

# Chapter

# 4

## *The Balance of Payments*

The first three chapters of this book provide insights into the nature of foreign exchange markets and foreign exchange risks. To understand these concepts more deeply, you need to understand the economic forces that cause exchange rates to fluctuate. Exchange rates respond to demand and supply to trade currencies. These demands and supplies arise from international trade flows and international capital flows.

Plenty of useful information about these international flows is provided by the balance of payments, which records the payments between residents of one country and the rest of the world over a given time period. As such, it helps shed a great deal of light on the supply and demand for various currencies, the possible evolution of their exchange rates, and the global financial marketplace in general.

Balance of payments statistics are discussed daily by politicians, the news media, and currency analysts at corporations, commercial banks, investment banks, and mutual funds. Currency traders eagerly await the release of new balance of payments statistics because they know exchange rates will move with the new information. We will see how the balances on various subaccounts are linked to domestic and international saving and investment decisions and ultimately how they may determine a country's financial and economic health. For example, multinational firms should recognize that persistent current account deficits in developing countries can signal that currency devaluations are likely to occur there, with potentially dire economic ramifications. In developed countries, persistent current account deficits can lead legislators to unleash protectionist policies, such as tariffs and embargoes on imported goods and services. Every company in the world doing business with China keenly follows the effect that the U.S. trade deficit with China is having on the two countries' trade policies.

### 4.1 THE BALANCE OF PAYMENTS: CONCEPTS AND TERMINOLOGY

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A country's **balance of payments (BOP)** records the value of the transactions between its residents, businesses, and government with the rest of the world for a specific period of time, such as a month, a quarter, or a year. Hence, the balance of payments summarizes the international flows of goods and services and changes in the ownership of assets across countries.

## Major Accounts of the Balance of Payments

There are two major BOP accounts: the current account and the capital account. In recent years, most countries have renamed the capital account as the “financial account” in order to comply with the recommendations of the International Monetary Fund (IMF). Because the terminology *capital account* has a long tradition and continues to be used in the financial press, we continue to use it here.

The **current account** records the following:

Goods and services transactions (**imports**, which are purchases of goods and services from foreign residents; and **exports**, which are sales of goods and services to foreign residents).

Transactions associated with the income flows from the ownership of foreign assets (dividends and interest paid to domestic residents who own foreign assets as well as dividends and interest paid to foreign residents who own domestic assets).

Unilateral **transfers** of money between countries (foreign aid, gifts, and grants given by the residents or governments of one country to those of another).

The **capital account** records the purchases and sales of foreign assets by domestic residents as well as the purchases and sales of domestic assets by foreign residents. The definition of an asset is all inclusive: It encompasses both financial assets (bank deposits and loans, corporate and government bonds, and equities) and real assets (factories, real estate, antiques, and so forth).

One type of capital account transaction merits special attention: transactions involving the purchase or sale of official international reserve assets by a nation’s central bank. International reserves are the assets of the central bank that are not denominated in the domestic currency. Gold and assets denominated in foreign currency are the typical international reserves. Exhibit 4.1 surveys the various types of transactions and accounts of the BOP and splits the capital account into two parts: a regular capital account and an **official settlements account**, or **official reserves account**. The regular capital account records all transactions other than

### Exhibit 4.1 Summary of the Accounts of the Balance of Payments

Debits (recorded with a –)	Credits (recorded with a +)
<b>I. CURRENT ACCOUNT</b>	
(A) TRADE BALANCE (Transactions in goods, services, and transfers)	
Imports to the United States	Exports from the United States
(B) INVESTMENT INCOME ACCOUNT	
Payment by the United States of dividends and interest to foreigners	Receipt by the United States of dividends and interest from foreigners
<b>II. CAPITAL ACCOUNT</b>	
Capital Outflows	Capital Inflows
Increase in U.S. ownership of foreign assets	Increase in foreign ownership of U.S. assets
Decrease of foreign ownership of U.S. assets	Decrease in U.S. ownership of foreign assets
<b>III. OFFICIAL RESERVES ACCOUNT</b>	
Increase in official reserves of the U.S. central bank	Decrease of official reserves of the U.S. central bank
Decrease in dollar reserves of foreign central banks	Increase in dollar reserves of foreign central banks

*Notes:* This exhibit summarizes the various accounts of the balance of payments and indicates the types of transactions that are booked there. We use the U.S. perspective, but the structure applies to any country.

those involving international reserves. We discuss the official settlements account in detail in Section 4.2. Throughout this chapter, Exhibit 4.1 provides a useful guide.

## A Double-Entry Accounting System

The balance of payments uses a double-entry system. Each transaction gives rise to two entries: One entry is a credit, and the other entry is a debit of equal value. The rules for determining credits and debits on the balance of payments are analogous to those in financial accounting. Any transaction resulting in a payment to foreigners is entered in the BOP accounts as a debit. Any transaction resulting in a receipt of funds from foreigners is entered as a credit. In presentations of the balance of payments that merely list the values of the items, it is traditional that credit items are listed with a positive sign (+) and debit items are listed with a negative sign (−).

### *An Intuitive Rule for Determining Credits and Debits*

Determining which items are credits or debits can be easily done if you suppose that all transactions between the residents of a country and the rest of the world must be conducted with foreign money, which flows through the foreign exchange market. Thus, a credit transaction on a country's balance of payments corresponds to an inflow, or source, of foreign currency, whereas a debit transaction constitutes an outflow, or use, of foreign currency.

In summary:

**Credit transactions** give rise to *conceptual inflows or sources of foreign exchange*. The purchases of goods and assets by foreign residents from domestic residents are credits because they are a source of foreign exchange. That is, they increase the supply of foreign money in the foreign exchange market.

**Debit transactions** give rise to *conceptual outflows or uses of foreign exchange*. The purchases of goods and assets by domestic residents from foreign residents are debits because they cause an outflow of foreign exchange. Debit transactions increase the demand for the foreign money in the foreign exchange market.

Let's apply these rules in some example situations to make sure that you understand them and the double-entry system.

## Current Account Transactions

Every current account transaction can be considered to have a corresponding flow of foreign money associated with it, and this flow of foreign money is recorded as a capital account transaction. To illustrate the double-entry system, let's begin with two simple examples that illustrate the recording on the BOP of export and import transactions.

### Example 4.1 Commercial Exports of Goods

Suppose the U.S. computer maker Dell sells \$20 million of computers to Komatsu, a Japanese manufacturer of construction and mining equipment. Komatsu pays Dell by transferring dollars from its dollar-denominated bank account at Citibank in New York to Dell's bank account. What are the credit and debit items on the U.S. balance of payments?

First, a U.S. firm is selling goods to a foreign firm. This transaction is an export of goods from the United States and is a credit on the U.S. balance of payments because it gives rise to a conceptual inflow of foreign money—in this case, yen—to the United

States. Second, in this example, Komatsu already owned dollars and thus did not need to enter the foreign exchange market, but the payment of dollars by Komatsu does reduce the foreign ownership of U.S. assets. This action is a debit transaction because if it were done as a separate transaction, Komatsu would have taken the dollars it owned and converted them back into yen, which would have increased the demand for yen in the foreign exchange market. In summary, we record the following transactions on the U.S. BOP:

U.S. BOP	Credit	Debit
Computer purchase by Komatsu from Dell (Current account; U.S. goods export)	\$20 million	
Citibank foreign deposit decrease (Capital account; capital outflow from the United States)		\$20 million

If these transactions were listed without the credit and debit titles, the export of goods would receive a (+), and the capital outflow item would receive a (-).

Example 4.2 examines how French imports of foreign services affect the French balance of payments.

### Example 4.2 Commercial Imports of Services

Suppose LVMH, a French luxury goods company, buys €1.5 million of consulting services from the British subsidiary of the Boston Consulting Group (BCG). LVMH pays by writing a check on its euro-denominated bank account at its Paris bank, Société Générale, and BCG deposits the check in its euro-denominated bank account at a different Paris bank, BNP Paribas. What are the credit and debit items on the French balance of payments?

First, a French firm, LVMH, is buying services from a foreign firm, BCG. This is a French import of services. This gives rise to an outflow of funds from France, so it is a debit on the French current account. BCG could have demanded British pounds, which would have forced LVMH to enter the foreign exchange market to purchase pounds, thus increasing the demand for pounds. Second, the receipt of the euro funds by the British firm increases foreign (British) ownership of French assets. This is a credit transaction on the French capital account because if it were done as a separate transaction, BCG would have had to buy euros directly with pounds, which would have supplied foreign currency to the French foreign exchange market. Hence, the underlying transaction by BCG of depositing the euro-denominated check in a Paris bank is one that conceptually supplies foreign money to France and is thus a credit on the French balance of payments.

In summary, the transactions on the French BOP are as follows:

French BOP	Credit	Debit
LVMH purchase of consulting services from BCG (Current account; French import of services)		€1.5 million
BNP Paribas foreign deposit increase (Capital account; capital inflow to France)	€1.5 million	

If these transactions were listed without the credit and debit titles, the import of services would receive a (-), and the capital inflow would receive a (+).

## Interest and Dividend Receipts and Payments

The current account also records receipts and payments of dividend and interest income across countries. Dividends from foreign stocks and interest income on foreign bonds give rise to inflows of foreign money and are, therefore, credit items on the balance of payments. These investment income flows are also recorded on the current account of the balance of payments because they are considered returns to the owners of capital for the services of productive capital. The service flows from capital assets are comparable to the service flows from labor, such as the consulting services LVMH purchased from BCG in Example 4.2.

It is important to distinguish between these income flows that are returns to previously made investments and the values of the outstanding assets. The outstanding asset or stock position is analogous to an item on the balance sheet of a firm. Changes in the ownership of assets are booked on the capital account.

Example 4.3 is a concrete example of how investment income is recorded on the Indonesian balance of payments.

### Example 4.3 The Receipt of Income from Foreign Assets

Consider an Indonesian resident who in previous years invested in Japanese government bonds. Each year, the Indonesian receives ¥500,000 of coupon payments from her Japanese bonds. Suppose that these payments are paid to her Tokyo bank, where she keeps a yen-denominated bank account. What are the credit and debit items on the Indonesian balance of payments?

