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CHAPTER 12

National Income Accounting and the Balance of Payments

Over the decade from 1991 to 2000, Japan's national product grew at an annual average rate of only 1.5 percent, while that of the United States grew by nearly 3.5 percent per year. At the same time, Japan's unemployment rate rose, reaching nearly 5 percent and overtaking that of the United States for the first time in fifty years. In 2001, however, the U.S. economy entered a recession and the entire world economy slowed. Can economic analysis help us to understand both the interdependencies among national economies as well as the reasons why their fortunes often differ?

Previous chapters have been concerned primarily with the problem of making the best use of the world's scarce productive resources at a single point in time. The branch of economics called **microeconomics** studies this problem from the perspective of individual firms and consumers. Microeconomics works "from the bottom up" to show how individual economic actors, by pursuing their own interests, collectively determine how resources are used. In our study of international microeconomics we have learned how individual production and consumption decisions produce patterns of international trade and specialization. We have seen that while free trade usually encourages efficient resource use, government intervention or market failures can cause waste even when all factors of production are fully employed.

With this chapter we shift our focus and ask: How can economic policy ensure that factors of production *are* fully employed? And what determines how an economy's capacity to produce goods and services changes over time? To answer these questions we must understand **macroeconomics**, the branch of economics that studies how economies' overall levels of employment, production, and growth are determined. Like microeconomics, macroeconomics is concerned with the effective use of scarce resources. But while microeconomics focuses on the economic decisions of individuals, macroeconomics analyzes the behavior of the economy as a whole. In our study of international macroeconomics, we will learn how the interactions of national economies influence the worldwide pattern of macroeconomic activity.

Macroeconomic analysis emphasizes four aspects of economic life that we have usually kept in the background until now to simplify our discussion of international economics:

1. *Unemployment.* We know that in the real world workers may be unemployed and factories may be idle. Macroeconomics studies the factors that cause unemploy

ment and the steps governments can take to prevent it. A main concern of international macroeconomics is the problem of ensuring full employment in economies open to international trade.

2. *Saving.* In earlier chapters we usually assumed that every country consumes an amount exactly equal to its income—no more and no less. In reality, though, households can put aside part of their income to provide for the future, or they can borrow temporarily to spend more than they earn. A country's saving or borrowing behavior affects domestic employment and future levels of national wealth. From the standpoint of the international economy as a whole, the world saving rate determines how quickly the world stock of productive capital can grow.

3. *Trade imbalances.* As we saw in earlier chapters, the value of a country's imports equals the value of its exports when spending equals income. This state of balanced trade is seldom attained by actual economies, however. Trade imbalances play a large role in the following chapters because they redistribute wealth among countries and are a main channel through which one country's macroeconomic policies affect its trading partners. It should be no surprise, therefore, that trade imbalances, particularly when they are large and persistent, quickly can become a source of international discord.

4. *Money and the price level.* The trade theory you have studied so far is a barter theory, one in which goods are exchanged directly for other goods on the basis of their relative prices. In practice it is more convenient to use money, a widely acceptable medium of exchange, in transactions, and to quote prices in terms of money. Because money changes hands in virtually every transaction that takes place in a modern economy, fluctuations in the supply of money or the demand for it can affect both output and employment. International macroeconomics takes into account that every country uses a currency and that a monetary change in one country (for example, a change in money supply) can have effects that spill across its borders to other countries. Stability in money price levels is an important goal of international macroeconomic policy.

This chapter takes the first step in our study of international macroeconomics by explaining the accounting concepts economists use to describe a country's level of production and its international transactions. To get a complete picture of the macroeconomic linkages among economies that engage in international trade, we have to master two related and essential tools. The first of these tools, **national income accounting**, records all the expenditures that contribute to a country's income and output. The second tool, **balance of payments accounting**, helps us keep track of both changes in a country's indebtedness to foreigners and the fortunes of its export- and import-competing industries. The balance of payments accounts also show the connection between foreign transactions and national money supplies.

The National Income Accounts

Of central concern to macroeconomic analysis is a country's **gross national product** (GNP), the value of all final goods and services produced by its factors of production and sold on the market in a given time period. GNP, which is the basic measure of a country's output studied by macroeconomists, is calculated by adding up the market value of all expenditures on final output. GNP therefore includes the value of goods like bread sold in

a supermarket and textbooks sold in a bookstore, as well as the value of services provided by supermarket checkers and baggers and by university professors. Because output cannot be produced without the aid of factor inputs, the expenditures that make up GNP are closely linked to the employment of labor, capital, and other factors of production.

To distinguish among the different types of expenditure that make up a country's GNP, government economists and statisticians who compile national income accounts divide GNP among the four possible uses for which a country's output is purchased: *consumption* (the amount consumed by private domestic residents), *investment* (the amount put aside by private firms to build new plant and equipment for future production), *government purchases* (the amount used by the government), and the *current account balance* (the amount of net exports of goods and services to foreigners). The term *national income accounts,* rather than *national output accounts,* is used to describe this fourfold classification because a country's income in fact equals its output. Thus, the national income accounts can be thought of as classifying each transaction that contributes to national income according to the type of expenditure that gives rise to it. Figure 12-1 shows how U.S. GNP was divided among its four components in 2000.[1]

Why is it useful to divide GNP into consumption, investment, government purchases, and the current account? One major reason is that we cannot hope to understand the cause of a particular recession or boom without knowing how the main categories of spending have changed. And without such an understanding, we cannot recommend a sound policy response. In addition, the national income accounts provide information essential for studying why some countries are rich—that is, have a high level of GNP relative to population size—while some are poor.

National Product and National Income

Our first task in understanding how economists analyze GNP is to explain in greater detail why the GNP a country generates over some time period must equal its **national income**, the income earned in that period by its factors of production.

The reason for this equality is that every dollar used to purchase goods or services automatically ends up in somebody's pocket. A visit to the doctor provides a simple example of how an increase in national output raises national income by the same amount. The $75 you pay the doctor represents the market value of the services he or she provides for you, so your visit raises GNP by $75. But the $75 you pay the doctor also raises his or her income. So national income rises by $75.

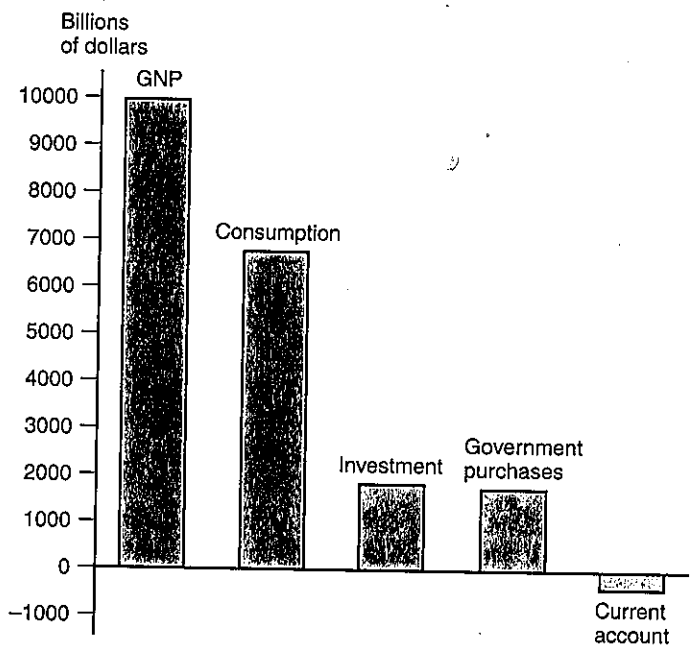
The principle that output and income are the same also applies to goods, even goods that are produced with the help of many factors of production. Consider the example of an economics textbook. When you purchase a new book from the publisher, the value of your purchase enters GNP. But your payment enters the income of the productive factors that have cooperated in producing the book, because the publisher must pay for their services with the proceeds of sales. First, there are the authors, editors, artists, and typesetters who provide

[1]Our definition of the current account is not strictly accurate when a country is a net donor or recipient of foreign gifts. This possibility, along with some others, also complicates our identification of GNP with national income. We describe later in this chapter how the definitions of national income and the current account must be changed in such cases.

Figure 12-1 U.S. GNP and Its Components

America's $9.9 trillion 2000 gross national product can be broken down into the four components shown.

Source: *Economic Indicators*, U.S. Government Printing Office, April 2001.



the labor inputs necessary for the book's production. Second, there are the publishing company's shareholders, who receive dividends for having financed acquisition of the capital used in production. Finally, there are the suppliers of paper and ink, who provide the intermediate materials used in producing the book.

The paper and ink purchased by the publishing house to produce the book are *not* counted separately in GNP because their contribution to the value of national output is already included in the book's price. It is to avoid such double counting that we allow only the sale of *final* goods and services to enter into the definition of GNP. Sales of intermediate goods, such as paper and ink purchased by a publisher, are not counted. Notice also that the sale of a used textbook does not enter GNP. Our definition counts only final goods and services that are *produced* and a used textbook does not qualify: It was counted in GNP at the time it was first sold. Equivalently, the sale of a used textbook does not generate income for any factor of production.

