Plan for today

1. Money
2. Bonds & interest rates
3. Central Bank & monetary policy
4. The stock market
5. A model of banking: Diamond-Dybvig (1983)

What is money?

Money is a *financial asset* that serves simultaneously as:

- medium of exchange.
- unit of account.
- store of value.

Money is a IOU that everyone in the economy trusts

The ‘broad money’ aggregate

Includes *most liquid* financial assets in the economy.

1. Government money [*narrow money, M0*]:
    - currency & bank reserves.
2. Bank deposits:
    - current & savings accounts.

Broad money (M4)

Currency

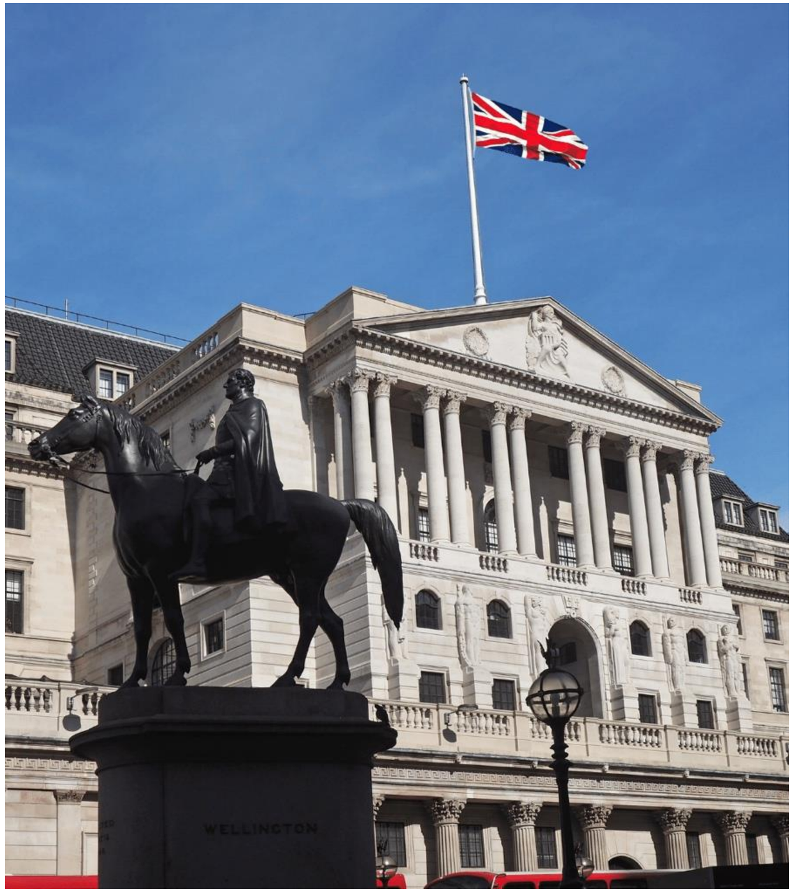
- Banknotes & coins.
- They represent a debt of the Central Bank.
- In the past redeemable in gold.
- Today: *fiat money.*

Bank reserves

- Balances held by commercial banks at the Central Bank.

- Convertible in currency.

- Why banks hold reserves?
  - to make payments to one another
  - to have some liquidity to face withdrawals.



Bank deposits

- Current accounts & savings accounts.
- Debts of commercial banks with their customers (households and firms).
- Convertible in currency.

Why we trust (broad) money?

Because it is backed by the State.

- Accepted as tax payment.
- *Legal tender*: can always be used to repay a debt.

Money creation

- Money holdings in the UK (July 2024):
    - Currency: £86.9 Billions (6%).
    - Bank deposits: £2,221 Billions (94%).

- Banks create new deposits (= new money) when they lend.
- BoE *does not* control the quantity of money.
- But it can partly influence its growth through the interest rate.

