CHAPTER 10 - SAVINGS, INVESTMENT SPENDING, AND THE FINANCIAL SYSTEM

WHAT YOU WILL LEARN IN THIS CHAPTER

• What is the relationship between savings and investment spending?
• How does the loanable funds market match savers with borrowers?
• What are the purposes of the four principal types of financial assets: loans, bonds, stocks, and bank deposits?
• How do financial intermediaries help investors achieve diversification?
• What are the competing views about how asset prices are determined and why asset market fluctuations can be a source of macroeconomic instability?

Having a good idea isn’t enough to build a business. Entrepreneurs need funds: You have to spend money to make money.

Savings–investment spending identity: savings and investment spending are always equal for the economy as a whole.

Who pays for private investment spending?
In the modern economy, individuals and firms that create physical capital often do it with other people’s money.
**Savings–investment spending identity**

\[
\text{GDP} = C + I + G.
\]
Total income = total spending. Total income can go to consumer spending (C) or government purchases of goods and services (G) or be saved (S).

\[
\text{GDP} = C + G + S.
\]
Total income = consumption spending + savings. Total spending consists of either consumption spending (C + G) or investment spending (I):

\[
\text{GDP} = C + G + I.
\]
Total income = consumption spending + investment spending. Putting these equations together, we get:

\[
C + G + S = C + G + I
\]
Consumption spending = consumption spending + savings + investment spending. Subtracting (C + G) from both sides:

\[
S = I \text{ or savings} = \text{investment spending}.
\]

**Now let’s take a closer look at savings.**

**Government can also save (or not).**

- **Budget surplus**: excess of tax revenue over government spending.
- **Budget deficit**: excess of government spending over tax revenue.
- **Budget balance**: the difference between tax revenue and government spending.
- **National savings**: the sum of private savings and the budget balance (the total amount of savings generated within the economy).

**The different kinds of capital**

It’s important to stay clear about the different kinds of capital (as explained in the previous chapter):

1. **Physical capital** consists of manufactured resources, such as buildings and machines.
2. **Human capital** is the improvement in the labor force generated by education and knowledge.
3. **Financial capital** is funds from savings that are available for investment spending.
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What happens when a country sends savings to or receives savings from abroad? This affects national savings.

Net capital inflow is the total flow of funds into a country minus the total flow of funds out of a country.

A country with a positive net capital inflow has an extra flow of funds from abroad that can be used for investment spending.

A country that spends more on imports than it earns from exports must borrow the difference from foreigners.

\[ NCI = IM - X \]

Net capital inflow = imports − exports.

Rearrange \[ GDP = C + I + G + X - IM \]... to

\[ I = (GDP - C - G) + (IM - X) \]

We know that \[ GDP - C - G \] is equal to national savings,

\[ I = S_{National} + (IM - X) = S_{National} + NCI \]

Investment spending = national savings + net capital inflow.

Capital inflow is the:

a) net inflow of foreign funds plus domestic savings into an economy.

b) net inflow of funds into a country, or the total inflow of foreign funds into a country minus the total outflow of domestic funds to other countries.

c) total outflow of domestic funds to other countries minus the net inflow of foreign funds into a country.

d) total outflow of domestic funds to other countries plus the net inflow of foreign funds into a country.

The United States and Germany, 2016
(two large open economies)
On any given day, the people with money to lend are not usually the same as people who want to borrow.

**How are savers and borrowers brought together?**

**Financial markets** channel the savings of households to businesses that want to borrow in order to purchase capital equipment.

There are many financial markets. For our purposes we’ll assume one market where savers and borrowers come together.

The **loanable funds market**: a hypothetical market that illustrates the market outcome of the demand for funds generated by borrowers and the supply of funds provided by lenders.

We assume the price of loans is the (nominal) interest rate.

(Again, we assume a simplified world with just one interest rate, knowing that the real world contains many interest rates according to length of loan, risk, and customers.)

The demand for loanable funds

An investment is worth making only if it generates a future return that is greater than the monetary cost of making the investment today.

**Present value** is the amount of money needed today to receive a given amount of money at a future date given the interest rate.