When the Indonesian resident receives coupon payments from the Japanese government, these receipts are credits to Indonesia's investment income part of the current account (see Exhibit 4.1). They provide an inflow of foreign currency to Indonesia. The fact that the Indonesian resident receives the yen and deposits them at a Tokyo bank implies that there is an increase in Indonesian ownership of foreign assets. This is a debit on the Indonesian capital account because if the Indonesian resident had set out to increase the value of her yen bank account in Tokyo directly, she would have had to use rupiah to purchase yen in the foreign exchange market. Hence, the increase in Indonesian ownership of foreign assets would have increased the demand for foreign exchange, and it is consequently a debit item on the Indonesian balance of payments. In summary, if the rupiah–yen exchange rate is IDR89/JPY, so that ¥500,000 represents IDR44,500,000, the transactions on the Indonesian BOP would be as follows:

<b>Indonesian BOP</b>	<b>Credit</b>	<b>Debit</b>
Coupon receipts from Japanese Treasury (Current account; interest income)	IDR44.5M	
Tokyo bank, foreign deposit increase (Capital account; capital outflow from Indonesia)		IDR44.5M

## Transfer Payments Between Countries

The last items recorded on the current account of the balance of payments are transfers between countries. Transfers are indicated as unilateral transfers in the U.S. BOP and unrequited transfers in the IMF's *Balance of Payments Manual*. Both terms indicate that the items are given by the individual, without an explicit receipt of an item of equivalent value in return. Typical examples are a U.S. resident sending a gift to her relatives in the "old country" or foreign aid from one country to another. Clearly, gifts to foreign countries or to a family

abroad lead to an increase in the demand for foreign exchange and, by our rule, must be debit items on the U.S. BOP.

You may be thinking that because the gift is a debit, there must be a way of describing this transaction that makes it seem more like imports of goods or services to United States, which are also debit items on the U.S. BOP. There is a way—you just need to understand the motivation behind the transaction. Presumably, the U.S. resident hoped that the gift would improve relations with her foreign relatives. That is, she sought to import goodwill to the United States. Hence, the gift is an import of goodwill and is therefore a debit (on the current account).

To clarify how transfers are recorded on the BOP, let's look at an example that considers the Japanese balance of payments.

### Example 4.4 Gifts to Foreign Residents

Consider the effect on the Japanese BOP of a gift of \$2 million by a Japanese firm to a U.S. university to create an endowed chair. Suppose, also, that the Japanese firm finances the gift by selling U.S. Treasury bonds in which it had previously invested. What should we record as credit and debit items on Japan's balance of payments?

The action by the Japanese firm clearly uses \$2 million of foreign exchange from Japan's perspective. Hence, by our rule, the gift must be a debit item on the Japanese balance of payments because it leads to an outflow of foreign exchange. Notice that the gift by the Japanese firm improves relations with the U.S. university and is a Japanese import of goodwill from the United States.

Now, consider the offsetting credit transaction on the Japanese balance of payments. The Japanese firm sold U.S. Treasury bonds, which reduces the Japanese ownership of foreign assets. This transaction is a credit on the capital account of the Japanese balance of payments because it supplies dollars to the Japanese foreign exchange market.

In summary, if the yen-dollar exchange rate is ¥100/\$, in which case the \$2 million equals ¥200 million, the transactions would be as follows:

Japanese BOP	Credit	Debit
Gift by Japanese firm to U.S. university (Current account; Japanese import of goodwill)		¥200 million
Sale of U.S. Treasury bonds (Capital account; capital inflow to Japan)	¥200 million	

We turn now to transactions in assets that are recorded on the capital account.

### Capital Account Transactions

Some capital account transactions arise naturally, as demonstrated in the case of payment flows associated with current account transactions. However, some transactions involve situations in which both entries are recorded exclusively on the capital account. For example, suppose a Mexican resident buys a U.S. Treasury bond. You can think of this as Mexico "importing" a foreign asset (a bond). Thus, the transaction should have the same sign as an import of a regular good. This transaction is therefore a debit on the Mexican capital account because it represents an outflow, or use, of foreign exchange. In other words, this transaction gives rise to an increase in the demand for foreign currency—dollars in this case—because the Mexican resident needs dollars to purchase the U.S. Treasury bond. Notice

that in presentations of the balance of payments in which credits are given a (+) and debits are given a (−), the acquisition of foreign assets by a Mexican resident would be a debit and would receive a (−), even though Mexican ownership of foreign assets is increasing!

### Capital Outflows

There is an alternative way of describing the acquisition of foreign assets. When the residents of Mexico purchase foreign assets rather than investing in domestic assets, there is said to be a **capital outflow** from Mexico. In this case, the “capital” refers to the money that could have financed an investment in Mexico. Because this money is no longer available to finance local investment projects, local governments often try to discourage this outflow of capital, which is often called **capital flight** when it occurs rapidly in response to a deteriorating investment climate in the home country.

### Capital Inflows

If a U.S. resident purchases Mexican Cetes (Treasury bills), Mexico is said to have a **capital inflow**. This transaction is recorded as a credit on the Mexican balance of payments because it supplies foreign money to Mexico’s foreign exchange market. Generally, capital inflows to Mexico occur when foreigners buy Mexican assets or when Mexicans reduce the amount of wealth they hold abroad (for example, a Mexican sells U.S. stocks).

### Summarizing Capital Account Transactions

All the transactions discussed so far are easily matched with the capital account categories mentioned in Exhibit 4.1, when viewed from the Mexican perspective. The U.S. purchase of Cetes corresponds to an “increase in foreign ownership of assets in Mexico,” and the Mexican selling of U.S. stocks corresponds to a “decrease in Mexican ownership of foreign assets.” Both are capital inflows to Mexico. Similarly, capital outflows from Mexico (debits on the Mexican BOP) happen when Mexicans increase their assets abroad, as they do when buying U.S. Treasury bonds, or when foreigners decrease their ownership of assets in Mexico.

We have now discussed how the buying and selling of assets is recorded on the Mexican BOP, but what about the payment flows associated with these transactions? When a Mexican resident buys a U.S. Treasury bond, he must pay in dollars. This reduction of his dollar holdings is a Mexican capital inflow (“decrease in Mexican ownership of foreign assets”) and provides the credit transaction that balances the debit transaction of the original foreign bond purchase. Similarly, when a U.S. investor buys Cetes (a capital inflow into Mexico), he must pay in Mexican pesos. If we conceptually assume that he had a peso-denominated account with a Mexican bank, the reduction in his peso bank account is a capital outflow, which is the debit on the Mexican BOP that balances the credit generated when the American purchases Cetes.

### Official Reserves Account Transactions

Changes in the **official international reserves** of a country’s central bank are also recorded on the country’s balance of payments—in this case, in the country’s official reserves account. The rules for determining credits and debits are identical to the rules that govern the private sector’s capital account. If the central bank acquires international reserves, a debit is entered on the official settlements account, just as it is recorded on the private capital account if private residents acquire foreign assets. Once again, this debit receives a (−) in a presentation of the BOP that just lists items even though the reserves of the central bank are increasing. If, on the other hand, the central bank draws down its international reserves, there is a credit

on the official settlements account, just as there is on the private capital account if private residents sell their foreign assets. In this case, the transaction would be recorded with a (+) even though the central bank's reserves are declining.

### **Implications for Fixed Exchange Rates**

In some developing countries, the central bank fixes the exchange rate at a particular value relative to the dollar, for example, and the country's residents are required to deal directly with the central bank to conduct international transactions. If a resident of the country wants to purchase U.S. equities, the person must first purchase dollars from the central bank with local currency at the fixed exchange rate determined by the central bank. The official settlements account records a credit that offsets the debit associated with the use of the dollars (the increase in foreign assets represented by the equity purchase). Conversely, when residents of this country acquire dollars in international transactions, they must also sell the dollars to the central bank for local currency at the fixed exchange rate. In this way, the central bank's stock of dollars increases, and the transaction is recorded as a debit on the official settlements account, offsetting the private sector's credit transaction that originally gave rise to the dollars.

## **4.2 SURPLUSES AND DEFICITS IN THE BALANCE OF PAYMENTS ACCOUNTS**

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Because the balance of payments system uses a double-entry accounting system, the value of credits on a country's balance of payments must equal the value of its debits. The overall balance of payments therefore must always sum to zero. Nevertheless, the total value of credits generated by a particular set of economic transactions, such as the sales of goods and services *to* foreigners (exports), need not be equal to the value of debits generated by the purchase of goods and services *from* foreigners (imports). If credit transactions on a particular account are greater than debit transactions on that account, the account is said to be in **surplus**. If debit transactions on a particular account are greater than credit transactions on that account, the account is said to be in **deficit**.

### **An Important Balance of Payments Identity**

Because the two major accounts of the balance of payments are the current account and the capital account, we see immediately that a current account deficit must have a capital account surplus as its counterpart. In other words, if we list credit items with a (+) and debit items with a (-), we can add the accounts, and they must sum to zero:

$$\text{Current account} + \text{Capital account} = 0$$

If we highlight the transactions that change a country's stock of international reserves at its central bank as a separate part of the balance of payments, as in Exhibit 4.1, we have

$$\text{Current account} + \text{Regular capital account} + \text{Official settlements account} = 0 \quad (4.1)$$

To better understand the economic meaning of the various surpluses and deficits, we next study the U.S. BOP statistics in more detail. We then look at the special role of the official settlements account. Finally, we investigate recent BOP statistics around the world. Detailed statistics of the U.S. BOP are provided in Exhibits 4.2 and 4.3. Exhibit 4.4 presents the data from these exhibits for 2009 in the format of Exhibit 4.1. We now discuss the various subaccounts, one by one.

## The U.S. Current Account

Let's look at the current account of the United States and its various subcategories, which are shown in Exhibit 4.2.

### Goods

The first category in Exhibit 4.2 is “exports and imports of goods.” This account covers trade in commodities such as oil or wheat and in physical goods such as cars, airplanes, DVD players, and computers. The goods can be raw materials, semi-finished goods, or finished goods. In 2009, the U.S. exported \$1,068 billion of goods and imported \$1,575 billion of goods. Because debits (imports) exceeded credits (exports) by \$507 billion, we say the United States had a \$507 billion **merchandise trade balance** deficit in 2009.

### Services

We only show the net amount, or balance, on the services account, which was a \$132 billion surplus in 2009. Typically, economists classify services as economic transactions that must be produced and utilized at the same time. Services thus include the export and import of education, financial services, insurance, consulting, telecommunications, medical services, royalties on films, and the fees and royalties repatriated to U.S. corporations. Fees and royalties repatriated to U.S. corporations are earned when the corporations license technology to their foreign subsidiaries or to other foreign companies.

In the U.S. current account, services also include military transactions even when they involve purchases of goods. Because personnel at U.S. military bases in foreign countries are considered to be U.S. residents, their purchases of local goods and services, including supplies for the bases themselves, are imported goods. The primary U.S. military exports are sales of aircraft.

Another important subcategory of services is travel and transportation. When foreigners spend more while traveling in the United States for food, lodging, recreational activities, and gifts than U.S. residents spend while traveling in foreign countries, this account is in surplus. Because it is impossible to know how much each foreign tourist spends, the U.S. Department of Commerce estimates expenditures on this account by multiplying an average expenditure obtained from surveys by the known number of travelers (obtained from immigration and naturalization statistics).

