The financial system channels funds to investment projects that make the economy more productive.
Financial market: A collection of people and firms that buy and sell securities or currencies.
Security: Claim on some future flow of income, such as a stock or bond. Stock: Ownership share in a corporation. Bond: Security that promises predetermined payments at certain points in time at face value. Before that, the owner may receive coupon payments.
经济职能：1.Matching savers and investors. 2.Risk sharing: diversify the distribution of wealth among many assets.

Asymmetric Information: The problem that one side of an economic transaction knows more than the other. **Adverse Selection:** The problem that the people or firms who are most eager to make a transaction are the least desirable to parties on the other side of the transaction. Moral Hazard: The risk that one party to a transaction takes actions that harm another party.
Financial institution: Firm that helps channel funds from savers to investors. Bank: Financial institution that accepts deposits and makes private loans.
银行的职能：Reducing adverse selection; Reducing moral hazard; Investment and financing; Making private loans.
Federal reserve system is the central bank of the United State. A central bank controls an economy's money supply, which has strong effects on the financial system and the economy.
What's money: The medium of exchange; The unit of Account; Store of value. Types of money: Commodity money; Fiat money; E-money; Stored-value money.
中央银行的职能：Clearing payments; Monetary policy; Lending; Bank regulation.
Fed 控制货币供给的方式：Open market operations; Adjusting the reserve requirement ratio; Adjusting the Fed's loan rate.

|案例| Fed 应对 911 的策略：
1. The Fed adjusted the rules governing payments. Normally, the Fed charges overdraft fees to banks with negative balances in their Fed accounts. These fees were suspended from 9.11 to 9.21. This policy encouraged banks to keep making payments even if incoming funds were delayed, pushing their balances negative.
2. Starting on September 11, the Fed increased the money supply to match money demand. This action kept interest rates stable.
3. It pushed short-term rates from 3.5 percent to 3 percent, which is accomplished by increasing the money supply.

经济增长：Increases in productivity and living standards; growth in real GDP.
Financial markets and banks benefit the economy as a whole. When funds flow to good investment projects, the economy becomes more productive and living standards rise.
Saving and growth: Economic growth depends on saving rates. The more people save, the more funds are available for investment. With high saving, companies can build factories and implement new technologies. The produce more, leading to higher profits and higher wages for workers; When real GDP rises, an economy produces more goods and services, and the people in the economy can consume more. Therefore, a high level of economic growth causes living standards to rise.

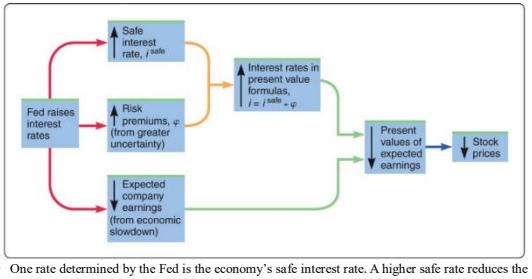
|案例| 苏联计划经济的问题：
1. Planners put too many resources into prestige sectors of the economy that symbolized economic development. These sectors were mainly in heave industry. The Soviets built too many factories to produce steel and too few to produce consumer goods.
2. Soviet planners overemphasized short-term increases in productivity. They were too hasty in trying to reach Western output. Planners neglected investments that were important for the long term.
3. A related problem was that factory managers were evaluated based on annual production quotas. Managers focused on meeting current quotas rather than increasing long-run productivity.
4. The power of government bureaucrats reduced efficiency. Plant managers were rewarded for following orders, not for thinking of innovative ways to raise output.

资产价格和利率 Future value: $1 today = $(1+i)^n$ in n years. Present value: $1 in n years = $1/(1+i)^n$ today.

经典资产价格理论：

The price of an asset equals the present value of expected income from the asset.
Rational expectations: Expected income is the best possible forecast based on all public information.
The interest rate in the present value formula is the safe interest rate plus a risk premium: i=i^safe+φ.
bond price = $C/(1+i)+C/(1+i)^2+\cdots+(C+F)/(1+i)^T$ (where C is an annual coupon payment, F is face value). stock price = $E_1/1+i+E_2/(1+i)^2+\cdots$ (E: earning per share)
Safe interest rate (i^{safe}): Interest rate that savers can receive for sure. Risk Premium (φ): Payment on an asset that compensates the owner for taking on risk.
资产价格改变的原因：Changes in interest rates affect the prices of both stocks and bonds. An asset price is the present value of expected income from the asset. A higher interest rate reduces asset prices because it reduces the present value of any income flow. (The change in the interest rate has larger effects on prices of long-term bonds than on prices of short-term bonds.)
[案例] The Fed and the Stock Market

FIGURE 3.1: The Fed and the Stock Market



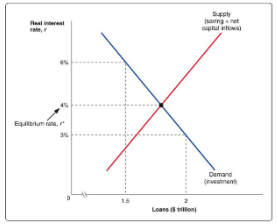
- One rate determined by the Fed is the economy's safe interest rate. A higher safe rate reduces the present value of companies' earnings;
- Higher rates also reduce spending by consumers and firms. The economy slows, reducing expected earnings for many companies.
- Some economists think there is a third effect: higher risk premiums. A slower economy not only reduces expected earnings but also raises uncertainty, because it is hard to predict the effects of the slowdown. Higher risk premiums raise the interest rates that determine present values.