Capital Depreciation, International Transfers, and Indirect Business Taxes

Because we have defined GNP and national income so that they are necessarily equal, their equality is really an identity. Some adjustments to the definition of GNP must be made, however, before the identification of GNP and national income is entirely correct in practice.

1. GNP does not take into account the economic loss due to the tendency of machinery and structures to wear out as they are used. This loss, called *depreciation,* reduces the income of capital owners. To calculate national income over a given period, we must therefore subtract from GNP the depreciation of capital over the period. GNP less depreciation is called *net national product* (NNP).

2. A country's income may include gifts from residents of foreign countries, called *unilateral transfers.* Examples of unilateral transfers of income are pension payments to retired citizens living abroad, reparation payments, and foreign aid such as relief funds donated to drought-stricken nations. For the United States in 2000, the balance of such payments amounted to around $53.2 billion, representing a 0.53 percent of GNP net transfer to foreigners. Net unilateral transfers are part of a country's income but are not part of its product, and they must be added to NNP in calculations of national income.

3. National income depends on the prices producers *receive* for their goods, GNP on the prices purchasers *pay.* These two sets of prices need not, however, be identical. For example, sales taxes make buyers pay more than sellers receive, leading GNP to overestimate national income. The amount of this tax wedge, called *indirect business taxes,* must therefore be subtracted from GNP in calculating true national income.

National income equals GNP *less* depreciation, *plus* net unilateral transfers, *less* indirect business taxes. The difference between GNP and national income is by no means an insignificant amount, but macroeconomics has little to say about it, and it is of little importance for macroeconomic analysis. Therefore, for the purposes of this text we usually use the terms *GNP* and *national income* interchangeably, emphasizing the distinction between the two only when it is essential.

Gross Domestic Product

Most countries other than the United States have long reported **gross domestic product (GDP)** rather than GNP as their primary measure of national economic activity. In 1991 the United States began to follow this practice as well. GDP is supposed to measure the volume of production within a country's borders. GNP equals GDP *plus* net receipts of factor income from the rest of the world. These net receipts are primarily the income domestic residents earn on wealth they hold in other countries less the payments domestic residents make to foreign owners of wealth located at home.

GDP does not correct, as GNP does, for the portion of countries' production carried out using services provided by foreign-owned capital. Consider an example. The earnings of a Spanish factory with British owners are counted in Spain's GDP but are part of Britain's GNP. The services British capital provides in Spain are a service export from Britain, therefore they are added to British GDP in calculating British GNP. At the same time, to figure Spain's GNP we must subtract from its GDP the corresponding service import from Britain.

As a practical matter, movements in GDP and GNP usually do not differ greatly. We will focus on GNP in this book, however, because GNP tracks national income more closely than GDP, and national welfare depends more directly on national income than on domestic product.

National Income Accounting for an Open Economy

In this section we extend to the case of an open economy the closed-economy national income accounting framework you may have seen in earlier economics courses. We begin with a discussion of the national income accounts because they highlight the key role of international trade in open-economy macroeconomic theory. Since a closed economy's residents cannot purchase foreign output or sell their own to foreigners, all of national income must be generated by domestic consumption, investment, or government purchases. In an economy open to international trade, however, the closed-economy version of national income accounting must be modified because some domestic output is exported to foreigners while some domestic income is spent on imported foreign products.

The main lesson of this section concerns the relation among national saving, investment, and trade imbalances. We will see that in open economies, saving and investment are not necessarily equal as they are in a closed economy. This is because countries can save by exporting more than they import, and they can *dissave*—that is, reduce their wealth—by exporting less than they import.

Consumption

The portion of GNP purchased by the private sector to fulfill current wants is called **consumption**. Purchases of movie tickets, food, dental work, and washing machines all fall into this category. Consumption expenditure is the largest component of GNP in most economies. In the United States, for example, the fraction of GNP devoted to consumption has fluctuated in a range of about 62 to 69 percent since the Korean War.

Investment

The part of output used by private firms to produce future output is called **investment**. Investment spending may be viewed as the portion of GNP used to increase the nation's stock of capital. Steel and bricks used to build a factory are part of investment spending, as are services provided by a technician who helps build business computers. Firms' purchases of inventories are also counted in investment spending because carrying inventories is just another way for firms to transfer output from current use to future use. Investment is usually more variable than consumption. In the United States, (gross) investment has fluctuated between 12 and 19 percent of GNP in recent years. While we often use the word *investment* to describe individual households' purchases of stocks, bonds, or real estate, you should be careful not to confuse this everyday meaning of the word with the economic definition of investment as a component of GNP. When you buy a share of Microsoft stock, you are buying neither a good nor a service, so your purchase does not show up in GNP.

Government Purchases

Any goods and services purchased by federal, state, or local governments are classified as **government purchases** in the national income accounts. Included in government purchases are federal military spending, government support of cancer research, and government funds spent on highway repair and education. Government transfer payments like social security

and unemployment benefits do not require the recipient to give the government any goods or services in return. Thus, transfer payments are not included in government purchases.

Government purchases currently take up about 18 percent of U.S. GNP, and this share has not changed much since the late 1950s. (The corresponding figure for 1959, for example, was around 20 percent.) In 1929, however, government purchases accounted for only 8.5 percent of U.S. GNP.

The National Income Identity for an Open Economy

In a closed economy any final good or service that is not purchased by households or the government must be used by firms to produce new plant, equipment, and inventories. If consumption goods are not sold immediately to consumers or the government, firms (perhaps reluctantly) add them to existing inventories, thus increasing investment.

This information leads to a fundamental identity for closed economies. Let Y stand for GNP, C for consumption, I for investment, and G for government purchases. Since all of a closed economy's output must be consumed, invested, or bought by the government, we can write

$$Y = C + I + G.$$

We derived the national income identity for a closed economy by assuming that all output was consumed or invested by the country's citizens or purchased by its government. When foreign trade is possible, however, some output is purchased by foreigners while some domestic spending goes to purchase goods and services produced abroad. The GNP identity for open economies shows how the national income a country earns by selling its goods and services is divided between sales to domestic residents and sales to foreign residents.

Since residents of an open economy may spend some of their income on imports, that is, goods and services purchased from abroad, only the portion of their spending that is not devoted to imports is part of domestic GNP. The value of imports, denoted by IM, must be subtracted from total domestic spending, $C + I + G$, to find the portion of domestic spending that generates domestic national income. Imports from abroad add to foreign countries' GNPs but do not add directly to domestic GNP.

Similarly, the goods and services sold to foreigners make up a country's exports. Exports, denoted by EX, are the amount foreign residents' purchases add to the national income of the domestic economy.

The national income of an open economy is therefore the sum of domestic and foreign expenditure on the goods and services produced by domestic factors of production. Thus, the national income identity for an open economy is

$$Y = C + I + G + EX - IM. \tag{12-1}$$

An Imaginary Open Economy

To make identity (12-1) concrete, let's consider an imaginary closed economy, Agraria, whose only output is wheat. Each citizen of Agraria is a consumer of wheat, but each is also a farmer and therefore can be viewed as a firm. Farmers invest by putting aside a portion of

Table 12-1 National Income Accounts for Agraria: an Open Economy (bushels of wheat)

GNP (total output)	=	Consumption	+	Investment	+	Government purchases	+	Exports	−	Imports
100	=	75[a]	+	25	+	10	+	10	−	20[b]

[a]55 bushels of wheat + (0.5 bushel per gallon) × (40 gallons of milk).

[b]0.5 bushel per gallon × 40 gallons of milk.

each year's crop as seed for the following year's planting. There is also a government that appropriates part of the crop to feed the Agrarian army. Agraria's total annual crop is 100 bushels of wheat. Agraria can import milk from the rest of the world in exchange for exports of wheat. We cannot draw up the Agrarian national income accounts without knowing the price of milk in terms of wheat because all the components in the GNP identity (12-1) must be measured in the same units. If we assume the price of milk is 0.5 bushel of wheat per gallon, and that at this price Agrarians want to consume 40 gallons of milk, then Agraria's imports are equal in value to 20 bushels of wheat.

In Table 12-1 we see that Agraria's total output is 100 bushels of wheat. Consumption is divided between wheat and milk, with 55 bushels of wheat and 40 gallons of milk (equal in value to 20 bushels of wheat) consumed over the year. The value of consumption in terms of wheat is $55 + (0.5 \times 40) = 55 + 20 = 75$.

The 100 bushels of wheat produced by Agraria are used as follows: 55 are consumed by domestic residents, 25 are invested, 10 are purchased by the government, and 10 are exported abroad. National income ($Y = 100$) equals domestic spending ($C + I + G = 110$) plus exports ($EX = 10$) less imports ($IM = 20$).

The Current Account and Foreign Indebtedness

In reality a country's foreign trade is exactly balanced only rarely. The difference between exports of goods and services and imports of goods and services is known as the **current account balance** (or current account). If we denote the current account by CA, we can express this definition in symbols as

$$CA = EX - IM.$$

When a country's imports exceed its exports, we say the country has a *current account deficit.* A country has a *current account surplus* when its exports exceed its imports.[2]

[2]In addition to net exports of goods and services, the current account balance includes net unilateral transfers of income, which we discussed briefly above. Following our earlier assumption, we continue to ignore such transfers for now to simplify the discussion. We will see how transfers of current income enter the current account later in this chapter when we analyze the U.S. balance of payments in detail.