**Exhibit 4.2** The U.S. Current Account, 1970–2009 (billions of dollars; credits, +; debits, –)

Year	Goods			Services	Balance on Goods and Services	Income Receipts and Payments			Unilateral Current Transfers, Net	Balance on Current Account
	Exports	Imports	Balance on Goods	Balance on Services		Receipts	Payments	Balance on Income		
1970	42	–40	2	0	2	12	–6	6	–6	2
1980	224	–250	–26	6	–20	73	–43	30	–8	2
1990	389	–498	–109	30	–79	172	–143	29	–27	–77
2000	772	–1,224	–452	74	–378	353	–331	22	–54	–410
2005	895	–1,677	–782	66	–716	475	–463	12	–86	–790
2009	1,068	–1,575	–507	132	–375	588	–467	121	–125	–379

*Note:* Data are from the U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, April 2010, and are rounded to the nearest billion.

### Balance on Goods and Services

The sum of the net positions on the goods account and the services account gives the balance on the goods and services account, which was  $-\$375$  billion in 2009. Notice that the absolute value of this account is substantially smaller than in 2005. Much of this change can be attributed to the global recession, which was more severe in the United States than its trading partners, because between 2008 and 2009, U.S. imports of goods and services declined by  $\$770$  billion, but U.S. exports of goods and services only declined by  $\$477$  billion.

### Investment Income

The next columns in Exhibit 4.2 report income receipts and payments, which are the dividend and interest income received by U.S. residents (credits) because of their ownership of assets in foreign countries as well as the dividend and interest income paid to foreigners (debits) who own U.S. assets. In 2009, the United States received  $\$588$  billion of investment income from foreigners and made  $\$467$  billion of payments to foreigners, for a net figure of  $\$121$  billion. Because credits on this account outweigh debits, we say that there is a surplus on this account.

### Unilateral Current Transfers, Net

The second-to-last column in Exhibit 4.2 is “Unilateral Current Transfers, Net.” The figure for 2009 is  $-\$125$  billion. This indicates that the U.S. government and other U.S. residents gave more money to foreign countries and residents as gifts and grants than the United States received from abroad. The deficit on this account represents a net import of goodwill into the United States.

### Balance on Current Account

When the investment income account and the unilateral transfers account are added to the balance on goods and services, the result is the *current account surplus or deficit*, which is recorded in Exhibit 4.2 as the balance on the current account. Exhibit 4.2 indicates that the 2009 U.S. current account balance was  $-\$379$  billion, which is a current account deficit.

## The U.S. Capital and Financial Accounts

Exhibit 4.3 presents the details of the U.S. capital and financial accounts. As noted earlier, the current account and the capital account must sum to zero. Hence, if there is a current account deficit, it must be financed by a capital account surplus.

**Exhibit 4.3** The U.S. Capital and Financial Accounts, 1970–2009 (billions of dollars; credits, +; debits, –)

Year	U.S.–Owned Assets Abroad, Net, [increase/financial outflow (–)]				Foreign-Owned Assets in the U.S., Net, [increase/financial inflow (+)]				Capital Account Transfers	Balance on Capital Account	Statistical Discrepancy
	Total	U.S. Official Reserve Assets	Other U.S. Government Assets	U.S. Private Assets	Total	Foreign Official Assets	Other Foreign Assets	Financial Derivatives, Net			
1970	–9	3	–2	–10	6	7	–1	—	—	–3	1
1980	–86	–7	–5	–74	63	16	47	—	—	–23	21
1990	–81	–2	2	–81	142	34	108	—	–7	54	23
2000	–606	–0.3	–0.3	–605	1,016	38	978	—	1	411	–1
2005	–427	14	5	–446	1,212	199	1,013	—	–4	781	9
2009	–141	–52	541	–630	306	450	–144	51	0	216	163

Notes: Data are from the Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, April 2010, and are rounded to the nearest billion. Financial Derivatives are excluded from U.S.–Owned Assets Abroad and Foreign-Owned Assets in the U.S. The statistical discrepancy is the sum of the current account and the capital account with the sign reversed.

A surplus in the capital account can occur in several ways. First, there could be a decrease in U.S. private and official assets abroad. A country can sell its foreign assets to finance a current account deficit, just as an individual can consume more than his current income by selling his assets. Such sales of foreign assets are credits on the capital account.

A second way that a current account deficit can be financed is through a net increase in foreign private and official assets in the United States. Just as an individual might consume more than her income by taking out a loan or selling someone her assets, a country might borrow from abroad or sell assets to foreigners. For the United States, these activities correspond to an increase in foreign claims on the United States. Any combination of these capital account transactions that results in a capital account surplus of the appropriate magnitude will also finance the current account deficit. From Exhibit 4.3, we see that the particular combination of capital account transactions that financed the current account deficit in 2009 was an increase in foreign ownership of U.S. assets that was much larger than the increase in U.S. ownership of foreign assets.

### ***U.S.–Owned Assets Abroad, Net***

The total of credits and debits recorded for changes in the category “U.S.–Owned Assets Abroad, Net” was  $-\$141$  billion for 2009. This indicates that during 2009, on net, U.S. residents increased their outstanding stock of claims on foreigners by  $\$141$  billion. This represents a capital outflow from the United States.

### ***Foreign-Owned Assets in the United States, Net***

The category “Foreign-Owned Assets in the U.S., Net” shows that foreign residents increased their claims on the United States by  $\$306$  billion in 2009, which constitutes a capital inflow to the United States. Notice how the composition of foreign capital flows to the U.S. changed from 2005 to 2009. In 2005, the foreign private sector acquired  $\$1,013$  billion of U.S. assets, whereas in 2009, the foreign private sector actually sold  $\$144$  billion of U.S. assets. During the same time, foreign officials increased their purchases of U.S. assets from  $\$199$  billion to  $\$450$  billion.

### ***Financial Derivatives, Net***

Beginning in 2006, the U.S. Department of Commerce began reporting the net value of transactions in financial derivatives as a separate item in the capital account. In 2009, the value of this account was  $\$51$  billion, indicating that foreigners purchased derivatives from U.S. residents worth  $\$51$  billion more than the value of derivatives that U.S. residents purchased from foreigners.

### ***Capital Account Transfers***

In 1997, the U.S. Department of Commerce began separating capital transfers—primarily transactions involving the forgiveness of debt and the value of goods and assets accompanying migrants as they cross borders—from other unilateral transfers involving current income. The latter transactions continue to be recorded on the current account. The transactions involving debt forgiveness and the value of assets accompanying migrants are now recorded on the capital account. In 2009, that amount was  $-\$0.10$  billion, which is rounded to zero in Exhibit 4.3. The terminology can get a bit confusing here. The U.S. balance of payment statistics uses the word *capital account* very narrowly to indicate the category “capital account transfers,” whereas the financial account records all transactions that belong in what we called the “capital account.” Therefore, we will refer to the transactions booked under the “capital account” in the United States as “capital account transfers.”

### **Balance on the Capital Account**

By adding together the debits that result from the increase in U.S.–owned foreign assets (–\$141 billion), the credits from the increase in foreign ownership of U.S. assets (\$306 billion), the credits in the net derivatives account (\$51 billion), and the debits from the capital account transfers (0), the balance on the capital account in 2009 was a surplus of \$216 billion.

### **The Statistical Discrepancy**

Exhibits 4.2 and 4.3 show that in 2009, the value of the U.S. current account was –\$379 billion, and the value of the U.S. capital account was \$216 billion. Hence, the sum of the two accounts is –\$163 billion. However, we explained that because of the double-entry system, the sum of the current account and the capital account should be zero because capital must flow into a country if it has a current account deficit. Why then was the sum –\$163 billion in 2009? The fact is that the government misses some transactions, and it estimates other transactions.

To make the balance of payments add to zero, government statisticians must add a balancing item (or fudge factor) equal to the sum of all the measured items with the sign reversed. The technical term for the balancing item in the U.S. accounts is the **statistical discrepancy**. Formerly, this balancing account was called “errors and omissions,” and such a term is often encountered in other presentations of the balance of payments. The statistical discrepancy is reported in column 12 of Exhibit 4.3 as \$163 billion.

Because the statistical discrepancy is the sum of all the measured items with the sign reversed, the United States was missing over \$163 billion of credits in 2009. These credits are probably capital account transactions such as unmeasured U.S. sales of foreign assets and unmeasured purchases of U.S. assets by foreign residents, although freer trade and the emergence of the Internet have increased the difficulty that governments face in accurately measuring international trade.

Because one country’s borrowing is another country’s lending, theoretically, the sum of all the individual current account balances of countries across the world should also sum to zero. Unfortunately, this is not the case because of the statistical discrepancies around the world.

### **The Official Settlements, or Reserves, Account**

In our discussion of the U.S. capital account so far, we have not made any distinction between the transactions of private individuals and those of the government. The U.S. Department of Commerce breaks the total net change in U.S. assets abroad into three categories of transactions: transactions in “U.S. Official Reserve Assets” (column 3 of Exhibit 4.3), transactions in “Other U.S. Government Assets” (column 4 of Exhibit 4.3), and transactions in “U.S. Private Assets” (column 5 of Exhibit 4.3).

The U.S. official reserves account measures changes in the official stock of international reserve assets, consisting of gold, foreign currencies, special drawing rights, and the U.S. reserve position with the IMF. In 2009, there was a deficit on this account of \$52 billion. The deficit indicates that official reserves increased by that amount. Transactions in other U.S. government assets are primarily the changes in the outstanding quantities of official loans to foreigners and of capital subscriptions to international financial institutions. In 2009, there was a surplus on this account of \$541 billion. Here, the surplus indicates that U.S. official loans to foreigners were reduced by this amount, which amounts to a capital inflow. Column 5 of Exhibit 4.3 indicates a deficit of \$630 billion in transactions in U.S. private assets. The deficit in this account indicates the net amount by which private U.S. residents increased their ownership of foreign assets, which amounts to a capital outflow.

