

PRINCIPLES OF MACROECONOMICS

Chapter 26 **Saving, Investment & Financial Markets**

Overview

As we examined in Chapter 25, capital and labor are among the primary determinants of output growth. In this chapter we will address the market for saving and investment in capital. We will 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.

Learning Outcomes

By the end of this chapter, students should understand:

- some of the important financial institutions in the economy.
- how the financial system is related to key macroeconomic variables.
- the model of the supply and demand for loanable funds in financial markets.
- how to use the loanable-funds model to analyze various government policies.
- how government budget deficits affect the economy.

Key Points

1. The financial system is made up of many types of financial institutions, such as the bond market, the stock market, banks, and mutual funds. All these institutions act to direct the resources of households who want to save some of their income into the hands of households and firms who want to borrow.
2. National income accounting identities reveal some important relationships among macroeconomic variables. In particular, for a closed economy, national saving must equal investment. Financial institutions are the mechanism through which the economy matches one person's saving with another person's investment.
3. The interest rate is determined by the supply and demand for loanable funds. The supply of loanable funds comes from households who want to save some of their income and lend it out. The demand for loanable funds comes from households and firms who want to borrow for investment. To analyze how any policy or event affects the interest rate, one must consider how it affects the supply and demand for loanable funds.
4. National saving equals private saving plus public saving. A government budget deficit represents negative public saving and, therefore, reduces national saving and the supply of loanable funds available to finance investment. When a government budget deficit crowds out investment, it reduces the growth of productivity and GDP.

1. The Financial System and Financial Markets

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

Financial markets: financial institutions through which savers can directly provide funds to borrowers.

The Bond Market

- a. Definition of **bond**: **a certificate of indebtedness.**
- b. A bond identifies the date of maturity and the rate of interest that will be paid periodically until the loan matures.
- c. One important characteristic that determines a bond's value is its term. The term is the length of time until the bond matures. All else equal, long-term bonds pay higher rates of interest than short-term bonds.
- d. Another important characteristic of a bond is its credit risk, which is 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.

The Stock Market

- a. Definition of **stock**: **a claim to partial ownership in a firm.**
- b. The sale of stock to raise money is called *equity finance*; the sale of bonds to raise money is called *debt finance*.
- c. Stocks are sold on organized stock exchanges (such as the Cyprus Stock Exchange, the Athens Stock Exchange, the London Stock Exchange or the New York Stock Exchange) and the prices of stocks are determined by supply and demand.
- d. The price of a stock generally reflects the perception of a company's future profitability. Expectations about future prices play a crucial role in the functioning of stock markets and the determination of current market prices of stocks.
- e. A *stock index* is computed as an average of a group of stock prices.

Financial Intermediaries

Financial intermediaries: financial institutions through which savers can indirectly provide funds to borrowers.

Banks: The primary role of banks is to take in deposits from people who want to save and then lend them out to others who want to borrow. Banks pay depositors interest on their deposits and charge borrowers a higher rate of interest to cover the costs of running the bank and provide the bank owners with some amount of profit. Banks also play another important role in the economy by allowing individuals to use checking deposits as a medium of exchange.

Mutual Funds: These are institutions that sell shares to the public and use the proceeds to buy a portfolio of stocks and bonds. The primary advantage of a mutual fund is that it allows individuals with small amounts of money to diversify. Mutual funds called "index funds" buy all of the stocks of a given stock index. These funds have generally performed better than funds with active fund managers. This may be true because they trade stocks less frequently and they do not have to pay the salaries of fund managers.

2. Saving and Investment in the National Income Accounts

Some Important Identities

Remember that GDP can be divided up into four components: consumption, investment, government purchases, and net exports.

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

For simplicity, we will initially assume that we are dealing with a closed economy (an economy that does not engage in international trade or international borrowing and lending). This implies that GDP can now be divided into only three components:

$$Y = C + I + G$$

To isolate investment, we can subtract C and G from both sides: $Y - C - G = I$

The left-hand side of this equation ($Y - C - G$) is the total income in the economy after paying for consumption and government purchases. This amount is called **national saving**.

National saving: the total income in the economy that remains after paying for consumption and government purchases.