Asset-price bubble: Rapid rise in asset prices that is not justified by changes in interest rates or expected asset income. When a bubble occurs, an asset price rises simply because people expect it to rise.[如何判断泡沫] P/E ratio (price-earnings): A company's stock price divided by earnings per share over the recent past. Some think high P/E ratios are evidence of bubbles.
Asset-price crash: Large and rapid fall in asset prices. Crash prevention: Margin requirements: Limits on the use of credit to purchase stocks. Circuit breaker: Requirement that a securities exchange shut down temporarily if prices drop by a specified percentage.
衡量利率和资产回报的指标：
Yield to maturity: interest rate that makes the present value of payments from a bond equal to its price. $p=C/(1+i)+C/(1+i)^2+\cdots+(C+F)/(1+i)^T$. (p: price; C: an annual coupon payment; F: face value; T: maturity; i: yield to maturity.)
Rate of return: return on a security as a percentage of its initial price. $=(P_1-P_0)/P_0+X/P_0$ (P_0: initial price; P_1: the price after you hold it for a year; X: a coupon payment C, or a dividend D.)
Nominal interest rate (i): interest rate offered by a bank account or bond. Real interest rate (r): r=i-π (π is inflation rate.) Ex ante real interest rate: $r^{ex\ ante}=i-\pi^{expected}$. (事前实际利率) Ex post real interest rate: $r^{ex\ post}=i-\pi^{actual}$. (事后实际利率) Inflation rate: percentage change in the aggregate price level over a period of time.

可贷资产理论

Real interest rates are determined by the supply and demand for loans. demand for loans = Investment supply for loans = saving + capital inflows – capital outflows = saving + net capital inflows.
真实利率对供给和需求的影响：Effect on loan demand: ↑real interest rate → ↓investment → ↓quantity of loans demand. Effect on supply: ↑real interest rate → ↑saving; ↑ real interest rate → ↑capital inflows and ↓capital outflows → ↑net capital inflows. So, ↑real interest rate → ↑saving and ↑net capital inflows → ↑quantity of loans supplied.

FIGURE 4.2: The Loan Market



[FIGURE 4.2]
• The demand curve shows how investment falls as the real interest rate raises.
• The supply curve shows that a higher interest rate raises the sum of saving and net capital inflows and therefore raises the quantity of loans demanded.

可贷资产理论下利率的决定因素：
shifts in investment (FIGURE 4.4), shifts in saving (FIGURE 4.5), shifts in net capital inflows (FIGURE 4.6).

FIGURE 4.5: An Increase in Saving

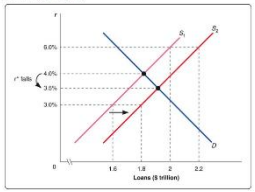
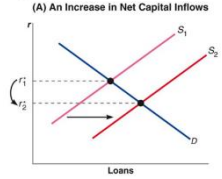


FIGURE 4.6
(A) An Increase in Net Capital Inflows

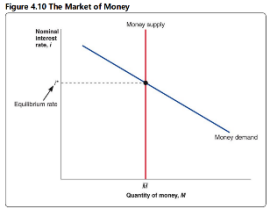


[FIGURE 4.4] Generally, any event that encourages investment shifts the demand curve for loans to the right, raising the equilibrium interest rate. Any event that makes investment less attractive does the reverse.
[FIGURE 4.5] Suppose people save more at a given interest rate, this change will raise the sum of saving and net capital inflows at a given interest rate, shifting the supply curve for loans to the right. Saving = private saving + public saving (私人存款是个人和公司存款，公共存款是政府存款)
Public saving = tax revenue – government spending (budget surplus 表示为正，budget deficit 表示为负)
[FIGURE 4.6] shows what happens if net capital inflows rise for a given interest rate. The effects are similar to those of higher saving. The sum of saving and net capital inflows rises, shifting the supply curve for loans to the right, reducing the equilibrium interest rate.
Capital flight (资本外逃): Sudden decrease in net capital inflows that occurs when foreign savers lose confidence in an economy.
外国利率变化的影响：Interest rates in different countries are connected: they tend to move in the same direction. An event that raises the interest rate in one country, such as a higher budget deficit, reduces net capital inflows to other countries. The supply of loans falls in the other countries, so their interest rates rise too.
Nominal interest rates (名义利率): $i=r+\pi^e$. (Fisher equation)

流动性偏好理论：

The nominal interest rate is determined by the supply and demand for money. (The key simplifying assumption is that only two kinds of assets exist, money and bonds. Bonds pay interest but money does not.)

Figure 4.10 The Market of Money



[FIGURE 4.10] (持有 money 是为了方便购买，持有 bonds 是为了获取利息，所以) A higher interest rate reduces the quantity of money demanded. (The money supply is fixed at a level chosen by the Fed, regardless of the interest rate.)

流动性偏好理论下改变名义利率的因素：
Shifts in money supply (decisions by the central bank), Shifts in money demand (Changes in aggregate spending, Changes in transaction technologies.).

