Chapter 8

Saving, Investment, and the Financial System

Two Types of Financial Institutions

Financial institutions: the group of institutions in the economy that help to match one person's saving with another person's investment.

Two Types of Financial Institutions:

1) Financial markets: savers can directly provide funds to borrowers.
   - The bond market and the stock market
2) Financial intermediaries: savers can indirectly provide funds to borrowers.
   - Banks and mutual funds

Bond Market

A bond is a certificate of indebtedness by the issuer.

A bond specifies the date of maturity and the rate of interest that will be paid periodically until the loan matures.

Example: A 3-year 4% bond with face value of $1000

Cash flow:

Year 1	**Year 2**	**Year 3**
1000 * 4% = $40 Interest	$40 Interest	$40+$1000 = $1040 Interest + principal

Bonds

Two important characteristics of a bond:

1) **The term: the length of time until the bond matures.**

   All else equal, long-term bonds pay higher rates of interest than short-term bonds.

   Long-term bonds are riskier than short-term bonds because holders of long-term bonds have to wait longer for repayment of principal.

Bonds

2) **Credit risk (default risk): the probability that the borrower will fail to pay some of the interest or principal.**

All else equal, the more risky a bond is, the higher its interest rate.

Corporate bonds tend to pay higher rates of interest than government bonds because corporate revenues are likely to be more volatile than government tax revenue.

The sale of bonds to raise money is called **debt finance**.
The owner of bonds is a creditor of the company or government.

Stock Market

Stock: a claim to partial ownership in a company.

The owner of stocks or shares is a part-owner of the company. If the company is very profitable, the shareholders enjoy the benefits of these profits, whereas the bondholders get only the interest on their bonds. If the company runs into financial difficulty, the bondholders are paid what they are due before shareholders receive anything at all. Compared to bonds, stocks offer both higher risk and potentially higher return.

The sale of stock to raise money is called **equity finance**.

Financial Intermediaries

1. **Banks:** The primary role of banks is to take in deposits from people who want to save and use these deposits to **make loans to those who want to borrow.**
2. **Mutual funds:** an institution that sells shares to the public and uses the proceeds to **buy a portfolio of stocks and bonds.**

Advantage of a mutual fund: 1) it allows individuals with small amounts of money to diversify, and 2) it gives ordinary people access to the skills of professional money managers.

Saving and Investment in the National Income Accounts

Income-expenditure identity: $Y = C + I + G + NX$

For now assume the economy is *closed* → **NX = 0**

Then **$Y = C + I + G$**

Savings: saving is done by households and the government.

Private savings: the income (Y) that households have left after paying for taxes (T) and consumption (C).

$$S^P = Y - T - C$$

Disposable income: $Y_d = Y - T$

Saving and Investment in the National Income Accounts

Public saving: **the net tax revenue (T) that government has after paying for its purchases (G)**

$$S^G = T - G$$

If $S^G > 0$, then there is a **budget surplus.**

If $S^G < 0$, then there is a **budget deficit.**

If $S^G = 0$, then there is a **balanced budget**.

Saving and Investment in the National Income Accounts

National savings:

$$S = S^P + S^G = (Y - T - C) + (T - G) = Y - C - G$$

Then replace Y = C + I + G

$$S = C + I + G - C - G \rightarrow S = I$$

$$S = Y - C - G$$
$$S = I$$

- For the closed economy, national savings must be equal to investment.
- Financial institutions stand between the two sides of S = I equation.
- Financial institutions take in the savings and direct it to investment.

Exercise

Assume a closed economy has the following values in its national income accounts. Y = 500 million, T = 100 million, C = 300 million, and G = 110 million. Calculate private savings, public savings, and investment.

Answer:

The Market for Loanable Funds

In the *market for loanable funds* those who want to save **supply funds** and those who want to borrow **demand funds.**

- Good: **Loanable funds – Savings available for a loan**
- Price: **Real interest rate**
- Sellers/Suppliers: **Savers or lenders**
- Buyers/Demanders: **Borrowers**