Similarly, the U.S. Department of Commerce decomposes the total net change in foreign-owned U.S. assets into transactions in “foreign official assets” and “other foreign

**Exhibit 4.4** U.S. Balance of Payment for 2009 (billions of dollars; credits, +; debits, -)

<b>Current Account</b>	
<b>Trade Account</b>	
Exports of Goods	1,068
Imports of Goods	-1,575
Exports of Services	502
Imports of Services	-370
Net Unilateral Transfers	-125
<b>(A) Trade Balance</b>	<b>-500</b>
<b>Investment Income Account</b>	
Receipts on U.S. Assets Abroad	588
Payments on Foreign Assets in the U.S.	-467
<b>(B) Investment Account Balance</b>	<b>121</b>
<b>Current Account Balance (A) + (B)</b>	<b>-379</b>
<b>Regular Capital Account</b>	
U.S. Assets Abroad (net) of which:	-89
Other U.S. Government Assets	541
U.S. Private Assets	-630
Foreign Private Assets in the U.S.	-144
Financial Derivatives, Net	51
Capital Account Transfers, Net	0
<b>Balance on Regular Capital Account</b>	<b>-182</b>
<b>Official Settlements Account</b>	
U.S. Official Reserve Assets	-52
Foreign Official Assets	450
<b>Balance on Official Settlements Account</b>	<b>398</b>
<b>Balance on Capital Account</b>	<b>216</b>
<b>Statistical Discrepancy</b>	<b>163</b>
(Sum of all the items with the sign reversed)	

assets.” In 2009, foreign official assets in the United States increased by \$450 billion, whereas foreign private individuals decreased their ownership of U.S. assets by \$144 billion. The former category is important for the United States because other countries use dollar-denominated assets as international reserves. Hence, the increase in foreign official assets indicates that the dollar reserves of foreign central banks increased substantially.

Although the Department of Commerce separately records transactions in U.S. international reserves and foreign official assets within the capital account, it does not separate this account into an official settlements account as we did in Exhibit 4.1. So, we do it ourselves in Exhibit 4.4. Exhibit 4.4 shows that in 2009, the balance on the official settlements account was a \$398 billion surplus: Although the U.S. central bank increased its official reserves by \$52 billion (a debit), central banks across the world increased their dollar assets by \$450 billion (a credit). This buildup in dollar reserves has been going on for a while and is primarily concentrated in Southeast Asia, particularly China.

### Balance of Payment Deficits and Surpluses and the Official Settlements Account

One often hears that the central bank gained international reserves because the balance of payments was in “surplus.” This statement refers to the fact that if the sum of the private and government transactions on the current account and the regular capital account is positive,

the central bank must have increased its holdings of foreign money. Hence, there is a deficit on the official settlements account when the other accounts are in surplus.

Conversely, if private residents and government agencies other than the central bank have more debits than credits in their accounts, the central bank must be in surplus. It will be supplying foreign assets out of its stock of international reserves. Because the central bank is losing international reserves (that is, it is reducing its ownership of foreign assets), the official settlements account is credited, but there is said to be a deficit on the balance of payments. This indicates that private residents and other government agencies of the country are purchasing more goods, services, and assets from abroad than foreigners are purchasing domestic goods, services, and assets.

The official settlements account plays a critical role if a central bank wants to maintain a “fixed” exchange rate, a situation we discuss in detail in Chapter 5. To fix the exchange rate, the central bank must be prepared to buy and sell its domestic currency with its stock of international reserves. However, if the central bank depletes its stock of international reserves, the central bank will not be able to maintain the fixed exchange rate, and the country will be forced to devalue its currency. Hence, looking closely at a country’s balance of payments and the variation over time in the country’s stock of international reserves can help exporters, importers, and investors get an idea about how probable a devaluation of the currency will be in the future. We explore these issues in more detail in Chapter 5.

## Balance of Payment Statistics Around the World

Although we have focused the discussion so far in this chapter on the United States, the principles are applicable to the balance of payments statistics of all countries. Exhibit 4.5 presents data for the current account balances of the G7 countries, which are the United States, the United Kingdom, Germany, Japan, Italy, France, and Canada.<sup>1</sup>

Each of these balances is expressed as a percentage of the country’s **gross domestic product (GDP)**, the value of all final goods and services produced within a country. (See the appendix to this chapter for a review of GDP and a country’s national income and product accounts.) Notice that in any given year, some of the G7 countries have a current account deficit, whereas other countries have a current account surplus. This situation is to be expected because a country with a current account deficit must borrow from or sell assets to another country to finance the deficit.

Several features of these data are noteworthy. Notice that during the six annual snapshots over 50 years in Exhibit 4.5, the largest current account deficit as a percentage of GDP is

**Exhibit 4.5** Current Account Balances for the G7 Countries as a Percentage of GDP

Year	United States	United Kingdom	Japan	Italy	Germany	France	Canada
1960	0.6	−1.0	0.5	0.6	1.6	2.2	−3.2
1970	0.4	1.3	1.0	0.8	0.6	0.8	0.9
1980	0.4	1.5	−1.0	−2.4	−1.7	−0.6	−0.9
1990	−1.3	−3.4	1.5	−1.5	3.5	−0.8	−3.5
2000	−4.3	−2.6	2.5	−0.5	−1.6	1.4	2.8
2009	−2.6	−1.2	3.4	−4.6	7.4	−3.0	−3.7

*Note:* Data are from the Organization for Economic Cooperation and Development, 2010.

<sup>1</sup> The data are from the Organization for Economic Cooperation and Development (OECD). Go to [www.oecd.org](http://www.oecd.org) to find data on your favorite country.

### Exhibit 4.6 Current Account Balances as a Percentage of GDP for Some Emerging Market Countries

	Brazil	China	India	Indonesia	Korea	Malaysia	Philippines	Singapore	Russia	Thailand
1990	-0.7	3.1	-2.4	-2.5	-0.7	-2.1	-6.1	8.0	N/A	-8.3
1996	-2.8	0.8	-1.6	-2.9	-4.0	-4.4	-4.6	14.7	2.8	-7.9
2000	-3.8	1.7	-1.0	4.8	2.3	9.0	-2.9	10.8	18.0	7.6
2004	1.8	3.6	0.1	0.6	3.9	12.1	1.9	17.1	10.1	1.7
2008	-1.7	9.6	-2.0	0.0	-0.6	17.5	2.2	18.5	6.2	0.6
2010	-2.6	4.7	-3.1	0.9	2.6	14.7	4.1	20.5	4.7	3.6

Notes: Data are from the IMF's *World Economic Outlook*, October 2010. Data for 2010 are IMF estimates. N/A, not available.

Italy's 4.6% in 2009. The largest surplus is Germany's 7.4%, also in 2009. During the post-World War II era, developed countries have rarely run current account deficits or surpluses in excess of 6% of GDP. Germany's large surplus and Italy's large deficit reflect the tensions within the European Union that have arisen as some countries have rebounded nicely from the global financial crisis, while others have become mired in slow growth and high unemployment. Although we have left out the intervening years, we note that current account deficits and surpluses are quite persistent. The United States has run a deficit every year since 1981, and Japan has run a surplus every year since 1980.

The balance of payments is also a critical set of statistics for developing countries. In Exhibit 4.6, we show current account balances between 1990 and 2010 for some emerging markets. In 1997, several of these countries faced severe currency and banking crises. You might wonder whether large current account deficits in these countries helped trigger the crises. Indeed, Thailand's current account deficit in 1996 was 7.9% of GDP, whereas South Korea's was 4.0%. Note that Singapore and China had surpluses prior to the crises and that these countries did not experience large depreciations of their currencies. After the crises, the crisis countries experienced large current account reversals, moving from large deficits to large surpluses. The surpluses in emerging Asia, Japan, and the oil-producing countries (benefiting from increases in oil prices) therefore form the counterpart to the sizable U.S. current account deficit. The fact that these surpluses and the deficit in the United States are so large has led economists and reporters alike to refer to them as "global imbalances." To evaluate whether this moniker is accurate, you must understand how current accounts and the balance of payments evolve over time.

## 4.3 THE DYNAMICS OF THE BOP

Now that you understand the meaning of the surpluses and deficits on various subaccounts of a country's BOP, it is time to reflect on the economic importance of these surpluses and deficits. For example, the experience of Southeast Asia in the late 1990s shows how large current account deficits led to an accumulation of foreign debt that eventually became unsustainable and led to currency crises in Thailand, Malaysia, Indonesia, and South Korea. We leave the discussion of these currency crises to Chapter 10; here, we discuss how current account deficits today affect the balance of payments in the future and ultimately the country's debt position relative to the rest of the world.

### The Trade Account and the Investment Income Account

In Exhibits 4.1 and 4.4, we intentionally lumped in the current account all the items other than those associated with flows of investment income into what can be called the **trade account** of the balance of payments. The flows of payments that service assets and liabilities were put

into the **international investment income account**. The current account is the sum of the trade account and the investment income account:

$$\text{Current account} = \text{Trade account} + \text{International investment income account} \quad (4.2)$$

Note that the “trade account” in this case is not the same thing as the goods or merchandise trade balance, which the Department of Commerce calculates. The trade account includes transactions in the economic services, such as education, banking, tourism, shipping, insurance, and transfers, that the merchandise trade balance does not. This breakdown of the balance of payments is desirable because it will help us discuss the dynamics of the balance of payments and the accumulation of international assets or debt.

Investment income flows come from previously made foreign direct investments and previously made portfolio investments. Recall from Chapter 1 that a *foreign direct investment (FDI)* implies that an investor has a long-term interest in a business enterprise in a foreign country and some ability to affect how the company is managed, whereas a *portfolio investment* is typically thought to be more short term in nature and does not involve control over a foreign company. Income from previous FDI is the return a parent firm earns on its foreign affiliates, including the dividends repatriated from those affiliates plus the interest paid by affiliates to the parents on loans made by the parents. Dividends and interest earned on equity and debt securities are examples of portfolio investment income.

There is considerable estimation involved in determining the flows of income related to portfolio investments. In the United States, the Department of Commerce uses information from the monthly and quarterly Treasury International Capital reporting system to estimate the outstanding stocks of various asset classes. It then uses market interest rates and bond yields to estimate the income flows to these asset classes.

## Countries as Net Creditors or Net Debtors

A country’s balance of payments records the flows of goods and assets over a period of time, just like the income statement of a firm. A country’s **net international investment position**, or **net foreign assets**, with the rest of the world is similar to a firm’s balance sheet. It is the difference between the value of a country’s ownership of foreign assets and the value of the foreign ownership of the country’s assets at a given point in time. If the net international investment position is positive, the country is often referred to as a *net creditor*, and if the net international investment position is negative, the country is often called a *net debtor*, even though the investments in question are not restricted to debt securities.

The statement that a country such as Brazil is a net debtor means that ownership of foreign assets by Brazilian residents is less than foreign ownership of Brazilian assets. This typically implies that the country has a deficit on its investment income account, which in this case may also be called its debt service account.

Suppose that a country is a net debtor and that it cannot take on additional foreign debt because foreign lenders do not want to increase their claims on the country. As a consequence, the country’s capital account cannot be positive. From Equation (4.1), we see that the country’s current account cannot be negative because it must be equal and opposite in sign to the capital account. From Equation (4.2), we see that the country’s trade account must be in surplus if there is a deficit on the investment income account. Because the country must pay more interest and dividends to foreigners than it receives from them in asset income, the country must sell more goods and services abroad than it buys from abroad. We will see shortly that this means the country must consume less than its income.

