


Money, Banking and Financial System




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MACROECONOMICS

- National income accounts
- Aggregate Demand and Aggregate Supply
- Inflation and Unemployment
- Financial, Money and Banking system
- Macroeconomic policies

1

Financial Institutions

- The **financial system**: the group of institutions that helps match the saving of one person with the investment of another.
- **Financial markets**: institutions through which savers can directly provide funds to borrowers. Examples:
  - The Bond Market.
    A **bond** is a certificate of indebtedness.
  - The Stock Market.
    A **stock** is a claim to partial ownership in a firm.

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Financial Institutions

- **Financial intermediaries**: institutions through which savers can indirectly provide funds to borrowers. Examples:
  - Banks
  - **Mutual funds** – institutions that sell shares to the public and use the proceeds to buy portfolios of stocks and bonds

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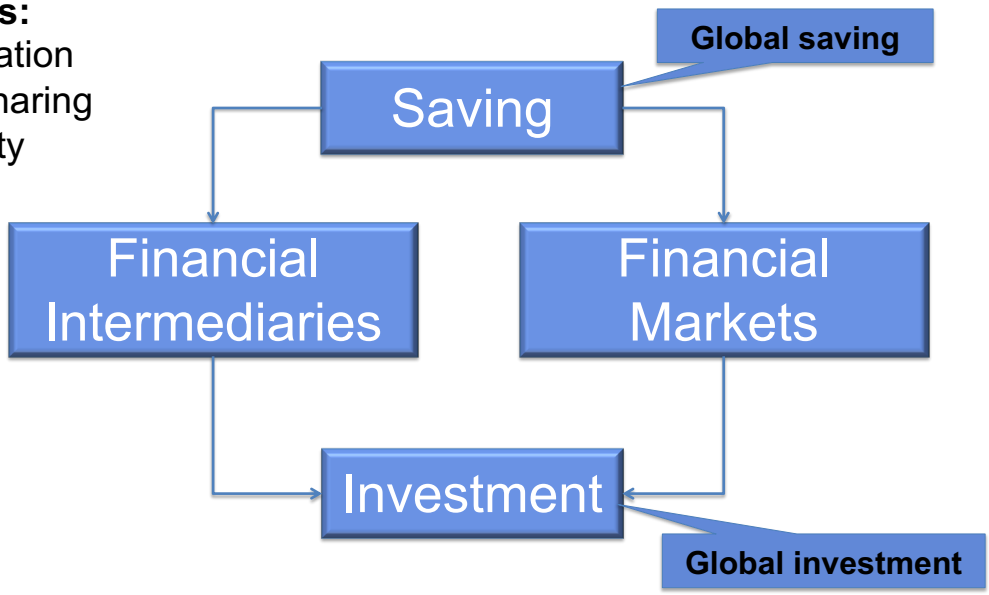
Financial System

Services:
- Information
- Risk sharing
- Liquidity



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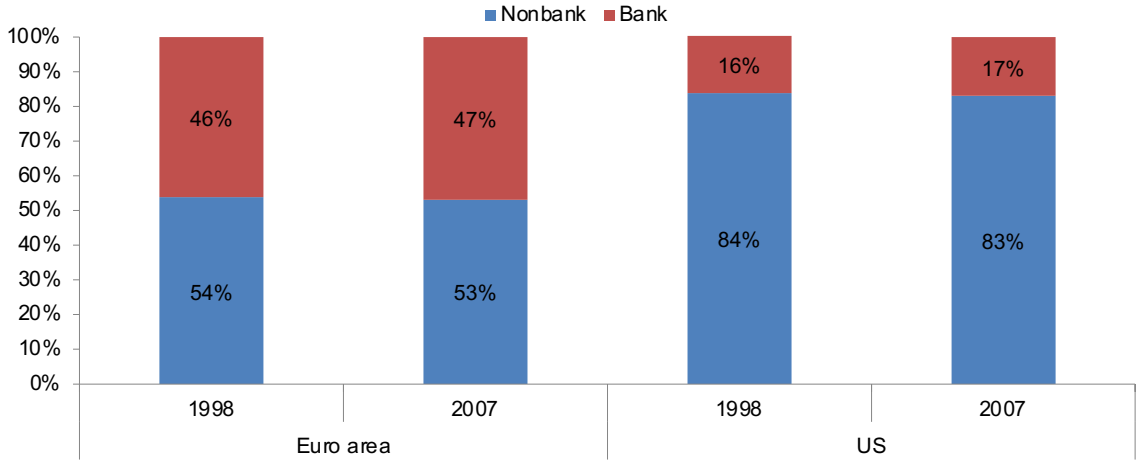
Source of Capital for Corporations

The size of capital markets related to the private sector in the euro area and the United States



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Source: ECB monthly Bulletin April 2009