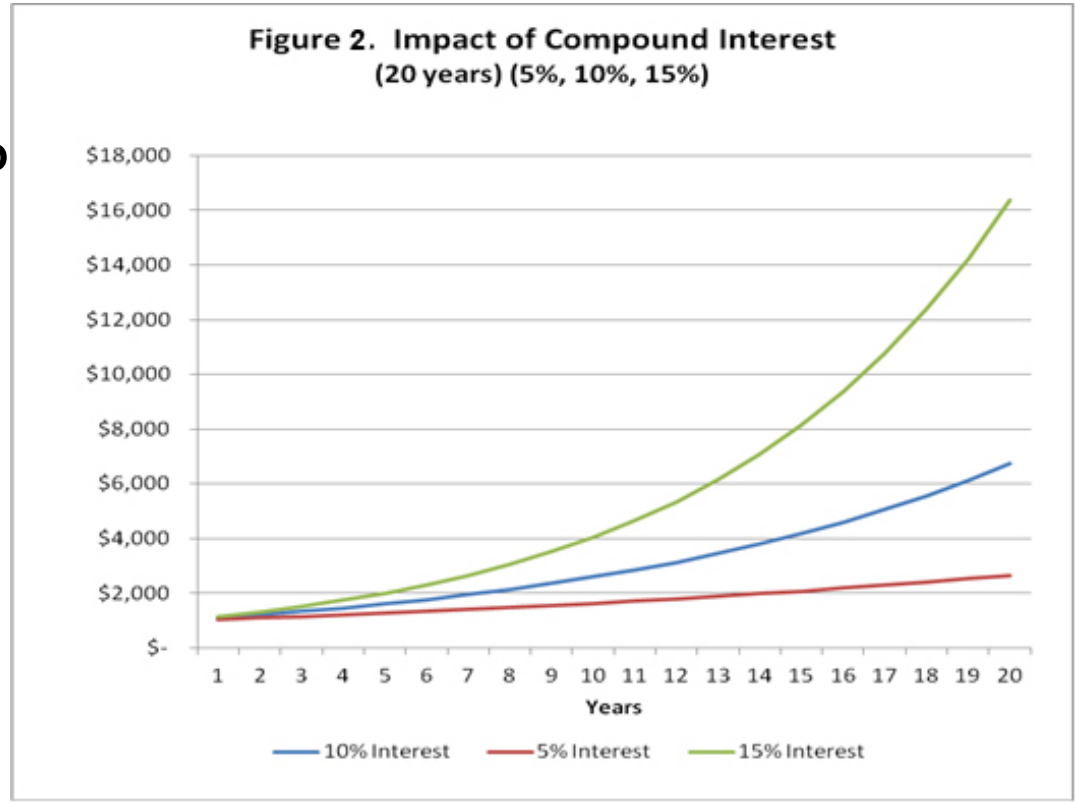
The Market for Loanable Funds

1. The supply of loanable funds

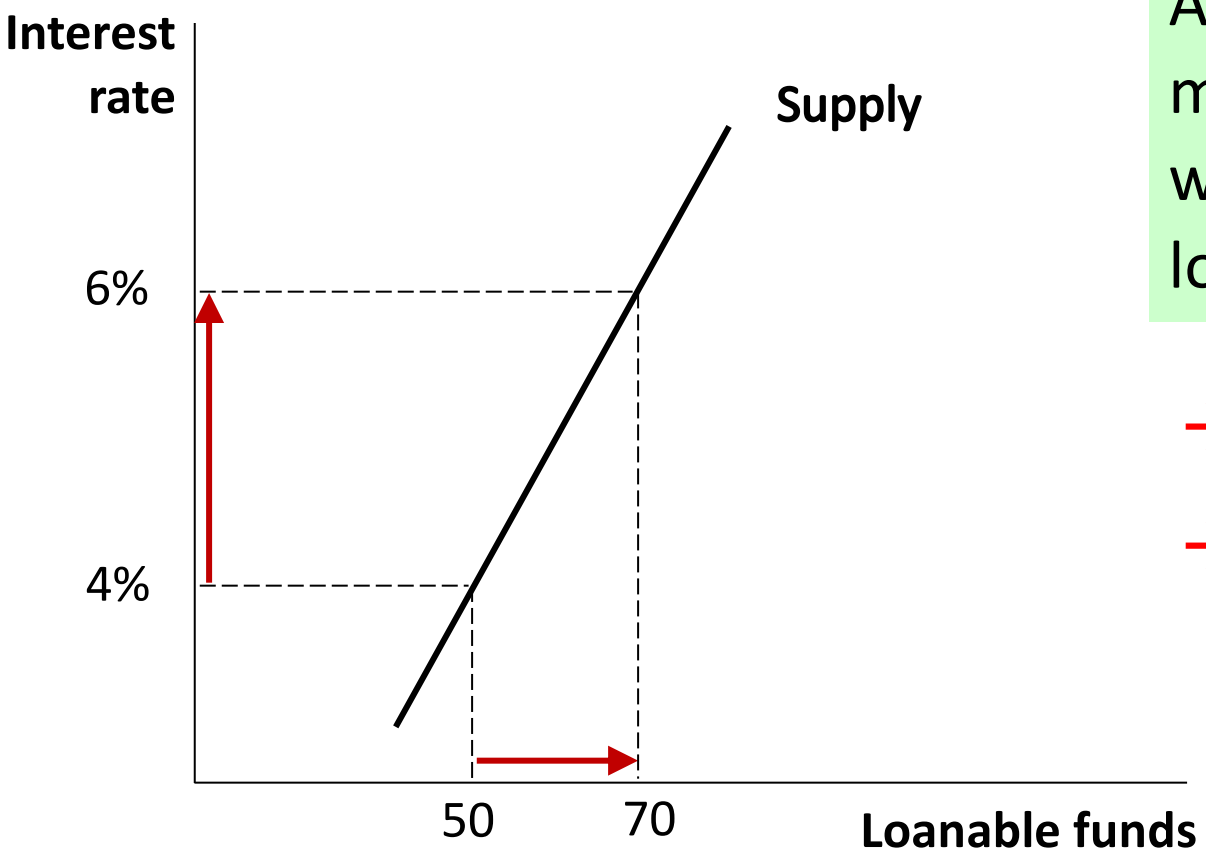
What do households do with their savings?

