Saving, Investment, and the Financial System

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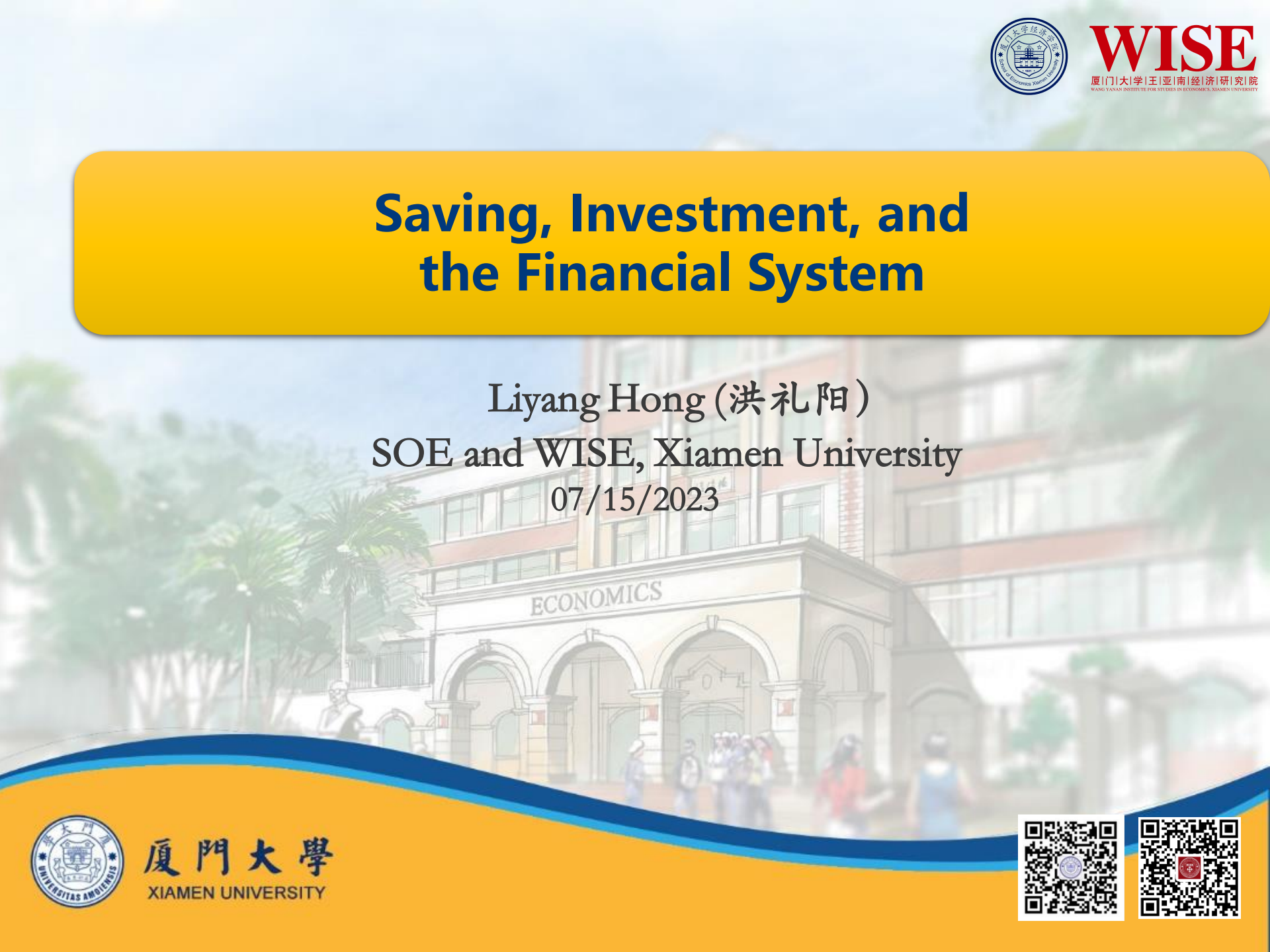

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Content 目录

1. Financial system (focus on financial market)

2. Saving and Investment in the National Income Accounts

3.Market for loanable funds

01

Financial system (focus on Financial market)

Financial Institutions

- Financial system
  - Group of institutions in the economy
    - That help match one person's saving with another person's investment
  - Moves the economy's scarce resources from savers to borrowers
- Financial institutions
  - Financial markets
  - Financial intermediaries