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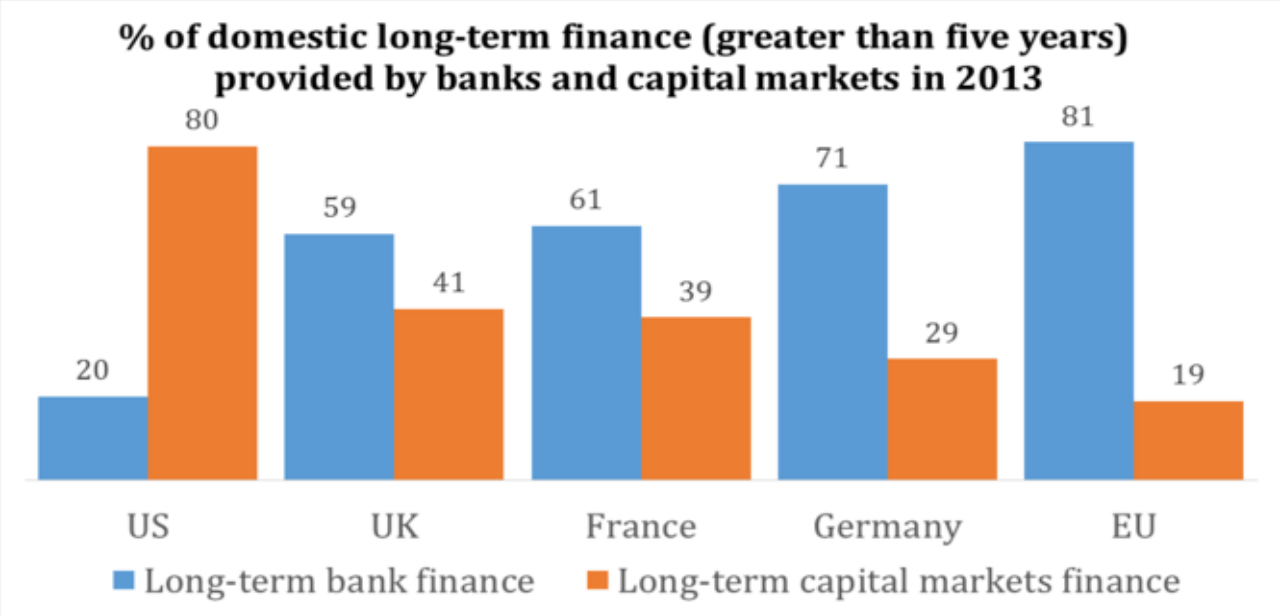

Source: Direct lending dawns in Europe
http://globalriskinsights.com/2016/03/direct-lending-dawns-in-europe/

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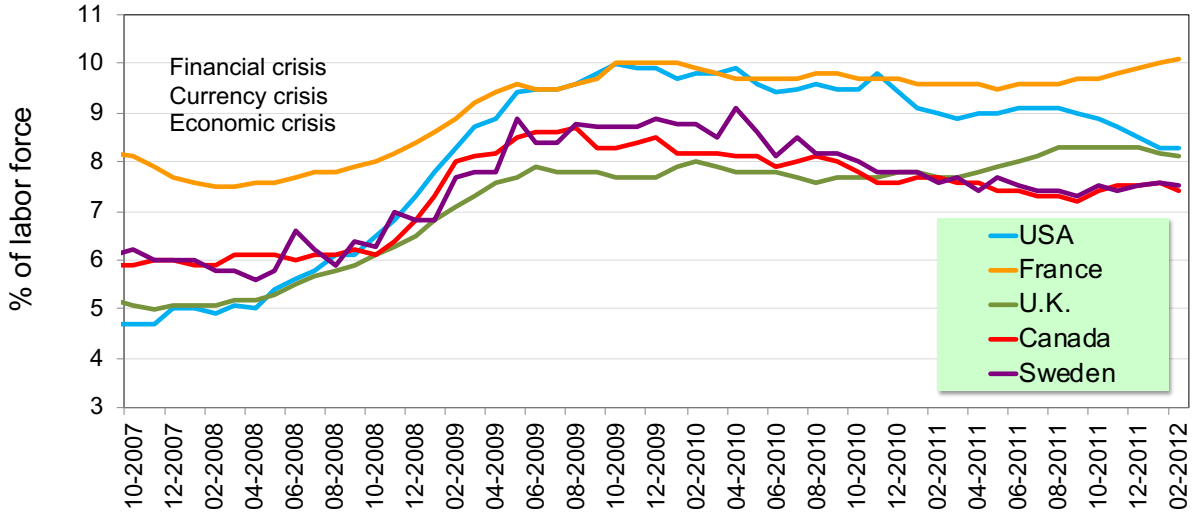
The Financial Crisis of 2008–2009

- A financial crisis led to a deep recession in the U.S. and around the world. A few unemployment rates:



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1. **The primary economic function of the financial system is to**
a. keep interest rates low.
b. provide expert advice to savers and investors.
c. match one person's consumption expenditures with another person's capital expenditures.
d. match one person's saving with another person's investment.
2. **Most entrepreneurs do not have enough money of their own to start their businesses. When they acquire the necessary funds from someone else,**
a. their consumption expenditures are being financed by someone else's saving.
b. their consumption expenditures are being financed by someone else's investment.
c. their investments are being financed by someone else's saving.
d. their saving is being financed by someone else's investment.

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3. **If you were to start a business delivering documents, you might need to purchase cell phones, bicycles, desks, and chairs.**
a. These purchases are called capital investment. If you raise the funds from others to purchase them you are a saver.
b. These purchases are called capital investment. If you raise the funds from others to purchase them you are a borrower.
c. These purchases are called consumption. If you raise the funds from others to purchase them you are a saver.
d. These purchases are called consumption. If you raise the funds from others to purchase them you are a borrower.