Figure 4.11 An Increase in the Money Supply

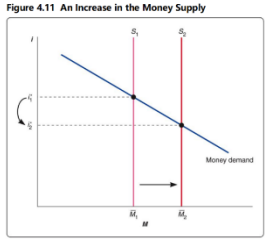
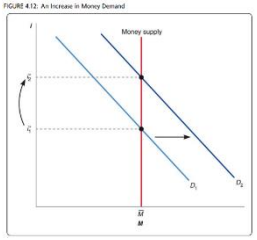


FIGURE 4.12: An Increase in Money Demand

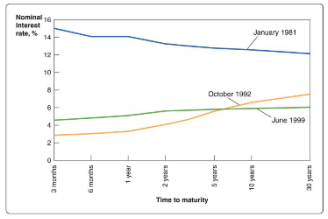


[FIGURE 4.11] When money supply increases, the money supply curve shifts to the right, reducing the equilibrium nominal interest rate.
[FIGURE 4.12] When money demand increases, the demand curve shifts to right, raising the equilibrium interest rate.

利率的期限结构：Relationships among interest rates on bonds with different maturities.
Factors that explain differences among interest rates: Maturity, Default risk, Liquidity, Taxation.
• The 2-year rate is the average of the current 1-year rate and the 1-year rate in the following year: $i_2(t)=[i_1(t)+i_1(t+1)]/2$;
• The n-period interest rate is the average of one-period rates in the current period and the next n-1 periods: $i_n(t)=[i_1(t)+i_1(t+1)+\cdots+i_1(t+n-1)]/n$.
Accounting for risk: $i_n(t)=[i_1(t)+Ei_1(t+1)+\cdots+Ei_1(t+n-1)]/n+\tau_n$. ($\tau_n$ is the term premium for an n-period bond, that is extra return on a long-term bond that compensates for its riskiness; E means expected.)
Yield curve (收益曲线): The term structure of interest rates can be summarized in a graph called the yield curve, which shows interest rates on bonds of various maturities at a given point in time.
The shape of the curve depends on expectations about future interest rates. (Inverted yield curve: downward-sloping yield curve signifying that short-term interest rates exceed long-term rates.)

|案例|Inverted Yield Curve
An inverted curve occurs only if short-term interest rates are expected to fall by a large amount. Why might this expectation arise?
Historically, most inverted yield curves have been caused by the Fed's monetary policy – specifically, by efforts to reduce inflation. To fight inflation, the Fed slows the growth of the money supply. This action raises short-term interest rates, as we can see with the liquidity preference theory. Higher interest rates reduce economic growth temporarily, and slower growth reduces inflation. In such an episode, short-term interest rates rise temporarily. People expect the central bank to end its policy in the future, reducing short-term rates. In fact, these rates are likely to fall by more than they have risen, ending up lower than they were before the central bank acted. The reason is that inflation will probably fall, reducing nominal interest rates through the Fisher equation. The expected decrease in rates may be large enough to invert the yield curve.

FIGURE 4.15: Some Examples of Yield Curves



In Figure 4.15, we saw that the yield curve for Treasury securities was inverted in 1981. At that time inflation had been running near 10 percent, and the Federal Reserve was determined to reduce it. The Fed slowed money growth, raising the 3-month Treasury bill rate to 15 percent. The yield curve inverted because people expected large decreases in inflation and interest rates. Expectations turned out to be correct: the 3-month T-bill rate fell to 8 percent in 1983 and 6 percent in 1986.
Another inverted yield curve occurred at the end of 2000. The Fed was worried that inflation might rise, because output had been growing at an unusually rapid pace. The Fed raised short-term interest rates to contain inflation, and the yield curve mildly inverted.

|案例| The Paradox of Japanese Interest rate
Low bond ratings usually produce high interest rates, but Japan is an exception. Why hasn't default risk produces higher rates?
Part of the answer is the inflation rate. In much of the 2000s, Japanese inflation was negative; over 2002–2006, it hovered around −1 percent. So the real interest rate on government debt, i − π, was about 1.4% – (−1%) = 2.4%. A real rate of 2.4 percent is not unusually low.
Still, one might expect default risk to push the real rate higher. In Japan, the effect of default risk has been offset by two factors that push interest rates down. Both are part of the loanable funds theory of interest rates.
The first factor is high saving. Over 2002–2006, private saving in Japan averaged 26 percent of GDP, compared to 15 percent in the United States. As a result, total saving was high despite government budget deficits. High saving raises the supply of loans, reducing the real interest rate.
The other factor is investment. Japan's slump eroded confidence in the economy, reducing firms' desire to invest. Low investment means a low demand for loans, which also reduces the real interest rate.

Securities and Stock

债券 (Bonds): Bonds are long-term debt securities that are issued by government agencies or corporations. The issuer of a bond is obligated to pay interest payments periodically and the par value at maturity. (treasury and federal agency bonds, municipal bonds, corporate bonds.)
Stock index quotations: Down Jones Industrial Average; Standard & Poor's 500; Wilshire 5000 Equity Index; New York Stock Exchange Index; Nasdaq Composite Index.
Stock valuation methods: Price-Earning method; Dividend discount model; Free cash flow model.
影响股价的因素：Economic factors; Market-related factors; Firm-specific factors.
汇率：
Purchasing power parity: theory of exchange rates based on the idea that a currency purchases the same quantities of goods and services in different countries; implies that real exchange rates are constant over time.
Supply of dollars = imports + capital outflows; Demand for dollars = exports + capital inflows.
supply of dollars = demand for dollars → imports + capital outflows = exports + capital inflows. → exports – imports = capital outflows – capital inflows → net exports = net capital outflows. (NX = NCO)
真实汇率的影响：A rise in real exchange rate means that U.S. goods become more expensive compared with foreign goods. 外国商品变得更受欢迎，所以进口增加，出口减少。↑ε → ↓exports, ↑ imports → net exports.
影响真实汇率的因素：

