



Saving, Investment, and the Financial System

Goals

In this chapter you will

Learn about some of the important financial institutions in the U.S. economy

Consider how the financial system is related to key macroeconomic variables

Develop a model of the supply and demand for loanable funds in financial markets

Use the loanable-funds model to analyze various government policies

Consider how government budget deficits affect the U.S. economy

Outcomes

After accomplishing these goals, you should be able to

List and describe four important types of financial institutions

Describe the relationship between national saving, government deficits, and investment

Explain the slope of the supply and demand for loanable funds

Shift supply and demand in the loanable-funds market in response to a change in taxes on interest or investment

Strive for a Five

Chapter 26 has material that is tested on both the multiple-choice and free response sections of the AP macroeconomics test. Recently, the market for loanable funds has appeared on the free response portion of the exam. You should be prepared to create and explain the model, noting that the equilibrium interest rate of the loanable funds market is the real interest rate.

- The bond market
- Loanable funds market
- Shift supply and demand in the loanable-funds market in response to a change in the government's budget deficit

Key Terms

- *Financial system*—The group of institutions in the economy that help match borrowers and lenders
- *Financial markets*—Financial institutions through which savers can directly lend to borrowers
- *Financial intermediaries*—Financial institutions through which savers can indirectly lend to borrowers
- *Bank*—Institution that collects deposits and makes loans
- *Medium of exchange*—Spendable asset such as a checking deposit
- *Bond*—Certificate of indebtedness or IOU
- *Stock*—Certificate of ownership of a small portion of a large firm
- *Mutual fund*—Institution that sells shares and uses the proceeds to buy a diversified portfolio
- *Closed economy*—An economy with no international transactions
- *National saving* (often referred to as simply saving)—The income that remains after consumption expenditures and government purchases
- *Private saving*—The income that remains after consumption expenditures and taxes
- *Public saving*—The tax revenue that the government has left after paying for its spending
- *Budget surplus*—An excess of tax revenue over government spending causing public saving to be positive
- *Budget deficit*—A shortfall of tax revenue relative to government spending that causes public saving to be negative
- *Government debt*—The accumulation of past budget deficits
- *Investment*—Expenditures on capital equipment and structures
- *Market for loanable funds*—The market in which those who want to save supply funds and those who want to borrow to invest demand funds
- *Demand for loanable funds*—The amount of borrowing for investment desired at each real interest rate
- *Supply of loanable funds*—The amount of saving made available for lending at each real interest rate
- *Crowding out*—A decrease in investment as a result of government borrowing

Chapter Overview

Context and Purpose

Chapter 26 is the second chapter in a four-chapter sequence on the production of output in the long run. In Chapter 25, we found that capital and labor are among the primary determinants of output. For this reason, Chapter 26 addresses the market for saving and investment in capital, and Chapter 27 addresses the tools people and firms use when choosing capital projects in which to invest. Chapter 28 will address the market for labor.

The purpose of Chapter 26 is to show how saving and investment are coordinated by the loanable-funds market. Within the framework of the loanable-funds market, we are able to see the effects of taxes and government deficits on saving, investment, the accumulation of capital, and ultimately, the growth rate of output.

Chapter Review

Introduction Some people save some of their income and have funds that are available to loan. Some people wish to invest in capital equipment and thus need to borrow. The financial system consists of those institutions that help match, or balance, the lending of savers to the borrowing of investors. This is important because investment in capital contributes to economic growth.

Financial Institutions in the U.S. Economy

The financial system is made up of financial institutions that match borrowers and lenders. Financial institutions can be grouped into two categories: financial markets and financial intermediaries.

Financial markets allow firms to borrow *directly* from those that wish to lend. The two most important financial markets are the bond market and the stock market.

- The *bond market* allows large borrowers to borrow directly from the public. The borrower sells a bond (a certificate of indebtedness or IOU), which specifies the *date of maturity* (the date the loan will be repaid), the amount of interest that will be paid periodically, and the *principal* (the amount borrowed and to be repaid at maturity). The buyer of the bond is the lender.

Bond issues differ in three main ways:

- (1) Bonds are of different *terms* (time to maturity). Longer-term bonds are riskier and, thus, usually pay higher interest because the owner of the bond may need to sell it before maturity at a depressed price.
 - (2) Bonds have different *credit risk* (probability of default). Higher risk bonds pay higher interest. *Junk bonds* are exceptionally risky bonds.
 - (3) Bonds have different types of *tax treatment*. The interest received from owning a *municipal bond* (bond issued by state or local government) is tax exempt. Thus, municipal bonds pay lower interest.
- The *stock market* allows large firms to raise funds for expansion by taking on additional “partners” or owners of the firm. The sale of stock is called *equity finance* while the sale of bonds is called *debt finance*. Owners of stock share in the profits or losses of the firm while owners of bonds receive fixed interest payments as creditors. The stockholder accepts more risk than the bondholder accepts but has a higher potential return. Stocks don’t mature or expire and are traded on stock exchanges such as the New York Stock Exchange and NASDAQ. Stock prices are determined by supply and demand and reflect expectations of the firm’s future profitability. A *stock index*, such as the Dow Jones Industrial Average, is an average of an important group of stock prices.