The GNP identity, equation (12-1), shows one reason why the current account is importa in international macroeconomics. Since the right-hand side of (12-1) is total expenditure o domestic output, changes in the current account can be associated with changes in output an thus, employment.

The current account is also important because it measures the size and direction c international borrowing. When a country imports more than it exports, it is buying mo from foreigners than it sells to them and must somehow finance this current account defici How does it pay for additional imports once it has spent its export earnings? Since th country as a whole can import more than it exports only if it can borrow the difference fro foreigners, a country with a current account deficit must be increasing its net foreign deb by the amount of the deficit.[3]

Similarly, a country with a current account surplus is earning more from its exports tha it spends on imports. This country finances the current account deficit of its trading partne by lending to them. The foreign wealth of a surplus country rises because foreigners pay fc any imports not covered by their exports by issuing IOUs that they will eventually have t redeem. The preceding reasoning shows that *a country's current account balance equals th change in its net foreign wealth.*

We have defined the current account as the difference between exports and import Equation (12-1) says that the current account is also equal to the difference between nation income and domestic residents' spending $C + I + G$:

$$Y - (C + I + G) = CA.$$

It is only by borrowing abroad that a country can have a current account deficit and us more output than it is currently producing. If it uses less than its output, it has a curre account surplus and is lending the surplus to foreigners.[4] International borrowing and lendin were identified with *intertemporal trade* in Chapter 7. A country with a current accou deficit is importing present consumption and exporting future consumption. A countr with a current account surplus is exporting present consumption and importing futur consumption.

As an example, consider again the imaginary economy of Agraria described in Table 12-1 The total value of its consumption, investment, and government purchases, at 110 bushel of wheat, is greater than its output of 100 bushels. This inequality would be impossible in closed economy; it is possible in this open economy because Agraria now imports 40 gallon of milk, worth 20 bushels of wheat, but exports only 10 bushels of wheat. The curre account deficit of 10 bushels is the value of Agraria's borrowing from foreigners, which th country will have to repay in the future.

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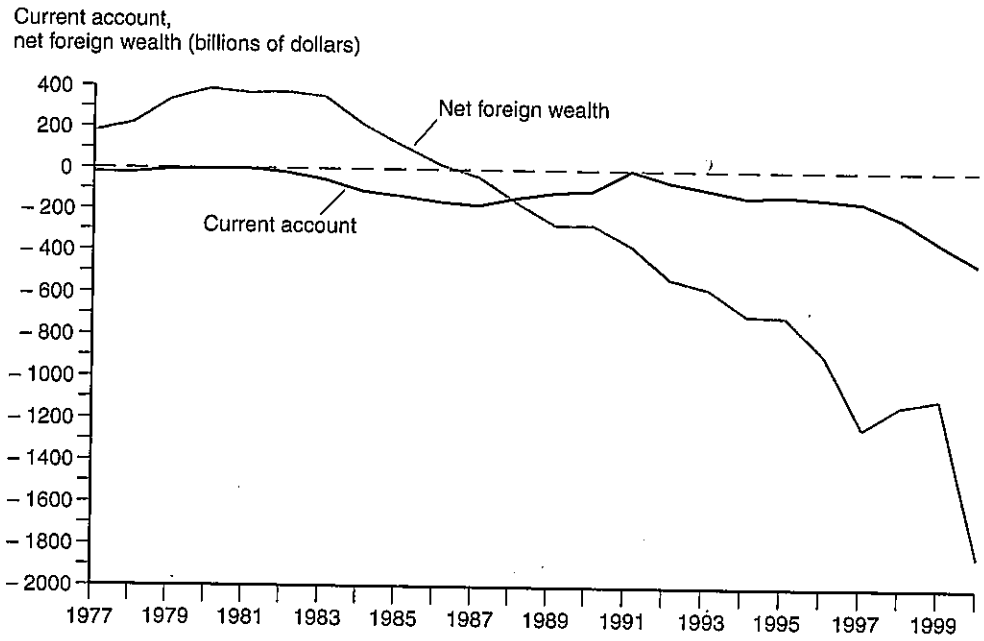
[3]Alternatively, a country could finance a current account deficit by using previously accumulated foreign wealth t pay for imports. This country would be running down its net foreign wealth, which is the same as running up i net foreign debts.

Our discussion here is ignoring the possibility that a country receives *gifts* of foreign assets (or gives such gifts as when one country agrees to forgive another's debts. As we will discuss below, such asset transfers (unlike tran fers of current income) are not part of the current account, but they nonetheless do affect net foreign wealth. The are recorded in the *capital account* of the balance of payments.

[4]The sum $C + I + G$ is often called domestic *absorption* in the literature on international macroeconomics. Usin this terminology, we can describe the current account surplus as the difference between income and absorption

Figure 12-2 The U.S. Current Account and Net Foreign Wealth Position, 1977–2000



A string of current account deficits in the 1980s reduced America's net foreign wealth until, by the decade's end, the country had accumulated a substantial net foreign debt.

Source: U.S. Government Printing Office, *Economic Indicators*, March 1998, April 2001.

Figure 12-2 gives a vivid illustration of how a string of current account deficits can add up to a large foreign debt. The figure plots the U.S. current account balance since the late 1970s along with a measure of the nation's stock of net foreign wealth. As you can see, the United States had accumulated substantial foreign wealth by the early 1980s, when a sustained current account deficit of proportions unprecedented in the twentieth century opened up. In 1987 the country became a net debtor to foreigners for the first time since World War I.

As the Case Study on p. 316 shows, it is surprisingly hard to measure accurately a country's net foreign wealth. Some economic analysts therefore question the data in Figure 12-2 and disagree over when the United States became a debtor country and how large its foreign debt really is. But there is no question that a large decrease in U.S. foreign assets did occur over the 1980s.

Saving and the Current Account

Simple as it is, the GNP identity has many illuminating implications. To explain the most important of these implications, we define the concept of **national saving**, that is, the portion of output, Y, that is not devoted to household consumption, C, or government purchases,

G.[5] *In a closed economy, national saving always equals investment.* This tells us that the economy as a whole can increase its wealth only by accumulating new capital.

Let S stand for national saving. Our definition of S tells us that

$$S = Y - C - G.$$

Since the closed-economy GNP identity, $Y = C + I + G$, may also be written as $I = Y - C - G$, then

$$S = I,$$

and national saving must equal investment in a closed economy. While in a closed economy saving and investment must always be equal, in an open economy they can differ. Remembering that national saving, S, equals $Y - C - G$ and that $CA = EX - IM$, we can rewrite the GNP identity (12-1) as

$$S = I + CA.$$

The equation highlights an important difference between open and closed economies: *An open economy can save either by building up its capital stock or by acquiring foreign wealth, but a closed economy can save only by building up its capital stock.*

Unlike a closed economy, an open economy with profitable investment opportunities does not have to increase its saving in order to exploit them. The preceding expression shows that it is possible simultaneously to raise investment and foreign borrowing without changing saving. For example, if New Zealand decides to build a new hydroelectric plant, it can import the materials it needs from the United States and borrow American funds to pay for them. This transaction raises New Zealand's domestic investment because the imported materials contribute to expanding the country's capital stock. The transaction also raises New Zealand's current account deficit by an amount equal to the increase in investment. New Zealand's saving does not have to change, even though investment rises. For this to be possible, however, U.S. residents must be willing to save more so that the resources needed to build the plant are freed for New Zealand's use. The result is another example of intertemporal trade, in which New Zealand imports present consumption (when it borrows from the United States) and exports future consumption (when it pays off the loan).

Because one country's savings can be borrowed by a second country to increase the second country's stock of capital, a country's current account surplus is often referred to as its *net foreign investment.* Of course, when one country lends to another to finance investment, part of the income generated by the investment in future years must be used to pay back the lender. Domestic investment and foreign investment are two different ways in which a country can use current savings to increase its future income.

[5]The U.S. national income accounts assume that government purchases are not used to enlarge the nation's capital stock. We follow this convention here by subtracting *all* government purchases from output to calculate national saving. Most other countries' national accounts distinguish between government consumption and government investment (for example, investment by publicly owned enterprises) and include the latter as part of national saving. Often, however, government investment figures include purchases of military equipment.

Private and Government Saving

So far our discussion of saving has not stressed the distinction between saving decisions made by the private sector and saving decisions made by the government. Unlike private saving decisions, however, government saving decisions are often made with an eye toward their effect on output and employment. The national income identity can help us to analyze the channels through which government saving decisions influence macroeconomic conditions. To use the national income identity in this way, we first have to divide national saving into its private and government components.