Now, consider a country such as Japan that is a net creditor to the rest of the world. It has a positive international investment income account. From Equation (4.2), we see that Japan could have a trade balance deficit while still having a balanced current account. This means that Japan could import more goods and services from abroad than it exports out of the country

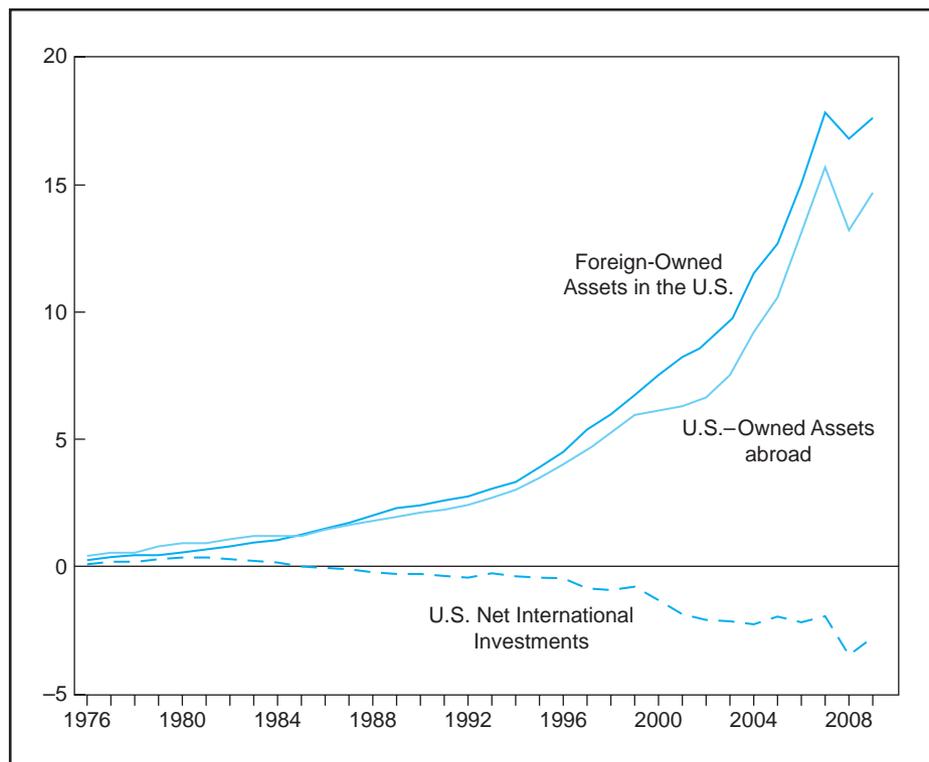
without incurring foreign debt or selling assets to foreigners because it has a surplus on its investment income account.

## The U.S. Net International Investment Position

Exhibit 4.7 shows the net international investment position of the United States, which is U.S. assets owned abroad minus foreign assets owned in the United States. At the end of 2009, the U.S. Department of Commerce estimates that the net international investment position of the United States was  $-\$2,737$  billion. This figure is negative because foreign-owned assets in the United States ( $\$21,167$  billion) were substantially larger than U.S.-owned assets abroad ( $\$18,379$  billion). In fact, as Exhibit 4.7 shows, the estimated U.S. net international investment position turned negative in 1986.

Of course, because current account deficits must be balanced by capital account surpluses, the deterioration in the U.S. international investment position parallels the deterioration of its current account that we discussed earlier. Yet, a change in the international investment position is not only due to international transactions involving the selling and buying of assets across borders, but it also reflects valuation adjustments attributable to changes in the market prices of assets and in exchange rates. For example, even though the United States ran a current account deficit of  $\$379$  billion in 2009, the U.S. Department of Commerce reports that its investment position actually improved from  $-\$3,494$  billion in 2008 to  $-\$2,737$  billion in 2009. The general weakening of the dollar during 2009 increased the value of U.S.-owned assets abroad, improving the U.S. net international investment position,

**Exhibit 4.7** International Investment Positions



*Notes:* The chart plots the value of U.S. assets owned abroad, the value of foreign-owned assets in the United States, and their difference, which is the U.S. net international investment position. All values are trillions of U.S. dollars. Data are from the U.S. Department of Commerce, Bureau of Economic Analysis.

and the local currency capital gains that the United States earned on its investments in foreign bonds and equities substantially exceeded the capital gains that foreigners had on their U.S. assets. These capital gains offset the deterioration in the net international investment position that would have been caused by the current account deficit. The continuing globalization of the world economy has made the outstanding stocks of foreign assets and liabilities much larger than they used to be, causing such valuation effects to be relatively more important than they once were. Gourinchas and Rey (2007) and Lane and Milesi-Ferretti (2007) provide economic analyses stressing the importance of these valuation effects.

Many economists worry about the large negative international investment position of the United States because they worry about its implications for the U.S. current account. In theory, the magnitude of a country's net international investment position should determine the balance on its investment income account. For example, suppose that interest on all assets is 5%. Then, a  $-\$2,737$  billion net international investment position implies a deficit on the investment income account of  $0.05 \times \$2,737 \text{ billion} = \$137 \text{ billion}$ .

From Exhibit 4.4, though, we see that the United States had a surplus of \$121 billion on its investment income account in 2009. In fact, since 1986, the United States has managed to combine a negative net international investment position with a surplus on its investment income account. Some economists called this the best deal in international finance: Americans borrowed trillions of dollars from abroad to buy big SUVs and build fancy homes, sold low-yielding assets to foreigners, and always managed to earn more from their foreign assets than they had to pay to foreigners.

The U.S. net income balance has in fact remained positive because of a composition effect and a return effect. The composition effect arises because the U.S. portfolio of assets abroad contains a relatively large share of higher-risk, higher-yielding FDI, whereas a relatively large share of foreign liabilities is made up of lower-risk, lower-yielding portfolio debt. In 2009, the market value of U.S. foreign direct investment was \$4.3 trillion, whereas the market value of foreign direct investment in the United States was \$3.1 trillion. The return effect arises because there has been a large and persistent yield differential between U.S. direct investment abroad and FDI in the United States. One recurring explanation for why the return on U.S. FDI would be relatively high is that FDI in the United States is relatively young compared with U.S. direct investment abroad, and it appears that the income generated by new investments increases over time. A study by the Bank for International Settlements (2010) also suggests that foreign MNCs have tax incentives to minimize income reported in the United States, lowering the measured yield on their investments.

It is rather obvious that if the U.S. net international investment position continues to deteriorate, the net income balance cannot remain in surplus. This has fueled intense debate over the sustainability of the situation.

First, although the net international investment position has grown considerably, when viewed as a percentage of the total wealth of the country, it remains relatively small. The Federal Reserve's Flow of Funds Accounts estimate total U.S. net wealth at the end of 2009 to be \$53,791 billion. Hence, the ratio of the outstanding net international investment position of \$2,737 billion to the wealth of the United States is 5.1%. In 1998, this figure was 5.9%. Thus, although the net international investment position has deteriorated substantially, wealth in the United States has also grown.

Second, the current account deficit viewed as a percentage of GDP is not particularly alarming. The current account deficit as a percentage of GDP was less than 3% in 1998; it was 6.1% in 2006; and it fell to 2.65% in 2009. We showed earlier that current account deficits of 3% of GDP are relatively common for developed countries.

A third observation, though, involves the changing composition of foreigners' claims on the United States. Since 2000, foreigners have primarily bought U.S. bonds, especially Treasury bonds, with central banks in Asia particularly keen on building up official reserves denominated in dollars. So the United States borrows money relatively cheaply and then

invests in risky assets. What might happen if foreign central banks suddenly diversify out of U.S. bonds? To better understand the macroeconomic background to these figures, it is necessary to understand the relationship between income, saving, and investment, to which we now turn.

## 4.4 SAVINGS, INVESTMENT, INCOME, AND THE BOP

In this section, we explore how current account surpluses and deficits are linked to the saving and spending patterns of a country, including its government. Understanding these links allows us to see how the policies of different governments around the world affect the international economic environment and the determination of exchange rates, a topic we take up in Chapter 10. The discussion that follows uses the information in a country's **national income and product accounts (NIPA)**. The appendix to this chapter reviews the most important concepts.

### Linking the Current Account to National Income

From NIPA, we know that gross national income (GNI) equals gross domestic product (GDP) plus net foreign income (NFI):

$$\begin{aligned} \text{Gross national income} &= \text{Gross domestic product} + \text{Net foreign income} \\ \text{GNI} &= \text{GDP} + \text{NFI} \end{aligned} \quad (4.3)$$

If we subtract the country's total expenditures—that is, its consumption purchases (C), investment purchases (I), and government purchases (G)—from both sides of Equation (4.3), and we use the definition of GDP as the sum of C, I, G, and NX (net exports), we obtain:

$$\begin{aligned} \text{Gross national income} - \text{National expenditures} &= \text{Net exports} + \text{Net foreign income} \\ \text{GNI} - (C + I + G) &= \text{GDP} + \text{NFI} - (C + I + G) = \text{NX} + \text{NFI} \end{aligned} \quad (4.4)$$

The right-hand side of Equation (4.4) is of course the current account of the balance of payments (CA) because net exports correspond to the overall trade balance, and net foreign income represents the investment account.<sup>2</sup>

Thus, we now have an important national income accounting identity:

$$\begin{aligned} \text{Gross national income} - \text{National expenditures} &= \text{Current account} \\ \text{GNI} - (C + I + G) &= \text{CA} \end{aligned} \quad (4.5)$$

From Equation (4.5), we see that if a country has a current account surplus, it must have national income that exceeds national expenditures. If a country has a current account deficit with the rest of the world, the country's expenditures exceed its income.

Because the overall balance of payments must always balance, if a country has a current account surplus, it must have a capital account deficit. Remember that the capital account records transactions that generate changes in ownership of net foreign assets. Let's denote the stock of net foreign assets by NFA and changes in NFA by  $\Delta\text{NFA}$ . The symbol  $\Delta$  indicates the change in a stock variable from the end of the previous period to the end of the current period. A capital account deficit means that the debit items on the capital account must outweigh credit items on the capital account. Hence, a current account surplus is associated with an increase in net foreign assets. Therefore, we can write

$$\begin{aligned} \text{Current account} &= \text{Change in net foreign assets} \\ \text{CA} &= \Delta\text{NFA} \end{aligned} \quad (4.6)$$

<sup>2</sup> In fact, this is true only if we ignore transfers. In our definition of the trade balance, we have included transfers that are not part of net exports but of net foreign income.