Figure 6.7
(A) A Rise in Net Capital Outflows

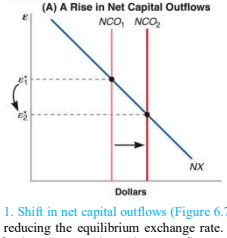
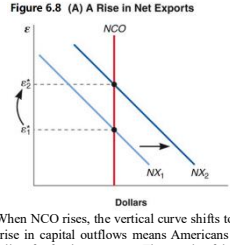


Figure 6.8 (A) A Rise in Net Exports



1. Shift in net capital outflows (Figure 6.7): When NCO rises, the vertical curve shifts to the right, reducing the equilibrium exchange rate. (R rise in capital outflows means Americans buy more foreign assets. To do so, they must first trade dollars for foreign currency. The supply of dollars rises, pushing down the price of the dollar.) 包括 **Changes in interest rates**: if rates rise in U.S., U.S. assets will become more attractive. **Changes in confidence**; **Changes in expected exchange rates.**
2. Shifts in net exports (Figure 6.8): net exports rise for each real exchange rate, shifting the NX curve to the right, and the equilibrium real exchange rate rises. (To buy more U.S. goods, foreigners need more dollars, and higher demand for the dollar pushes up its price.) 包括 **Foreign recessions; Changes in commodity prices.**

Banking

Subprime lenders: Companies that lend to people with weak credit histories.
Bank's balance sheets: Financial statement that summarizes an entity's assets, liabilities, and net worth at a given date.

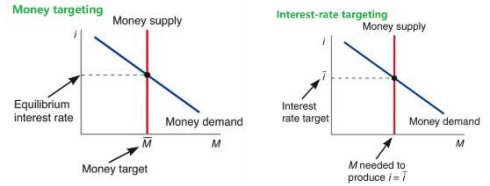
TABLE 9.1: Consolidated Balance Sheet, U.S. Commercial Banks

On March 31, 2008 (Billions of Dollars)			
Assets		**Liabilities and Net Worth**	
Cash Items	$302.9	Checking Deposits	$612.8
Reserves (Vault Cash + Deposits at Fed)		Nontransaction Deposits	6,260.6
		Savings Deposits	
Deposits at Other Banks		Small Time Deposits	
In Process of Collection		Large Time Deposits	
Securities	2,576.8	Borrowings	2,305.6
Loans	7,282.5	Other Liabilities[1]	848.4
Other Assets*	1,019.6	Net worth	1,154.4
Total	$11,181.8	Total	$11,181.8

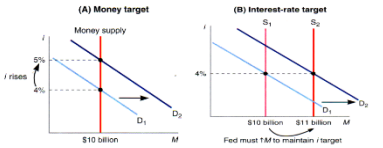
Cash items: this category includes several components. One component is vault cash (准备金), another is deposits in banks' accounts at the Federal Reserve. The sum of these two components is called reserves. Securities: include treasury bonds, municipal bonds, highly rated corporate bonds, and securities issued by government-sponsored enterprises. Loans: loans are bank's most important asset class, accounting for 65% of total assets. Banks make loans to several types of borrowers: consumers, business, governments, and other banks.
Checking deposits: This category covers deposits that customers use to purchase goods and services. People spend these deposits by writing checks, swiping debit cards, and authorizing electronic payments. Nontransaction deposits: include both savings deposits and time deposits. Borrowings: Federal funds, repurchase agreement, bonds, loans from the Fed. Net worth: asset minus liabilities, ensuring that the two sides of the balance sheet add up to the same amount.
Off-balance sheet activities (表外业务): bank activities that produce income but are not reflected in the assets and liabilities reported on the balance sheet.
Income statement (损益表): Financial statement summarizing income, expenses, and profits over some time period.
资金来源: Core deposits: banks' inexpensive sources of funds (checking deposits, saving deposits and small time deposits); Purchased funds: banks' inexpensive sources of funds (borrowings and large time deposits.) 收入来源: Commercial and industrial loans; Real estate loans; Consumer loans; Off-balance-sheet activities.
风险：Liquidity risk: The risk that withdrawals from a bank will exceed its liquid assets; Credit risk: the risk that loans will not repaid. Interest-rate risk: Instability in bank profits caused by fluctuations in short-term interest rates. Market risk: risk arising from fluctuations in asset prices. Economic Risk: risk arising from fluctuations in the economy's aggregate output.
破产 Insolvency: Liabilities exceed assets, producing negative net worth. Equity ratio (ER): capital/assets. The equity ratio and the return on equity (股本回报率) ROE = profits/capital = (profits/assets) / (capital/assets) = ROA / ER. (ROA 资产回报率)
危机的原因：Rising interest rates; The commercial real estate bust; Poor government regulation.
Bank run: Sudden, large withdrawals by depositors who loss confidence in a bank. It runs out of liquid assets and cannot borrow to cover all the withdrawals. The bank is forced to sell its loans at fire-sale prices, reducing its capital. If the bank loses enough, capital falls below zero: the run causes insolvency.
Deposit insurance (存款保险): Government guarantee to compensate depositors for their losses when a bank fails.
Moral hazard: Misuses of deposits; The problem with deposit insurance; Limits on insurance.
监管：Call report: Quarterly financial statement, including a balance sheet and income statement, that banks must submit to regulators as part of bank supervision. Bank examination: Visit by regulators to a bank's headquarters to gather information on the banks activities. CAMELS ratings: Evaluations by regulators of a bank's insolvency risk based on its capital, asset quality, management, earnings, liquidity, and sensitivity.

