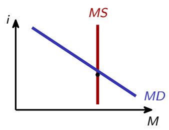
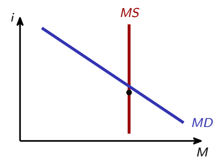
Financial Sector

AP Macroeconomics ▪ Unit 4

AP Macroeconomics



What we will cover



1 Financial assets

Three financial assets

Stock 股票: a share of ownership in a company

Bond 债券: a loan that pays fixed interest

Bank deposit 银行存款: safe, easy to spend

Every asset trades off three features:

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

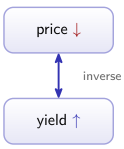
> Higher risk must pay a higher return; the most liquid assets pay least.

Bond price and yield move opposite

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

Worked example (fixed $50/year)

price $1000 \Rightarrow$ yield $= \frac{50}{1000} = 5\%$
price $500 \Rightarrow$ yield $= \frac{50}{500} = 10\%$



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

2 Interest rates

Nominal vs real interest rates

The quoted rate is **nominal** 名义利率; inflation eats its value, so what matters is the **real rate** 实际利率.

The Fisher equation

real ≈ nominal − 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%.

3 Money

What money does, and how we measure it

Money is anything widely accepted in trade. Three jobs:

- **Medium of exchange** 交换媒介 – accepted in payment
- **Store of value** 价值储藏 – holds worth over time
- **Unit of account** 记账单位 – a common price stick

M1 = cash + checking; **M2** = M1 + savings.

Fiat money 法定货币 has value by government declaration.

Fiat money works because people accept it

Banking creates money

Under **fractional reserve banking** 部分准备金银行制度 a bank keeps a fraction as **required reserves** 法定准备金 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

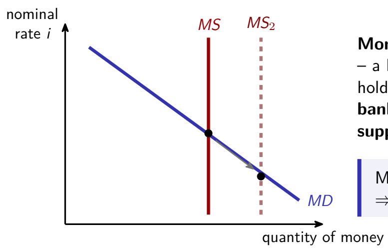
Reserve ratio $= 10\%$ so multiplier $= \frac{1}{0.10} = 10$.

1000 new reserves ⇒ up to $10{,}000$

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

4 Money market

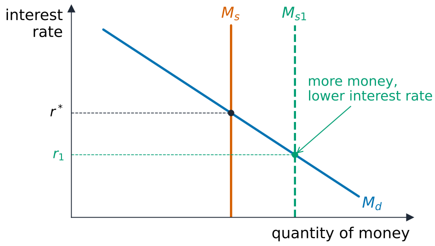
The money market



Money demand 货币需求 slopes down – a high rate is the opportunity cost of holding cash. The **central bank** 中央银行 sets **money supply** 货币供给: a vertical line.

More money supply ($MS \to MS_2$) ⇒ the interest rate falls.

The interest rate is set by the



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

5 Monetary policy

Monetary policy

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

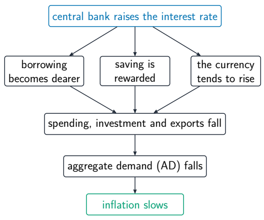
- **Expansionary**: buy bonds ⇒ rate down (recession)
- **Contractionary**: sell bonds ⇒ rate up (inflation)

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

$MS \uparrow \Rightarrow i \downarrow \Rightarrow$ investment $\uparrow \Rightarrow$ AD 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

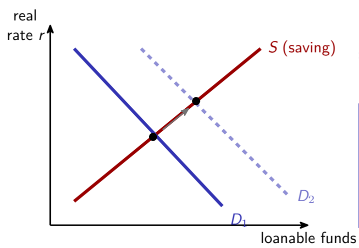
The Fed's tools, by name

Policy rate	The **policy rate** 政策利率 is the rate the central bank targets – the federal funds rate, at which banks lend reserves overnight.
Interest on reserves	**Interest on reserves (IOR)** 准备金利息 is the main modern tool: paying banks on reserves sets a floor under the market rate.
Required reserve ratio	The **required reserve ratio** 法定准备金率 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** 基础货币 – currency plus reserves – by buying or selling government bonds.

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

6 Loanable funds

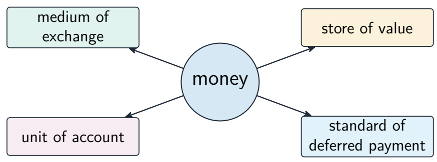
The loanable funds market



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

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

The Definition, Measurement, and Functions of Money



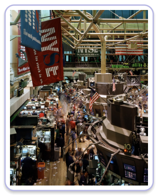
> The functions of money – the AP exam tests the first three (medium of exchange, unit of account, store of value); standard of deferred payment is beyond the CED

Real rates, money measures, and the modern policy tool

the real interest rate 实际利率	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 超额准备金	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** 准备金利息
the two directions	**expansionary** 扩张性 (easy) money lowers rates; **contractionary** 紧缩性 (tight) money raises them

> **National savings** 国民储蓄 = 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 $\to$ interest rate $\to$ investment $\to$ AD $\to$ output.
- Distinguish the money market (nominal rate) from the loanable-funds market (real rate); use the real rate = nominal − inflation.

7 Recap

Unit 4 – key takeaways

1 Assets

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

2 Money

three functions; multiplier = $1/$reserve ratio

3 Money market

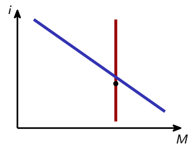
MD down, *MS* vertical; more money $\Rightarrow$ lower rate

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)