Private saving is defined as the part of disposable income that is saved rather than consumed. Disposable income is national income, Y, less the net taxes collected from households and firms by the government, T.[6] Private saving, denoted S^p, can therefore be expressed as

$$S^p = Y - T - C.$$

Government saving is defined similarly to private saving. The government's "income" is its net tax revenue, T, while its "consumption" is government purchases, G. If we let S^g stand for government saving, then

$$S^g = T - G.$$

The two types of saving we have defined, private and government, add up to national saving. To see why, recall the definition of national saving, S, as $Y - C - G$. Then

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

We can use the definitions of private and government saving to rewrite the national income identity in a form that is useful for analyzing the effects of government saving decisions on open economies. Because $S = S^p + S^g = I + CA$,

$$S^p = I + CA - S^g = I + CA - (T - G) = I + CA + (G - T). \qquad (12\text{-}2)$$

Equation (12-2) relates private saving to domestic investment, the current account surplus, and government saving. To interpret equation (12-2), we define the **government budget deficit** as $G - T$, that is, as government saving preceded by a minus sign. The government budget deficit measures the extent to which the government is borrowing to finance its expenditures. Equation (12-2) then states that a country's private saving can take three forms: investment in domestic capital (I), purchases of wealth from foreigners (CA), and purchases of the domestic government's newly issued debt ($G - T$).[7] The usefulness of equation (12-2) is illustrated by the following Case Study.

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[6]Net taxes are taxes less government transfer payments. The term *government* refers to the federal, state, and local governments considered as a single unit.

[7]In a closed economy the current account is always zero, so equation (12-2) is simply $S^p = I + (G - T)$.

CASE STUDY

Government Deficit Reduction May Not Increase the Current Account Surplus

The linkage among the current account balance, investment, and private and government saving given by equation (12-2) is very useful for thinking about the results of economic policies and events. Our predictions about such outcomes cannot possibly be correct unless the current account, investment, and saving rates adjust in a way that is consistent with (12-2). Because that equation is an *identity*, however, and is not based on any theory of economic behavior, we cannot forecast the results of policies without some model of the economy. Equation (12-2) is an identity because it must be included in any valid economic model; but there are any number of models consistent with (12-2).

A good example of how hard it can be to forecast policies' effects comes from thinking about the effects of government deficits on the current account. During the administration of President Ronald Reagan in the early 1980s, the United States slashed taxes and raised some government expenditures, generating both a big government deficit and a sharply increased current account deficit. Those events gave rise to the argument that the government and current account deficits were "twin deficits," both generated primarily by the Reagan policies. If you rewrite identity (12-2) in the form

$$CA = S^p - I - (G - T),$$

you can see how that outcome could have occurred. If the government deficit rises ($G - T$ goes up) and private saving and investment don't change much, the current account surplus must fall by roughly the same amount as the increase in the fiscal deficit. In the United States between 1981 and 1985, the government deficit increased by a bit over 2 percent of GNP, while $S^p - I$ fell by about a half a percent of GNP, so the current account fell from approximate balance to about -3 percent of GNP. (The variables in (12-2) are expressed as percentages of GNP for easy comparison.) Thus, the twin deficits prediction is not too far off the mark.

The twin deficits theory story can lead us seriously astray, however, when changes in government deficits lead to bigger changes in private saving and investment behavior. A good example of these effects comes from European countries' efforts to cut their government budget deficits prior to the launch of their new common currency, the euro, in January 1999. As we will discuss in Chapter 20, the European Union (EU) had agreed that no member country with a large government deficit would be allowed to adopt the new currency along with the initial wave of euro zone members. As 1999 approached, therefore, EU governments made frantic efforts to cut government spending and raise taxes.

Under the "twin deficits" theory, we would have expected the EU's current account surplus to increase sharply as a result of the fiscal change. As the table below shows, however, nothing of the sort actually happened. For the EU as a whole, government deficits fell by about 4.5 percent of output, yet the current account surplus remained about the same.

The table reveals the main reason the current account didn't change much: a sharp fall in the private saving rate, which declined by about 4 percent of output, almost as much as the increase

European Union (percentage of GNP)

Year	CA	S^P	I	$G - T$
1995	0.6	25.9	19.9	−5.4
1996	1.0	24.6	19.3	−4.3
1997	1.5	23.4	19.4	−2.5
1998	1.0	22.6	20.0	−1.6
1999	0.2	21.8	20.8	−0.8

Source: Organization for Economic Cooperation and Development, *OECD Economic Outlook 68* (December 2000), Annex Tables 27, 30, and 52 (with investment calculated as the residual).

in government saving. (Investment rose slightly at the same time.) In this case, the behavior of private savers just about neutralized governments' efforts to raise national saving!

It is difficult to know why this offset occurred, but there are a number of possible explanations. One is based on an economic theory known as the "Ricardian equivalence" of taxes and government deficits. (The theory is named after the same David Ricardo who discovered the theory of comparative advantage—recall Chapter 2—although he himself did not believe in Ricardian equivalence.) Ricardian equivalence argues that when the government cuts taxes and raises its deficit, consumers anticipate that they will face higher taxes later to pay off the resulting government debt. In anticipation, they raise their own (private) saving to offset the fall in government saving. Conversely, governments that *lower* their deficits (thereby increasing government saving) will induce the private sector to *lower* its own saving. Qualitatively, this is the kind of behavior we see in Europe in the late 1990s.

Economists' statistical studies suggest, however, that Ricardian equivalence doesn't hold exactly in practice. Most economists would attribute no more than half the decline in European private saving to Ricardian effects. What explains the rest of the decline? The values of European financial assets were generally rising in the late 1990s, a development fueled in part by optimism over the beneficial economic effects of the planned common currency. It is likely that increased household wealth was a second factor lowering the private saving rate in Europe.

Because private saving, investment, the current account, and the government deficit are jointly determined variables, we can never fully determine the cause of a current account change using identity (12-2) alone. Nonetheless, the identity provides an essential framework for thinking about the current account and can furnish useful clues.

The Balance of Payments Accounts

In the previous section, we examined the components of the national income accounts: consumption, investment, government purchases, and the current account (the measure of a country's net foreign investment or, equivalently, of the difference between its exports and imports). In addition to national income accounts, government economists and statisticians also keep balance of payments accounts, a detailed record of the composition of the current account balance and of the many transactions that finance it. Balance of payments figures

are of great interest to the general public, as indicated by the attention that various nev media pay to them. But press reports sometimes confuse different measures of internation payments flows. Should we be alarmed or cheered by a *Wall Street Journal* headline pr claiming "U.S. Chalks Up Record Balance of Payments Deficit"? A thorough understandir of balance of payments accounting will help us evaluate the implications of a country's inte national transactions.

A country's balance of payments accounts keep track of both its payments to and i receipts from foreigners. Any transaction resulting in a payment to foreigners is entered i the balance of payments accounts as a *debit* and is given a negative (−) sign. Any transactio resulting in a receipt from foreigners is entered as a *credit* and is given a positive (+) sign.

Three types of international transaction are recorded in the balance of payments:

1. Transactions that involve the export or import of goods or services and therefor enter directly into the current account. When a French consumer imports American blu jeans, for example, the transaction enters the U.S. balance of payments accounts as a credit on current account.
2. Transactions that involve the purchase or sale of financial assets. An **asset** is any one of the forms in which wealth can be held, such as money, stocks, factories, or government debt. The **financial account** of the balance of payments records all international purchases or sales of financial assets. When an American company buys a French factory, the transaction enters the U.S. balance of payments as a debit in the financial account. It may seem strange to give a negative sign to a purchase of assets and a positive sign to a sale of assets. It will seem less so if you think in terms of the U.S. "importing" (purchasing) assets and the U.S. "exporting" (selling) assets and give the transaction the same sign you would give to an import (−) or export (+) transaction recorded in the current account. The difference between a country's exports and imports of assets is called its financial account balance, or financial account for short.
3. Certain other activities resulting in transfers of wealth between countries are recorded in the **capital account**. These international asset movements—which are generally very small for the United States—differ from those recorded in the financial account. For the most part they result from nonmarket activities, or represent the acquisition or disposal of nonproduced, nonfinancial, and possibly intangible assets (such as copyrights and trademarks). For example, if the United States government forgives $1 billion in debt owed to it by the government of Pakistan, U.S. wealth declines by $1 billion and a $1 billion debit is recorded in the U.S. capital account. As another example, if a Swede immigrates to the United States and brings with him title to $100,000 in Swedish assets, the result would be a $100,000 credit in the U.S. capital account.[8]

[8] Until July 1999 the United States classified all transactions either as current account or capital account transactions, including in the (old) capital account the items that are now reported in the financial account and including, in the current account, items that are now placed in the capital account. Thus, the hypothetical example of debt forgiveness to Pakistan would have been considered a current transfer payment to Pakistan under the old accounting rules, and recorded as a $1 billion debit in the current account. The motivation for the changed accounting format was to separate such nonmarket international asset transfers, which "mainly represent changes in ownership of existing assets, which affect nations' balance sheets, from current transfers, which affect nations' income and product in the current period." See Christopher L. Bach, "U.S. International Transactions, Revised Estimates for 1982–98," *Survey of Current Business* (July 1999), p. 61.

You will find the complexities of the balance of payments accounts less confusing if you keep in mind the following simple rule of double-entry bookkeeping: *Every international transaction automatically enters the balance of payments twice, once as a credit and once as a debit.* This principle of balance of payments accounting holds true because every transaction has two sides: If you buy something from a foreigner you must pay him in some way, and the foreigner must then somehow spend or store your payment.