Money and Economy

Money supply: M = C + D (M: money supply. C: currency in circulation, D: checking deposits.) The Fed does not directly create the money supply. The Fed issues currency, but checking deposits are created by banks and their customers. What the Fed does create is the **monetary base B**.
The Monetary Base B, is the sum of two quantities: currency in circulation, **C**, and bank reserves, **R. B=C+R.** (Bank reserves are **vault cash** plus **bank's deposits at the Fed**.)
Create the base: Open-market operations: Purchases or sales of bonds by a central bank.($100 purchase of bonds by Fed makes B rise $100) Loans: Lend money to a bank.($100 loan from Fed to bank makes B rise $100)
Money multiplier m : M/B = (C+D) / (C+R) = [(C/D)+1] / [(C/D) + (R/D)], M = B[(C/D)+1] / [(C/D) + (R/D)] = mB. Money multiplier m is the ratio of the money supply M to the monetary base B.
The Fed's Monetary Tools (**Fed 控制货币供给的三个工具**): The Fed has several tools for controlling the money supply: open-market operations, lending policies and reserve requirements. The first two affect the monetary base B, and the third affects the money multiplier m. 1.Open-market operations: M = mB, ↑ B → ↑ M. 2.Lending policies: ↑ discount rate→ ↓ discount loans→ ↓ B ↓ M. 3.Reserve requirements: ↑ required reserve ratio→ ↑ (R/D)→ ↓ m→ ↓ M.
货币政策的两种方法：1.Money targeting: Approach to monetary policy in which the central bank chooses a level for the **money supply** and adjusts it when economic conditions change. 2.Interest-rate targeting: Approach to monetary policy in which the central bank chooses a level for the **nominal interest rate** and adjusts it when economic conditions change.. The central bank sets the money supply at the level needed to hit the interest-rate target.
Fed 选用哪种方法：The Fed targets the **interest rate**, which keeps rates stable when money demand shifts, which in turn stabilizes output.



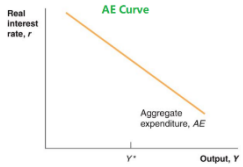
In this example, the money-demand curve shifts to the right. Under money targeting, the Fed keeps the money supply fixed and the interest rate rises (A). Under interest-rate targeting, the Fed raises the money supply to keep the interest rate fixed (B).

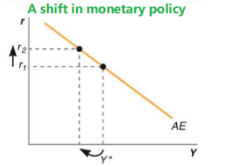


Business Cycle: Short-run (year to year) fluctuations in an economy's output and unemployment.
Output: The level of real Gross Domestic Product. Potential output (Y*): The normal or average level of output, as determined by resources and tech. Unemployment rate (U). Natural rate of unemployment (U*): Normal or average level of unemployment.
Economic boom: Period when actual output exceeds potential output.
Recession: Period when actual output falls below potential output.
Output gap: Percentage difference between actual and potential output: (Y-Y*)/Y*.
奥昆法则：(Y-Y*)/Y* = -2(U-U*) Relation between output and unemployment over the business cycle: the output gap falls by 2 percentage points when unemployment rises 1 point above the natural rate.

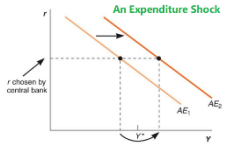
Aggregate Expenditure (AE):

Total spending on an economy's goods and services by people, firm, and governments. ↑AE→ ↑Output→ ↓Unemployment. Y = AE = Consumption (C) + Investment (I) + Government purchases (G) + Net exports (NX).
AE curve: the negative short-run relationship between the **real interest rate** and **output**.



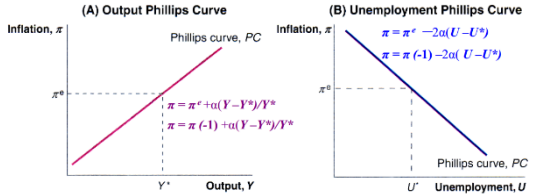


Expenditure Shocks: Event that changes aggregate expenditure for a given interest rate, shifting the AE curve. Including government spending, taxes, consumer confidence, new tech, changes in bank lending, foreign business cycles.
Countercyclical monetary policy: Adjustments of the real interest rate by the central bank to offset expenditure shocks and thereby stabilize output. (negative expenditure shock (AE 曲线左移), positive expenditure shock (AE 曲线右移).)

