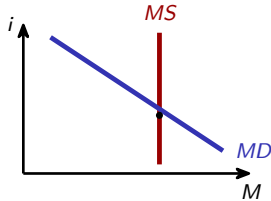


Financial Sector

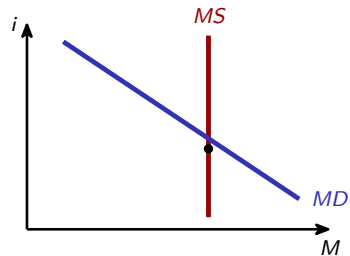
AP Macroeconomics ■ Unit 4

AP Macroeconomics



What we will cover

- 1 Financial assets
- 2 Nominal vs real interest rates
- 3 The functions of money
- 4 Banking and the money multiplier
- 5 The money market
- 6 Monetary policy
- 7 The loanable funds market





Three financial assets

Stock : a share of ownership in a company

Bond : a loan that pays fixed interest

Bank deposit : safe, easy to spend

Every asset trades off three features:

- **risk** – chance of a worse return
- **return** – how much it earns
- **liquidity** – how fast it becomes cash

Higher risk must pay a higher return; the most liquid assets pay least.

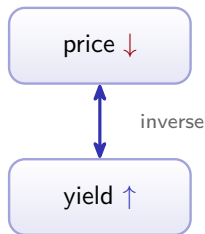
Bond price and yield move opposite

A bond pays a **fixed** number of dollars each year. So its **yield** depends on its price:

Worked example (fixed \$50/year)

$$\text{price } 1000 \Rightarrow \text{yield} = \frac{50}{1000} = 5\%$$

$$\text{price } 500 \Rightarrow \text{yield} = \frac{50}{500} = 10\%$$



This is why bond prices fall when market interest rates rise.



Nominal vs real interest rates

The quoted rate is **nominal** ; inflation eats its value, so what matters is the **real rate** .

The Fisher equation

$$\text{real} \approx \text{nominal} - \text{expected inflation}$$

inflation **higher** than expected
⇒ **borrowers win**

inflation **lower** than expected
⇒ **lenders win**

Lend at

6%, expect 2% (plan 4% real); if inflation is 5%, real is only 1%.



What money does, and how we measure it

Money is anything widely accepted in trade.

Three jobs:

- **Medium of exchange** – accepted in payment
- **Store of value** – holds worth over time
- **Unit of account** – a common price stick

$M1 = \text{cash} + \text{checking}$; $M2 = M1 + \text{savings}$.

Fiat money has value by government declaration.



Fiat money works because people accept it

Banking creates money

Under **fractional reserve banking** a bank keeps a fraction as **required reserves** and lends the rest. Loans become new deposits – re-lent again and again.

Money multiplier

$$\text{money multiplier} = \frac{1}{\text{reserve ratio}}$$

Worked example

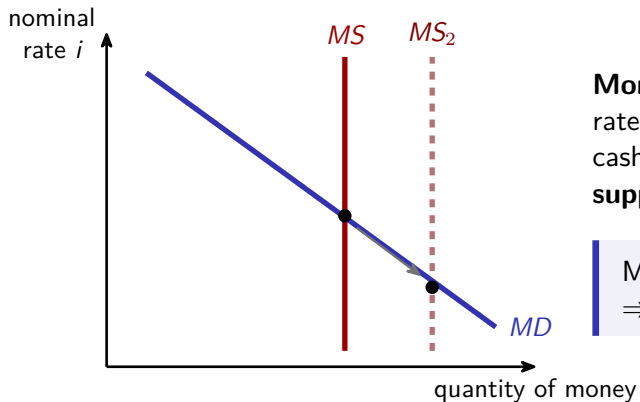
Reserve ratio = 10% so multiplier
 $= \frac{1}{0.10} = 10$.

1000 new reserves $\Rightarrow$ up to 10,000

In reality less – people hold cash, banks keep extra. This is the **maximum**.



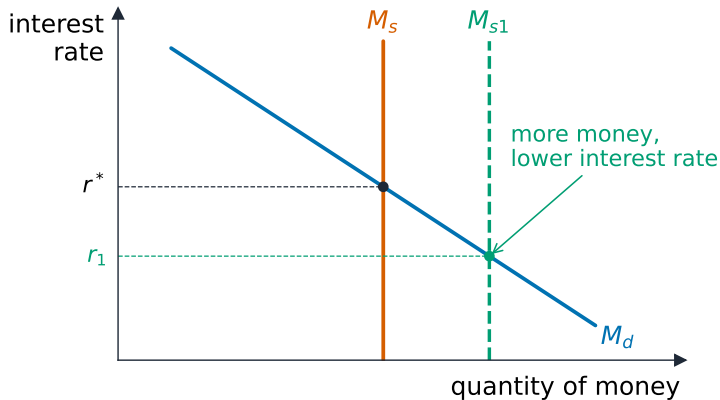
The money market



Money demand slopes **down** – a high rate is the opportunity cost of holding cash. The **central bank** sets **money supply** : a **vertical** line.

More money supply ($MS \rightarrow MS_2$)
 $\Rightarrow$ the interest rate **falls**.

The interest rate is set by the money market



The interest rate is set by the demand for and supply of money



Monetary policy

Monetary policy : the central bank moves the money supply and interest rates.