Examples of Paired Transactions

Some examples will show how the principle of double-entry bookkeeping operates in practice.

Imagine you buy a typewriter from the Italian company Olivetti and pay for your purchase with a $1000 check. Your payment to buy a good (the typewriter) from a foreign resident enters the U.S. current account with a negative sign. But where is the offsetting balance of payments credit? Olivetti's U.S. salesperson must do something with your check—let's say he deposits it in Olivetti's account at Citibank in New York. In this case, Olivetti has purchased, and Citibank has sold, a U.S. asset—a bank deposit worth $1000—and the transaction shows up as a $1000 credit in the U.S. financial account. The transaction creates the following two offsetting bookkeeping entries in the U.S. balance of payments:

	Credit	Debit
Typewriter purchase (Current account, U.S. good import)		−$1000
Sale of bank deposit by Citibank (Financial account, U.S. asset export)	+$1000	

As another example, suppose that during your travels in France you pay $200 for a fine dinner at the Restaurant de l'Escargot d'Or. Lacking cash, you place the charge on your Visa credit card. Your payment, which is a tourist expenditure, would be counted as a service import for the United States, and therefore as a current account debit. Where is the offsetting credit? Your signature on the Visa slip entitles the restaurant to receive $200 (actually, its local currency equivalent) from First Card, the company that issued your Visa card. It is therefore an asset, a claim on a future payment from First Card. So when you pay for your meal abroad with your credit card, you are selling an asset to France and generating a $200 credit in the U.S. financial account. The pattern of offsetting debits and credits in this case is

	Credit	Debit
Meal purchase (Current account, U.S. service import)		−$200
Sale of claim on First Card (Financial account, U.S. asset export)	+$200	

Imagine next that your Uncle Sid from Los Angeles buys a newly issued share of stock in the United Kingdom oil giant British Petroleum (BP). He places his order with his stockbroker, Go-for-Broke, Inc., paying $95 with a check drawn on his Go-for-Broke money market account. BP, in turn, deposits the $95 dollars Sid has paid in its own U.S. bank account at Second Bank of Chicago. Uncle Sid's acquisition of the stock creates a $95 debit in the U.S. financial account (he has purchased an asset from a foreign resident, BP), while BP's $95 deposit at its Chicago bank is the offsetting financial-account credit (BP has

expanded its U.S. asset holdings). The mirror-image effects on the U.S. balance of pa ments therefore both appear in the financial account:

	Credit	Debit
Uncle Sid's purchase of a share of BP (Financial account, U.S. asset import)		−$95
BP's deposit of Uncle Sid's payment at Second Bank of Chicago (Financial account, U.S. asset export)	+$95	

Finally, let's consider how the United States balance of payments accounts are affecte when U.S. banks forgive (that is, announce that they will simply forget about) $5000 in de owed to them by the government of the imaginary country of Bygonia. In this case, tl United States makes a $5000 capital transfer to Bygonia, which appears as a −$5000 ent in the capital account. The associated credit is in the financial account, in the form of $5000 reduction in U.S. assets held abroad (a net asset "export," and therefore a positi balance of payments entry):

	Credit	Debit
U.S. banks' debt forgiveness (Capital account, U.S. transfer payment)		−$500
Reduction in banks' claims on Bygonia (Financial account, U.S. asset export)	+$5000	

These examples show that many different circumstances can affect the way a transactio generates its offsetting balance of payments entry. We can never be sure where the flip sid of a particular transaction will show up, but we can be sure it will show up somewhere.

The Fundamental Balance of Payments Identity

Because any international transaction automatically gives rise to two offsetting entries in th balance of payments, the current account balance, the financial account balance, and the cap ital account balance automatically add up to zero:

$$\text{Current account} + \text{financial account} + \text{capital account} = 0. \qquad (12\text{-}3$$

This identity can also be understood by recalling the relation linking the current accour to international lending and borrowing. Because the sum of the current and capital account is the total change in a country's net foreign assets, that sum necessarily equals the differ ence between a country's imports of assets from foreigners and its exports of assets to them that is, the capital account balance preceded by a minus sign.

We now turn to a more detailed description of the balance of payments accounts, usin as an example the U.S. accounts for 2000. Table 12-2 reproduces the record of America' international transactions in that year.

The Current Account, Once Again

As you have learned, the current account balance measures a country's net exports of good and services. Table 12-2 shows that U.S. exports were $1,414.9 billion in 2000 while U.S imports were $1,797.1 billion. Because imports give rise to payments to foreigners, the enter the accounts with a negative sign, as shown.

Table 12-2 U.S. Balance of Payments Accounts for 2000 (billions of dollars)

	Credits	Debits
Current Account		
(1) Exports	+1,414.9	
Of which:		
Merchandise	+773.3	
Services	+296.2	
Income receipts	+345.4	
(2) Imports		−1,797.1
Of which:		
Merchandise		−1,222.8
Services		−215.2
Income payments		−359.1
(3) Net unilateral current transfers		−53.2
Balance on current account [(1) + (2) + (3)]		−435.4
Capital Account		
(4)	+0.7	
Financial Account		
(5) U.S. assets held abroad (increase −)		−553.3
Of which:		
Official reserve assets		−0.3
Other assets		−553.0
(6) Foreign assets held in U.S. (increase +)	+952.4	
Of which:		
Official reserve assets	+35.9	
Other assets	+916.5	
Balance on financial account [(5) + (6)]	+399.1	
Statistical discrepancy [sum of (1) through (6) with sign reversed]	+35.6	

Source: U.S. Department of Commerce, *Survey of Current Business,* April 2001. Totals may differ from sums because of rounding.

The balance of payments accounts divide exports and imports into three finer categories. The first is *merchandise* trade, that is, exports or imports of goods. The second category, *services,* includes items such as payments for legal assistance, tourists' expenditures, and shipping fees. The final category, *income,* is made up mostly of international interest and dividend payments and the earnings of domestically owned firms operating abroad. If you own

a share of a German firm's stock and receive a dividend payment of $5, that payment shows up in the accounts as a U.S. investment income receipt of $5. Wages that workers earn abroad can also enter the income account.

We include income on foreign investments in the current account because that income really is compensation for the *services* provided by foreign investments. This idea, as we saw earlier, is behind the distinction between GNP and GDP. When a U.S. corporation builds a plant in Canada, for instance, the productive services the plant generates are viewed as a service export from the United States to Canada equal in value to the profits the plant yields for its American owner. To be consistent, we must be sure to include these profits in American GNP and not in Canadian GNP. Remember, the definition of GNP refers to goods and services generated by a country's factors of production, but it does *not* specify that those factors must work within the borders of the country that owns them.

Before calculating the current account, we must include one additional type of international transaction that we have largely ignored until now. In discussing the relation between GNP and national income, we defined unilateral transfers between countries as international gifts, that is, payments that do not correspond to the purchase of any good, service, or asset. Net unilateral transfers are considered part of the current account as well as a part of national income, and the identity $Y = C + I + G + CA$ holds exactly if Y is interpreted as GNP *plus* net transfers. In 2000, the U.S. balance of unilateral transfers was −$53.2 billion.

The table shows a 2000 current account balance of $1,414.9 billion − $1,797.1 billion − $53.2 billion = −$435.4 billion, a deficit. The negative sign means that current payments exceeded current receipts and that U.S. residents used more output than they produced. Since these current account transactions were paid for in some way, we know that this negative $435.4 billion entry must be offset by positive $435.4 billion entries in the other two accounts of the balance of payments.

The Capital Account

The capital account entry in Table 12-2 shows that in 2000, the United States received capital asset transfers of roughly $700 million, or only $0.7 billion. These receipts by the United States are a balance of payments credit that enter with a positive sign. After we add them to the payments deficit implied by the current account, we find that the United States' need to cover its excess payments to foreigners is reduced very slightly, from $435.4 billion to $435.4 billion − $0.7 billion = $434.7 billion. Because overall U.S. foreign receipts must equal foreign payments every year, that −$434.7 billion entry in the U.S. balance of payments must be matched by a +$434.7 billion entry in the remaining balance of payments account, the financial account.

The Financial Account

Just as the current account is the difference between sales of goods and services to foreigners and purchases of goods and services from them, the financial account measures the difference between sales of assets to foreigners and purchases of assets located abroad. When the United States borrows $1 from foreigners, it is selling them an asset—a promise that they will be repaid $1, with interest, in the future. Such a transaction enters the financial account with a positive sign because the loan is itself a payment to the United States, or a **financial inflow** (also sometimes called a **capital inflow**). When the United States lends abroad, however, a payment is made to foreigners and the capital account is debited. This

transaction involves the purchase of an asset from foreigners and is called a **financial outflow** (or, alternatively, a **capital outflow**).

To cover its 2000 current plus capital account deficit of $434.7 billion, the United States required a net financial inflow of $434.7 billion. In other words, its net borrowing or sales of assets to foreigners should have amounted to $434.7 billion. We can look again at Table 12-2 to see exactly how this net financial inflow came about.

The table records separately increases in U.S. holdings of assets located abroad (which are financial outflows and enter with a negative sign) and increases in foreign holdings of assets located in the United States (which are financial inflows and enter with a positive sign).