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4. Compared to bondholders, stockholders

a. face higher risk and have the potential for higher returns.
b. face higher risk but receive a fixed payment.
c. face lower risk and have the potential for higher returns.
d. face lower risk but receive a fixed payment.

5. The economy's two most important financial markets are

a. the investment market and the saving market.
b. the bond market and the stock market.
c. banks and the stock market.
d. financial markets and financial institutions.

6. Two of the economy's most important financial intermediaries are

a. suppliers of funds and demanders of funds.
b. banks and the bond market.
c. the stock market and the bond market.
d. banks and mutual funds.

7. When economists refer to investment, they mean the purchasing of stocks and bonds and other types of saving

a. True
b. False

Different Kinds of Saving

Private saving

= The portion of households' income that is not used for consumption or paying taxes

= **Y – T – C**

Public saving

= Tax revenue less government spending

= **T – G**

Public saving > 0 => budget surplus

Public saving < 0 => budget deficit

National Saving

National saving

= private saving + public saving

= $(\mathbf{Y} - \mathbf{T} - \mathbf{C}) + (\mathbf{T} - \mathbf{G})$

= $\mathbf{Y} - \mathbf{C} - \mathbf{G}$

= the portion of national income that is not used for consumption or government purchases

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Saving and Investment

Recall the national income accounting identity:

$\mathbf{Y} = \mathbf{C} + \mathbf{I} + \mathbf{G} + \mathbf{NX}$

For the rest of this chapter, focus on the closed economy case:

$\mathbf{Y} = \mathbf{C} + \mathbf{I} + \mathbf{G}$

Solve for $\mathbf{I}$:

$$\mathbf{I} = \mathbf{Y} - \mathbf{C} - \mathbf{G} = \overbrace{(\mathbf{Y} - \mathbf{T} - \mathbf{C}) + (\mathbf{T} - \mathbf{G})}^{\text{national saving}}$$

Saving = investment in a closed economy

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Budget Deficits and Surpluses

Budget surplus

= an excess of tax revenue over govt spending

= **T** – **G**

= public saving

Budget deficit

= a shortfall of tax revenue from govt spending

= **G** – **T**

= –(public saving)

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ACTIVE LEARNING 1

A. Calculations

- Suppose GDP equals $10 trillion, consumption equals $6.5 trillion, the government spends $2 trillion and has a budget deficit of $300 billion.
- Find public saving, taxes, private saving, national saving, and investment.

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ACTIVE LEARNING 1

Answers, part A

Given:

Y = 10.0, **C** = 6.5, **G** = 2.0, **G** – **T** = 0.3

Public saving = **T** – **G** = – 0.3

Consume all: PriS=10 - 1.5 - 6.7 = 1.8
Save all: PriS = 10 - 1.5 - 6.5 = 2
Save ¼, C ¾: PriS = 10 -1.5 – 6.65= 1.85

Taxes: **T** = **G** – 0.3 = 1.7

Private saving = **Y** – **T** – **C** = 10 – 1.7 – 6.5 = 1.8

National saving = **Y** – **C** – **G** = 10 – 6.5 = 2 = 1.5

Investment = national saving = 1.5

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ACTIVE LEARNING 1

B. How a tax cut affects saving

- Use the numbers from the preceding exercise, but suppose now that the government cuts taxes by $200 billion.
- In each of the following two scenarios, determine what happens to public saving, private saving, national saving, and investment.
  1. Consumers save the full proceeds of the tax cut.
  2. Consumers save 1/4 of the tax cut and spend the other 3/4.

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ACTIVE LEARNING 1

Answers, part B

In both scenarios, public saving falls by $200 billion, and the budget deficit rises from $300 billion to $500 billion.

1. If consumers save the full $200 billion, national saving is unchanged, so investment is unchanged.
2. If consumers save $50 billion and spend $150 billion, then national saving and investment each fall by $150 billion.

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ACTIVE LEARNING 1

C. Discussion questions

The two scenarios from this exercise were:

1. Consumers save the full proceeds of the tax cut.
2. Consumers save 1/4 of the tax cut and spend the other 3/4.

- Which of these two scenarios do you think is more realistic?
- Why is this question important?

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The Meaning of Saving and Investment

- **Private saving** is the income remaining after households pay their taxes and pay for consumption.
- Examples of what households do with saving:
  - Buy corporate bonds or equities
  - Purchase a certificate of deposit at the bank
  - Buy shares of a mutual fund
  - Let accumulate in saving or checking accounts

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The Meaning of Saving and Investment

- **Investment** is the purchase of new capital.
- Examples of investment:
  - General Motors spends $250 million to build a new factory in Flint, Michigan.
  - You buy $5000 worth of computer equipment for your business.
  - Your parents spend $300,000 to have a new house built.

Remember: In economics, investment is NOT the purchase of stocks and bonds!

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8. You observe a closed economy that has a government deficit and positive investment. Which of the following is correct?

a. Private and public saving are both positive.
b. Private saving is positive; public saving is negative.
c. Private saving is negative; public saving is positive.
d. Both private saving and public saving are negative.