Bonds

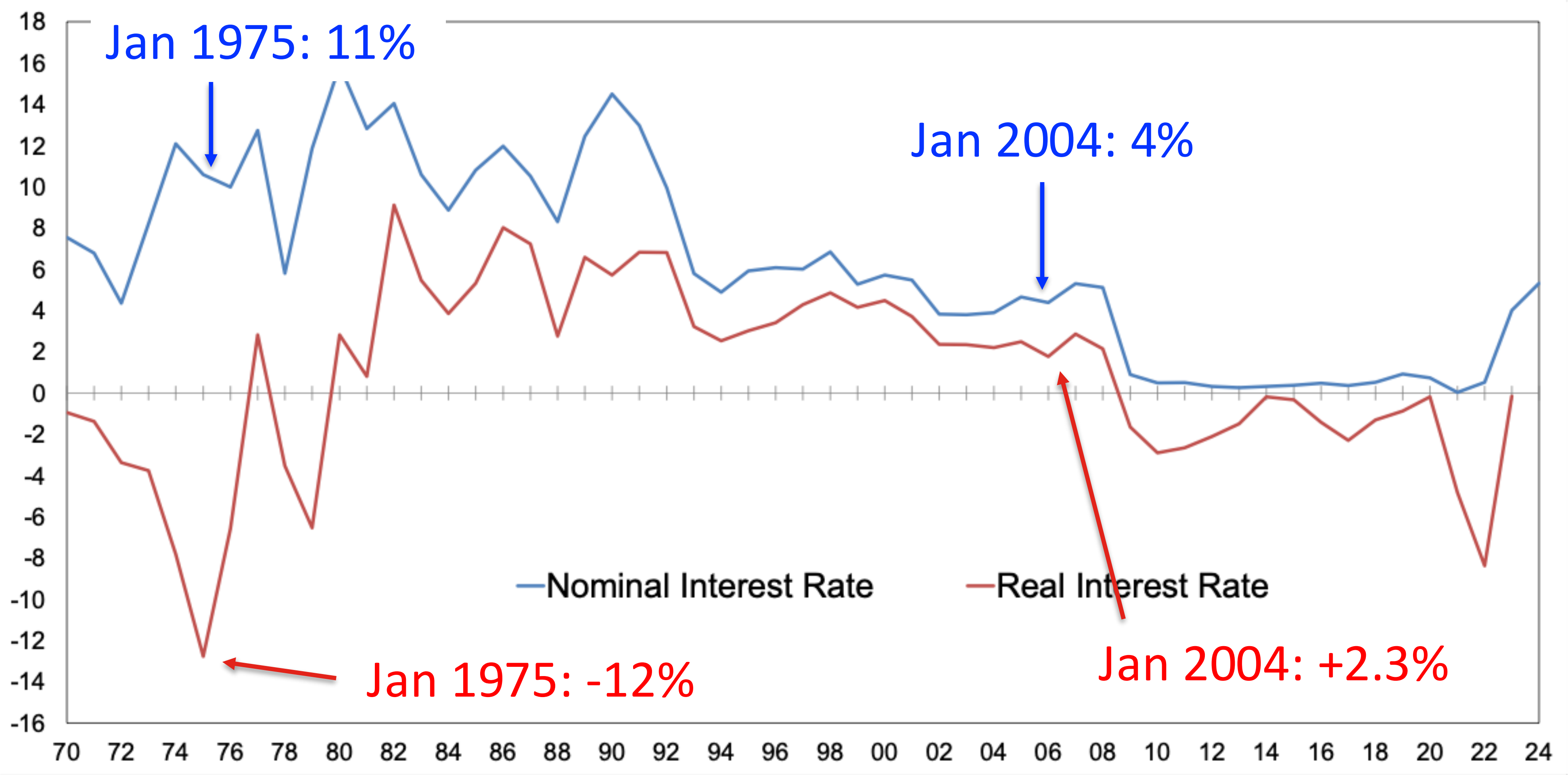
Example:

AstraZeneca sells a bond

- The bond pays £110 in 1 year
- Price of the bond today: £100
- Interest rate: rate of return earned by bond buyer

$$i = \frac{110 - 100}{100} = 0.10 = 10\%$$

Interest rate on 1-year UK gilts



Inflation rate:

- 23.4% in 1975
- 1.7% in 2004

Nominal vs Real interest rate

- *Nominal* interest rate = rate of return in current pounds.
- *Real* interest rate = rate of return in real purchasing power.
- *Ex-post* (realized) real interest rate:

$$r_t \approx i_t - \pi_{t+1}$$

- *Ex-ante* (expected) real interest rate:

$$r_t \approx i_t - \pi_{t+1}^e$$

Interest rates & risk premia

- What determines the interest rate on a particular bond?
  - Economy-wide factors (monetary policy).
  - Bond-specific factors: *maturity & riskiness.*

- Let's ignore maturity (assume 1-year) and focus on risk.
- Interest rate on a risky bond:

Riskless interest rate

$$i_R = i + x_R$$

Risk premium

  - x_R depends on prob. of default & *risk aversion* of investors.