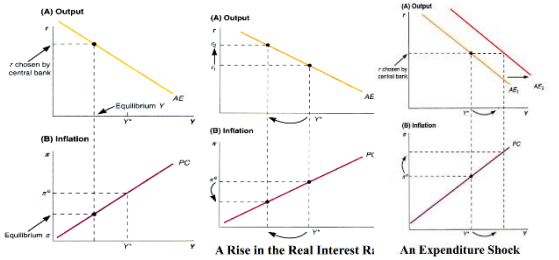


Phillips curve:

The positive short-run relationship between output and inflation; also, the negative short-run relationship between unemployment and inflation.

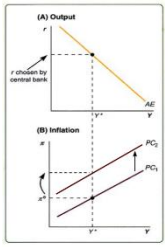


Supply shocks: Event that causes a major change in firms' production costs, which in turn causes a short-run change in the inflation rate.
将两条曲线结合起来：The central bank chooses the real interest rate. The real interest rate and AE curve determine equilibrium output. Then output and the Philip curve determine inflation.

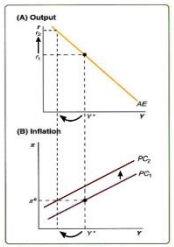


真实利率提高：This action moves the economy along the AE curve, pushing output below potential. Lower output moves the economy along the Phillips curve, **reducing inflation** below expected inflation.
支出冲击：A shock raises AE, such as a tax cut or a rise in confidence. The shock shifts the **AE curve to the right**. Higher output moves the economy along the Phillips curve to **higher inflation.**
供给冲击（下两图）：An adverse supply shock, such as a rise in oil price. If the central bank chooses accommodative monetary policy, acts to keep the **real interest rate constant**. Since the shock does not affect the AE curve, output stays at potential. The adverse supply shock cause the Phillips curve to shift up, leading to **higher inflation.** While if the central bank chooses nonaccommodative monetary policy. It acts to keep i**nflation constant.** It **raises the real interest rate**, which **reduces output.** The Phillips curve shifts up, but the effect of this shift on inflation is offset by the effect of lower output. Inflation stays at π^e.
Long-term monetary neutrality: Principle that monetary policy cannot permanently affect real variables.
Long-run monetary neutrality: Principle that monetary policy cannot permanently affect real variables.

什么会改变资产价格：Wealth and consumption; Stock prices and investment; Effects on net worth and collateral. 什么会改变银行借款：Bank lending shifts when asset prices change. Risk perception: Banks refuse to borrows who appear too risky. Regulation: Bank regulators usually discourage lending with too much risk. Capital: A fall in capital that forces banks to reduce lending is called a capital crunch, which is one possible cause of a credit crunch.
Investment multiplier: Effect of firms' earnings on investment, which magnifies fluctuations in aggregate expenditure.



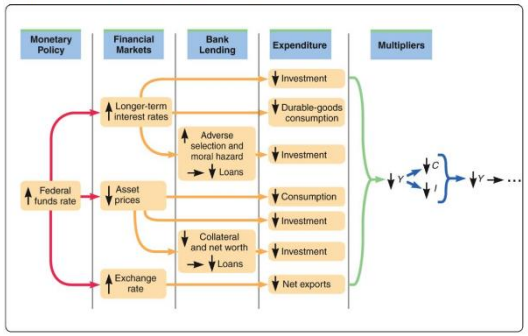
An Adverse Supply Shock with Accommodative Policy



An Adverse Supply Shock with Nonaccommodative Policy

The monetary transmission mechanism (**货币政策传导机制**) is the process through which monetary policy affects output. It involves both major parts of the financial system, financial markets and banks. Figure 13.7 shows what happens when monetary policy tightens, meaning the Fed raises its federal funds rate target, as shown at the left. This action triggers a series of events that lead to lower output, shown at the right in the figure.

FIGURE 13.7: The Monetary Transmission Mechanism



Time lags: In reality, monetary policy affects the economy through processes that take time. It takes time for the interest rate to affect output and for output to affect inflation. Theses time lags reduce the Fed's ability to control the economy. A disinflation with time lags – time lags in the AE and Phillips curves slow down the process of disinflation, reduce the Fed's ability to control the economy.
Countercyclical policy with time lags.
Fiscal vs Monetary policy: Policymakers have two tools for stabilizing the economy. One tool is monetary policy, which is controlled by the Federal Reserve. The other is fiscal policy, the choice of taxes and government spending.

Inflation & Deflation

Velocity of Money: Ratio of nominal GDP to the money supply (V=total spending / M), showing how quickly money moves through the economy. This variable equals the price level (P) times real output (Y), so V = PY / M.
Quantity Equation of Money: Relationship among the money supply, velocity, and nominal GDP: MV = PY.