Financial Markets

- Financial markets
  - Savers can directly provide funds to borrowers
  - The bond market
  - The stock market
  - Typical used for borrowers with really good reputation (Big companies, government)

Financial Markets

- The bond market
  - Bond: a certificate of indebtedness
    - Time of maturity the loan will be repaid
    - Rate of interest (periodically)
    - Principal - amount borrowed
  - Term: length of time until maturity (longer , riskier, higher interest rate)
  - Credit risk – probability of default
  - Tax treatment (Some interest taxable)

Example

- US government: T-G <0 (budget deficit)
- Issue some bonds to borrow money
- Even so, interest rate is high; it might become a heavy burden for the government.
- Debt-GDP ratio around 104%(2015)
- Now, Japan and China are among the two largest bond holder for USA
- Do you now Yellen was in China last week?

Financial Markets

- The stock market
  - Stock: a claim to partial ownership in a firm
  - Organized stock exchanges (after the stock has been sold to the public)
    - Stock prices: depends on demand and supply
  - Equity finance (different from debt finance)
    - Sale of stock to raise money
  - Stock index (Indicators of economic condition)
    - Average of a group of stock prices of big companies

More on bond and stock

- Stock are more volatile than bonds. (higher risk, higher return)
- Your company is really profitable, you can enjoy the benefit of those profits.
- But when your company runs into financial difficulty, it will pay bond holder first. (Holder of the bond is a creditor of the company)

On the financial market of China since 1990

- 1990 年 12月19日，上海举行上海证券交易所开业典礼
- 1990年12月1日，深圳证券交易所“试开市”

Financial Intermediaries

- Financial intermediaries
  - Savers can indirectly provide funds to borrowers
  - Banks
  - Mutual funds

Financial Intermediaries

- Mutual funds(基金/互惠基金)
  - Institution that sells shares to the public
  - Uses the proceeds to buy a portfolio of stocks and bonds
  - Advantages
    - Diversification
    - Access to professional money managers

Financial Intermediaries

- Banks
  - Take in deposits from savers
    - Banks pay interest
  - Make loans to borrowers
    - Banks charge interest
  - Facilitate purchasing of goods and services
    - Checks – medium of exchange

02 Saving and Investment in the National Income Accounts

Accounting Identities

- Gross domestic product (GDP)
  - Total income
  - Total expenditure
- Y = C + I + G + NX
  - Y= gross domestic product GDP
  - C = consumption
  - G = government purchases
  - NX = net exports

National Income Accounts

- Rules of national income accounting
  - Important identities
- Identity
  - An equation that must be true because of the way the variables in the equation are defined
  - Clarify how different variables are related to one another

Accounting Identities

- Closed economy
  - Doesn’t interact with other economies
  - NX = 0
- Open economy
  - Interact with other economies
  - NX ≠ 0

Accounting Identities

- Assumption: close economy: NX = 0
  - Y = C + I + G
- National saving (saving), S
  - Total income in the economy that remains after paying for consumption and government purchases
  - Y – C – G = I
  - S = Y – C - G
  - S = I

Accounting Identities

- T = taxes minus transfer payments
  - $S = Y - C - G$
  - $S = (Y - T - C) + (T - G)$
- Private saving, $Y - T - C$
  - Income that households have left after paying for taxes and consumption
- Public saving, $T - G$
  - Tax revenue that the government has left after paying for its spending

Accounting Identities

- Budget surplus: $T - G > 0$
  - Excess of tax revenue over government spending
- Budget deficit: $T - G < 0$
  - Shortfall of tax revenue from government spending

Saving and Investing

- Accounting identity: S = I
- Saving = Investment
  - For the economy as a whole
  - One person's savings can finance another person's investment

03 The Market for Loanable Funds

The Market for Loanable Funds

- Market for loanable funds
  - Market
    - Those who want to save supply funds (come from national saving)
    - Private investors who want to borrow to invest demand funds
  - One interest rate
    - Return to saving
    - Cost of borrowing
  - Assumption
    - Single financial market