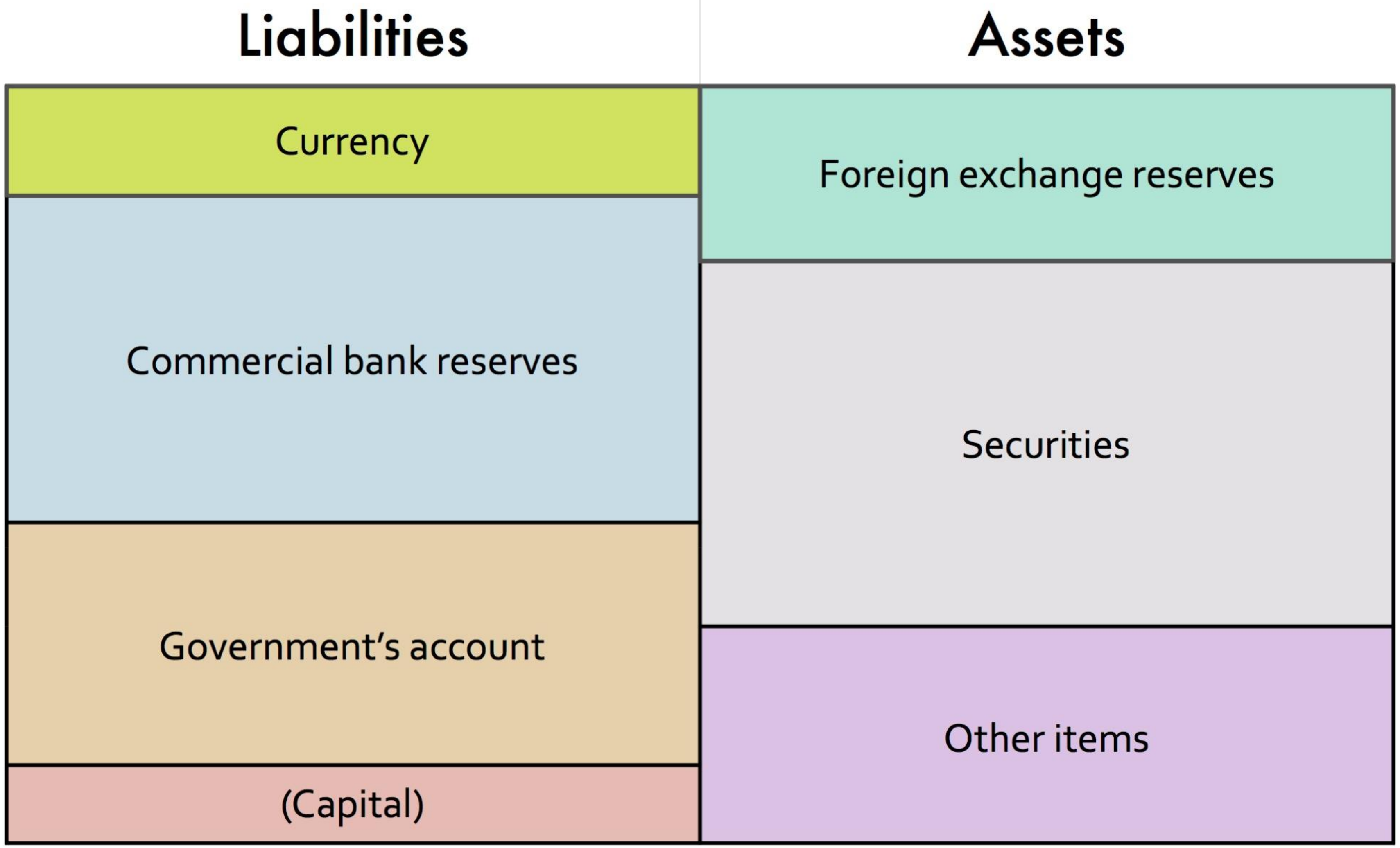
Central Bank & Monetary Policy

The Central Bank

- Manages the currency and monetary policy.
- Oversees the banking system.
- Generally, a CB wants low inflation & low unemployment.
- The Bank of England *mandate*:

> *"to maintain price stability, and subject to that, to support the economic policy of Her Majesty's Government, including its objectives for growth and employment."*

The Central Bank balance sheet



Monetary Policy

- The Central Bank controls the risk-less interest rate in the economy.
  - Overnight interbank rate.
  - Sterling Overnight Index Average (SONIA) in UK

- CB *increases* rates to cool down the economy & reduce inflation.