Inflation rate: the growth rate of the price level, which means the percentage change from one year to the next. MV = PY → % change in MV = % change in PY → % change in M + % change in V = % change in P + % change in Y. π = % change in M + % change in V - % change in Y.
CPI (consumer price index) is the most commonly uses and closely watched measure of inflation. The index is designed to answer the following question: how much more would it cost today to purchase the same basket of goods and services that was bought at some fixed point in the past. Inflation, as measured by the CPI, is the percentage change in the price of this basket of goods.
From money growth to inflation: ↑M growth → ↓I(名义利率) → ↓r → ↑Y → ↑π.
The worldwide decline in inflation: First, policymakers have become convinced of the long-run neutrality of monetary policy. The second development is that experience with inflation has made policymakers dislike it more. Eventually, high inflation created a backlash against overly expansionary policy.
The inflation fallacy: 1.Inflation means that prices of goods and services rise—things become more expensive. People cannot afford to buy as much as before, so their standard of living suffers. inflation increases all the economy's prices—including wages and salaries. 2.Workers demand wage increases to compensate for inflation, and firms can afford to raise wages because prices are higher. If inflation rises by 1 percent, wage growth normally rises by 1 percent as well. Wages keep pace with inflation, so people can afford the same things as before.
Inflation Uncertainty: 1. creates risk in loan markets. When inflation changes unpredictably, the ex post real interest rate differs from the ex ante rate. Wealth is redistributed between borrowers and lenders, which can harm the economy. 2.discourages both borrowers and lenders from entering the loan market. Each group is deterred by the risk of redistributions. The financial system becomes less effective at channeling funds to investors, hurting economic growth.

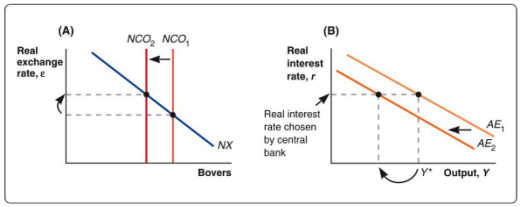
Deflation: sustained period of negative inflation. When the shock occurs, inflation is zero and the target nominal interest rate that central bankers control is close zero. Under these conditions, the decline in aggregate demand still drives real output below potential output, placing downward pressure on inflation. Nut when inflation falls, it drops below zero so that on average, prices are falling. The result is deflation.
Liquidity trap: Situation in which output is below potential at a nominal interest rate of zero (a real interest rate of -π), eliminating the central bank's usual ability to raise output and inflation. A liquidity trap with deflation and low output can perpetuate itself. Deflation raises the lower bound on the real interest rate, -π; a high real interest rate keeps output low; and low output causes further deflation.
The irrelevance money growth: The money demand curve becomes horizontal at a nominal interest rate of zero. In a liquidity trap, money-market equilibrium occurs on the horizontal part of money demand, and an increase in the money supply does not change the interest rate.

货币政策

Explicit inflation target: A rate or range that a central bank announces as its long-run goal for inflation.
Inflation and output stability: One goal of monetary policy is to dampen fluctuations in aggregate output, keeping it close to potential output.
The Taylor Rule: Formula for adjusting the interest rate to stabilize the economy: $r = r^n + a_y\overline{Y} + a_\pi(\pi - \pi^T)$. r^n is neutral real interest, the interest that makes output (Y) equal potential output (Y*). $\overline{Y}$ is output gap: $\overline{Y} = (Y - Y*)/Y*$. π^T is the central bank's long-run inflation target. The coefficient a_y and a_pi measure how strongly the interest rate responds to the output and inflation gaps.
Making interest-rate policy (Fed 经济学家的任务): Monitoring the economy: much of this task consists of estimating the current level of output. Forecasts: forecast current economy's future. Policy options: The Blue Book discusses policy options. It outlines three possible interest-rate decisions, and discusses the pros and cons of each choice. The FOMC Meeting: The policy process culminates every 6 weeks with a meeting of the Federal Open Market Committee.
应对泡沫: Central banks have a tool for dampening bubbles: interest-rate increases. Higher rates reduce asset prices by reducing the present value of future asset income. [Why Not Respond to Asset Prices?] 1.To respond to bubbles, central banks must identify them. This is hard. Rapid increases in asset prices might reflect bubbles, or they might reflect increases in expected earnings. 2.The effects of interest rates on bubbles are unpredictable. Depending on market sentiment, or it might shake confidence and cause a big decline. In the worst case. an attempt to contain a bubble might cause the kind of crash that the central bank wants to prevent. 3.A policy tightening aimed at asset prices has adverse side effects. It reduces aggregate expenditure and raises unemployment.
The relationship between monetary policy and exchange rates is complex. Sometimes changes in policy cause changes in exchange rates. An increase in interest rates by the central bank causes a fall in net capital outflows (capital outflows minus capital inflows). As a result, the currency appreciates. On the other hand, many movements in exchange rates are not caused by central banks. They can arise, for example, from shifts in the confidence of asset holders or changes in commodity prices.

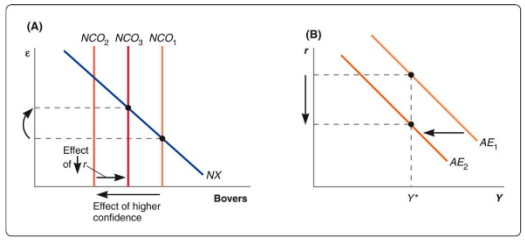
Cost of Exchange-Rate Volatility: The appreciation benefits individuals and firms that import goods. Depreciation benefits exporters and foreign-asset holders. Volatile exchange rates reduce international trade, Volatile exchange rates also reduce international capital flows.

FIGURE 17.1: Rising Confidence in Boversia



When Boversia's assets become more attractive to foreign savers, its net capital outflows fall and its real exchange rate rises (A). The higher exchange rate reduces net exports, shifting the aggregate expenditure curve to the left. If the central bank holds the real interest rate constant, output falls (B).