If you need $1,000 in a year and the interest rate on savings is \( r \), how much do you need to put in the bank now \( (X) \)?

\[
X \times (1 + r) = 1,000.
\]

Rearrange: \( X = \frac{1,000}{1 + r} \).
A firm has two potential investment projects in mind, each of which will yield $1,000 a year from now.

Each project has different initial costs:
One requires that the firm borrow $900 right now.
The other requires that the firm borrow $950.

Which of these projects is worth borrowing money to finance and undertake?
Depends on the interest rate.
A 10% interest rate means $1,000 is worth $909 now, so only the first project is worth it, since its initial cost ($900) is less than the present value.
More projects are worth it as interest rate falls.

Why does the supply of loanable funds curve slope upward?
More people are willing to forgo current consumption and make a loan to a borrower when the interest rate is higher.
Factors that can cause the demand curve for loanable funds to shift:

1. changes in perceived business opportunities
2. changes in government borrowing

Crowding out occurs when a government budget deficit drives up the interest rate and leads to reduced investment spending. Crowding out is not a concern in a depressed economy; rather, increased government spending raises income (and private savings).

Factors that can cause the supply curve for loanable funds to shift include:

1. changes in private savings behavior.
2. changes in net capital inflows.

Anything that shifts either the supply of loanable funds curve or the demand for loanable funds curve changes the interest rate.

Major changes in interest rates have been driven by many factors, including:

- changes in government policy.
- technological innovations that created new investment opportunities.

But most important, people’s expectations about future inflation.
**GLOBAL LOANABLE FUNDS**

- A global loanable funds market arises when international capital flows are so large that they equalize interest rates across countries.
- What if the process of capital inflows went all the way and equalized interest rates globally? (There is an incentive for capital to flow to where the returns are higher.)

**EQUILIBRIUM IN THE GLOBAL LOANABLE FUNDS MARKET**

- Capital moves away from lower returns toward higher returns.

Real interest rate = nominal interest rate – inflation rate.

The true cost of borrowing (and payoff to lending) is the real interest rate.

But neither lenders nor borrowers know what inflation will be, so loan contracts specify a nominal interest rate.

According to the *Fisher effect*, an increase in expected future inflation drives up the nominal interest rate, leaving the expected real interest rate unchanged.

If the tide rises, these boats will still float on the surface.
The Fisher Effect

The Fisher Effect defines the relationship between real rates, nominal rates and inflation:

\[ (1 + R) = (1 + r)(1 + \pi) \]

- **R** = nominal rate (Quoted rate)
- **r** = real rate
- **\pi** = expected inflation rate

\[ 1 + R = 1 + r + \pi + r\pi \]

Approximation: **R** = **r** + **\pi** (we assume **r**\pi is relatively small and close to 0.

Example

If we require a 10% real return and we expect inflation to be 8%, what is the nominal rate?

\[ R = (1 + R)(1 + \pi) = 1 + r + \pi + r\pi \]

\[ R = (1.1)(1.08) - 1 = .188 = 18.8\% \]

Because the real return and expected inflation are relatively high, there is significant difference between the actual Fisher Effect and the approximation.

The expected real interest rate is unaffected by changes in expected future inflation.

The 60 years of U.S. interest rates

- Changes in expected future inflation and changes in the expected return on investment spending clearly move interest rates.
Most economies have some sort of financial system to handle household wealth and make loans. 

Wealth is the value of a household’s accumulated savings.

A financial asset is a paper claim that entitles the buyer to future income from the seller.

A physical asset is a tangible object that can be used to generate future income.

A liability is a requirement to pay income in the future.

A well-functioning financial system is a critical ingredient in achieving long-run growth because it encourages greater savings and investment spending.

It also ensures that savings and investment spending are undertaken efficiently.

Task 1: reducing transaction costs

Transaction costs: the expenses of negotiating and executing a deal.

Task 2: reducing risk

Financial risk: uncertainty about future outcomes that involve financial losses or gains.

Diversification: investing in several assets with unrelated, or independent, risks; reduces risk.

Task 3: providing liquidity

Liquidity: a measure of how quickly an asset can be converted into cash with relatively little loss of value.

If it can be converted quickly, it’s liquid; if not, illiquid.