9. For an imaginary closed economy, T = $5,000; S = $11,000; C = $50,000; and the government is running a budget deficit of $1,000. Then

a. private saving = $10,000 and GDP = $54,000.
b. private saving = $10,000 and GDP = $58,000.
c. private saving = $12,000 and GDP = $67,000.
d. private saving = $12,000 and GDP = $72,000.

10. Suppose that in a closed economy GDP is equal to 11,000, taxes are equal to 2,500, consumption equals 7,000, and government purchases equal 3,000. What are private saving and public saving?

a. 1,500 and -500, respectively
b. 1,500 and 500, respectively
c. 1,000 and -500, respectively
d. 1,000 and 500, respectively

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11. Suppose that a Vietnamese opens and operates a candy factory in Lao. This is an example of

a. foreign direct investment. Vietnam's saving is used to finance Lao's investment.
b. foreign direct investment. Vietnam's saving is used to finance Vietnam's investment.
c. foreign portfolio investment. Vietnam's saving is used to finance Lao's investment.
d. foreign portfolio investment. Vietnam's saving is used to finance Vietnam's investment

do đầu tư không nằm trong biên giới VN

12. In recent decades Americans have increased their purchase of stocks of foreign-based companies. The Americans who have bought these stocks were engaged in

a. indirect domestic investment.
b. foreign portfolio investment.
c. foreign direct investment.
d. foreign saving.

The Market for Loanable Funds

- A supply–demand model of the financial system
- Helps us understand
  - how the financial system coordinates saving & investment
  - how govt policies and other factors affect saving, investment, the interest rate

Assume: only one financial market

- All savers deposit their saving in this market.
- All borrowers take out loans from this market.
- There is one interest rate, which is both the return to saving and the cost of borrowing.

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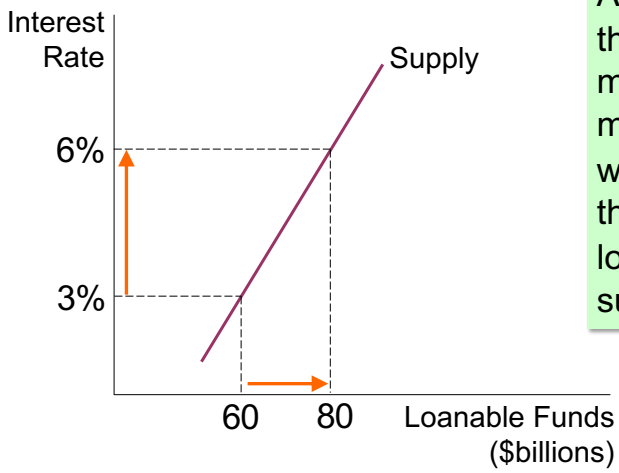
The Slope of the Supply Curve



An increase in the interest rate makes saving more attractive, which increases the quantity of loanable funds supplied.

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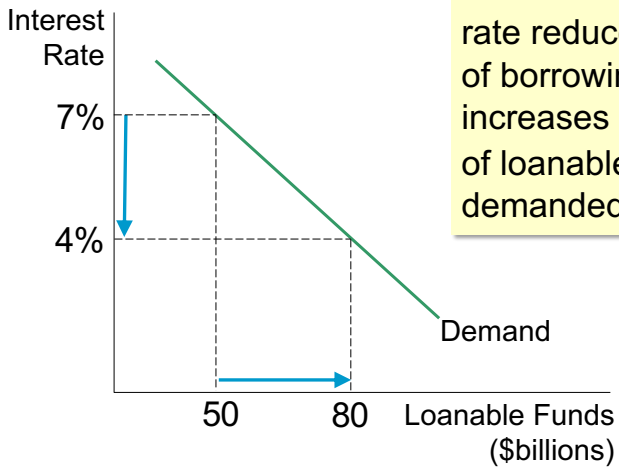
The Slope of the Demand Curve



A fall in the interest rate reduces the cost of borrowing, which increases the quantity of loanable funds demanded.

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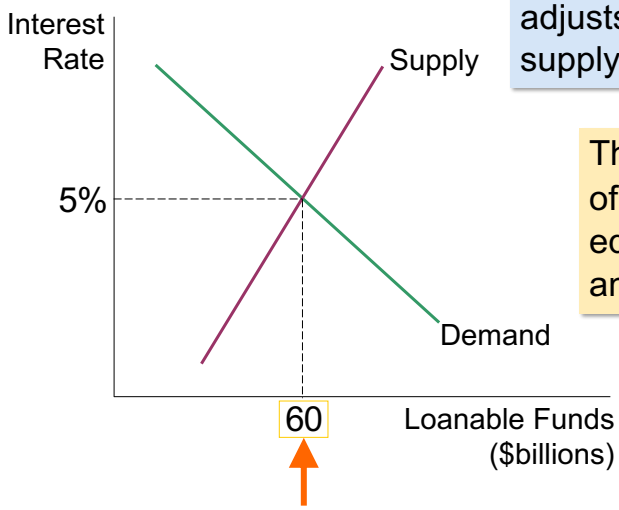
Equilibrium



The interest rate adjusts to equate supply and demand.

eq.m: eq mean - equilibrium quantity

The eq'm quantity of L.F. equals eq'm investment and eq'm saving.