According to Table 12-2, U.S. owned assets held abroad increased by $553.3 billion in 2000, contributing a −$553.3 billion entry to the U.S. balance of payments. Foreign owned assets held in the United States rose by $952.4 billion in the year, and these purchases are shown with a positive sign. We calculate the balance on financial account as $553.3 billion − $952.4 billion = $399.1 billion, a surplus.

The Statistical Discrepancy

We come out with a financial account surplus of $399.1 billion rather than the larger $434.7 billion financial account surplus we expected. If every balance of payments credit automatically generates an equal counterpart debit, and vice versa, how is this difference possible? The reason is that information about the offsetting debit and credit items associated with a given transaction may be collected from different sources. For example, the import debit that a shipment of VCRs from Japan generates may come from a U.S. customs inspector's report and the corresponding financial account credit from a report by the U.S. bank in which the check paying for the VCRs is deposited. Because data from different sources may differ in coverage, accuracy, and timing, the balance of payments accounts seldom balance in practice as they must in theory. Account keepers force the two sides to balance by adding to the accounts a statistical discrepancy. For 2000 unrecorded (or misrecorded) international transactions generated a balancing credit of +$35.6 billion.

We have no way of knowing exactly how to allocate this discrepancy among the current, capital, and financial accounts. (If we did, it wouldn't be a discrepancy!) The financial account is the most likely culprit, since it is notoriously difficult to keep track of the complicated financial trades between residents of different countries. But we cannot conclude that net financial inflows were $35.6 billion higher than recorded, because the current account is also highly suspect. Balance of payments accountants consider merchandise trade data relatively reliable, but data on services are not. Service transactions such as sales of financial advice and computer programming assistance may escape detection. Accurate measurement of international interest and dividend receipts is particularly difficult. (See the box on page 314.)

Official Reserve Transactions

Although there are many types of capital account transaction, one type is important enough to merit separate discussion. This type of transaction involves the purchase or sale of official reserve assets by central banks.

An economy's **central bank** is the institution responsible for managing the supply of money. In the United States, the central bank is the Federal Reserve System. **Official international reserves** are foreign assets held by central banks as a cushion against

THE MYSTERY OF THE MISSING SURPLUS

Because the world as a whole is a closed economy, world saving must equal world investment and world spending must equal world output. Individual countries can run current account surpluses or deficits to invest or borrow abroad. Because one country's lending is another country's borrowing, however, the sum of all these individual current account imbalances necessarily equals zero.

Or does it? National current account data show that the world as a whole is running a substantial current account *deficit* that increased sharply in the early 1980s and has remained high. Below are figures for the sum total of all countries' current account balances between 1980 and 1994.

The global discrepancies in the table are far greater in magnitude than most reported national current accounts. Since positive and negative errors cancel out in the summation leading to the global figures, discrepancies of this size raise the worrisome possibility that the national current account statistics on which policymakers base decisions are seriously inaccurate.

What explains the theoretically impossible deficit shown by total world current account numbers? Your first reaction may be to blame the problem on the statistical discrepancies that bedevil the national income and balance of payment accounts of individual countries. An additional complication is introduced by timing factors. Goods that leave one country's ports near the end of an accounting year, for example, may not reach their destination in time to be recorded in the recipient's import statistics for the same year.

A general appeal to accounting anomalies such as these does not explain, however, why the world as a whole should appear to be persistently in deficit (rather than in surplus) or why that deficit should have tripled in the early 1980s. A more plausible hypothesis links the missing surplus to one specific cause of accounting discrepancies at the national level, the systematic misreporting of international interest income flows. Interest payments earned abroad are often not reported to government authorities in the recipient's home country. In many cases such interest payments are credited directly to a foreign bank account and do not even cross national borders. There is thus a consistent tendency to observe a negative global balance of international interest flows.

World interest rates rose sharply after 1980, and the size of the world interest payment discrepancy increased with them. The interest payment

national economic misfortune. At one time official reserves consisted largely of gold, but today central banks' reserves include substantial foreign financial assets, particularly U.S. dollar assets such as Treasury bills. The Federal Reserve itself holds only a small level of official reserve assets other than gold; its own holdings of dollar assets are not considered international reserves.

Central banks often buy or sell international reserves in private asset markets to affect macroeconomic conditions in their economies. Official transactions of this type are called **official foreign exchange intervention**. One reason why foreign exchange intervention can alter macroeconomic conditions is that it is a way for the central bank to inject money into the economy or withdraw it from circulation. We will have much more to say later about the causes and consequences of foreign exchange intervention.

Government agencies other than central banks may hold foreign reserves and intervene officially in exchange markets. The U.S. Treasury, for example, operates an Exchange Stabilization Fund that sometimes plays an active role in market trading. Because the operations of such agencies usually have no noticeable impact on the money supply, however, we will simplify our discussion by speaking (when this is not too misleading) as if the central bank alone holds foreign reserves and intervenes.

hypothesis therefore offers a potential explanation for the increase in the global deficit. The downturn in world interest rates after the mid-1980s provides partial confirmation of the hypothesis, since the world current account deficit did drop as interest rates fell. Subsequent data are no less consistent with a key role for interest payments. Interest rates in most of the main industrial countries rose after 1987, and this helped to more than double the world payments gap. The dramatic size of this effect, involving discrepancies even larger than the previous 1982 peak, is explained by the much greater volume of gross international assets and liabilities that existed by the late 1980s. The generalized easing of world interest rates after 1990, a process that accelerated in 1993 as Europe joined in (see Chapter 20), is clearly associated with yet another fall in the world current account deficit.

Other measurement problems are probably also at work, as an International Monetary Fund (IMF) study of the current account discrepancy concluded (see Further Reading). The IMF found that while interest payments explain a good part of the discrepancy, several additional factors are involved. For example, much of the world's merchant shipping fleet is registered in countries that do not report maritime freight earnings to the IMF. These unrecorded earnings make up a significant portion of the missing world surplus.

Measured World Current Account Balance, 1980–1994 (Billions of U.S. dollars)

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
−38.5	−68.3	−100.2	−61.2	−73.4	−80.8	−76.7	−62.3	−78.9	−96.2	−126.0	−118.2	−99.0	−59.7	−50.3

Source: International Monetary Fund, *World Economic Outlook,* 1989–1994, Table A26, October 1997, October 2000, Table A27.

When a central bank purchases or sells a foreign asset, the transaction appears in its country's financial account just as if the same transaction had been carried out by a private citizen. A transaction in which the central bank of Germany (called the Bundesbank) acquires dollar assets might occur as follows. A U.S. auto dealer imports a Volkswagen from Germany and pays the auto company with a check for $15,000. Volkswagen does not want to invest the money in dollar assets, but it so happens that the Bundesbank is willing to give Volkswagen German money in exchange for the $15,000 check. The Bundesbank's international reserves rise by $15,000 as a result of the deal. Because the Bundesbank's dollar reserves are part of total German assets held in the United States, the latter rise by $15,000. This transaction therefore results in a positive $15,000 entry in the U.S. financial account, the other side of the −$15,000 entry in the U.S. current account due to the purchase of the car.[9]

Table 12-2 shows the size and direction of official reserve transactions involving the United States in 2000. United States official reserve assets—that is, international reserves held by the Federal Reserve—*rose* by $0.3 billion (recall that a negative sign here means an increase in U.S. owned assets held abroad, that is, an "import" of assets from foreigners).

[9]To test your understanding, see if you can explain why the same sequence of actions causes a $15,000 improvement in Germany's current account but a $15,000 worsening of its financial account.

Foreign central banks purchased $35.9 billion to add to their reserves. The net increase in foreign official reserve claims on the United States *less* the net increase in U.S. official reserves is the *balance of official reserve transactions,* which stood at $35.9 billion − $0.3 billion = $35.6 billion in 2000.

You can think of this $35.6 billion balance as measuring the degree to which monetary authorities in the United States and abroad joined with other lenders to cover the U.S. current account deficit. In the example above, the Bundesbank, by acquiring a $15,000 U.S. bank deposit, indirectly finances an American import of a $15,000 German car. The bookkeeping offset to the balance of official reserve transactions is called the **official settlements balance** or (in less formal usage) the **balance of payments**. This balance is the sum of the current account balance, the capital account balance, the nonreserve portion of the financial account balance, and the statistical discrepancy, and it indicates the payments gap that official reserve transactions need to cover. Thus the U.S. balance of payments in 2000 was −$35.6 billion, that is, the balance of official reserve transactions with its sign reversed.

Table 12-3 reorganizes the major categories in Table 12-2 to emphasize the role of official reserve transactions in bridging the gap between the current (plus capital) account deficit and the *nonreserve* portion of the financial account surplus. The balance of payments played an important historical role as a measure of disequilibrium in international payments, and for many countries it still plays this role. A negative balance of payments (a deficit) may signal a crisis, for it means that a country is running down its international reserve assets or incurring debts to foreign monetary authorities. If a country faces the risk of being suddenly cut off from foreign loans, it will want to maintain a "war chest" of international reserves as a precaution.

