We have...

- Realized that capital accumulation is one of the driving forces for growth.

Now…

- We explore the ECONOMICS of capital accumulation.
  - Why would firms purchase capital?
  - Where does the capital come?

26 Saving, Investment, and the Financial System

PRINCIPLES OF
ECONOMICS
FOURTH EDITION

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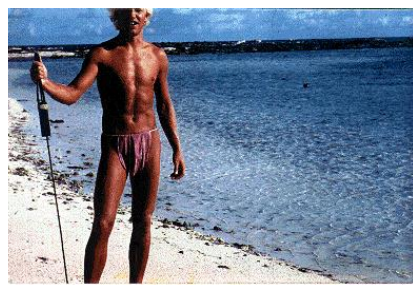
PowerPoint® Slides
by Ron Cronovich

In this chapter, look for the answers to these questions:

- What are the main types of financial institutions in the U.S. economy, and what is their function?
- What are the three kinds of saving?
- What's the difference between saving and investment?
- How does the financial system coordinate saving and investment?
- How do govt policies affect saving, investment, and the interest rate?

Robinson-Crusoe Economy Again…



Saving of Robinson

- Robinson lives alone;
- He makes a living by fishing;
  - Notice that Robinson is the producer AND the consumer; or, in another word, he is the firm AND the household.
- Suppose fish is storable. Robinson can either eat all the fish he catches, or eat part of it and store the rest – Robinson Saves!
- Why would he save? Notice that Robinson has to eat some fish everyday to keep himself alive.
  - He knows he may get sick one day; (save for unemployment)
  - He may need a break the next day; (save for vacation)
  - He plans to make fishnets the next day to catch more fishes in the future – Robinson invests! (save for investment).

Now, make it more real…

- Fish can be storable, but not for ever.
- In the real world, capital depreciates.
- If we make the extreme assumption that fish is non-storable, *can Robinson save*?

Yes, he can; but not alone

- Suppose there are two Robinsons.

Robinson 1

Robinson 2

Two Robinsons can make arrangement

- Robinson 1 gets sick one day and cannot catch fish.
- Robinson 2 helps him out by sharing fish with him
- But Robinson 1 makes the promise that he will return the fish back once he recovers and fishes again.
- In this case, Robinson 1 is the borrower and Robinson 2 is the saver.
- The income of the saver goes to the borrower.

Two Robinsons can make another arrangement…

- Robinson 1 wants to spend a day making fishnets to catch more fish in the future;
- Robinson 2 helps Robinson 1 by sharing fish with him; Robinson 1 promises that he will give the fish back.
- In this case, Robinson 2 is still the saver, but Robinson 1 is the investor.
- The investment is financed by saving!

When there are only two Robinsons

- They talk and make arrangement;

When there are millions of people as in the real world…

- Things take place through MARKET;
- In this case, firms' investment are financed by households' saving through FINANCIAL MARKETS or FINANCIAL INTERMEDIARIES.

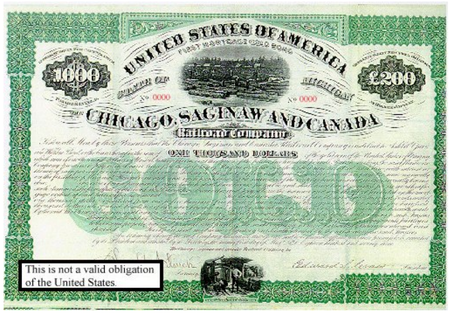
Financial Institutions

- 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.

A BOND

- Date of maturity: the time when the loan will be paid;
- Rate of interest that will be paid periodically until the loan matures.
- Bonds are risky!

Historical Railroad Bond



The Stock Market

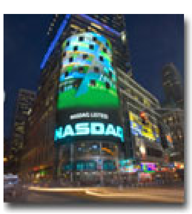
- Partial ownership by funding the purchase of capital;
- Declares share of the corporate profits;
- Stocks are riskier than bonds, why?
  - Bond represent a firm's obligation to pay the money back (unless it declares bankruptcy)
  - Investors take the risks themselves by purchasing the partial ownership.
  - Before a firm goes bankrupt, its remaining assets are used first to pay off the debts.

Stock Exchange

- Once stocks are issued, they change owners via the stock exchange market.
  - NY Stock Exchange
  - American Stock Exchange
  - NASDAQ
- Stock price of a firm depends on
  - The firms' profitability
  - People's perception for the firms' future.