- **Expansionary**: buy bonds $\Rightarrow$ rate down (recession)
- **Contractionary**: sell bonds $\Rightarrow$ rate up (inflation)

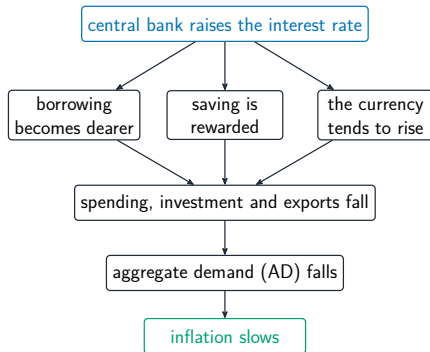
Three tools: open-market operations (main), reserve requirement, discount rate.

$MS \uparrow \Rightarrow i \downarrow \Rightarrow \text{investment} \uparrow \Rightarrow AD \text{ right.}$



Central banks steer rates and credit

How a higher interest rate works through



How a higher interest rate works through the economy to slow inflation

The Fed's tools, by name

Policy rate

The **policy rate** is the rate the central bank targets – the federal funds rate, at which banks lend reserves overnight.

Interest on reserves

Interest on reserves (IOR) is the main modern tool: paying banks on reserves sets a floor under the market rate.

Required reserve ratio

The **required reserve ratio** fixes the fraction of deposits a bank must hold, and so the size of the money multiplier.

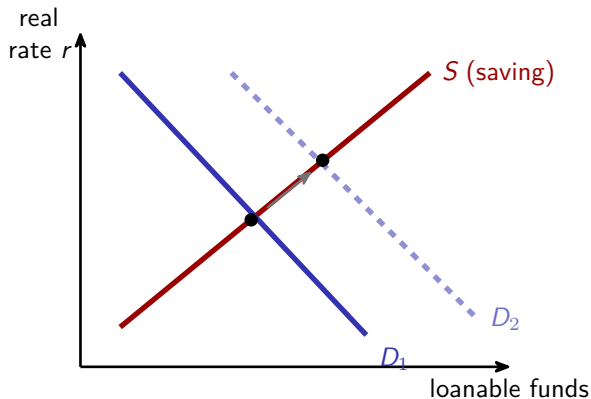
Monetary base

Open-market operations change the **monetary base** – currency plus reserves – by buying or selling government bonds.

Households hold **stocks** and bonds as alternatives to money; when the policy rate rises, holding money costs more, so they hold less of it.



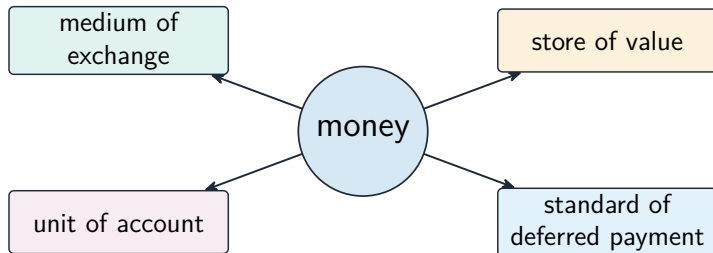
The loanable funds market



Sets the **real interest rate** : saving supplies funds (up), investment borrows them (down).

Government borrowing shifts demand right ($D_1 \rightarrow D_2$): the real rate rises and private investment is squeezed – **crowding out** .

The Definition, Measurement, and Functions of Money



The functions of money – the AP exam tests the first three (medium of exchange, unit of account, store of value); standard of deferred payment is beyond the CED

Real rates, money measures, and the modern policy tool

the real interest rate

what you actually earn in purchasing power: nominal rate minus inflation

M1

currency plus checkable deposits – the most liquid tier

M2

M1 plus savings deposits and other near-money – broader and less liquid

excess reserves

what a bank holds beyond its requirement – the basis of money creation

the modern system

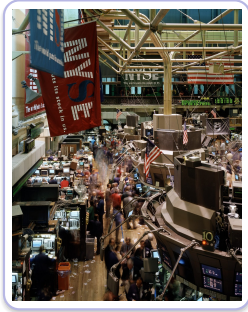
central banks run an ample-reserves system: rather than nudging the money supply, the Fed sets interest on reserves

the two directions

expansionary (easy) money lowers rates; **contractionary** (tight) money raises them

National savings = private savings + public savings, and it is the supply side of the loanable funds market.

Financial Assets



A stock exchange is where financial assets are bought and sold, setting prices from supply and demand

Exam tips

- Know money's three functions and the M1/M2 measures.
- The **money market** sets the nominal interest rate (vertical money supply); more money supply lowers the rate.
- Compute the **money multiplier** $\frac{1}{rr}$ and the maximum change in the money supply from a new deposit.
- Trace monetary policy: money supply $\rightarrow$ interest rate $\rightarrow$ investment $\rightarrow$ AD $\rightarrow$ output.
- Distinguish the money market (nominal rate) from the loanable-funds market (real rate); use the real rate = nominal – inflation.



Unit 4 – key takeaways

1

Assets

bond price and yield move opposite; risk, return, liquidity trade off

2

Money

three functions; multiplier = $1/\text{reserve ratio}$

3

Money market

MD down, *MS* vertical; more money $\Rightarrow$ lower rate

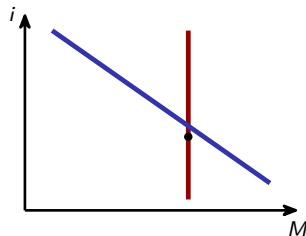
4

Loanable funds

sets the real rate; deficits crowd out investment

Check yourself

- 1 A bond's price falls. What happens to its yield?
- 2 Reserve ratio = 20%. What is the money multiplier?
- 3 The central bank buys bonds. Which way does the rate move?
- 4 Government borrows heavily. What happens to private investment?



Answers 1. it rises 2. 5 3. it falls 4. it falls (crowding out)