- **Saving or chequing accounts in banks**
- **Purchase of bonds and/or stocks**
- **Purchase of mutual funds**

People will save more if the interest rate is higher → **the supply of loanable funds is positively related to the interest rate.**



The Supply of Loanable Funds



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

→ **Movement along S**

→ **Change in quantity supplied**

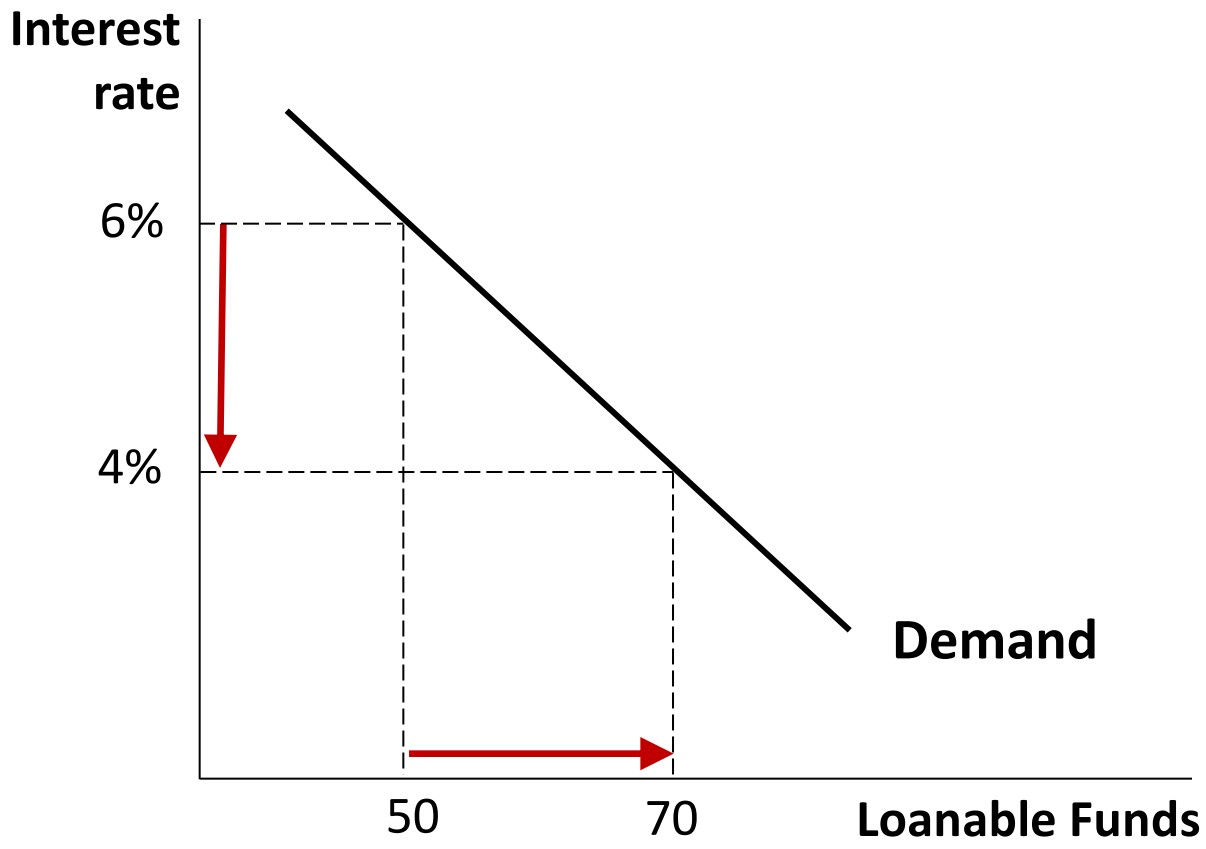
The Demand for Loanable Funds

Who demands loanable funds?

- Firms borrow the funds they need to pay for new equipment, machines, etc.
- Households borrow the funds they need to purchase new houses.

People will borrow more if the interest rate is lower → **the demand for loanable funds is negatively related to the interest rate.**