Substituting saving (S) into our identity gives us: $S = I$. This equation tells us that saving equals investment. Let's go back to our definition of national saving once again:

$$S = Y - C - G$$

We can add taxes (T) and subtract taxes (T) from the right-hand-side to get:

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

The first part of this equation ($Y - T - C$) is called **private saving**. Note that $Y - T$ is disposable income: the income after taxes left to individuals for spending. The second part ($T - G$) is called **public saving**. This is the tax revenue minus the government expenditure. It may be positive (budget surplus) or negative (budget deficit).

Private saving: the income that households have left after paying for taxes and consumption.

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.

Budget deficit: a shortfall of tax revenue from government spending.

We see, therefore, that with a government budget deficit, public saving is negative and the public sector is thus "dissaving." In order for an individual or household to spend more than the current income he/she needs to borrow from a financial institution (or a relative). The same applies for the Government. To make up for this shortfall, it must go to the loanable funds market and borrow the money. This will reduce the supply of loanable funds available for investment.

The fact that $S = I$ means that for the economy as a whole saving must be equal to investment.

- a. The bond market, the stock market, banks, mutual funds, and other financial markets and institutions stand between the two sides of the $S = I$ equation.

- b. These markets and institutions take in the nation's saving and direct it to the nation's investment.

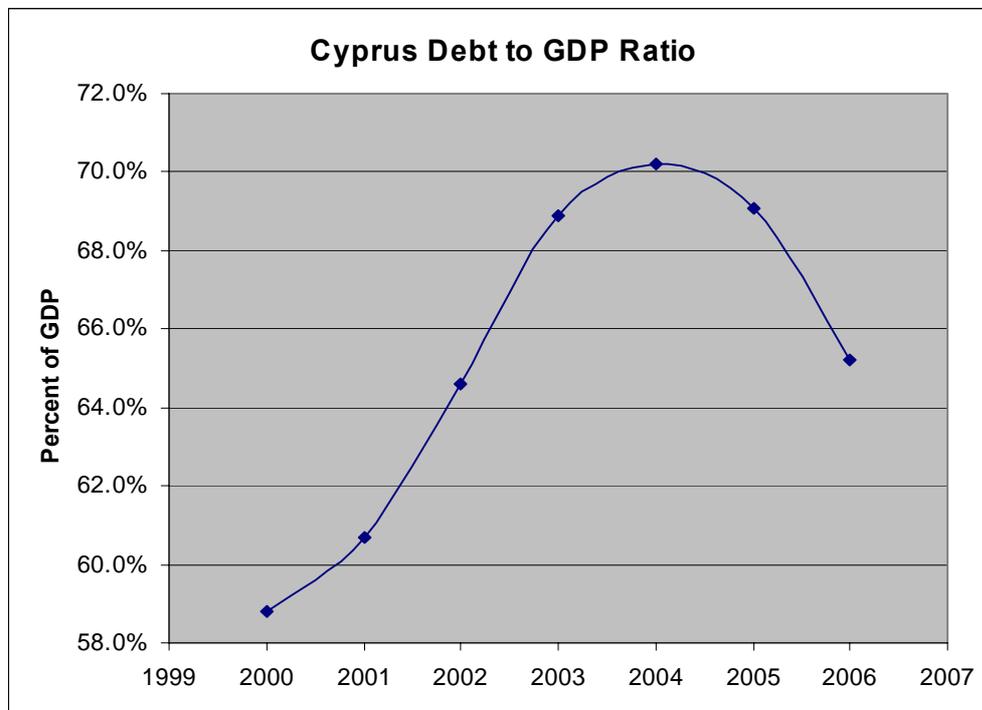
The Meaning of Saving and Investment

1. In macroeconomics, investment refers to the purchase of new capital, such as equipment or buildings.
2. If an individual spends less than he earns and uses the rest to buy stocks or mutual funds, economists call this saving.