The Market for Loanable Funds

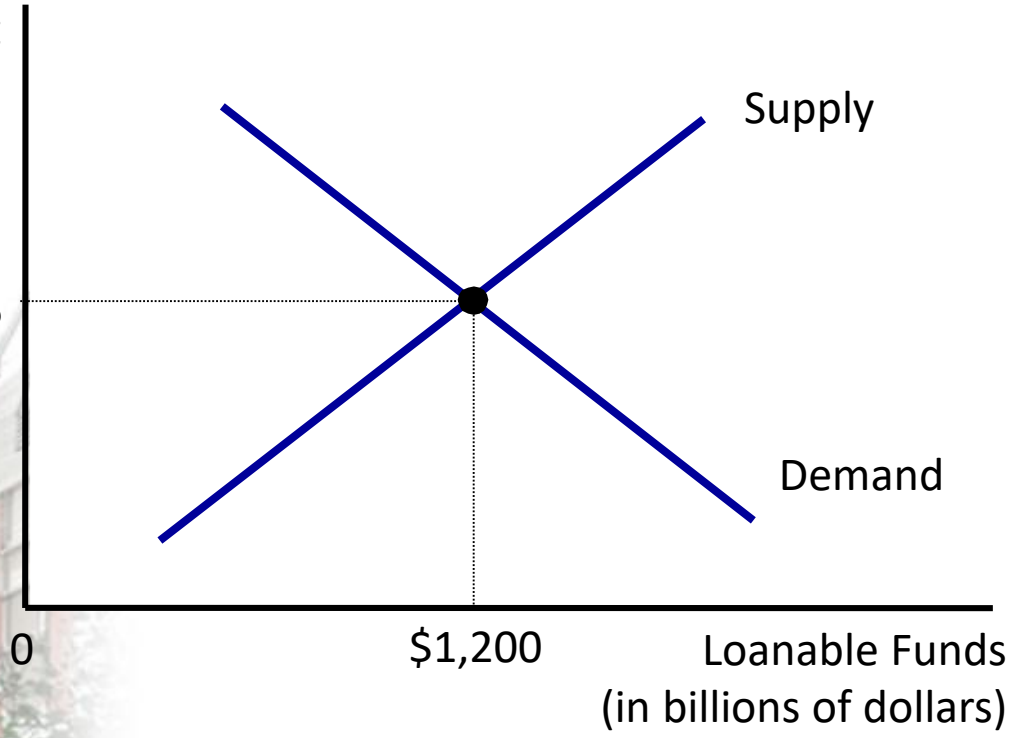
- Supply and demand of loanable funds
  - Source of the supply of loanable funds
    - Saving
  - Source of the demand for loanable funds
    - Investment
  - Price of a loan = real interest rate
    - Borrowers pay for a loan
    - Lenders receive on their saving

The Market for Loanable Funds

- Supply and demand of loanable funds
  - As interest rate rises
    - Quantity demanded declines
    - Quantity supplied increases
  - Demand curve
    - Slopes downward
  - Supply curve
    - Slopes upward

Figure 1

The Market for Loanable Funds



The interest rate in the economy adjusts to balance the supply and demand for loanable funds. The supply of loanable funds comes from national saving, including both private saving and public saving. The demand for loanable funds comes from firms and households that want to borrow for purposes of investment. Here the equilibrium interest rate is 5 percent, and $1,200 billion of loanable funds are supplied and demanded.

More questions

- Is the interest rate set by the Fed(Central bank) or decided by the market demand and supply?
  - ——it is decided by market demand and supply. But Fed can influence those interest rate.
- How? More details in the chapter of Monetary system. (Fed's job: regulate banks, bank of bank....)
- Fed set Federal Funds rate.

Federal Funds rate

- short-term interest rate that banks charge one another for loans
- benchmark for many interest rates
- Federal Funds rate increases, bond interest rate will also increase.