1929 Crash of the NY Stock Exchange during the Great Depression

NASDAQ: the world's biggest electronic stock exchange system



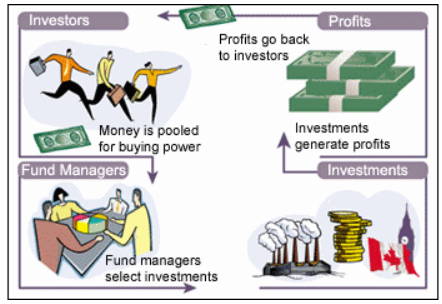
Stock Price Indexes

- Just like GDP deflator is the average price for all goods and services produced in the US;
- Stock price indexes is the average price of different companies' stock prices.
- Depending on which companies' stock price is included, we have:
  - *Dow Jones Industrial Average*: 30 major US companies such as GM, AT&T…
  - *Standard&Poor's 500 Index*: 500 major companies.

Financial Institutions

- **Financial intermediaries**: institutions through which savers can <u>indirectly</u> provide funds to borrowers. Examples:
  - Banks that take deposits from the households and make loans to firms.
  - **Mutual funds** – institutions pool savings from the public that is invested and managed on their behalf by professional money managers.

Mutual Funds



Different Kinds of Saving

Private saving

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

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

Public saving

= Tax revenue less government spending

= $\mathbf{T} - \mathbf{G}$

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

Saving and Investment

Recall the national income accounting identity:

$\mathbf{Y} = \mathbf{C} + \mathbf{I} + \mathbf{G} + \mathbf{NX}$ (-5.8%)

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

Budget Deficits and Surpluses

Budget surplus

= an excess of tax revenue over govt spending

= $\mathbf{T} - \mathbf{G}$

= public saving

Budget deficit

= a shortfall of tax revenue from govt spending

= $\mathbf{G} - \mathbf{T}$

= – (public saving)

ACTIVE LEARNING 1: Exercise

- 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.

ACTIVE LEARNING 1: Answers

Given:

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

Public saving = **T** – **G** = – 0.3

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

ACTIVE LEARNING 1B: Exercise

- Now suppose 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.

ACTIVE LEARNING 1B: Answers

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.

ACTIVE LEARNING 1C: Discussion questions

The two scenarios are:

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 the most realistic?
- Why is this question important?

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

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!

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

The Market for Loanable Funds

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.

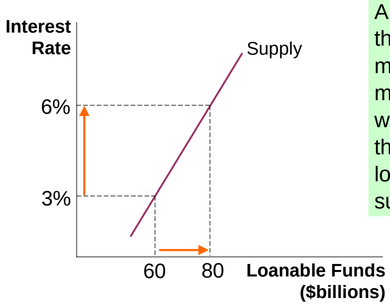
The Market for Loanable Funds

The supply of loanable funds comes from saving:

- Households with extra income can loan it out and earn interest.
- Public saving, if positive, adds to national saving and the supply of loanable funds.

  If negative, it reduces national saving and the supply of loanable funds.

The Slope of the Supply Curve



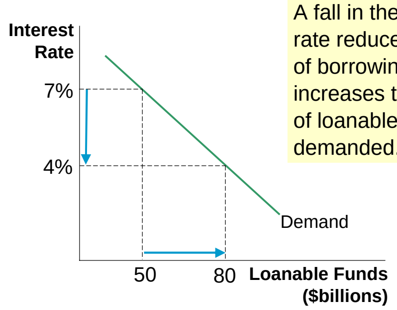
An increase in the interest rate makes saving more attractive, which increases the quantity of loanable funds supplied.

The Market for Loanable Funds

The demand for loanable funds comes from investment:

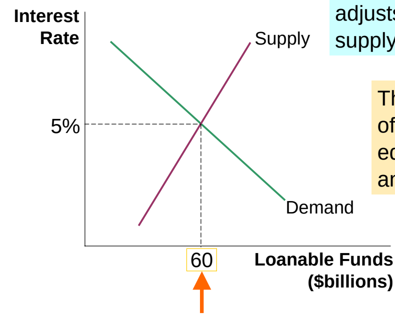
- Firms borrow the funds they need to pay for new equipment, factories, etc.
- Households borrow the funds they need to purchase new houses.

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.