Financial intermediaries are financial institutions through which savers (lenders) can indirectly loan funds to borrowers. That is, financial intermediaries are middlepersons between borrowers and lenders. The two most important financial intermediaries are banks and mutual funds.

- *Banks* collect deposits from people and businesses (savers) and lend them to other people and businesses (borrowers). Banks pay interest on deposits and charge a slightly higher rate on their loans. Small businesses usually borrow from banks because they are too small to sell stock or bonds. Banks create a *medium of exchange* when they accept a deposit because individuals can write checks against the deposit to engage in transactions. Other intermediaries only offer savers a *store of value* because their saving is not as accessible.
- Mutual funds are institutions that sell shares to the public and use the proceeds to buy a group of stocks and/or bonds. This allows small savers to *diversify* their asset *portfolios* (own a variety of assets). It also allows small savers access to professional money managers. However, few money managers can beat *index funds*, which buy all of the stocks in a stock index without the aid of active management. There are two reasons why index funds outperform actively managed funds. First, it is hard to pick stocks whose prices will rise because the market price of a stock is already a good reflection of a company's true value. Second, index funds keep costs low by rarely buying and selling and by not having to pay the salaries of professional money managers.

Although there are many differences among these financial institutions, the overriding similarity is that they all direct resources from lenders to borrowers.

Saving and Investment in the National Income Accounts

In order to truly appreciate the role of the financial system in directing saving into investment, we must begin to understand saving and investment from a macroeconomic perspective. The national income accounts record the relationship among income, output, saving, investment, expenditures, taxes, and so on. There are a number of national income *identities* (equations that are true by definition) that expose relationships between these variables.

Recall, GDP is the value of output, the value of income earned from producing it, and *the value of expenditures* on it. Therefore,

$$Y = C + I + G + NX$$

where Y = GDP, C = consumption expenditures, I = investment expenditures, G = government purchases, and NX = net exports. To simplify, we assume there is no international sector, which means that we have a *closed economy*. (An *open economy* includes a foreign sector.) Therefore, for our example

$$Y = C + I + G$$

National saving, or just saving, is the income left over after paying for consumption and government purchases. To find saving, subtract C and G from both sides.

$$Y - C - G = I$$

$$\text{or } S = I$$

which says, saving = investment.

To appreciate the impact of the government's purchases and taxes on saving, we need to define saving as above:

$$S = Y - C - G$$

which says again that saving is income left over after consumption and government purchases. Now add and subtract T (taxes) from the right side:

$$S = (Y - T - C) + (T - G).$$

This says that saving is equal to private saving ($Y - T - C$), which is income left over after paying taxes and consumption, and public saving ($T - G$), which is the government's budget surplus. Often G is greater than T , and the government runs a negative surplus or a budget deficit.

In summary, $S = I$ for the economy as a whole and the amount of saving available for investment is the sum of private saving and public saving. Although $S = I$ for the entire economy, it is not true for each individual. That is, some people invest less than they save and have funds to lend while others invest more than they save and need to borrow funds. These groups meet in the market for loanable funds. Note that saving is the income that remains after paying for consumption and government purchases while investment is the purchase of new capital.

The Market for Loanable Funds

For simplicity, imagine that there is one loanable funds market where all savers take their funds to be loaned and where all investors go to borrow funds.

- The *supply of loanable funds* comes from national saving. A higher real interest rate increases the incentive to save and increases the quantity supplied of loanable funds.
- The *demand for loanable funds* comes from households and firms that wish to borrow to invest. A higher real interest rate increases the cost of borrowing and reduces the quantity demanded of loanable funds.

The supply and demand for loanable funds combine to generate a market for loanable funds. This market determines the equilibrium real interest rate and the equilibrium quantity of funds loaned and borrowed. Since the funds that are loaned are national saving and the funds that are borrowed are used for investment, the loanable-funds market also determines the equilibrium level of saving and investment.

The following three policies increase saving, investment, and capital accumulation, and hence, these policies increase economic growth.