FIGURE 17.2: Rising Confidence and Output Stabilization



As in Figure 17.1, higher confidence in Boversia shifts both the *NCO* curve and the *AE* curve to the left. But now the central bank reduces the real interest rate to keep output at potential (B). This action shifts the *NCO* curve to the right, but does not fully offset the shift caused by higher confidence. The real exchange rate rises above its initial level (A).

FIGURE 17.3: Effects on Components of Spending

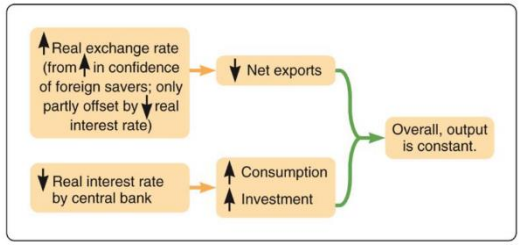
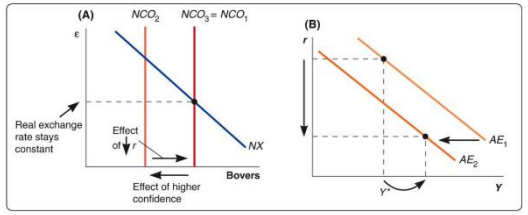


TABLE 17.1: Exchange Rate Policies and Their Pitfalls

Policy Tool	Drawback
Interest-rate adjustments	May destabilize output
Foreign-exchange interventions	Questionable effectiveness
Capital controls	Impede efficient flow of savings
Policy coordination	Countries unlikely to agree

The time-consistency problem: Situation in which someone has incentives to make a promise but later renege on it; because of these incentives, others don't believe the promise.

FIGURE 17.4: Stabilizing the Exchange Rate



Here, increased confidence shifts the *NCO* curve to the left, but the central bank lowers the interest rate enough to reverse the shift completely. The real exchange rate doesn't change (A). The lower interest rate pushes output above potential despite the inward shift of the *AE* curve (B).

Foreign-exchange interventions: Purchases and sales of foreign currencies by central banks.
International reserves: Liquid assets held by central banks that are denominated in foreign currencies.
Figure 17.6 shows the relationship between foreign-exchange interventions and international reserves. If a central bank trades its own currency for a foreign one, it uses the proceeds to increase its reserves. For example, the Fed might trade dollars for euros, and use the euros to buy European bonds.

FIGURE 17.6: Foreign-Exchange Interventions and International Reserves

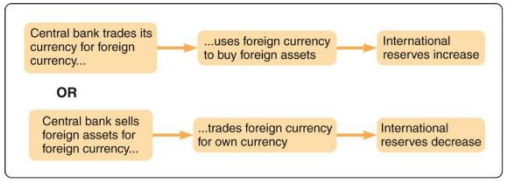
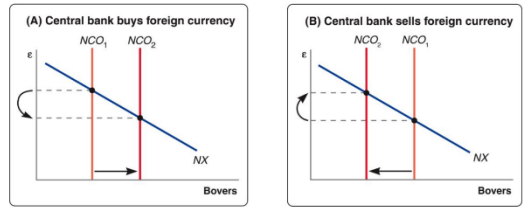
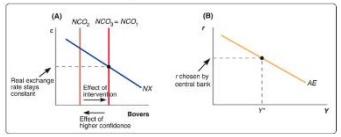


FIGURE 17.7: Interventions and the Exchange Rate



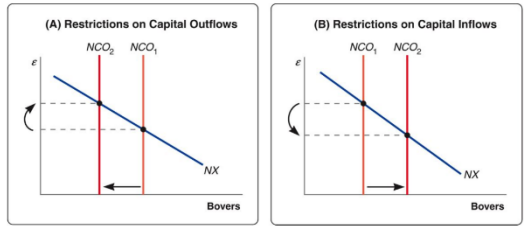
Purchases of foreign currency by the central bank raise net capital outflows and reduce the real exchange rate (A). Sales of foreign currency have the opposite effects (B).

FIGURE 17.8: Interventions and Exchange-Rate Stabilization



Here, increased confidence shifts the *NCO* curve to the left, but the central bank reverses the shift by purchasing foreign currency. The exchange rate does not change (A). The *AE* curve does not move and the central bank holds the interest rate constant, so output does not change (B).

FIGURE 17.9: Capital Controls and the Exchange Rate



If Boversia's government or central bank imposes restrictions on capital outflows, the *NCO* curve shifts to the left and the exchange rate rises (A). Restrictions on capital inflows have the opposite effects (B).

Capital controls: regulations that restrict capital inflows or outflows.
Financial Crises and the Economy: Financial crises have both direct and indirect costs. The direct costs include losses to asset holders when asset prices fall. They also include losses from financial institution failures. Owners of a failed institution lose their equity, and the institution's creditors lose funds they have lent. The greatest dangers from financial crises are their indirect effects. A crash in asset prices can cause a sharp fall in aggregate expenditure. Asset-price crashes also reduce bank lending. In the short run, expenditure determines output, so output falls. A crisis can cause a deep recession.
Inflation Expectation: There are two leading theories. One is adaptive expectations, which says that expectations are determined by past inflation. The other theory is rational expectations, which says that people make the best possible forecasts of inflation based on all available information.