The Demand for Loanable Funds

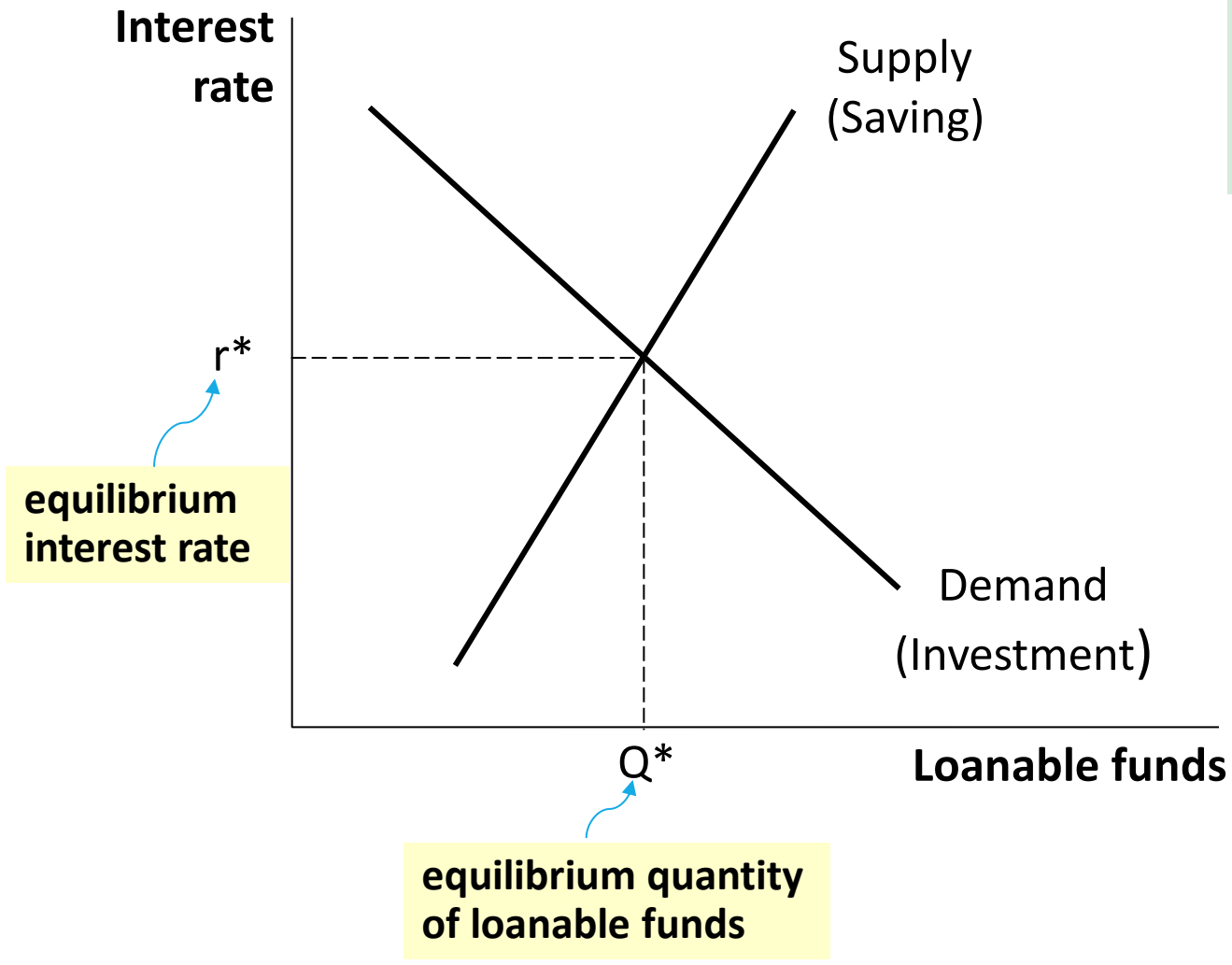


A fall in the interest rate reduces the cost of borrowing, which increases the quantity of loanable funds demanded.

→ **Movement along D**

→ **Change in quantity demanded**

Equilibrium



At the equilibrium

$Q^D_{LF} = Q^S_{LF}$

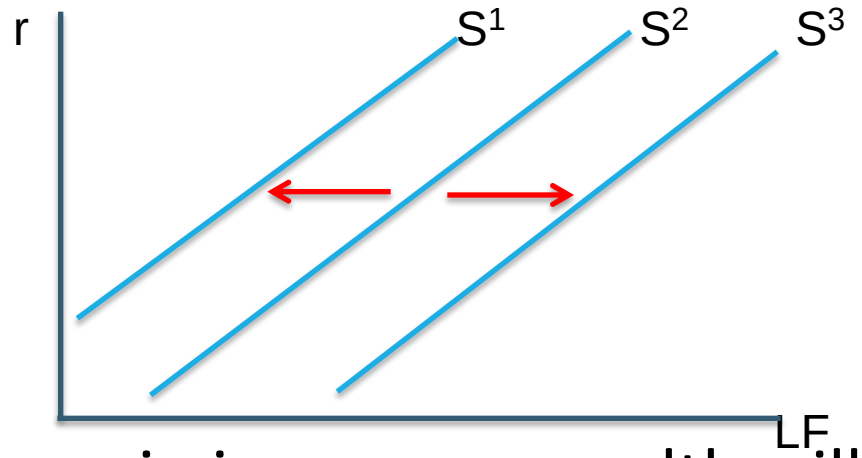
The interest rate adjusts to balance supply and demand.

The equilibrium quantity of loanable funds

= **equilibrium investment**

= **equilibrium saving.**

Supply Shifter: Income and Wealth



An increase in income or wealth will lead to an **increase in the supply of LF and *r* will ↓.**

- Saving is more affordable when people have greater income and wealth.

A decrease in income or wealth will lead to a **decrease in the supply of LF and *r* will ↑.**

Supply Shifter: Time Preferences

Time preferences = **people prefer to receive G&S sooner rather later.**

- Because people have time preferences, someone must pay them to save.