If there is a current account surplus, the economy is adding net foreign assets. Substituting from Equation (4.5) into Equation (4.6),

$$\begin{aligned} \text{National income} - \text{National expenditure} &= \text{Change in net foreign assets} \\ \text{GNI} - (C + I + G) &= \Delta\text{NFA} \end{aligned} \tag{4.7}$$

This identity makes perfectly good intuitive sense. Just as an individual whose income is greater than her expenditures must be acquiring assets, similarly, if a country has total income that is greater than the country's total expenditures, the country must be acquiring assets. Of course, the only assets that the country can acquire are those of foreign countries. Hence, the country's net foreign assets must increase when its expenditures are less than its income. Viewed this way, the concept of net foreign assets is simply the net debtor or net creditor position of the country.

## National Savings, Investment, and the Current Account

Another way to understand the current account is to see that it is the difference between national savings and national investment. If an individual consumes more (less) than her income, her savings are negative (positive). In the case of a country, both the private (C) and public (G) sectors consume. So, by definition, national savings are equal to national income minus the consumption of the private and public sectors:

$$\text{National savings} = \text{Gross national income} - \text{Consumption of the private and public sectors}$$

In symbols, this becomes:

$$S = \text{GNI} - C - G \tag{4.8}$$

After substituting the definition of GNI from Equation (4.3), we find

$$S = \text{GDP} + \text{NFI} - C - G$$

Substituting the components of GDP gives

$$S = C + I + G + \text{NX} + \text{NFI} - C - G$$

Upon canceling out the consumption of the private and public sectors and rearranging terms, we find

$$S - I = \text{NX} + \text{NFI} = \text{CA} \tag{4.9}$$

$$\text{National saving} - \text{National investment} = \text{Current account}$$

If a country's purchases of investment goods are more than its savings, the country must run a current account deficit; that is, the country's investment spending must be financed from abroad with a capital account surplus.

## Current Accounts and Government Deficits

It is often argued that current account deficits are caused by government budget deficits. We now show that there is indeed an identity that links current accounts and government budget deficits, although the identity does not at all suggest causality from government budget deficits to current account deficits.

Consider total national savings; it consists of private savings and government savings. Private savings are what is left over after households spend out of their disposable income. Total disposal income for the residents of the country is gross national income, plus the transfer

payments received from the various levels of government (TR), plus interest on government debt (iD), but minus taxes (T) paid to the government. Hence, we have

$$\begin{aligned} & \text{National income} + \text{Transfers} + \text{Interest on government debt} - \text{Taxes} \\ & = \text{Consumption} + \text{Private saving} \end{aligned}$$

Using symbols, we have

$$\text{GNI} + \text{TR} + iD - T = C + S^P \quad (4.10)$$

where  $S^P$  is private savings. But we know that GNI is linked to the current account:

$$\text{GNI} = C + I + G + \text{NX} + \text{NFI} = C + I + G + \text{CA} \quad (4.11)$$

By rearranging terms and canceling the two consumption terms, we find

$$\begin{aligned} & (\text{Private saving} - \text{Investment}) + (\text{Taxes} - \text{Transfers} - \text{Interest on government debt} \\ & - \text{Government purchases}) = \text{Current account} \end{aligned}$$

or

$$(S^P - I) + (T - \text{TR} - iD - G) = \text{CA} \quad (4.12)$$

The first term in parentheses on the left-hand side of Equation (4.12) is **net private saving**, which is the difference between **private saving** and the private sector's expenditures on investment goods. The second term is **national government saving**, which is the **surplus on the government budget**. If there is a deficit on the government budget because total government expenditures (including spending on goods and services, transfer payments, and interest on government debt) exceed taxes, government saving is negative. There are a number of ways to interpret Equation (4.12).

If the current account is negative, private savings are inadequate to finance both private investment purchases and the government budget deficit. Therefore, foreign funds (borrowing from the rest of the world in the form of an accumulation of foreign debt) are required. Equation (4.12) also indicates that the government and private industry are competitors in capital markets for the pool of private savings: If the government borrows more of that capital, there is less capital available for private investment.

Because Equation (4.12) is an identity, a government budget deficit must be matched by some combination of higher private saving, lower investment, or a current account deficit. So it is quite conceivable that a large government deficit will be associated with a large current account deficit. This was the case in the United States, for example, during the 1980 to 1985 period, when the federal budget deficit coincided with a large current account deficit. But must it be the case?

## What Causes Current Account Deficits and Surpluses?

Why did France run a current account deficit during most of the 1980s but a current account surplus in the 1990s, whereas the opposite happened in Germany (refer to Exhibit 4.5)? The discussion in this section reveals that it must be related to savings and investment decisions by the citizens and governments of these countries.

Let's start with governments. If a government chooses not to finance its current purchases of goods and services, its transfer payments, and the interest payments on outstanding government debt from its current tax receipts, the government must either issue more government debt to be held by the public or print money. On the other hand, if current tax receipts exceed current government outlays, government debt can be retired or money can be removed from the economy.

To induce investors to hold its debt, a government must pay a competitive interest rate on its outstanding stock of government bonds. In the future, though, these interest payments must be financed through some form of taxation, including possibly money creation. For every dollar of taxes not raised this period, the government must raise 1 dollar plus interest in the future. This long-run budget constraint is called an **intertemporal budget constraint**.

Hence, we are left with a puzzle. Why does a country's government not balance its current total expenditures with its current tax receipts? The answer is that the economic costs of distortions due to taxes are minimized if the government sets permanent tax rates that balance the government budget only over the long run and not every period. Roughly, this appears to be what governments try to do.

Suppose, for example, there were a recession. During a recession, people's incomes fall, so the government's tax revenues fall as well. Hence, if the government were to attempt to balance the budget during the recession, it would have to cut spending and increase tax rates. However, governments are reluctant to cut spending because spending stimulates the economy. Raising taxes during a recession puts a serious damper on the economy and would be politically unpalatable. Therefore, instead of adjusting their spending and tax rates, governments tend to run deficits during recessions and surpluses during economic booms.

### **Ricardian Equivalence**

Another serious problem in understanding how government budget deficits affect the economic behavior of the overall economy is the important idea of **Ricardian equivalence** between government debt and taxes.<sup>3</sup> The issue is the extent to which taxpayers look into the future and see their future tax liabilities increasing when the government runs a deficit (that is, the government dissaves). If private saving increases one for one with any government budget deficit, budget deficits have no real effect. In particular, from Equation (4.12), we see that the current account of the balance of payments would not be affected by government saving and dissaving if taxpayers are Ricardian. Alternatively, it may be that current taxpayers feel wealthier when governments run budget deficits because some future generation is going to have to pay the increased taxes. In this case, government budget deficits reduce national savings and cause current account deficits.

### **Individuals' Intertemporal Budget Constraints**

Individuals are also subject to intertemporal budget constraints when it comes to their consumption and savings decisions. The decisions of how much to work, how much to consume, and how to invest any accumulated wealth are heavily influenced by the prices and opportunities that individuals have in current markets and by their expectations of what those prices and opportunities are likely to be in the future. For example, high interest rates might induce people to save more rather than to consume. And good investment opportunities in other countries might lead to a capital outflow.

### **Investment Spending**

The last of the components that determine the current account is private investment in businesses and residential housing. Businesses continually evaluate investment projects. They contemplate adding new product lines and changing their scales of operation to generate additional future income. When firms consider investment projects, they are subject to an intertemporal budget constraint as well. An investment project is worth doing only if it is a

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<sup>3</sup>The effect is named after the economist David Ricardo (1772–1823), who first analyzed arguments for the equivalence of government debt and taxes in his *Principles of Political Economy and Taxation* (1817). Although the effect bears his name, Ricardo did not believe that the result would hold in actual economies. In particular, he argued that high public debt could create an incentive for both labor and capital to migrate abroad to avoid future taxes necessary to service the public debt (see Ricardo, 1951, pp. 247–249).

positive net present value project. We will explain this concept in more detail in Chapter 15; for now, assume that it means that the project's expected return in future periods must provide adequate compensation to those who have supplied the capital to the firm. Put differently, businesses invest in new projects by purchasing new plants and equipment when managers believe the returns on projects will be high relative to the cost of capital required to launch them. Analogously, new residential housing is constructed only when expected rents in the future provide the developer with an expected return that exceeds the cost of the project. The cost of funding a project rises with higher interest rates so that higher interest rates typically decrease investments.

Investment expenditures are also highly pro-cyclical because during expansions in the business cycle, businesses perceive that future demand for their products will be high and they invest to meet that future demand. If a country's growth prospects slow down or if there is fear of possible tax increases on the income earned from capital, investment declines. When the desired investments of a country's businesses exceed the desired savings of its citizens and government, the country must borrow from abroad and run a current account deficit.

As you can see, it is very difficult to disentangle the exact determinants of the current account because it depends on so many individual decisions. Taxes, interest rates, the cost of capital, the relative expected investment returns in different countries, and business cycles all play a role.

## POINT-COUNTERPOINT

### U.S.–China Current Account Imbalances and Their Consequences

It is a sunny Sunday afternoon in New York, and Ante and Freedy Handel are enjoying some Central Park greenery at the Boathouse Café while digesting a refreshing beer. Ante is perusing some statistics on bilateral U.S.–China current account deficits for his international finance class, when he suddenly blurts out, “This is a crazy, untenable situation. If we do not do something about this U.S. current account deficit, the dollar will tank. Did you know that these large cumulative deficits have made the United States a huge debtor relative to the rest of the world?”

Because Freedy was enjoying the sunshine too much to put up a fight, Ante was able to continue: “The Chinese simply exploit their workers, making them work long hours for next to nothing, then they dump their products here at cheap prices to keep their workers employed. That is the main cause of it all: unfair competition. I tell you what we should do. We should slap tariffs on these Chinese products. We must force them to make their markets more open to American products and enact decent social laws for their workers or pay the price.”

Now, Freedy had finally had too much. He countered, “Ante, you can't be serious. Free trade has been the cornerstone of world economic growth for the past few decades, and you propose to turn back the clock? The U.S. current account deficit does not matter at all. Remember, it is just national savings minus national investment. Americans do not save very much, and they love to consume foreign goods and gadgets. They are enjoying the current account deficit enormously. Look at the Corona you are drinking: a smooth and rich taste from Mexico, brother! Besides, the flip side of the current account deficit is the capital account surplus; that just means that foreigners are buying U.S. stocks and bonds more than Americans are investing overseas. Do you know why? Foreigners buy U.S. assets because they are considered to be very attractive investments with high expected returns.”

“Wow, I never heard you spout so much,” blurted Ante. “It must be that foreign beer! I cling to my story. Besides, do you know what the Chinese are buying here? Treasury bonds!!! Heaps of them. I can't believe the Chinese don't realize what a bad investment our bonds are.

The U.S. budget deficit was over \$1 trillion last year, and the Federal Reserve runs this complex policy of quantitative easing, which looks like dropping money on people. I think it is a recipe for future inflation, lower bond prices, and an incredibly weak dollar. The Chinese will rue the day they invested here.”