Bond: an IOU issued by the borrower, usually with a set interest and maturity date

A concern for investors is the possibility of default (failure of a borrower to make payments as specified)

More risky bonds carry higher interest rates

Loan-backed securities: assets created by pooling individual loans and selling shares in that pool (a process called securitization)

With so many loans packaged together, it can be difficult to assess the true quality of the asset, as in the financial crisis of 2008.

Stock: a share in the ownership of a company
Financial intermediary: an institution that transforms the funds it gathers from many individuals into financial assets.

- mutual funds
- pension funds and life insurance companies
- banks

It’s hard for people without large amounts of money to build a diversified portfolio. The solution is mutual funds.

**Mutual fund**: financial intermediary that builds a stock portfolio and resells shares of this portfolio to individual investors.

<table>
<thead>
<tr>
<th>Company</th>
<th>Percent of mutual fund assets invested in a company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Inc.</td>
<td>3.03%</td>
</tr>
<tr>
<td>Microsoft Corp.</td>
<td>2.39</td>
</tr>
<tr>
<td>Exxon Mobil Corp.</td>
<td>1.84</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>1.55</td>
</tr>
<tr>
<td>Berkshire Hathaway Inc. B</td>
<td>1.52 Data from: Fidelity Investments.</td>
</tr>
<tr>
<td>Amazon.com Inc.</td>
<td>1.50</td>
</tr>
<tr>
<td>JP Morgan Chase &amp; Co.</td>
<td>1.47</td>
</tr>
<tr>
<td>General Electric Co.</td>
<td>1.40</td>
</tr>
<tr>
<td>Facebook Inc. A</td>
<td>1.40</td>
</tr>
<tr>
<td>Wells Fargo &amp; Co.</td>
<td>1.22</td>
</tr>
</tbody>
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Pension fund: a type of mutual fund that holds assets to provide retirement income to its members.

Life insurance company: sells policies that guarantee a payment to a policyholder’s beneficiaries when the policyholder dies.

Bank: a financial intermediary that provides liquid assets in the form of bank deposits to lenders and uses those funds to finance the illiquid investment spending needs of borrowers who don’t want to use the stock or bond markets.

Bank deposit: a financial asset (a claim on the bank’s cash) owned by the depositor—and a liability of the bank that holds it.
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Is it the increased appetite for risk that causes U.S. companies to issue a lot more bonds than their European counterparts?

A healthy financial system is essential; when it fails, it causes instability.

What causes asset price fluctuations?
- the demand for stocks
- the demand for other assets
- asset price expectations

Stock indexes: what and why?
Dow Jones Industrial Average, S&P 500, and NASDAQ are averages of a group of stocks. Each index gives investors a quick view of how different sectors are doing (or rather, how investors expect them to do in the future).

According to the efficient markets hypothesis, asset prices embody all publicly available information.

Implications:
At any time stock prices are fairly valued: They reflect all available information about fundamentals.
The prices of stocks and other assets should change only in response to new information about the underlying fundamentals—and should move in a random walk (a “random walk” is the movement over time of an unpredictable variable.)
Behavioral economics (and its subfield in finance) study how people make (predictable) mistakes in their decisions.

Investors depart from rationality in systematic ways:

**Overconfidence:** having misguided faith that they are able to spot a winning stock.

**Loss aversion:** being unwilling to sell an unprofitable asset and accept the loss.

**Herd mentality:** buying an asset when its price has already been driven high and selling it when its price has already been driven low.

The Great American Housing Bubble

- Policymakers didn’t worry about the massive rise in home values until it began to cause economic slowdown.

Structure of Financial Markets

Organized Exchanges and Over-the-Counter (OTC) Markets

**Money and Capital Markets**

Money markets deal in short-term debt instruments. Securities with maturity less than a year. Ex: Repo and reverse-repo market. Short-term liquidity is traded in money markets. Trade Volume is higher in money markets. Capital markets deal in longer-term debt and equity instruments. Bonds with maturity longer than a year and stocks are capital markets. “Long-term securities” refer to longer than 10 years.

World Stock Markets

**Asian-Pacific Stock Indexes**

**Europe, Africa, Middle East Stock Indexes**

**Qatar Stock Index**

**U.S., North/Latin America Stock Indexes**

World Stock Indexes