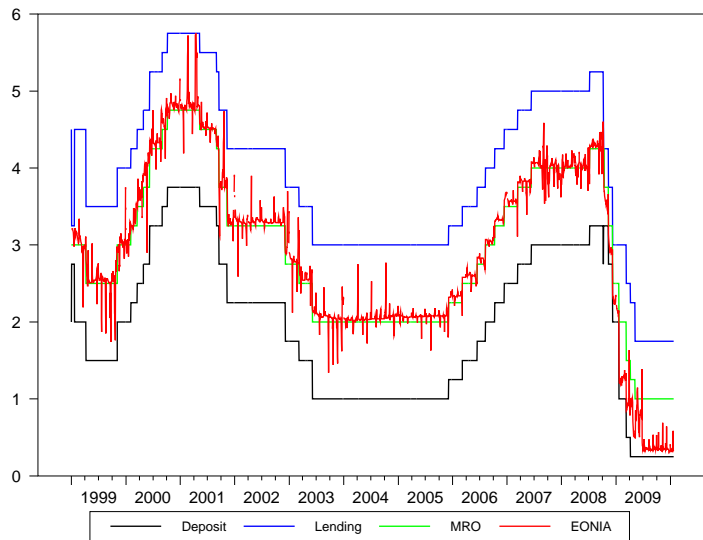
# Size of the ECB's Refinancing Operations



# Standing Facilities

- In addition to its regular and occasional refinancing operations, the ECB has “standing facilities” that are always available.
  - ① Standing lending facility (“marginal lending facility”) usually set 1% above the rate on main refinancing operation.
  - ② Deposit facility usually pays an interest rate 1% below the rate on main refinancing operation.
- While the interest rate in the main refinancing operation is the target rate, i.e. EONIA is supposed to stay close to this rate most of the time, these standing facilities are intended to set an interest rate “corridor” for money market rates.
- Since banks can borrow from the deposit facility, they do not need to pay a higher interest rate than this in the money market. Similarly, they don't need to lend at a rate lower than they can get from the deposit facility.
- These tools do a good job of controlling Euro area money market interest rates.

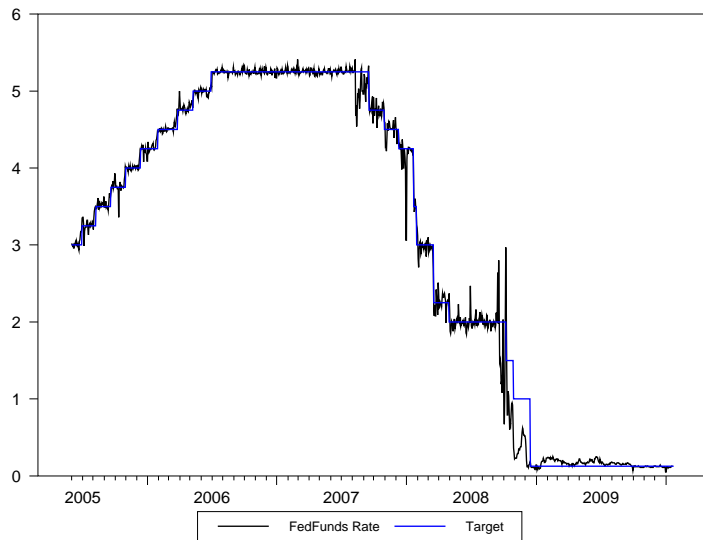
# How the ECB Controls Money Market Interest Rates



# The Federal Reserve's Operational Strategy

- The US interbank market is known as the Federal Funds market.
- The Federal Reserve intervenes in the Fed funds market—via its Open Market Desk at the New York Fed—on a daily basis to keep interest rates in the market as close as possible to its target rate. See webpage for excellent speech on this by Bernanke (“Implementing Monetary Policy”)
- It mainly uses short-term (1 to 14 days) repo loans, collateralized by Treasury bonds or mortgage-backed securities.
- Every day, the Desk attempts to figure out how much liquidity is needed and plans its operation accordingly.
- Most days, the Fed succeeds in keeping the funds rate close to target.
- Standing facilities:
  - ① Loan facility called the discount window, set a half point above the target fed funds rate.
  - ② The Fed used to have no deposit facility but in October it began paying interest on reserves. They noted: “Paying interest on excess balances should help to establish a lower bound on the federal funds rate.”

# The Fed Usually Keeps the Funds Rate Close to Target



## Recap: Key Points from Part 4

Things you need to understand from these notes:

- 1 The defining features of a central bank.
- 2 How central banks create money.
- 3 Seignorage: Why creating money has fiscal implications.
- 4 Definition of open market operations and the two types of operations.
- 5 Interbank money markets and why banks participate in them.
- 6 The ECB's operational strategy to control Euribor interest rates.
- 7 The Fed's operational strategy to control the Federal funds rate.