MAIN AGGREGATES OF GENERAL GOVERNMENT OF CYPRUS

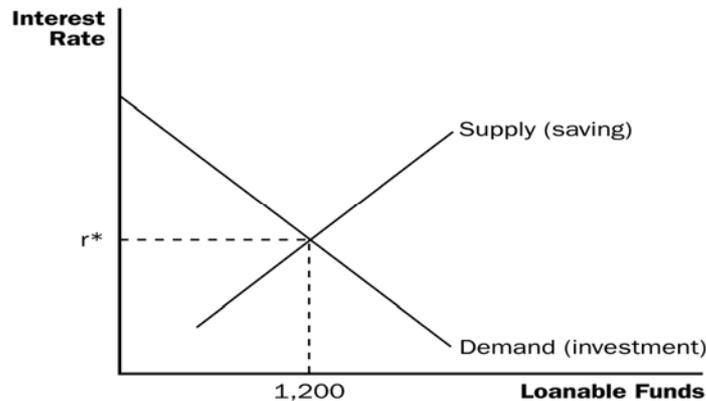
	At current prices (million £)						
	2000	2001	2002	2003	2004	2005	2006
Total government revenue	2005.5	2234.8	2303.4	2651.9	2866.6	3242.8	3569.3
Total government expenditure	2139.4	2373.4	2586.6	3098.7	3168.5	3433.3	3670.3
Fiscal Deficit	-133.9	-138.7	-283.2	-446.9	-301.8	-190.5	-101.0
Fiscal Deficit/G.D.P	-2.3%	-2.2%	-4.4%	-6.5%	-4.1%	-2.4%	-1.2%
General government consolidated gross debt	3402.5	3776.7	4153.3	4745.6	5198.7	5442.9	5461.1
General government consolidated gross debt / G.D.P	58.8%	60.7%	64.6%	68.9%	70.2%	69.1%	65.2%

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3. The Market for Loanable Funds

- A. Definition of **market for loanable funds**: the market in which those who want to save (the surplus units) supply funds and those who want to borrow (the deficit units) to invest demand funds.
- B. Supply and Demand for Loanable Funds



1. The supply of loanable funds comes from those who spend less than they earn. The supply can occur directly through the purchase of some stock or bonds or indirectly through a financial intermediary.
2. The demand for loans comes from households and firms who wish to borrow funds to make investments. Families generally invest in new homes while firms may borrow to purchase new equipment or to build factories.
3. The price of a loan is the interest rate.
 - a. All else equal, as the interest rate rises, the supply of loanable funds will increase. It becomes more attractive for households to save, thus increasing the availability of loanable funds (bank deposits, mutual funds, etc).
 - b. All else equal, as the interest rate rises, the quantity of loanable funds demanded will fall. It becomes more costly for firms and households to borrow.

You may be wondering which interest rate is the price of a loan. Well, even though interest rates in the economy do vary because of the things discussed earlier (term, risk, and tax treatment), these interest rates tend to move together when changes in the loanable funds market occur. Thus, it is appropriate to talk of one interest rate.

Notice that the demand for loanable funds is downward sloping, since the interest is the price of loanable funds (or money), whereas the supply of loanable funds is upward sloping. Remember that the supply of loanable funds comes from saving and the demand for loanable funds comes from investment by putting "(saving)" next to the supply curve and "(investment)" next to the demand curve as shown above.

4. At equilibrium, the quantity of funds demanded is equal to the quantity of funds supplied.

- a. If the interest rate in the market is greater than the equilibrium rate, the quantity of funds demanded would be smaller than the quantity of funds supplied. Lenders would compete for borrowers, driving the interest rate down.
 - b. If the interest rate in the market is less than the equilibrium rate, the quantity of funds demanded would be greater than the quantity of funds supplied. The shortage of loanable funds would encourage lenders to raise the interest rate they charge.
5. The supply and demand for loanable funds depends on the real (rather than nominal) interest rate because the real rate reflects the true return to saving and the true cost of borrowing.