People have different time preferences – those with stronger time preferences have less patience, while those with weaker time preferences have more patience.

All else equal, people with **stronger time preferences save less than people with weaker time preferences.**

Critical Thinking Question

- The worldwide AIDS pandemic is a serious problem in developing nations. For example, in 2003, almost 40% of people between age 15 and 49 in the nation of Botswana were infected with HIV/AIDS and life expectancy at birth was below 35 years. How does a drop in life expectancy affect time preferences and the supply of loanable funds?

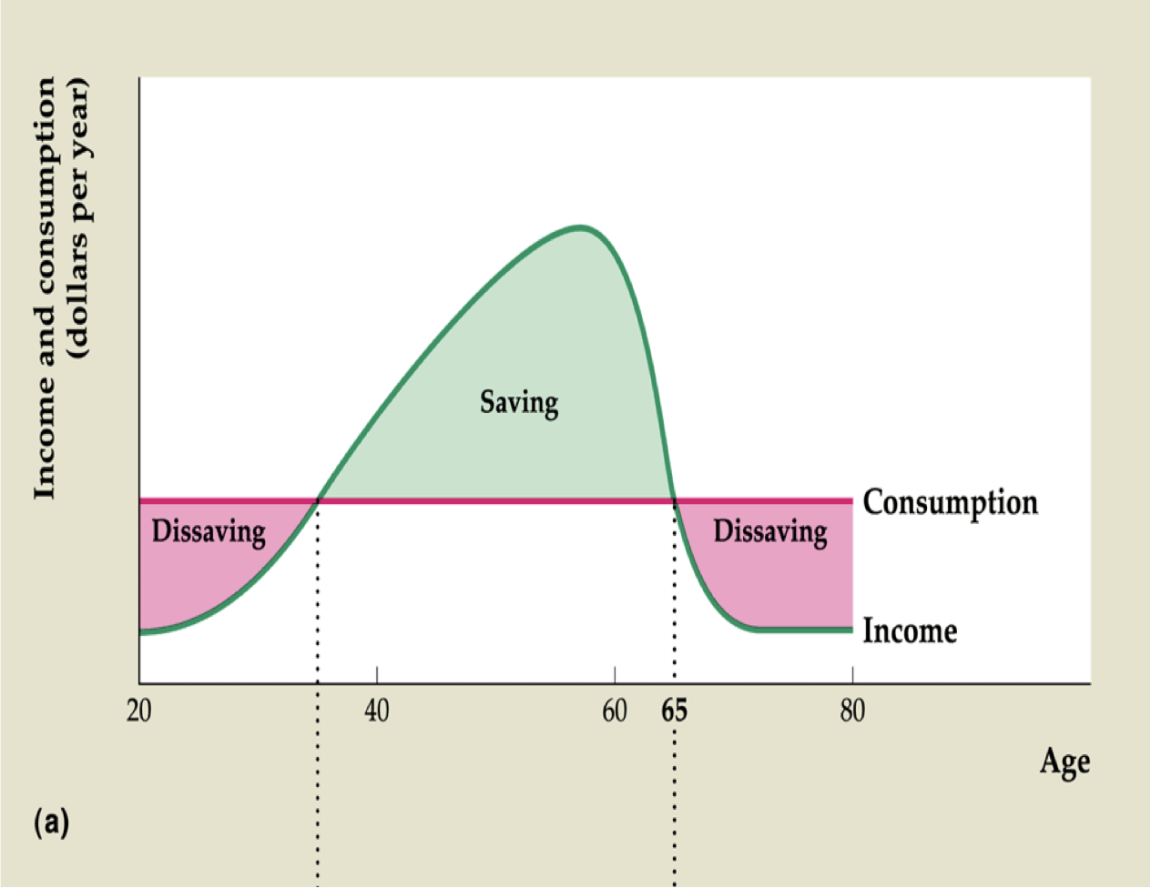
Supply Shifter: Changing Demographics

Consumption smoothing = **people borrow or save as necessary to smooth consumption over their lifetime.**

- Income varies over the life cycle, but people generally like to smooth their consumption.

If more people are in midlife and their prime earning years, savings is higher.

If more people are young or retired savings will be lower.



Demand Shifter: Productivity of Capital

The demand for loanable funds derives from the desire to *invest* or **purchase capital goods that will increase future production.**

If capital is more productive it is more worthwhile to purchase, so the demand for loanable funds **increases,** and vice versa.