The Market for Loanable Funds

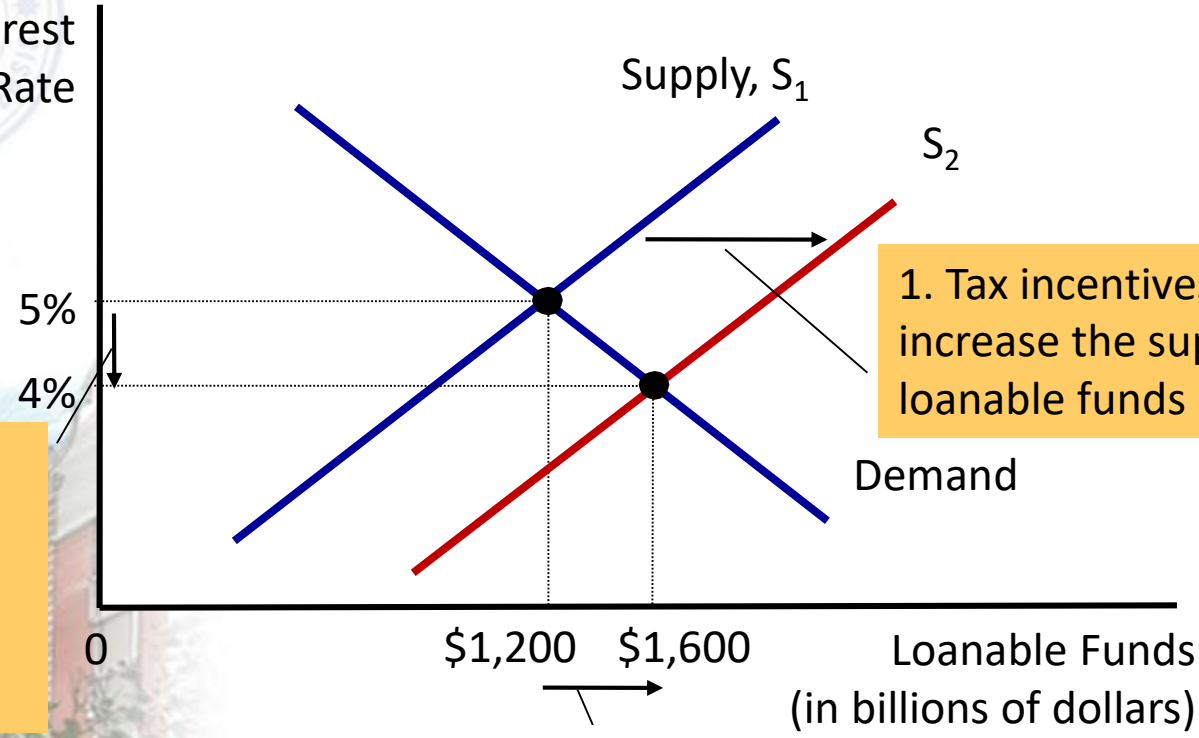
- Government policies
  - Can affect the economy's saving and investment
    - Saving incentives
    - Investment incentives
    - Government budget deficits.

Policy 1: Saving Incentives

- Shelter some saving from taxation
  - Affect supply of loanable funds
  - Increase in supply
    - Supply curve shifts right
  - New equilibrium
    - Lower interest rate
    - Higher quantity of loanable funds
      - Greater investment

Figure 2

Saving Incentives Increase the Supply of Loanable Funds



1. Tax incentives for saving increase the supply of loanable funds . . .

2. . . . which reduces the equilibrium interest rate . . .

3. . . . and raises the equilibrium quantity of loanable funds.