Like any summary measure, however, the balance of payments must be interpreted with caution. To return to our running example, the German Bundesbank's decision to expand its U.S. bank deposit holdings by $15,000 swells the measured U.S. balance of payments deficit by the same amount. Suppose the Bundesbank instead places its $15,000 with Barclays Bank in London, which in turn deposits the money with Bankers Trust in New York. Nonreserve U.S. financial inflows rise by $15,000 in this case, and the U.S. balance of payments deficit does not rise. But this "improvement" in the balance of payments is of little economic importance: It makes no difference to the United States whether it borrows the Bundesbank's money directly or through a London bank.

CASE STUDY

Is the United States the World's Biggest Debtor?

The Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce oversees the vast data collection operation behind the U.S. national income and product accounts and balance of payments statistics. In addition, the BEA reports annual estimates of the "international investment position of the United States"—the country's net foreign wealth. These estimates showed that at the end of 1999 the United States had a *negative* net foreign wealth position far greater than that of any other single country.

Table 12-3 Calculating the U.S. Official Settlements Balance for 2000 (billions of dollars)

	Credits	Debits
Current Account		
(1) Exports	+1,414.9	
(2) Imports		−1,797.1
(3) Net unilateral transfers		−53.2
(4) Balance on current account [(1) + (2) + (3)]		−435.4
Capital Account		
(5)	+0.7	
Nonreserve financial account		
(6) U.S. assets held abroad (excluding U.S. official reserves) (increase −)		−553.0
(7) Foreign assets held in U.S. (excluding foreign official reserves) (increase +)	+916.5	
(8) Balance on nonreserve financial account [(6) + (7)]	+363.5	
(9) Statistical discrepancy	+35.6	
(10) Official settlements balance [(4) + (5) + (8) + (9)]		−35.6
Official reserve transactions		
(11) U.S. official reserve assets held abroad (increase −)		−0.3
Of which:		
Gold		0.0
Special Drawing Rights		−0.7
Reserve position in the International Monetary Fund	+2.3	
Foreign currencies		−1.9
(12) Foreign official reserve assets held in U.S. (increase +)	+35.9	
Of which:		
U.S. government securities	+29.5	
Other U.S. government liabilities		−2.5
Liabilities reported by U.S. banks not included elsewhere	+5.8	
Other	+3.1	
(13) Balance of official reserve transactions [(11) + (12)]	+35.6	

Source: U.S. Department of Commerce, *Survey of Current Business*, April 2001. Totals may differ from sums because of rounding.

We saw earlier that the current account balance measures the flow of new net claims on foreign wealth that a country acquires by exporting more goods and services than it imports. This flow is not, however, the only factor that causes a country's net foreign wealth to change. In addition, changes in the market price of wealth previously acquired can alter a country's net foreign wealth. When Japan's stock market lost three quarters of its value over the 1990s, for example, American and European owners of Japanese shares saw the value of their claims on Japan plummet, and Japan's net *foreign* wealth increased as a result. The BEA must adjust the value of existing claims for such capital gains and losses before arriving at its estimate of U.S. net foreign wealth.

The BEA now reports two estimates of U.S. net foreign wealth that differ in their treatment of foreign direct investments (see Chapter 7). Until 1991 foreign direct investments were valued at their historical, that is, original, purchase prices. Now the BEA uses two different methods to place current values on foreign direct investments: the *current cost* method, which values direct investments at the cost of buying them today, and the *market value* method, which is meant to measure the price at which the investments could be sold. These methods can lead to different valuations, because the cost of replacing a particular direct investment and the price it would command if sold on the market may be hard to measure. (The net foreign wealth data graphed in Figure 12-2 are current cost estimates.)

Table 12-4 reproduces the BEA's account of how it made its valuation adjustments to find the U.S. net foreign position at the end of 1999. Starting with its estimate of 1998 net foreign wealth (−$1,111.8 billion at current cost or −$1,407.7 billion at market value), the BEA (column a) subtracted the amount of the 1999 U.S. net financial inflow of $323.4 billion—the sum of lines 5 and 6 in the 1999 version of Table 12-2. (Do you remember why a financial *inflow* to the United States results in a *reduction* in U.S. net foreign assets?) Then the BEA adjusted the values of previously held assets for various changes in their dollar prices (columns b, c, and d). As a result of these valuation changes, U.S. net foreign wealth *fell* by an amount different from the $323.4 billion in new net financial inflows from abroad. Based on the current cost method for valuing direct investments, the BEA's 1999 estimate of U.S. net foreign wealth was −$1,082.5 billion. On a market value basis, the BEA places 1999 net foreign wealth lower, at −$1,473.7 billion.

This debt is larger than the total foreign debt owed by all the Western Hemisphere's developing countries, which was $764.5 billion in 1999. To put these figures in perspective, however, it is important to realize that the U.S. net foreign debt (at current cost) amounted to less than 12 percent of its GDP, while that of Argentina, Brazil, Mexico, Venezuela, and the other Western Hemisphere debtors was 43 percent of their collective GDP! Thus, the U.S. external debt represents a much lower income drain than that of its southern neighbors.

The United States certainly is the world's biggest debtor. There is no reason to be alarmed, however, because the U.S. GNP is also the world's largest and the United States is not in danger of being unable to repay its foreign debts. Remember also that foreign borrowing may not always be a bad idea: A country that borrows abroad to undertake profitable domestic investments can pay back its creditors and still have money left over (Chapter 7). Unfortunately for the United States, most of its foreign borrowing over the 1980s financed government budget deficits rather than investment, as we saw in the last Case Study. Future generations of U.S. citizens therefore will face a real burden in repaying the resulting foreign debt.

Table 12-4 International Investment Position of the United States at Year End, 1998 and 1999 (millions of dollars)

Line	Type of investment	Position, 1998	Changes in position in 1999 (decrease (-))					Position, 1999[p]
			Attributable to:				Total	
			Financial flows	Valuation adjustments				
				Price changes	Exchange rate changes [1]	Other changes [2]		
			(a)	(b)	(c)	(d)	(a+b+c+d)	
	Net international investment position of the United States:							
1	With direct investment positions at current cost (line 3 less line 24)	**-1,111,813**	**-323,377**	**344,215**	**-60,235**	**68,702**	**29,305**	**-1,082,508**
2	With direct investment positions at market value (line 4 less line 25)	**-1,407,670**	**-323,377**	**301,897**	**-57,364**	**12,829**	**-66,015**	**-1,473,685**
	U.S.-owned assets abroad:							
3	With direct investment positions at current cost (lines 5+10+15)	**5,079,056**	**430,187**	**455,115**	**-71,115**	**-4,215**	**809,972**	**5,889,028**
4	With direct investment positions at market value (lines 5+10+16)	**6,045,544**	**430,187**	**755,413**	**-63,035**	**5,264**	**1,127,829**	**7,173,373**
5	U.S. official reserve assets	146,006	-8,747	642	-1,500	17	-9,588	136,418
6	Gold	75,291	.....	[3] 642	.....	[4] 17	659	75,950
7	Special drawing rights	10,603	-10	.....	-257	.....	-267	10,336
8	Reserve position in the International Monetary Fund	24,111	-5,484	.....	-677	.....	-6,161	17,950
9	Foreign currencies	36,001	-3,253	.....	-566	.....	-3,819	32,182
10	U.S. Government assets, other than official reserve assets	86,768	-2,751	.....	7	202	-2,542	84,226
11	U.S. credits and other long-term assets [5]	84,850	-3,384	.....	-11	202	-3,193	81,657
12	Repayable in dollars	84,528	-3,363	.....	.....	202	-3,161	81,367
13	Other [6]	322	-21	.....	-11	.....	-32	290
14	U.S. foreign currency holdings and U.S. short-term assets	1,918	633	.....	18	.....	651	2,569
	U.S. private assets:							
15	With direct investment at current cost (lines 17+19+22+23)	4,846,282	441,685	454,473	-69,622	-4,434	822,102	5,668,384
16	With direct investment at market value (lines 18+19+22+23)	5,812,770	441,685	754,771	-61,542	5,045	1,139,959	6,952,729
	Direct investment abroad:							
17	At current cost	1,207,059	150,901	5,475	-17,648	-14,602	124,128	1,331,187
18	At market value	2,173,547	150,901	305,773	-9,566	-5,123	441,985	2,615,532
19	Foreign securities	2,052,929	128,594	448,998	-47,135	.....	530,457	2,583,386
20	Bonds	576,745	14,193	-31,341	-2,849	.....	-19,997	556,748
21	Corporate stocks	1,476,184	114,401	480,339	-44,286	.....	550,454	2,026,638
22	U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns	565,468	92,328	.....	-8,037	-6,010	78,281	643,747
23	U.S. claims reported by U.S. banks, not included elsewhere	1,020,828	69,862	.....	3,196	16,178	89,236	1,110,064
	Foreign-owned assets in the United States:							
24	With direct investment at current cost (lines 26+33)	**6,190,869**	**753,564**	**110,900**	**-10,880**	**-72,917**	**780,667**	**6,971,536**
25	With direct investment at market value (lines 26+34)	**7,453,214**	**753,564**	**453,516**	**-5,871**	**-7,565**	**1,193,644**	**8,647,058**
26	Foreign official assets in the United States	837,701	42,864	-11,231	.....	.....	31,633	869,334
27	U.S. Government securities	620,285	32,527	-23,905	.....	.....	8,622	628,907
28	U.S. Treasury securities	589,023	12,177	-22,975	.....	.....	-10,798	578,225
29	Other	31,262	20,350	-930	.....	.....	19,420	50,682
30	Other U.S. Government liabilities [7]	18,000	-3,255	.....	.....	.....	-3,255	14,745
31	U.S. liabilities reported by U.S. banks, not included elsewhere	125,883	12,692	.....	.....	.....	12,692	138,575
32	Other foreign official assets	73,533	900	12,674	.....	.....	13,574	87,107
	Other foreign assets:							
33	With direct investment at current cost (lines 35+37+38+41+42+43)	5,353,168	710,700	122,131	-10,880	-72,917	749,034	6,102,202
34	With direct investment at market value (lines 36+37+38+41+42+43)	6,615,513	710,700	464,747	-5,871	-7,565	1,162,211	7,777,724
	Direct investment in the United States:							
35	At current cost	928,645	275,533	1,766	-5,209	-75,521	196,569	1,125,214
36	At market value	2,190,990	275,533	344,382	.....	-10,169	609,746	2,800,736
37	U.S. Treasury securities	729,738	-20,464	-48,552	.....	.....	-69,016	660,722
38	U.S. securities other than U.S. Treasury securities	2,012,431	331,523	168,917	-3,549	.....	496,891	2,509,322
39	Corporate and other bonds	902,155	232,814	-67,690	-3,549	.....	161,575	1,063,730
40	Corporate stocks	1,110,276	98,709	236,607	.....	.....	335,316	1,445,592
41	U.S. currency	228,250	22,407	.....	.....	.....	22,407	250,657
42	U.S. liabilities to unaffiliated foreigners reported by U.S. nonbanking concerns	437,973	34,298	.....	-1,050	2,604	35,852	473,825
43	U.S. liabilities reported by U.S. banks, not included elsewhere	1,016,131	67,403	.....	-1,072	.....	66,331	1,082,462