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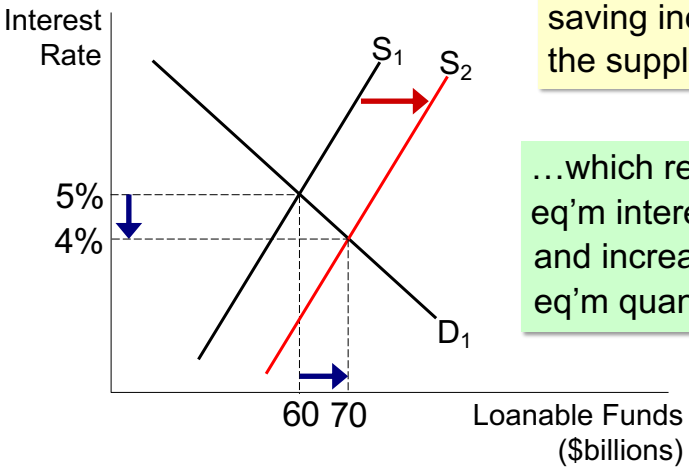
Policy 1: Saving Incentives



Tax incentives for saving increase the supply of L.F.

…which reduces the eq'm interest rate and increases the eq'm quantity of L.F.

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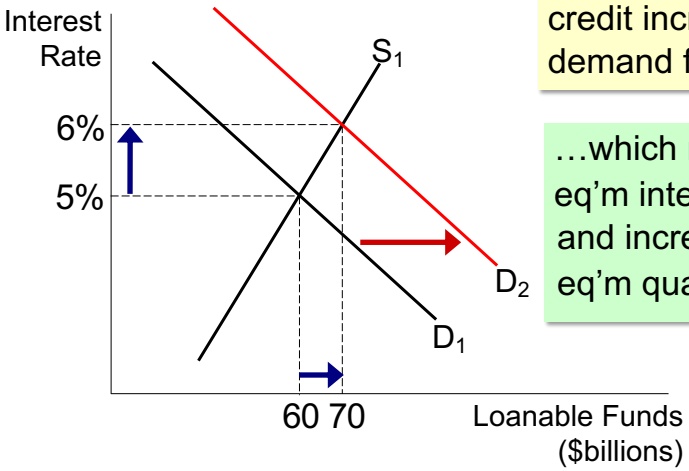
Policy 2: Investment Incentives



An investment tax credit increases the demand for L.F.

…which raises the eq'm interest rate and increases the eq'm quantity of L.F.

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crowding out effect: hiệu ứng lấn át

Budget Deficits, Crowding Out, and Long-Run Growth

- Our analysis: Increase in budget deficit causes fall in investment.
  The govt borrows to finance its deficit, leaving less funds available for investment.
- This is called **crowding out**.
- Recall from the preceding chapter: Investment is important for long-run economic growth.
  Hence, budget deficits reduce the economy's growth rate and future standard of living.

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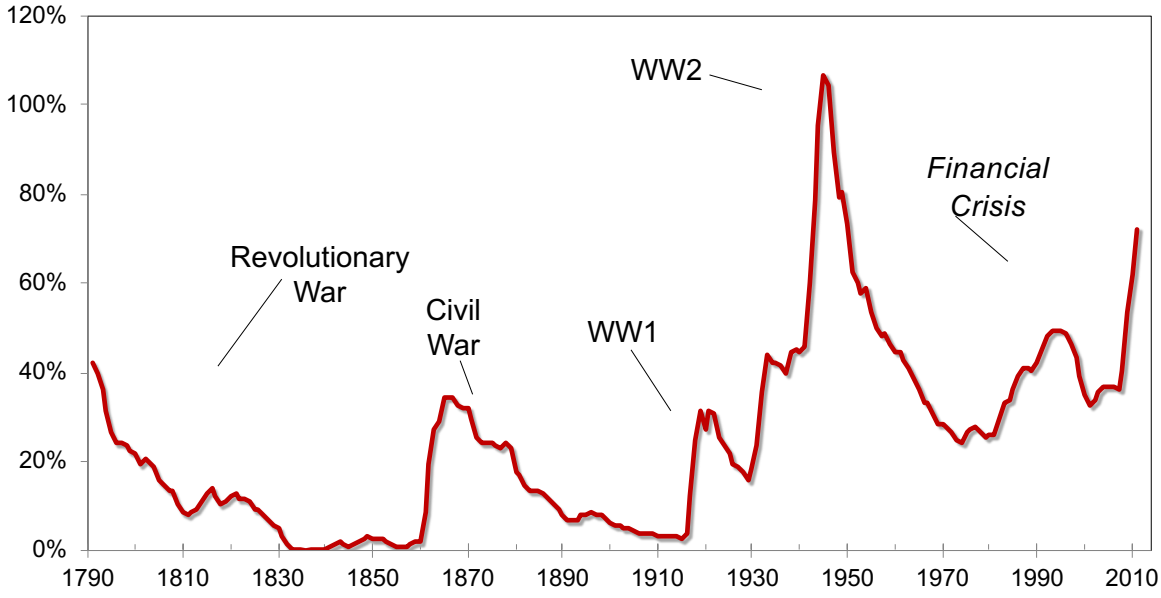
U.S. Government Debt as a Percentage of GDP, 1790–2012