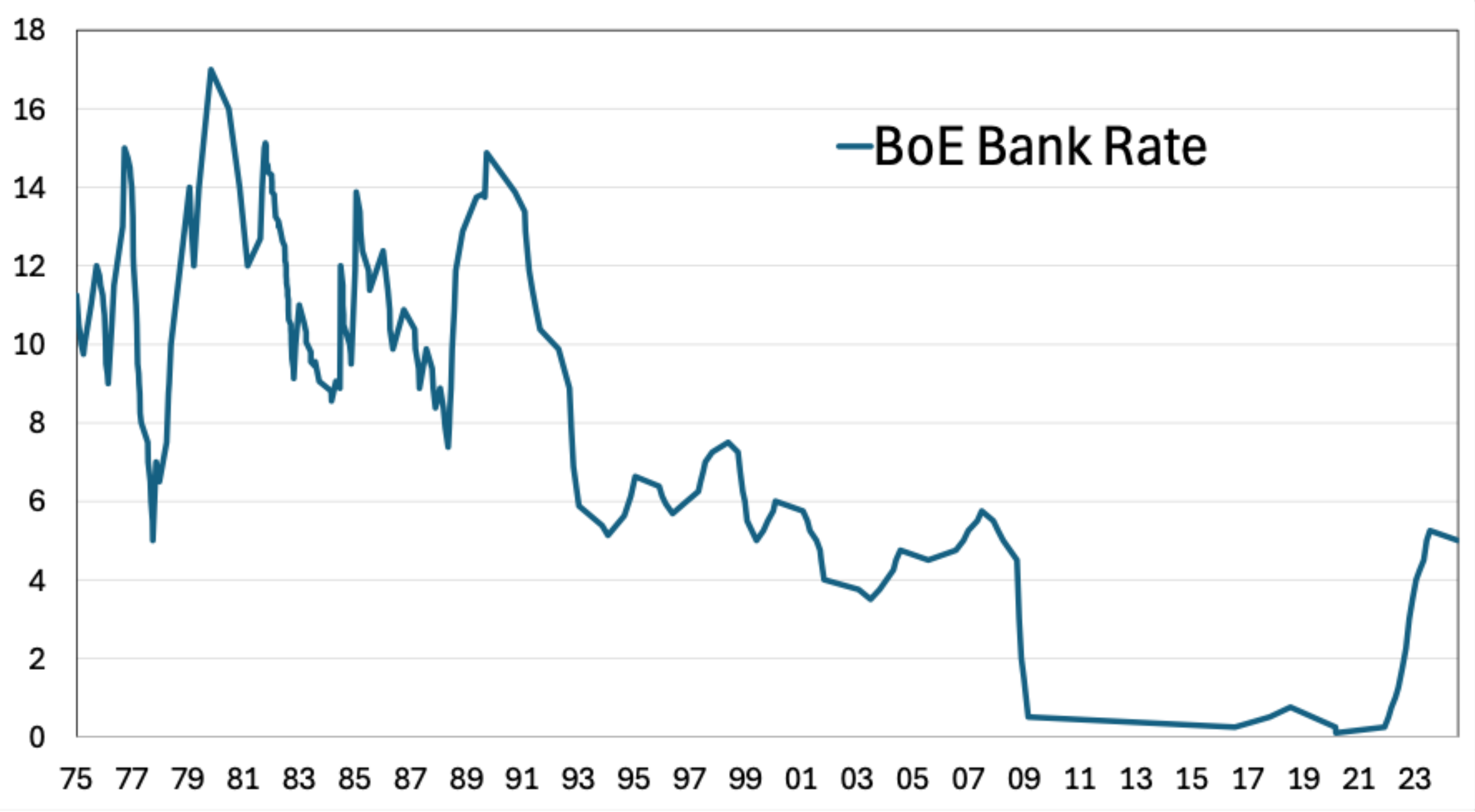
- CB *decreases* rates to boost economic activity.