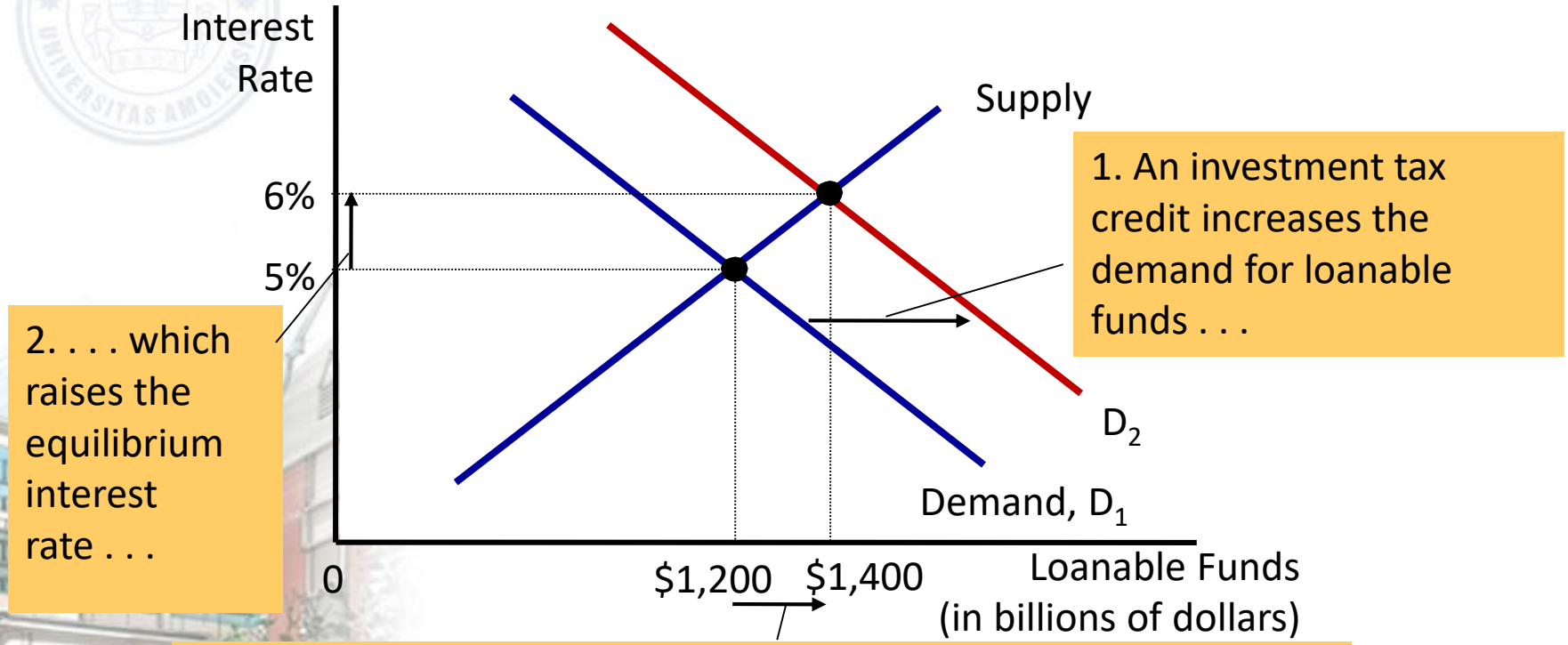
A change in the tax laws to encourage Americans to save more would shift the supply of loanable funds to the right from S_1 to S_2. As a result, the equilibrium interest rate would fall, and the lower interest rate would stimulate investment. Here the equilibrium interest rate falls from 5 percent to 4 percent, and the equilibrium quantity of loanable funds saved and invested rises from $1,200 billion to $1,600 billion.

Policy 2: Investment Incentives

- Investment tax credit
  - Affect demand for loanable funds
  - Increase in demand
    - Demand curve shifts right
  - New equilibrium
    - Higher interest rate
    - Higher quantity of loanable funds
      - Greater saving