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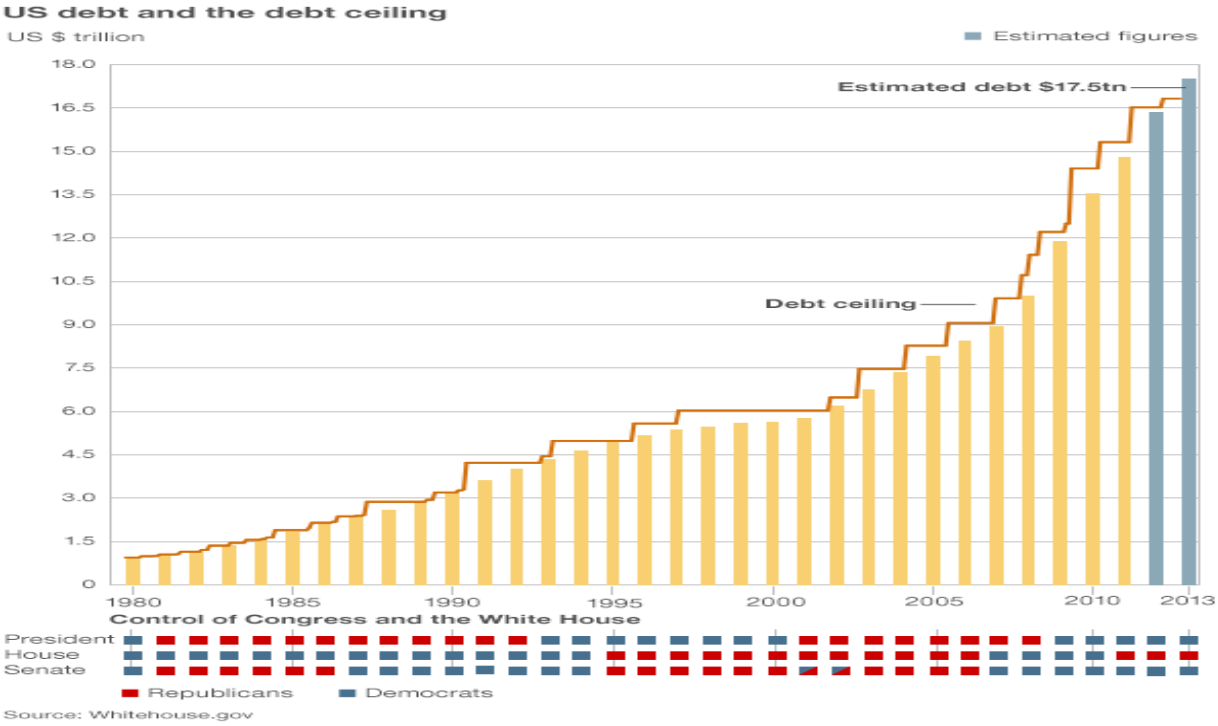

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What Money Is and Why It's Important

- Without money, trade would require **barter**, the exchange of one good or service for another.
- Every transaction would require a **double coincidence of wants**—the unlikely occurrence that two people each have a good the other wants. phải kiếm hàng người khác muốn để trade
- Most people would have to spend time searching for others to trade with—a huge waste of resources.
- This searching is unnecessary with **money**, the set of assets that people regularly use to buy g&s from other people.

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The 3 Functions of Money

phương tiện trao đổi

- **Medium of exchange**: an item buyers give to sellers when they want to purchase g&s

đơn vị thanh toán

- **Unit of account**: the yardstick people use to post prices and record debts

kho chứa giá trị

- **Store of value**: an item people can use to transfer purchasing power from the present to the future

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The 2 Kinds of Money

Commodity money:
takes the form of a commodity with intrinsic value

Examples: gold coins, cigarettes in POW camps

Fiat money:
money without intrinsic value, used as money because of
govt decree

Example: the U.S. dollar

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13. Economists use the term "money" to refer to

a. all wealth.
b. all assets, including real assets and financial assets.
c. all financial assets, but not real assets.
d. those types of wealth that are regularly accepted by sellers in exchange for goods and services.

14. Which of the following best illustrates the medium of exchange function of money?

a. You keep some money hidden in your shoe. store of value
b. You keep track of the value of your assets in terms of currency. unit of account
c. You pay for your oil change using currency. medium of exchange
d. None of the above is correct.

15 Most financial assets other than money function as

a. a medium of exchange, a unit of account, and a store of value.
b. a medium of exchange and a store of value, but not a unit of account.
c. a store of value and a unit of account, but not a medium of exchange. chỉ có tiền mới trao đổi được
d. a store of value, but not a unit of account nor a medium of exchange

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The Money Supply

- The **money supply** (or **money stock**):
  the quantity of money available in the economy
- What assets should be considered part of the money supply?
  Two candidates: 2 dạng tiền trong nền kinh tế
  - **Currency**: the paper bills and coins in the hands of the (non-bank) public
  - **Demand deposits**: balances in bank accounts that depositors can access on demand by writing a check

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Measures of the Money Supply

- **M1**: currency, demand deposits, traveler's checks, and other checkable deposits.
  M1 = $2.3 trillion (June 2012)
- **M2**: everything in M1 plus savings deposits, small time deposits, money market mutual funds, and a few minor categories.
  M2 = $9.9 trillion (June 2012)

The distinction between M1 and M2 will often not matter when we talk about "the money supply" in this course.