E.g. Investing in tablets for employees

Demand Shifter: Investor Confidence

Investor confidence is a measure of **what firms expect for future economic activity.**

If investor confidence rises, the demand for loanable funds **increases.**
If investor confidence falls, the demand for loanable funds **decreases.**

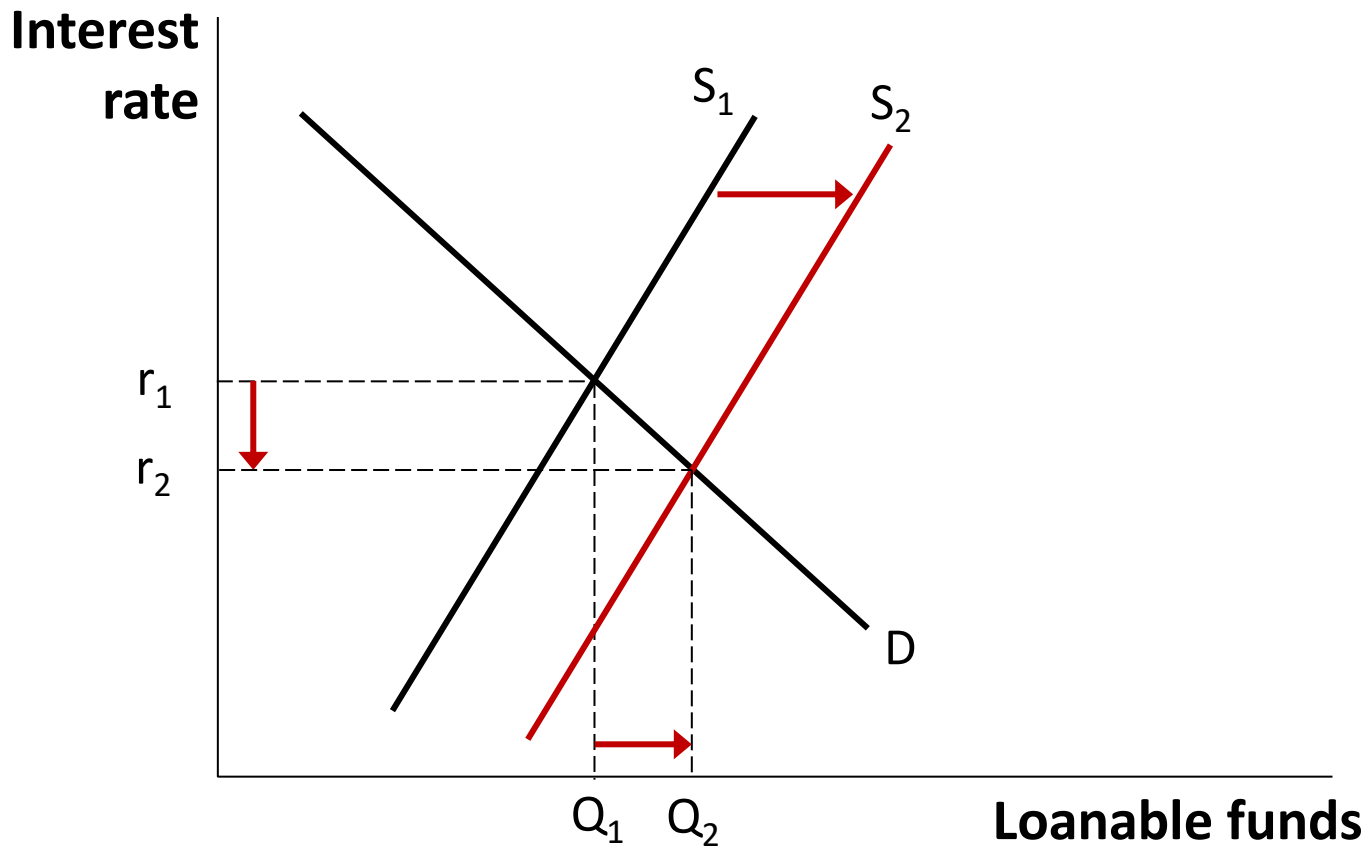
Government Policies: Saving Incentives

Example 1: Government introduces tax free savings accounts
Example 2: Government replaces income tax by consumption tax.

People will consume less and save more, resulting in an **increase in the supply of LF.**

The equilibrium interest rate will **decrease,** and the equilibrium saving and investment will **increase.**

Government Policies: Saving Incentives



Increase in consumption tax results in an increase the supply of loanable funds…

… which reduces the equilibrium interest rate and increases the equilibrium quantity of loanable funds.