p Preliminary.
r Revised.
1. Represents gains or losses on foreign-currency-denominated assets due to their revaluation at current exchange rates.
2. Includes changes in coverage, statistical discrepancies, and other adjustments to the value of assets.
3. Reflects changes in the value of the official gold stock due to fluctuations in the market price of gold.
4. Reflects changes in gold stock from U.S. Treasury sales of gold medallions and commemorative and bullion coins; also reflects replenishment through open market purchases. These demonetizations/monetizations are not included in international transactions financial flows.
5. Also includes paid-in capital subscriptions to international financial institutions and outstanding amounts of miscellaneous claims that have been settled through international agreements to be payable to the U.S. Government over periods in excess of 1 year. Excludes World War I debts that are not being serviced.
6. Includes indebtedness that the borrower may contractually, or at its option, repay with its currency, with a third country's currency, or by delivery of materials or transfer of services.
7. Primarily U.S. Government liabilities associated with military sales contracts and other transactions arranged with or through foreign official agencies.

NOTE.—The data in this table are from table 1 in "International Investment Position of the United States at Yearend 1999" in the July 2000 issue of the SURVEY OF CURRENT BUSINESS.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business,* April 2001, p. D-57.

Summary

1. International *macroeconomics* is concerned with the full employment of scarce economic resources and price level stability throughout the world economy. Because they reflect national expenditure patterns and their international repercussions, the *national income accounts* and the *balance of payments accounts* are essential tools for studying the macroeconomics of open, interdependent economies.
2. A country's *gross national product (GNP)* is equal to the income received by its factors of production. The national income accounts divide national income according to the types of spending that generate it: *consumption, investment, government purchases,* and the *current account balance. Gross domestic product (GDP),* equal to GNP less net receipts of factor income from abroad, measures the output produced within a country's territorial borders.
3. In an economy closed to international trade, GNP must be consumed, invested, or purchased by the government. By using current output to build plant, equipment, and inventories, investment transforms present output into future output. For a closed economy, investment is the only way to save in the aggregate, so the sum of the saving carried out by the private and public sectors, *national saving,* must equal investment.
4. In an open economy, GNP equals the sum of consumption, investment, government purchases, and net exports of goods and services. Trade does not have to be balanced if the economy can borrow from and lend to the rest of the world. The difference between the economy's exports and imports, the current account balance, equals the difference between the economy's output and its total use of goods and services.
5. The current account also equals the country's net lending to foreigners. Unlike a closed economy, an open economy can save by domestic *and* foreign investment. National saving therefore equals domestic investment plus the current account balance.
6. Balance of payments accounts provide a detailed picture of the composition and financing of the current account. All transactions between a country and the rest of the world are recorded in its balance of payments accounts. The accounts are based on the convention that any transaction resulting in a payment to foreigners is entered with a minus sign while any transaction resulting in a receipt from foreigners is entered with a plus sign.
7. Transactions involving goods and services appear in the current account of the balance of payments, while international sales or purchases of *assets* appear in the *financial account.* The *capital account* records asset transfers and tends to be small for the United States. Any current account deficit must be matched by an equal surplus in the other two accounts of the balance of payments, and any current account surplus by a deficit somewhere else. This feature of the accounts reflects the fact that discrepancies between export earnings and import expenditures must be matched by a promise to repay the difference, usually with interest, in the future.
8. International asset transactions carried out by *central banks* are included in the financial account. Any central bank transaction in private markets for foreign currency assets is called *official foreign exchange intervention.* One reason intervention is important is that central banks use it as a way of altering the amount of money in cir-

culation. A country has a deficit in its *balance of payments* when it is running down its *official international reserves* or borrowing from foreign central banks; it has a surplus in the opposite case.

Key Terms

asset, p. 308
balance of payments accounting, p. 295
capital account, p. 308
capital inflow, p. 312
capital outflow, p. 313
central bank, p. 313
consumption, p. 299
current account balance, p. 301
financial account, p. 308
financial inflow, p. 312
financial outflow, p. 313
government budget deficit, p. 305
government purchases, p. 299
gross domestic product (GDP), p. 298
gross national product (GNP), p. 295
investment, p. 299
macroeconomics, p. 294
microeconomics, p. 294
national income, p. 296
national income accounting, p. 295
national saving, p. 303
official foreign exchange intervention, p. 314
official international reserves, p. 313
official settlements balance (or balance of payments), p. 316
private saving, p. 305

Problems

1. We stated in this chapter that GNP accounts avoid double counting by including only the value of *final* goods and services sold on the market. Should the measure of imports used in the GNP accounts therefore be defined to include only imports of final goods and services from abroad? What about exports?
2. Equation (12-2) tells us that to reduce a current account deficit, a country must increase its private saving, reduce domestic investment, or cut its government budget deficit. In the 1980s, many people recommended restrictions on imports from Japan (and other countries) to reduce the American current account deficit. How would higher U.S. barriers to imports affect its private saving, domestic investment, and government deficit? Do you agree that import restrictions would necessarily reduce a U.S. current account deficit?
3. Explain how each of the following transactions generates two entries—a credit and a debit—in the American balance of payments accounts, and describe how each entry would be classified:
   a. An American buys a share of German stock, paying by writing a check on an account with a Swiss bank.
   b. An American buys a share of German stock, paying the seller with a check on an American bank.
   c. The French government carries out an official foreign exchange intervention in which it uses dollars held in an American bank to buy French currency from its citizens.
   d. A tourist from Detroit buys a meal at an expensive restaurant in Lyons, France, paying with a traveler's check.

e. A California winegrower contributes a case of cabernet sauvignon for a London wine tasting.
f. A U.S.-owned factory in Britain uses local earnings to buy additional machinery.

4. A New Yorker travels to New Jersey to buy a $100 telephone answering machine. The New Jersey company that sells the machine then deposits the $100 check in its account at a New York bank. How would these transactions show up in the balance of payments accounts of New York and New Jersey? What if the New Yorker pays cash for the machine?
5. The nation of Pecunia had a current account deficit of $1 billion and a nonreserve financial account surplus of $500 million in 2002.
   a. What was the balance of payments of Pecunia in that year? What happened to the country's net foreign assets?
   b. Assume that foreign central banks neither buy nor sell Pecunian assets. How did the Pecunian central bank's foreign reserves change in 2002? How would this official intervention show up in the balance of payments accounts of Pecunia?
   c. How would your answer to (b) change if you learned that foreign central banks had purchased $600 million of Pecunian assets in 2002? How would these official purchases enter foreign balance of payments accounts?
   d. Draw up the Pecunian balance of payments accounts for 2002 under the assumption that the event described in (c) occurred in that year.
6. Can you think of reasons why a government might be concerned about a large current account deficit or surplus? Why might a government be concerned about its official settlements balance (that is, its balance of payments)?
7. Do data on the U.S. official settlements balance give an accurate picture of the extent to which foreign central banks buy and sell dollars in currency markets?
8. Is it possible for a country to have a current account deficit at the same time it has a surplus in its balance of payments? Explain your answer, using hypothetical figures for the current and nonreserve financial accounts. Be sure to discuss the possible implications for official international reserve flows.

Further Reading

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