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16. Which list ranks assets from most to least liquid?
a. currency, demand deposits, stock
b. currency, saving account, demand deposits
c. Gold, demand deposits, currency
d. demand deposits, house, currency
17. Which of the following is not included in M1?
a. a $5 bill in your wallet
b. $100 in your checking account
c. $500 in your savings account
d. All of the above are included in M1.
18. John and Jane decide to go on a vacation. As a result, they withdraw $2,500 from their savings account to purchase $2,500 worth of traveler's checks. As a result of these changes,
a. M1 increases by $2,500 and M2 decreases by $2,500.
b. M1 increases by $2,500 and M2 stays the same.
c. M1 and M2 stay the same.
d. M1 decreases by $2,500 and M2 increases by $2,500.

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Bank Reserves

- In a **fractional reserve banking system**, banks keep a fraction of deposits as **reserves** and use the rest to make loans.
- The Fed establishes **reserve requirements**, regulations on the minimum amount of reserves that banks must hold against deposits.
- Banks may hold more than this minimum amount if they choose.
- The **reserve ratio**, ***R***
  = fraction of deposits that banks hold as reserves
  = total reserves as a percentage of total deposits

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Bank T-Account

- **T-account**: a simplified accounting statement that shows a bank's assets & liabilities.
- Example:

FIRST NATIONAL BANK			
Assets		**Liabilities**	
Reserves	$ 10	Deposits	$100
Loans	$ 90		

  - Banks' liabilities include deposits, assets include loans & reserves.
  - In this example, notice that ***R*** = $10/$100 = 10%.

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Banks and the Money Supply: An Example

Suppose $100 of currency is in circulation.

To determine banks' impact on money supply,
we calculate the money supply in 3 different cases:

1. No banking system
2. 100% reserve banking system:
   banks hold 100% of deposits as reserves,
   make no loans
3. Fractional reserve banking system

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Banks and the Money Supply: An Example

CASE 1: No banking system

Public holds the $100 as currency.

Money supply = $100.

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Banks and the Money Supply: An Example

CASE 2: 100% reserve banking system

Public deposits the $100 at First National Bank (FNB).

FNB holds 100% of deposit as reserves:

FIRST NATIONAL BANK			
Assets		**Liabilities**	
Reserves	$100	Deposits	$100
Loans	$ 0		

Money supply
= currency + deposits = $0 + $100 = $100

In a 100% reserve banking system, banks do not affect size of money supply.

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Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

Suppose ***R*** = 10%. FNB loans all but 10% of the deposit:

FIRST NATIONAL BANK			
Assets		**Liabilities**	
Reserves	$ 10	Deposits	$100
Loans	$ 90		

Depositors have $100 in deposits,
borrowers have $90 in currency.

Money supply = C + D = $90 + $100 = $190 (!!!)

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Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

How did the money supply suddenly grow?

When banks make loans, they create money.

The borrower gets

- $90 in currency—an asset counted in the money supply
- $90 in new debt—a liability that does not have an offsetting effect on the money supply

A fractional reserve banking system creates money, but not wealth.

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Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

Borrower deposits the $90 at Second National Bank.

Initially, SNB's T-account looks like this:

SECOND NATIONAL BANK				
Assets			**Liabilities**	
Reserves	$	9	Deposits	$ 90
Loans	$	81		

If ***R*** = 10% for SNB, it will loan all but 10% of the deposit.

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Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

SNB's borrower deposits the $81 at Third National Bank.

Initially, TNB's T-account looks like this:

THIRD NATIONAL BANK			
Assets		**Liabilities**	
Reserves	$ 8.10	Deposits	$ 81
Loans	$72.90		

If ***R*** = 10% for TNB, it will loan all but 10% of the deposit.

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Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

The process continues, and money is created with each new loan.

Original deposit	=	$ 100.00
FNB lending	=	$ 90.00
SNB lending	=	$ 81.00
TNB lending	=	$ 72.90
⋮		⋮
Total money supply	=	$1000.00

In this example, $100 of reserves generates $1000 of money.

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The Money Multiplier

- **Money multiplier**: the amount of money the banking system generates with each dollar of reserves
- The money multiplier equals 1/***R***.
- In our example,
  R = 10%
  money multiplier = 1/***R*** = 10
  $100 of reserves creates $1000 of money

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ACTIVE LEARNING 1

Banks and the money supply

While cleaning your apartment, you look under the sofa cushion and find a $50 bill (and a half-eaten taco). You deposit the bill in your checking account.

The Fed's reserve requirement is 20% of deposits.

A. What is the maximum amount that the money supply could increase?

B. What is the minimum amount that the money supply could increase?

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ACTIVE LEARNING 1

Answers

You deposit $50 in your checking account.

A. What is the maximum amount that the money supply could increase?

If banks hold no excess reserves, then
money multiplier = 1/***R*** = 1/0.2 = 5

The maximum possible increase in deposits is
5 x $50 = $250

But money supply also includes currency, which falls by $50.

Hence, max increase in money supply = $200.

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ACTIVE LEARNING 1

Answers

You deposit $50 in your checking account.

A. What is the maximum amount that the money supply could increase?

Answer: $200

B. What is the minimum amount that the money supply could increase?

Answer: $0

If your bank makes no loans from your deposit, currency falls by $50, deposits increase by $50, money supply does not change.