How does the BoE control interest rates?

- BoE sets the Bank rate
  - *The interest rate BoE pays & charges on bank's reserves*

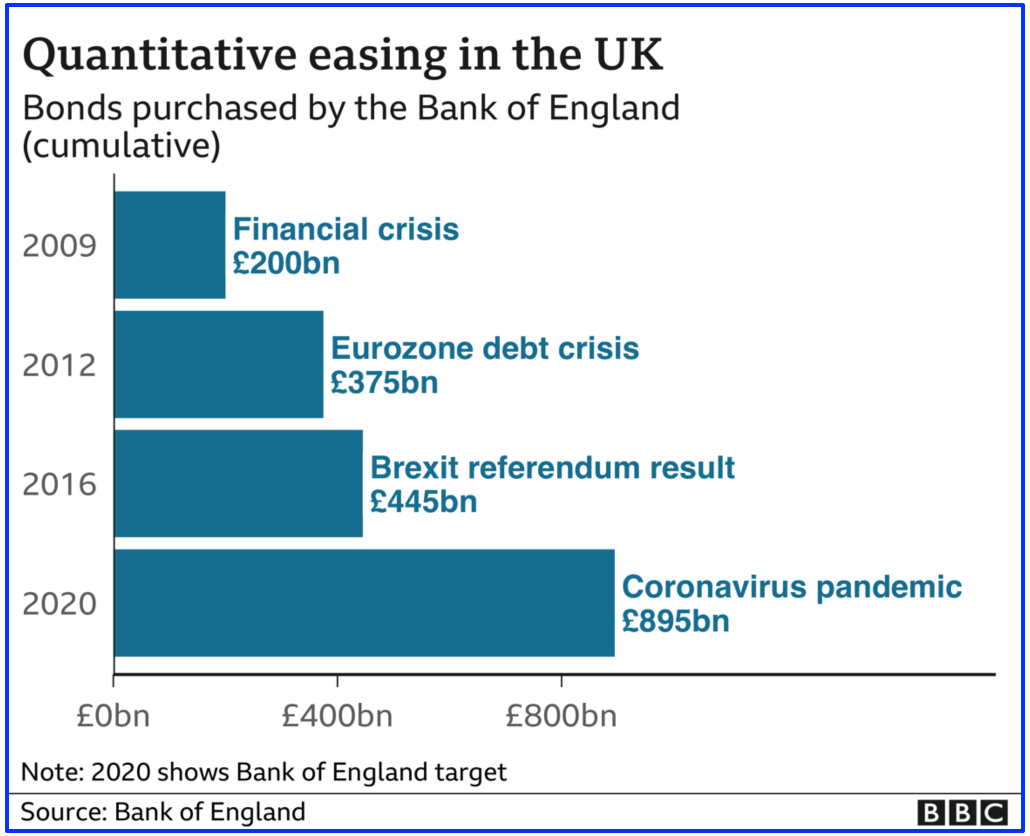
Bank rate → SONIA → interest rates on bank loans, mortgages & bonds

Bank Rate (Jan 1975 to Aug 2024)