Reduced taxation on interest and dividends increases the return to saving for any real interest rate and, thus, increases the desire to save and loan at each real interest rate. Graphically, this policy will shift the supply of loanable funds to the right, lower the real interest rate, and raise the quantity demanded of funds for investment. Real interest rates fall while saving and investment rise.

Reduced taxation if one invests, for example an investment tax credit, will increase the return to investment in capital for any real interest rate and, thus, increase the desire to borrow and invest at each real interest rate. Graphically, this policy will shift the demand for loanable funds to the right, raise the real interest rate, and increase the quantity supplied of funds. Real interest rates, saving, and investment rise.

A reduction in government debt and deficits (or an increase in a budget surplus) increases public saving ($T - G$) so more national saving is available at each real interest rate. Graphically, this policy will shift the supply of loanable funds to the right, decrease the real interest rate, and increase the quantity demanded of funds for investment. Real interest rates fall, and saving and investment rise.

Note that a *budget deficit* is an excess of government spending over tax revenue. The accumulation of past government borrowing is called the *government debt*. A budget surplus is an excess of tax revenue over government spending. When government spending equals tax revenue, there is a *balanced budget*. An increase in the deficit reduces national saving, shifts the supply of loanable funds to the left, raises the real interest rate, and reduces the quantity demanded of funds for investment. When private borrowing and investment are reduced due to government borrowing, we say that government is crowding out investment. Government surpluses do just the opposite of budget deficits.

The debt-GDP ratio usually rises during wars and this is considered appropriate. However, it rose during the 1980s. Policymakers from both parties viewed this with alarm and deficits were reduced during the 1990s and a surplus arose. During the George W. Bush presidency, the budget returned to deficit for a number of reasons: tax cuts, a recession, and the war on terrorism.

Helpful Hints

1. A financial intermediary is a middleperson. An intermediary is someone who gets between two groups and negotiates a solution. For example, we have intermediaries in labor negotiations that sit between a firm and a union. In like manner, a bank is a financial intermediary in that it sits between the ultimate lender (the depositor) and the ultimate borrower (the firm or homebuilder) and “negotiates” the terms of the loan contracts. Banks don’t lend their own money. They lend the depositor’s money.
2. Investment is not the purchase of stocks and bonds. In casual conversation, people use the word “investment” to mean the purchase of stocks and bonds. For example, “I just invested in ten shares of IBM.” (Even an economist might say this.) However, when speaking in economic terms, *investment* is the actual purchase of capital equipment and structures. In this technical framework, when I buy ten shares of newly issued IBM stock, there has been only an exchange of assets—IBM has my money and I have their stock certificates. If IBM takes my money and buys new equipment with it, their purchase of the equipment is economic *investment*.
3. Don’t include consumption loans in the supply of loanable funds. In casual conversation, people use the word “saving” to refer to their new deposit in a bank. For example, “I just saved \$100 this week.” (An economist might say this, too.) However, if that deposit were loaned out to a consumer who used the funds to purchase airline tickets for a vacation, there has been no increase in *national saving* (or just *saving*) in a macroeconomic sense. This is because saving, in a macroeconomic sense, is income (GDP) that remains after *national* consumption expenditures and government purchases ($S = Y - C - G$). No national saving took place if your personal saving was loaned and used for consumption expenditures by another person. Since national saving is the source of the supply of loanable funds, consumption loans do not affect the supply of loanable funds.
4. Demand for loanable funds is private demand for investment funds. The demand for loanable funds only includes private (households and firms) demand for funds to invest in capital structures and equipment. When the government runs a deficit, it does absorb national saving but it does not buy capital equipment with the funds. Therefore, when the government runs a deficit, we consider it a reduction in the supply of loanable funds, not an increase in the demand for loanable funds.

Self-Test

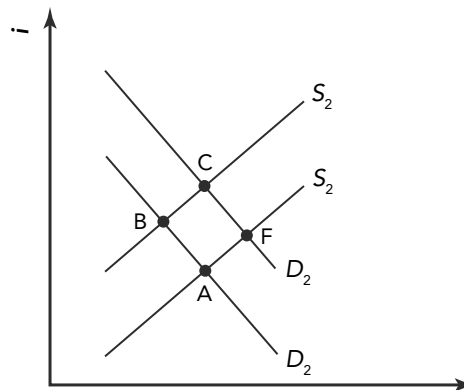
Multiple-Choice Questions

1. 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 through the Federal Reserve System.
 - b. their consumption expenditures are being financed by someone else’s investment through the Federal Reserve System.
 - c. their investments are being financed by someone else’s saving through the financial system.
 - d. their saving is being financed by someone else’s investment through the financial system.
 - e. their investments are being financed by someone else’s saving through the Federal Reserve system.