Freeddy responds, “Do you really think the Chinese are that stupid? They are investing in America because they believe in our way of life. They are signaling to their population that it is okay to be capitalist. Besides, they peg the yuan to the dollar, so if the dollar weakens, the yuan weakens. They don’t take any currency risk versus the dollar. Their biggest risk is Senator Chuck Schumer, who keeps threatening China with tariffs if they don’t appreciate the yuan. Schumer just doesn’t get it that the Chinese want to be capitalists, just like us.”

Ante is about to answer, when a familiar voice shouts, “Hey, guys, what are you up to?” As Suttle Trooth walks up to their table, Freeddy says, “Hey, look Ante, he’s drinking foreign beer, too, although it’s only a Heineken. I see that deficit going up even more!”

After hearing the topic of discussion, Suttle frowns and says, “I think some of your arguments make good sense, but as usual, the issues are more complex than they seem. Ante, you cite the lack of openness of foreign markets as a cause of the large U.S. trade balance deficit. Such an argument misses the point that the Chinese savings rate is much larger than the U.S. savings rate; Freeddy is definitely right that current account deficits reflect an imbalance between savings and investment. But Ante has a point that Chinese government policies may play a role; for example, a better social safety net would reduce the need to save so much for a rainy day. That being said, I recently read an article suggesting that the Chinese savings rate became so high because there are too many men in China relative to women. The uneven sex ratio makes families with men save an enormous amount of money to improve their prospects in the marriage market” (see Wei and Zhang, 2009).

“The bottom line is that if we are to understand the current account, we must understand the determinants of private saving, private investment, and government budget surpluses and deficits. It is conceivable that the U.S. current account reflects a large pool of profitable investment opportunities that cannot be financed by domestic savings alone, given the consumption preferences of U.S. citizens. The fact that the United States now runs large government deficits cannot exactly help close the U.S. current account deficit. However, the current account deficit has recently been going down, while the government deficit has been ballooning.

“However, as Ante correctly points out, one reason for concern is that a good portion of the recent deficits has been financed by the Chinese central bank buying Treasury bonds. In fact, the Chinese are holding a lot of dollar assets. In October 2010, China had \$2.648 trillion of international reserves, most of which are in dollars. They also are accumulating international reserves at a rate of \$23 billion per month. The United State does not need to worry about paying off foreign debt in a different currency, but what if the Chinese are no longer willing to hold such large positions in U.S. bonds? If that happens, Ante is probably right that the dollar would depreciate to induce higher expected returns on U.S. assets and to make U.S. goods more attractive to foreigners so that the current account deficit can be reversed.”

Suttle continues, “Let’s consider the exchange rate situation a bit. The Chinese control the yuan’s currency value relative to the dollar (see Chapter 5), and the yuan appreciated steadily from 2005 until the financial crisis hit in the summer of 2008. I think the yuan is probably weaker than it would be if the Chinese didn’t intervene in the foreign exchange market, and that undervaluation gives Chinese producers a competitive advantage in international markets. The Chinese know this, and they know that they’ll have to accumulate dollars as international reserves to continue their policy.”

Ante interjects, “See, I told you that the Chinese are going to take a massive loss. They lose over \$265 billion for every 10% that the dollar weakens versus the yuan. When the big depreciation comes, they’ll be sorry.”

Suttle nods and says, “You’re right there, but you may be wrong about the future. The dollar in fact appears to do well when the world’s economic situation is bad. The major alternative, the euro, has problems of its own. The situation in Europe is a mess with the bailouts of Greece and Ireland. Some people even think the European Monetary Union may break up if the Germans get fed up with supporting the peripheral countries. It isn’t clear that investing in euro assets is a good idea. The real question is, why are the Chinese willing to undervalue their currency and acquire massive quantities of international reserves? I think the answer is that the Chinese authorities want the country to grow as quickly as possible so that they can get their massive population of underemployed rural peasants into jobs. But, they don’t want just any jobs. They want world-class manufacturing jobs. Right now, they do not have well-developed local capital markets to allocate capital efficiently. One solution of course is to have foreigners allocate capital in the form of foreign direct investment. Now, how do you get multinational firms to invest in China if they are afraid of being expropriated by the communists? The answer is that the Chinese acquire massive international reserves that are the debt of the U.S. government. If the Chinese are ever tempted to expropriate multinational corporations, they know that the United States could expropriate them back by reneging on the debt. The system is quite stable and symbiotic. China grows, the U.S. consumes, and both countries are safer in the long run. China also develops some leverage over future U.S. policy because it could dump U.S. bonds, which would send dollar interest rates skyrocketing and cause economic chaos. Of course, China would lose a lot of wealth in the process, so I don’t think that will happen.”<sup>4</sup>

“Thanks, Suttle,” said Ante. “Now, I feel much more comfortable drinking foreign beer. Let’s have another one.” Freedy nods approvingly.

## Assessing the Openness of International Capital Markets

In a closed economy, national saving and national investment are forced to move together. When two variables move perfectly together, statisticians say their correlation is one. However, access to international capital markets allows the correlation between national savings and national investment to be less than one. An increase in savings can finance a foreign project rather than a domestic one, and domestic investment can be conducted by raising funds from the savings of other countries rather than from domestic savings.

In an important, but controversial, article in 1980, Feldstein and Horioka demonstrated that there was a very strong correlation between the average national savings rate and the average national investment rate in 16 countries. This suggests that countries with relatively high average savings rates also have relatively high investment rates. Feldstein and Horioka concluded that international capital markets were not very open and international capital mobility was quite low during their sample period. More recent studies, such as that by Bai and Zhang (2010), largely confirm the significant positive correlation between the national savings rates and national investment rates of developed countries but note that the positive correlation appears to be declining over time.

Are the Feldstein and Horioka findings that international capital markets are not very open accurate? Or can the data be interpreted another way? There are several important caveats to the Feldstein and Horioka interpretation that have been noted in the literature. One line of argument asserts that the high correlation between savings and investment could be produced by common forces that move both variables even though the international capital market is open and competitive.

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<sup>4</sup> Formal arguments regarding the insurance function of the Chinese bond holdings can be found in Dooley et al. (2008); whereas the idea that the Chinese send capital out of the country and efficiently recycle it into the country through foreign direct investment can be found in Ju and Wei (2010).

Authors such as Baxter and Crucini (1993) and Mendoza (1991) argue that economic shocks affecting productivity can increase both saving and investment over the business cycle. The argument goes like this: An increase in productivity causes output and income to increase. Some of the increase in income is consumed, but some of it is saved because the shock is not expected to be permanent. But because productivity is temporarily high and is expected to be high for awhile, it is also a good time to invest. Hence, investment and saving both increase. Bai and Zhang (2010) argue that financial frictions, such as default risk, prevent people in different countries from sharing risk adequately, leading to the positive correlation between savings and investment.

Finally, Frankel (1991) has argued that high correlations between national investment rates and national saving rates should not really be surprising because the world economy during the 1960s, 1970s, and even much of the 1980s and 1990s was not characterized by perfect capital mobility. That is, capital markets were not completely open around the world. For example, there were significant barriers to international investment in many European countries and Japan that persisted well into the 1980s. (See also Chapter 1.) Hence, it would stand to reason that in countries in which the saving rates are high, investment rates would be high as well because there is nowhere else for the capital to go. We noted earlier that the savings–investment correlation appears to be falling. This is consistent with Exhibit 4.5, which suggests that current account imbalances have substantially increased in magnitude over the last decade. Frankel argues that to assess how integrated the world’s capital markets are, we must look at the various rates of return offered around the world and not merely at the flows of saving and investment stressed by Feldstein and Horioka. We do so in Chapter 13.

## 4.5 SUMMARY

This chapter introduced the concepts associated with a country’s balance of payments and its net international investment position and examined how these concepts are related to national income and product accounts. Knowledge of this information is useful in discussions of the determination of exchange rates. The main points in the chapter are the following:

1. A country’s balance of payments records the economic transactions between its residents and government and those of the rest of the world.
2. There are two major accounts on the balance of payments: the current account and the capital account.
3. The current account records transactions in goods and services, transactions that are associated with the income flows from asset stocks, and unilateral transfers.
4. The capital account, which is also called the financial account in some presentations of the BOP, records the purchases and sales of assets—that is, changes in the domestic ownership of the assets of other nations and in the foreign ownership of assets of the domestic country.
5. The balance of payments uses a double-entry accounting system. Each transaction gives rise to two entries—a credit and a debit of equal value.
6. The purchases of goods and assets by foreign residents from domestic residents are recorded as credits. Credit transactions result in an inflow, or source, of foreign currency.
7. The purchases of goods and assets by domestic residents from foreign residents are debits. Debit transactions result in an outflow, or use, of foreign currency.
8. Sales of domestic goods and services to foreign residents are domestic exports. Sales of domestic assets to foreigners are capital inflows to the home country. Both types of transaction are credits on the domestic balance of payments.
9. Purchases of foreign goods and services by domestic residents are domestic imports. Purchases of foreign assets by domestic residents are capital outflows from the home country. Both types of transaction are debits on the domestic balance of payments.
10. If the sum of the credits on a particular account is greater than the sum of the debits on that account,

- the account is said to be in surplus. If the sum of the debits on a particular account is greater than credits on that account, the account is said to be in deficit.
11. The current account is sometimes decomposed into the sum of the trade account and the international investment income account. The trade account is a broader concept than the merchandise trade balance because the former includes trade in economic services such as education, banking, tourism, shipping, insurance, and transfers, whereas the latter does not.
  12. International reserves are the assets of a country's central bank that are not denominated in the domestic currency. Gold and assets denominated in foreign currency are the typical international reserves.
  13. The official settlements account of the capital account measures changes in the international reserves that a country's central bank holds. If a central bank wants to maintain a fixed exchange rate, it must use its international reserves to fix the price of the domestic currency in terms of a foreign currency. International reserves will rise and fall with the surpluses and deficits on the current account and the private capital account.
  14. Because many balance of payments entries are estimated, the sum of the current account and the capital account does not always equal zero as it should in a double-entry system. If the sum of the current and capital accounts is not zero, statisticians add a balancing item equal to the sum of all the measured items with the sign reversed. This term is called the statistical discrepancy or errors and omissions.
  15. The balance of payments records flows of goods and assets over a period of time, just like the income statement of a firm. By analogy, just as a firm has a balance sheet, at a point in time, a country owns a certain stock of foreign assets, and foreigners own a certain stock of domestic assets. The difference between the values of these two stocks is called net foreign assets. Consequently, at any given point in time, a country has a net international investment position; it is either a net creditor or a net debtor with the rest of the world.
  16. The value of all the final goods and services produced within a country is called the country's gross domestic product (GDP).
  17. The value of what is produced in a country must be purchased either by domestic residents or foreign residents. Hence, the country's total consumption purchases,  $C$ , plus its total government purchases,  $G$ , plus its total investment purchases,  $I$ , plus the value of its net exports,  $NX$ , must equal its GDP:  $GDP = C + I + G + NX$ .
  18. The value of all the final goods and services must be paid to factors of production. In an open economy, net factor income from abroad (NFI) from either labor that works in foreign countries or capital that is invested in foreign countries provides a flow of resources that separates gross national income (GNI) from GDP ( $GNI = GDP + NFI$ ).
  19. By subtracting a country's total expenditures on consumption, investment, and government purchases from its gross national income, we are left with net exports plus net factor income from abroad, which is equal to the current account (CA) of the balance of payments.
  20. If a country has a current account surplus, it must have national income that exceeds national expenditures. If a country has a current account deficit, the country's expenditures exceed its income.
  21. The owners of a country's factors of production receive its national income plus transfer payments from the government and interest on government debt, but they must pay taxes to the government. After-tax disposable income must be either spent on consumption or saved in some form of asset.
  22. Net private saving, which is private saving in excess of expenditures on investment goods, plus national government saving, which is taxes minus total government spending or the surplus on the government budget, equals the current account of the balance of payments.
  23. Because national savings and national investment decisions affect a country's current account, interest rates and other rates of return around the world influence, and in turn are influenced by, the current account.
  24. Feldstein and Horioka demonstrated that there is a very strong cross-sectional correlation between the national savings rate and the national investment rate of countries. They argued that this is evidence of strong international capital market imperfections, but there is a large debate regarding this interpretation.