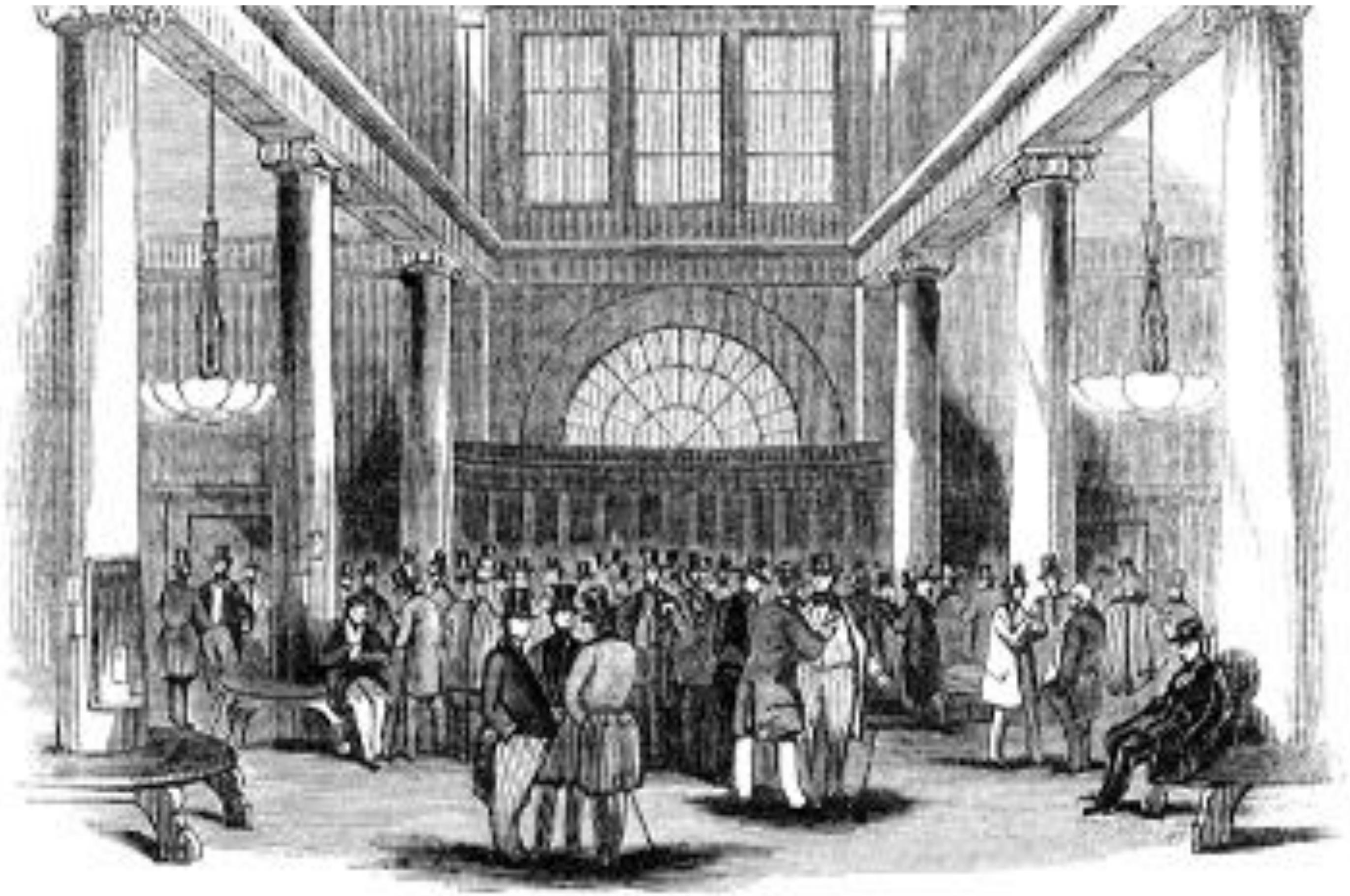


Quantitative easing

- Unconventional monetary policy tool.
- Large-scale bond purchases to further decrease risky & long-term interest rates.
- BoE gives banks reserves for these assets.
- Typically used when Bank rate is already at the zero lower bound (ZLB).
- Huge increase in BoE balance sheets.



The stock market



The stock market

- Another way for firms to raise external funds.
- Stock (or *share*) = an ownership share in the issuing company.
- Stock-holders receive *dividends*.
    - the retained (non-reinvested) profits of the company.
- In theory:

$$P_t = \sum_{k=0}^{\infty} \left(\frac{1}{1+r} \right)^{k+1} E_t(D_{t+k})$$

- A firm's stock price depends on its expected profitability.

Stock market indexes

- Measure overall stock market movements.
- Track the market value of a given portfolio of stocks.
- In the UK:
  - FTSE 100
  - FTSE All-Share

What moves stock prices?

- For a single stock: the firm's expected future profits.
- On aggregate: expected future profits in the economy.

- Higher expected GDP growth → higher share prices
- Higher share of profits in GDP → higher share prices.
- Higher taxes on firms → lower share prices.
- Higher interest rate → lower share prices.

Case in point: UK share prices on 19 Sep 2024.

US Fed lowered interest rates more than expected during the night.

12.00pm:
Bank of England confirms no further interest rate decreases for now.

→ Effect of interest rates on share prices is another channel through which monetary policy can affect the economy.