Government Policies: Investment Incentives

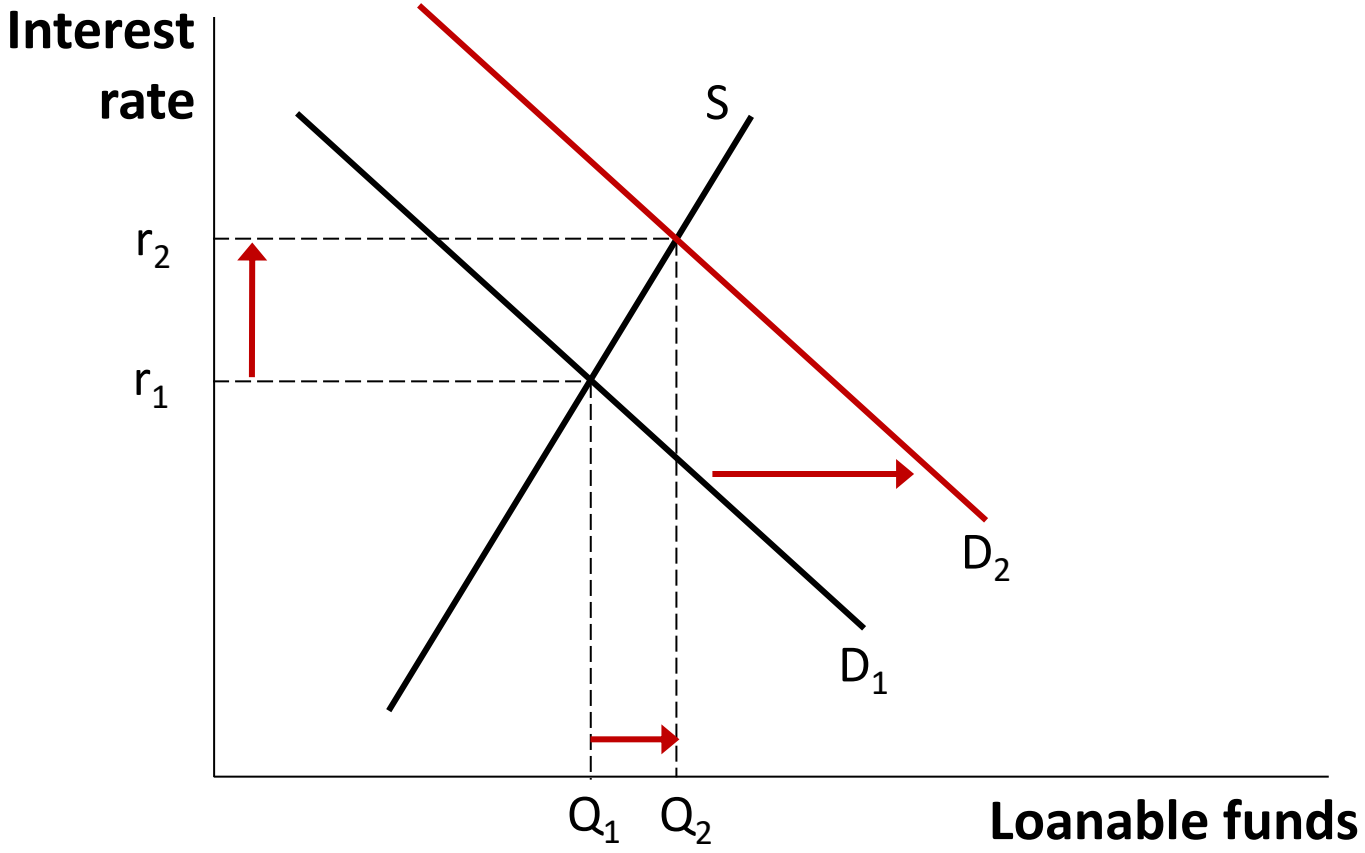
Example: The government uses an investment tax credit to encourage investment.

An investment tax credit gives a tax advantage to any firm building a new factory or buying a new piece of equipment.

This will result in **an increase in the demand for LF.**

The equilibrium interest rate **increases,** and the equilibrium saving and investment also **increases.**

Government Policies: Investment Incentives



An investment tax credit increases the demand for loanable funds

…which raises the equilibrium interest rate and increases the equilibrium quantity of loanable funds

Government Budget Deficits and Surpluses

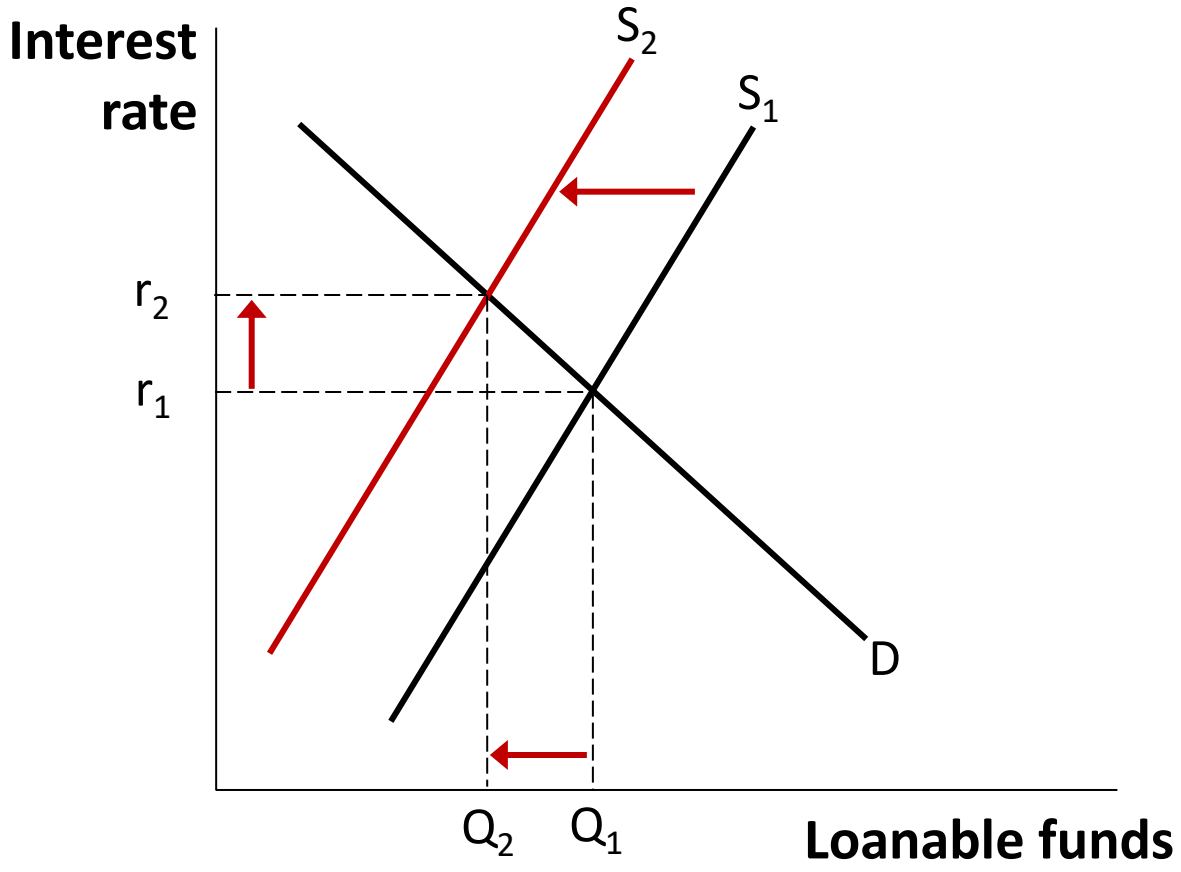
Example: There is an increase in government budget deficits.