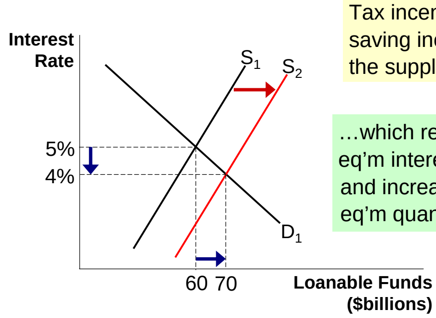
Equilibrium



The interest rate adjusts to equate supply and demand.

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

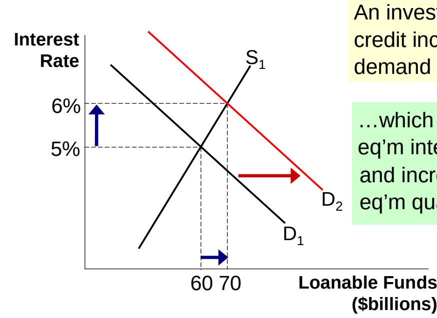
Policy 1: Saving Incentives



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.

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.

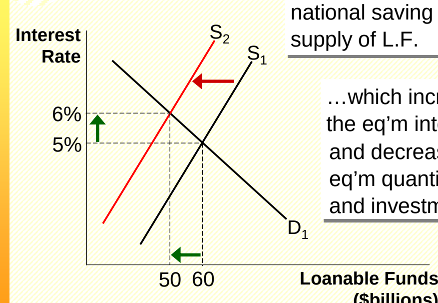
ACTIVE LEARNING 2: Exercise

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

- Draw the diagram showing the initial equilibrium.
- Determine which curve shifts when the government runs a budget deficit.
- Draw the new curve on your diagram.
- What happens to the equilibrium values of the interest rate and investment?

ACTIVE LEARNING 2: Answers

A budget deficit reduces national saving and the supply of L.F.



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

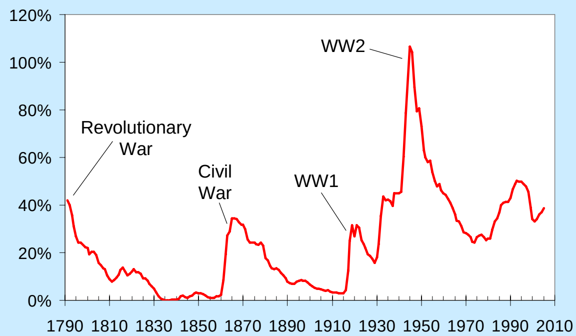
Budget Deficits, Crowding Out, and Long-Run Growth

- 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.

The U.S. Government Debt

- The government finances deficits by borrowing (selling government bonds).
- Persistent deficits lead to a rising govt debt.
- The ratio of govt debt to GDP is a useful measure of the government's indebtedness relative to its ability to raise tax revenue.
- Historically, the debt-GDP ratio usually rises during wartime and falls during peacetime – until the early 1980s.

U.S. Government Debt as a Percentage of GDP, 1970-2005



CONCLUSION

- Like many other markets, financial markets are governed by the forces of supply and demand.
- One of the Ten Principles from Chapter 1: *Markets are usually a good way to organize economic activity.*
  Financial markets help allocate the economy's scarce resources to their most efficient uses.
- Financial markets also link the present to the future: They enable savers to convert current income into future purchasing power, and borrowers to acquire capital to produce goods and services in the future.

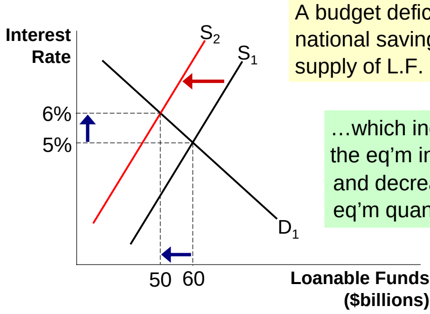
CHAPTER SUMMARY

- The U.S. financial system is made up of many types of financial institutions, like the stock and bond markets, banks, and mutual funds.
- National saving equals private saving plus public saving.
- In a closed economy, national saving equals investment. The financial system makes this happen.

CHAPTER SUMMARY

- The supply of loanable funds comes from saving. The demand for funds comes from investment. The interest rate adjusts to balance supply and demand in the loanable funds market.
- A government budget deficit is negative public saving, so it reduces national saving, the supply of funds available to finance investment.
- When a budget deficit crowds out investment, it reduces the growth of productivity and GDP.

Policy 3: Govt Budget Deficits



A budget deficit reduces national saving and the supply of L.F.

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