Figure 3

Investment Incentives Increase the Demand for Loanable Funds



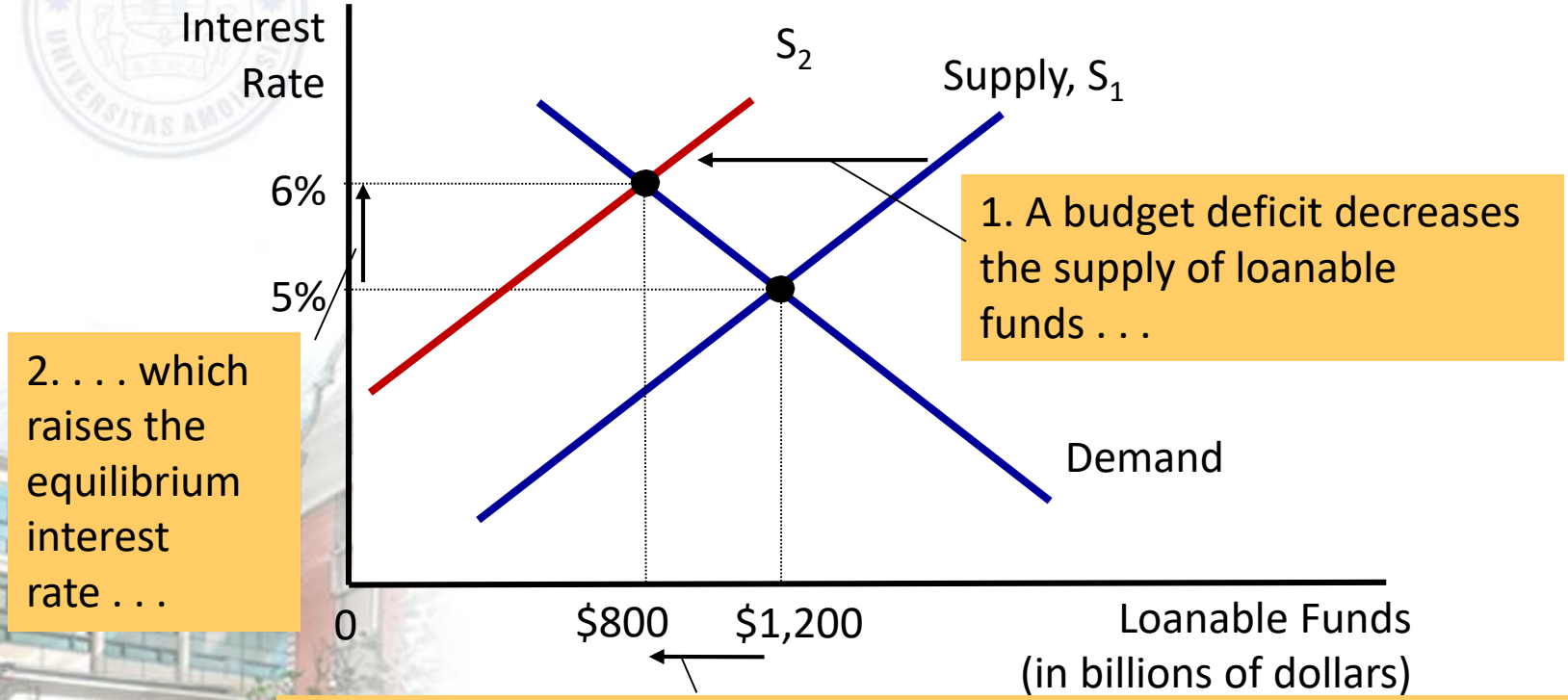
If the passage of an investment tax credit encouraged firms to invest more, the demand for loanable funds would increase. As a result, the equilibrium interest rate would rise, and the higher interest rate would stimulate saving. Here, when the demand curve shifts from D_1 to D_2, the equilibrium interest rate rises from 5 percent to 6 percent, and the equilibrium quantity of loanable funds saved and invested rises from $1,200 billion to $1,400 billion.

Policy 3: Budget Deficit/Surplus

- Government - starts with balanced budget
  - Then starts running a budget deficit
    - Change in supply of loanable funds
    - Decrease in supply
      - Supply curve shifts left
    - New equilibrium
      - Higher interest rate
      - Smaller quantity of loanable funds

Figure 4

The Effect of a Government Budget Deficit



When the government spends more than it receives in tax revenue, the resulting budget deficit lowers national saving. The supply of loanable funds decreases, and the equilibrium interest rate rises. Thus, when the government borrows to finance its budget deficit, it crowds out households and firms that otherwise would borrow to finance investment. Here, when the supply shifts from S_1 to S_2, the equilibrium interest rate rises from 5 to 6 percent, and the equilibrium quantity of loanable funds saved and invested falls from $1,200 billion to $800 billion.

Policy 3: Budget Deficit/Surplus

- Crowding out
  - Decrease in investment
  - Results from government borrowing
- Government - budget deficit
  - Interest rate rises (More expensive to borrow)
  - Investment falls

Policy 3: Budget Deficit/Surplus

7. Suppose the government ran a budget surplus in 2010 and a larger surplus in 2011 because of a decrease in government spending. The loanable funds model would predict that, as a result of the increase in the surplus,
   a. both the government debt and interest rates increased between 2010 and 2011.
   b. both the government debt and interest rates decreased between 2010 and 2011.
   c. the government debt increased and interest rates decreased between 2010 and 2011.
   d. the government debt decreased and interest rates increased between 2010 and 2011.