An increase in budget deficits will **lower national savings.**

As a result, the **interest rate rises, and investment falls.**

Crowding out effect: **A decrease in investment that results from an increase in government spending.**

Government Budget Deficits



A budget deficit reduces national saving and the supply of loanable funds…

… which increases the equilibrium interest rate and decreases the equilibrium quantity of loanable funds and investment

Government Budget Deficits and Economic Growth

Deficits can harm the economy when there is a *vicious cycle*:

Budget deficits reduce national savings

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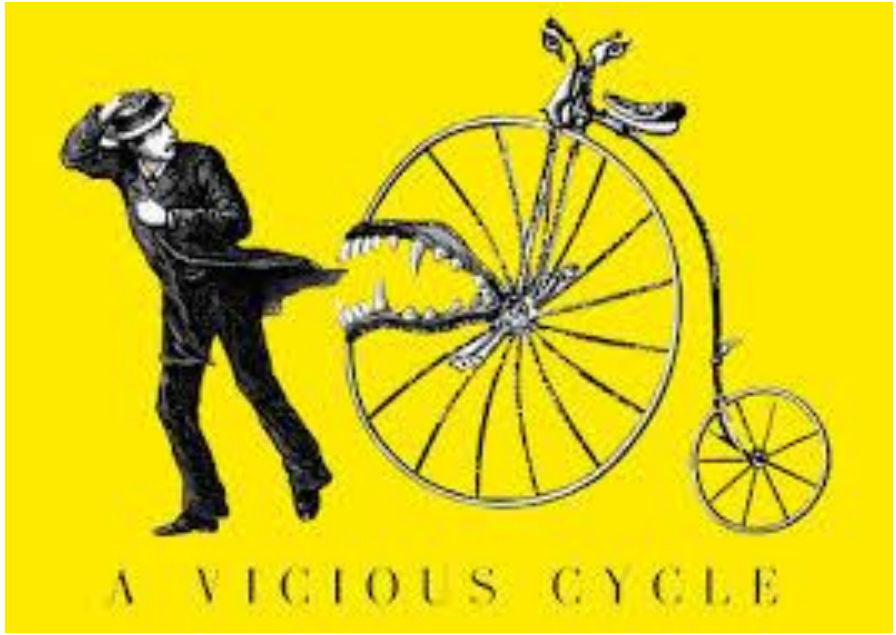

The opposite of vicious cycle is called a *virtuous cycle*.

More on Government Budget Deficits

Is there anything good about a government budget deficit?

- The money can be used for investment in **infrastructure or human capital.**
- Or the money can be used to stimulate an economy **in a recession.**

Would it be a good idea for the government to balance the budget annually?

- Most economists don't think it's a good idea. The government should only balance its budget in the long run, which means that it should run deficits as the economy enters recessions, and run surpluses as the economy is in booms.

What Happens to the Equilibrium Interest Rate and the Equilibrium Saving and Investment When Saving or Investment Shifts?

	No Change in Saving	**Increase in Saving**	**Decrease in Saving**
No Change in Investment	r constant Q constant	r down Q up	r up Q down
Increase in Investment	r up Q up	r ambiguous Q up	r up Q ambiguous
Decrease in Investment	r down Q down	r down Q ambiguous	r ambiguous Q down

Exercise

Use the loanable funds model to analyze the effects of a government budget surplus:

1) Draw the diagram showing the initial equilibrium.
2) Determine which curve shifts when the government runs a budget surplus.
3) What happens to the equilibrium values of the interest rate and investment?

Answer