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19. If the reserve ratio increased from 10 percent to 20 percent, the money multiplier would

a. rise from 10 to 20.
b. rise from 5 to 10.
c. fall from 10 to 5.
d. not change.

20. Regulations on the

a. maximum amount of reserves that banks can hold against deposits are called reserve requirements.
b. minimum amount of reserves that banks must hold against deposits are called reserve requirements.
c. extent to which banks can buy and sell bonds are called open-market requirements.
d. extent to which banks can make new loans are called open-market requirements.

21. A bank's reserve ratio is 6.5 percent and the bank has $1,950 in reserve. Its deposits amount to

a. $62.25.
b. $126.75.
c. $22,500
d. $30,000

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22. A bank has a 10 percent reserve requirement, $4,000 in deposits, and has loaned out all it can given the reserve requirement.

a. It has $40 in reserves and $3,960 in loans.
b. It has $400 in reserves and $3,600 in loans.
c. It has $444 in reserves and $3,556 in loans.
d. None of the above is correct.

23. A bank which must hold 100 percent reserves opens in an economy that had no banks and a currency of $100. If customers deposit $50 into the bank, what is the value of the money supply?

a. $00
b. $50
c. $100 trị trường có 100 đô thì vẫn có 100 đô do ngân hàng ko cung cấp thêm tiền
d. $150

24. If a bank has a reserve ratio of 8 percent, then

a. government regulation requires the bank to use at least 8 percent of its deposits to make loans.
b. the bank keeps 8 percent of its deposits as reserves and loans out the rest.
c. the bank's ratio of loans to deposits is 8 percent.
d. the bank keeps 8 percent of its assets as reserves and loans out the rest.

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Bank Runs and the Money Supply

- A **run on banks**:
  When people suspect their banks are in trouble, they may "run" to the bank to withdraw their funds, holding more currency and less deposits.
- Under fractional-reserve banking, banks don't have enough reserves to pay off ALL depositors, hence banks may have to close.
- Also, banks may make fewer loans and hold more reserves to satisfy depositors.
- These events increase ***R***, reverse the process of money creation, cause money supply to fall.

Tools of Monetary Control

- The Central Bank has three tools in its monetary toolbox:
  - Open-market operations
  - Changing the reserve requirement
  - Changing the discount rate

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Tools of Monetary Control

- Open-Market Operations
  - The Central Bank conducts *open-market operations* when it buys government bonds from or sells government bonds to the public:
    - When the Fed buys government bonds, the money supply increases.
    - The money supply decreases when the Fed sells government bonds.

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Tools of Monetary Control

- Reserve Requirements
  - The Fed also influences the money supply with *reserve requirements*.
  - Reserve requirements are regulations on the minimum amount of reserves that banks must hold against deposits.
- Changing the Reserve Requirement
  - The *reserve requirement* is the amount (%) of a bank's total reserves that may not be loaned out.
    - Increasing the reserve requirement decreases the money supply.
    - Decreasing the reserve requirement increases the money supply.

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Tools of Monetary Control

- Changing the Discount Rate
  - The *discount rate* is the interest rate the Fed charges banks for loans.
    - Increasing the discount rate decreases the money supply.
    - Decreasing the discount rate increases the money supply.

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Problems in Controlling the Money Supply

- The control of the money supply is not precise.
- The Central Bank must wrestle with two problems that arise due to fractional-reserve banking.
  - The Central Bank does not control the amount of money that households choose to hold as deposits in banks.
  - The Central Bank does not control the amount of money that bankers choose to lend.

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mua trái phiếu CP từ market

25. An open-market purchase
a. increases the number of dollars and the number of bonds in the hands of the public.
b. increases the number of dollars in the hands of the public and decreases the number of bonds in the hands of the public.
c. decreases the number of dollars and the number of bonds in the hands of the public.
d. decreases the number of dollars in the hands of the public and increases the number of bonds in the hands of the public.

26. When conducting an open-market sale, the Central Bank
a. buys government bonds, and in so doing increases the money supply.
b. buys government bonds, and in so doing decreases the money supply.
c. sells government bonds, and in so doing increases the money supply.
d. sells government bonds, and in so doing decreases the money supply.

27. Open-market purchases by the Central Bank make the money supply
a. increase, which makes the value of money increase.
b. increase, which makes the value of money decrease.
c. decrease, which makes the value of money decrease.
d. decrease, which makes the value of money increase.

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28. Which of the following Central Bank actions would both decrease the money supply?
a. buy bonds and raise the reserve requirement
b. buy bonds and lower the reserve requirement
c. sell bonds and raise the reserve requirement
d. sell bonds and lower the reserve requirement

29. If the Fed increases the money supply,
a. the interest rate increases, which tends to raise stock prices.
b. the interest rate increases, which tends to reduce stock prices.
c. the interest rate decreases, which tends to raise stock prices.
d. the interest rate decreases, which tends to reduce stock prices.

30. An increase in the money supply will
a. increase interest rates, decreasing investment and aggregate demand.
b. reduce interest rates, increasing investment and aggregate demand.
c. reduce interest rates, decreasing investment and increasing aggregate demand.
d. increase interest rates, increasing investment and aggregate demand.

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