The history of U.S. government debt

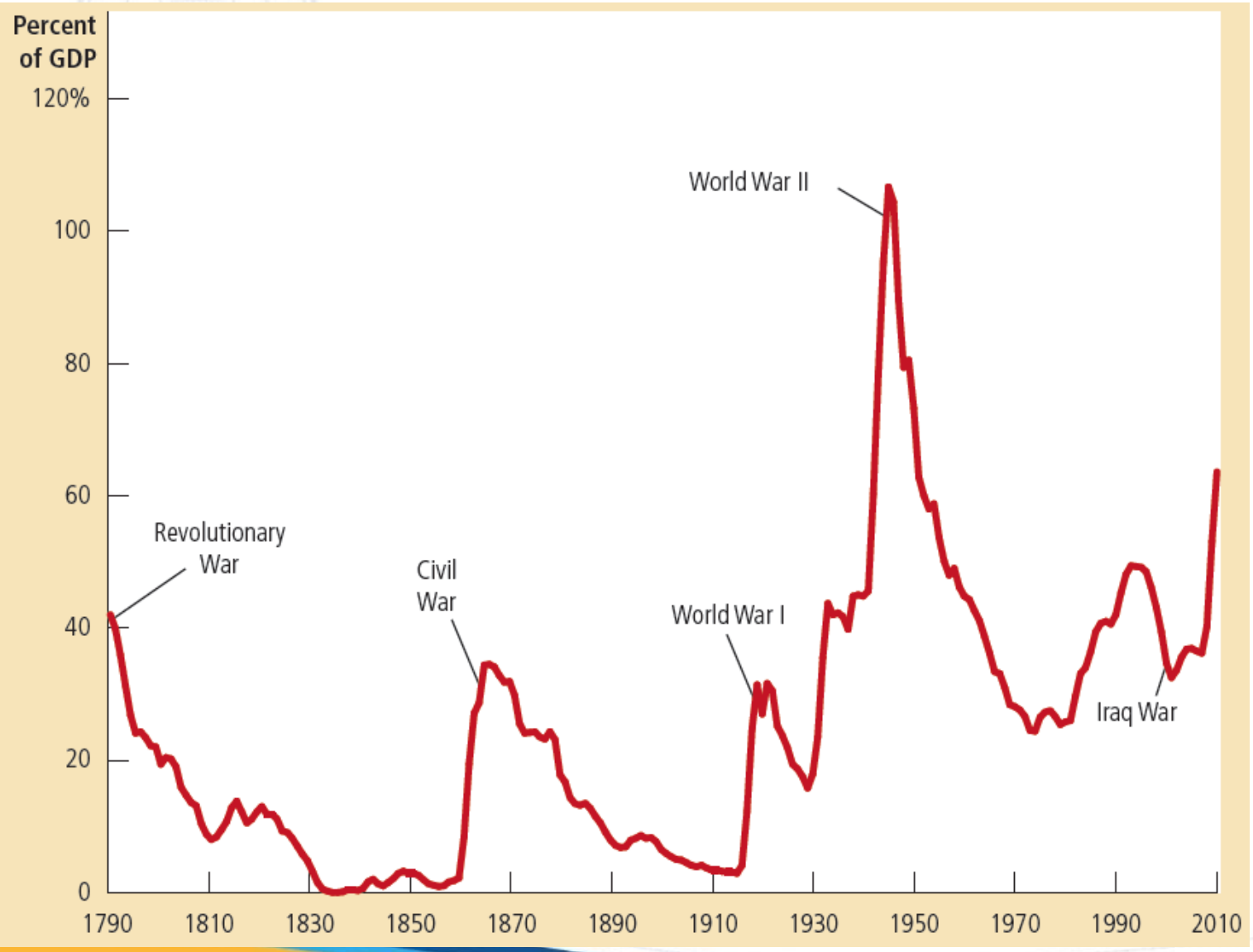
- Debt of U.S. federal government
  - As a percentage of U.S. GDP
  - Fluctuated
    - 0% of GDP in 1836
    - 107% of GDP in 1945
- Declining debt-GDP ratio
  - Government indebtedness is shrinking relative to its ability to raise tax revenue
  - Government - living within its means

The history of U.S. government debt

- Rising debt-GDP
  - Government indebtedness is increasing relative to its ability to raise tax revenue
    - Fiscal policy cannot be sustained forever at current levels
- War – primary cause of fluctuations in government debt:
  - Debt financing of war – appropriate policy
    - Tax rates – smooth over time
    - Shifts part of the cost to future generations

Figure 5

The U.S. Government Debt



The debt of the U.S. federal government, expressed here as a percentage of GDP, has varied throughout history. Wartime spending is typically associated with substantial increases in government debt.


谢谢！
THANK YOU!