2. Which of the following is both a store of value and a common medium of exchange?
 - a. corporate bonds
 - b. mutual funds
 - c. checking account balances
 - d. savings account balances
 - e. All of the above are correct.
3. All or part of a firm's profits may be paid out to the firm's stockholders in the form of
 - a. retained earnings.
 - b. dividends.
 - c. interest payments.
 - d. capital accounts.
 - e. transfer payments.
4. Compared to stocks, bonds offer the holder
 - a. lower risk and lower potential return.
 - b. lower risk and higher potential return.
 - c. lower risk and equal potential return.
 - d. higher risk and lower potential return.
 - e. higher risk and higher potential return.
5. You are thinking of buying a bond from Knight Corporation. You know that this bond is long term and you know that Knight's business ventures are risky and uncertain. You then consider another bond with a shorter term to maturity issued by a company with good prospects and an established reputation. Which of the following is correct?
 - a. The longer term would tend to make the interest rate on the bond issued by Knight higher, while the higher risk would tend to make the interest rate lower.
 - b. The longer term would tend to make the interest rate on the bond issued by Knight lower, while the higher risk would tend to make the interest rate higher.
 - c. Both the longer term and the higher risk would tend to make the interest rate lower on the bond issued by Knight.
 - d. Both the longer term and the higher risk would tend to make the interest rate higher on the bond issued by Knight.
 - e. The bonds from both companies would carry the same interest rate as those rates are set by the Federal Reserve.
6. Other things the same, as the maturity of a bond becomes longer, the bond will pay
 - a. a lower interest rate because it has less risk.
 - b. a lower interest rate because it has more risk.
 - c. a higher interest rate because it has more risk.
 - d. a higher interest rate because it has less risk.
 - e. the same interest rate because there is no relationship between term and risk.

Figure 26-1.

The figure shows two demand-for-loanable-funds curves and two supply-of-loanable-funds curves.



7. **Refer to Figure 26-1.** Which of the following movements shows the effects of a new law that makes more people than before eligible for Individual Retirement Accounts?
 - a. a movement from Point A to Point B
 - b. a movement from Point B to Point F
 - c. a movement from Point C to Point F
 - d. a movement from Point C to Point B
 - e. a movement from Point F to Point B
8. Suppose the government changed the tax laws, with the result that people were encouraged to spend a larger percentage of their disposable income on consumption. Using the loanable funds model, a consequence would be
 - a. lower interest rates and lower investment.
 - b. lower interest rates and greater investment.
 - c. higher interest rates and lower investment.
 - d. higher interest rates and higher investment.
 - e. higher interest rates and higher savings.
9. Investment declines when crowding out occurs because
 - a. a budget deficit makes interest rates rise.
 - b. a budget deficit makes interest rates fall.
 - c. a budget surplus makes interest rates rise.
 - d. a budget surplus makes interest rates fall.
 - e. a balance of payment deficit makes interest rates rise.
10. If there is surplus of loanable funds, at the current interest rate, then
 - a. the supply of loanable funds shifts right and the demand shifts left.
 - b. the supply of loanable funds shifts left and the demand shifts right.
 - c. the supply of loanable funds and the demand both shift until a new equilibrium is achieved.
 - d. neither curve shifts, but the quantity of loanable funds supplied increases and the quantity demanded decreases as the interest rate rises to equilibrium.
 - e. neither curve shifts, but the quantity of loanable funds supplied decreases and the quantity demanded increases as the interest rate falls to equilibrium.

Free Response Questions

1. Draw and label a graph showing equilibrium in the market for loanable funds.
2. Identify each of the following acts as representing either saving or investment.
 - a. Fred uses some of his income to buy government bonds.
 - b. Julie takes some of her income and buys mutual funds.
 - c. Alex purchases a new truck for his delivery business using borrowed funds.
 - d. Elaine uses some of her income to buy stock in a major corporation.
 - e. Henrietta hires a builder to construct a new building for her bicycle shop.

Solutions

Multiple-Choice Questions

1. c TOP: Investment | Saving
2. c TOP: Store of value | Medium of exchange
3. b TOP: Dividends
4. a TOP: Bonds, Stock
5. d TOP: Bonds | Interest rates | Risk
6. c TOP: Bonds | Risk
7. c TOP: Budget deficits | Budget surpluses
8. c TOP: Market for loanable funds
9. a TOP: Crowding out
10. e TOP: Market for loanable funds

Free Response Questions

1. Market for Loanable Funds

TOP: Market for loanable funds

2. a. Fred is saving.
b. Julie is saving.
c. Alex is investing.
d. Elaine is saving.
e. Henrietta is investing.

TOP: Saving | Investment