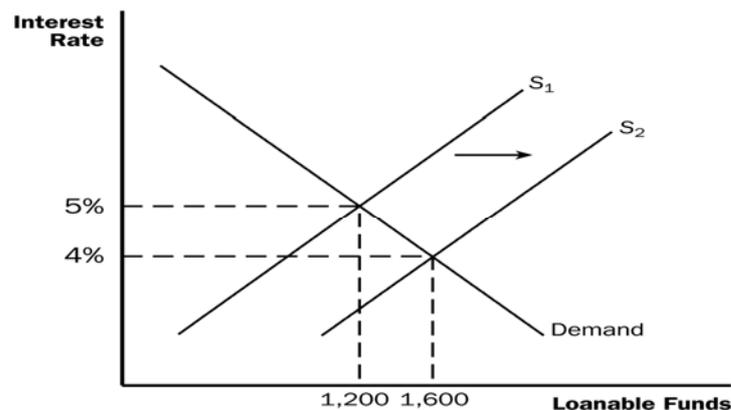
4. Government Policies

Policy 1: Saving Incentives

Savings rates in Cyprus are relatively high, compared with other European, although over the last decade or so the saving rate in Cyprus has been falling as Cypriots are entering the “Age of Consumerism” and many end up “living beyond their means”, by borrowing. Asian countries (e.g., Japan) also have relatively high saving rates, compared with the US and the UK.

Suppose that the government changes the tax code to encourage greater saving.

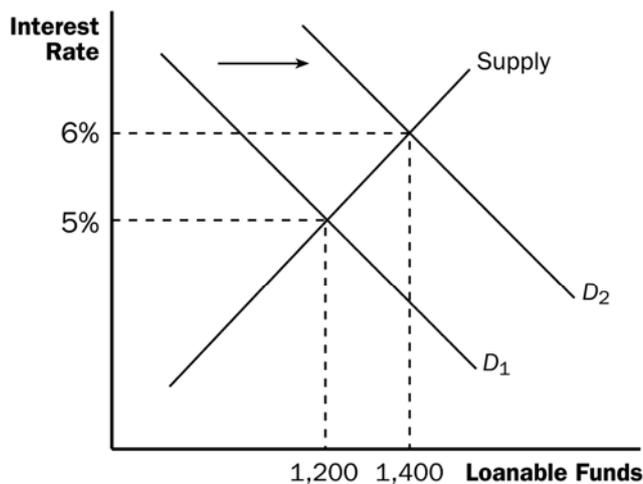
- a. This will cause an increase in saving, shifting the supply of loanable funds to the right.
- b. The equilibrium interest rate will fall and the equilibrium quantity of funds will rise.



Thus, the result of the new tax laws would be a decrease in the equilibrium interest rate and greater saving and investment.

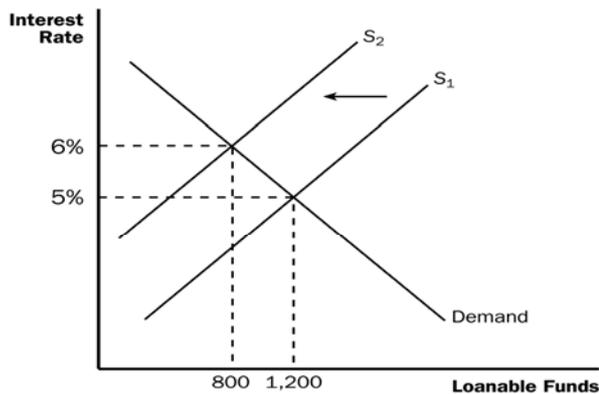
Policy 2: Investment Incentives

1. Suppose instead that the government passed a new law lowering taxes for any firm building a new factory or buying a new piece of equipment (through the use of an investment tax credit).
 - a. This will cause an increase in investment, causing the demand for loanable funds to shift to the right.
 - b. The equilibrium interest rate will rise, and the equilibrium quantity of funds will increase as well.
2. Thus, the result of the new tax laws would be an increase in the equilibrium interest rate and greater saving and investment.



Policy 3: Government Budget Deficits and Surpluses

1. A budget deficit occurs if the government spends more than it receives in tax revenue.
2. This implies that public saving ($T - G$) falls which will lower national saving.



- a. The supply of loanable funds will shift to the left.
 - b. The equilibrium interest rate will rise, and the equilibrium quantity of funds will decrease.
3. When the interest rate rises, the quantity of funds demanded for investment purposes falls.
- Definition of **crowding out**: a decrease in investment that results from government borrowing.
5. When the government reduces national saving by running a budget deficit, the interest rate rises and investment falls.
 6. Government budget surpluses work in the opposite way. The supply of loanable funds increases, the equilibrium interest rate falls, and investment rises.