## QUESTIONS

1. What are the major accounts of the balance of payments, and what transactions are recorded on each account?
2. Why is it important for an international manager to understand the balance of payments?
3. What are the rules that determine the residency requirements on the balance of payments?
4. Which items on the balance of payments are recorded as credits, and which items are recorded as debits? Why?
5. How are gifts and grants handled in the balance of payments?
6. What does it mean for a country to experience a capital inflow? Is this associated with a surplus or a deficit on the country's capital account?
7. If you add up all the current accounts of all countries in the world, the sum should be zero. Yet this is not so. Why?
8. What is the investment income account of the balance of payments?
9. What is the official settlements account of the balance of payments? How are official settlements deficits and surpluses associated with movements in the international reserves of the balance of payments?
10. What is the meaning of an account labeled "statistical discrepancy" or "errors and omissions"? If this account is a credit, what does that imply about the measurement of other items in the balance of payments?
11. Why must the national income of a closed economy equal the national expenditures of that economy? What separates the two concepts in an open economy?
12. Explain why private national saving plus government saving equals the current account of the balance of payments.
13. It has been argued that the high correlation between national saving and national investment that Feldstein and Horioka first measured in 1980 is not evidence of imperfect capital mobility. What arguments can you offer for why they might have misinterpreted the data, and what do recent investigations of this issue imply about the degree of capital mobility throughout the world?

## PROBLEMS

1. Suppose that the following transactions take place on the U.S. balance of payments during a given year. Analyze the effects on the merchandise trade balance, the international investment income account, the current account, the capital account, and the official settlements account.
  - a. Boeing, a U.S. aerospace company, sells \$3 billion of its 747 airplanes to the People's Republic of China, which pays with proceeds from a loan from a consortium of international banks.
  - b. Mitsubishi UFJ Financial Group purchases \$70 million of 30-year U.S. Treasury bonds for one of its Japanese clients. Mitsubishi draws down its dollar account with Bank of America to pay for the bonds.
  - c. Eli Lilly, a U.S. pharmaceutical company, sends a dividend check for \$25,255 to a Canadian investor in Toronto. The Canadian investor deposits the check in a U.S. dollar-denominated bank account at the Bank of Montreal.
  - d. The U.S. Treasury authorizes the New York Federal Reserve Bank to intervene in the foreign exchange market. The New York Fed purchases \$5 billion with Japanese yen and euros that it holds as international reserves.
  - e. The president of the United States sends troops into a Latin American country to establish a democratic government. The total operation costs U.S. taxpayers \$8.5 billion. To show their support for the operation, the governments of Mexico and Brazil each donate \$1 billion to the United States, which they raise by selling U.S. Treasury bonds that they were holding as international reserves.
  - f. Honda of America, the U.S. subsidiary of the Japanese automobile manufacturer, obtains \$275 million from its parent company in Japan in the form of a loan to enable it to construct a new state-of-the-art manufacturing facility in Ohio.
2. Consider the situation of La Nación, a hypothetical Latin American country. In 2010, La Nación was a net debtor to the rest of the world. Assume that all of La Nación's foreign debt was dollar

denominated, and at the end of 2010, its net private foreign debt was \$75 billion and the official foreign debt of La Nación's treasury was \$55 billion. Suppose that the interest rate on these debts was 2.5% per annum (p.a.) over the London Interbank Offering Rate (LIBOR), and no principal payments were due in 2011. International reserves of the Banco de Nación, La Nación's central bank, were equal to \$18 billion at the end of 2010 and earn interest at LIBOR. There were no other net foreign assets in the country. Because La Nación is growing very rapidly, there is great demand for investment goods in La Nación. Suppose that residents of La Nación would like to import \$37 billion of goods during 2011. Economists indicate that the value of La Nación's exports is forecast to be \$29 billion of goods during 2011. Suppose that the Banco de Nación is prepared to see its international reserves fall to \$5 billion during 2011. The LIBOR rate for 2011 is 4% p.a.

- a. What is the minimum net capital inflow during 2011 that La Nación must have if it wants to see the desired imports and exports occur and wants to avoid having its international reserves fall below the desired level?
  - b. If this capital inflow occurs, what will La Nación's total net foreign debt be at the end of 2011?
3. True or false: If a country is a net debtor to the rest of the world, its international investment service account is in deficit. Explain your answer.
  4. Choose a country and analyze its balance of payments for the past 10 years. Good sources of data include official bulletins of the statistical authority of a country or its central banks; *International Financial Statistics*, which is a publication of the IMF ([www.imf.org](http://www.imf.org)); and *Main Economic Indicators*, which is a publication of the Organization for Economic Cooperation and Development ([www.oecd.org](http://www.oecd.org)).
    - a. Examine how trade in goods and services has evolved over time. Is the country becoming more or less competitive in world markets?
    - b. Consider the relationship between the country's net foreign asset position and its international investment income account.
    - c. If the country has run a current account deficit, what capital inflows have financed the deficit? If the country has run a current account surplus, how have the capital outflows been invested?
  5. Pick a country and search the Internet for newspaper or magazine articles that contain information related to the balance of payments of the country and corresponding movements in the foreign exchange value of the country's currency. Does an unexpectedly large current account deficit cause the country's currency to strengthen or weaken on the foreign exchange market?
  6. What are the effects on the British balance of payments of the following set of transactions? U.K. Videos imports £24 million of movies from the U.S. firm Twenty-First Century Wolf (TFCW). The payment is denominated in pounds, is drawn on a British bank, and is deposited in the London branch of a U.S. bank by TFCW because TFCW anticipates purchasing a film studio in the United Kingdom in the near future.
  7. What are the effects on the French balance of payments of the following set of transactions? Les Fleurs de France, the French subsidiary of a British company, The Flowers of Britain, has just received €4.4 million of additional investment from its British parent. Part of the investment is a €0.9 million computer system that was shipped from Britain directly. The €3.5 million remainder was financed by the parent by issuing euro-denominated Eurobonds to investors outside of France. Les Fleurs de France is holding these euros in its Paris bank account.
  8. In December 1994, a major earthquake rocked Kobe, Japan, destroying the housing stock of more than 300,000 people and ruining bridges, highways, and railroad tracks. What impact, if any, do you think this event had on the Japanese current account deficit? Why?
  9. After running high current account surpluses in the second half of the 1980s, Germany ran sizable deficits in the early 1990s. The most important reason for the current account deficit was the surge in demand from eastern Germany after reunification, causing imports to rise sharply. At the same time, Germany went from being a net creditor country to being a net debtor. Explain why this is a logical implication of the current account deficits. Interest rates in Germany were historically high during this period. Why might that have been the case? Could East Germany have been developed without running a current account deficit? How?

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## Appendix

# A Primer on National Income and Product Accounts

The **gross national income (GNI)** of a country is the flow of resources over a period of time that allows residents of the country to consume during that period and to provide for their future consumption through saving and the accumulation of wealth. All countries attempt to measure their national income and production. In the United States, national income is recorded in the **national income and product accounts (NIPA)**, which are reported by the Department of Commerce. The national income accounts of other countries are available from the *National Accounts* of the Organization for Economic Cooperation and Development (OECD) and from the *National Accounts Statistics* of the United Nations.

There are three ways to record national income and production during a given time interval, such as a year or a quarter of a year. The first records the incomes

that accrue to the country's factors of production—its labor and capital. The second records the expenditures by residents of the country on different classes of goods and services. The third records the value of new production of final goods and services within the country. The value of all the final goods and services produced by a country within a certain time period is called the country's gross domestic product (GDP). Because a percentage of the capital goods (assets) used in the production process depreciate or wear out while being used, some of what a country produces will be used to replace the equipment and structures that have worn out during a given period. Subtracting a measure of this depreciation from a country's GDP gives us a country's net domestic product. In what follows, however, we will ignore depreciation and focus on GDP.

## Gross Domestic Production and Expenditures

Purchases of goods and services fall under four general categories of expenditures: personal consumption expenditures, gross private domestic investment, government purchases, and net exports of goods and services.

### Consumption Expenditures (C)

The personal consumption expenditures of domestic residents are the purchases of final goods (such as cars and clothing) and services (such as education or the imputed rental value of owner-occupied housing). In most developed countries, roughly two-thirds of GDP is purchased by domestic consumers.

### Gross Private Domestic Investment (I)

Gross private domestic investment includes investment by corporations (that is, purchases of new machines and buildings), residential investment (including the construction of both single-family homes and multifamily buildings such as apartments), and the change in business inventories. Business inventories are stocks of finished goods, goods in process, and raw materials for the production process. The change in business inventories measures the investment firms have made in the current period to improve the firms' profitability in future periods. For example, if firms add finished goods to their stocks of inventories, this is positive investment, and if firms draw down their stocks of finished goods, this is negative investment. In developed countries, gross private domestic investment (I) ranges between 15% and 30% of GDP.

### Government Purchases (G)

The different levels of government of a country—federal, state or provincial, and local—purchase a substantial amount of the final goods and services that are produced in a country. In the United States, government purchases of goods and services equal approximately 20% of GDP, but in a small European country, such as Sweden, they equal approximately 25%.

Overall outlays of the federal government, which are the total expenditures in the government budget, are much larger than a government's purchases of goods and services. This is because federal government outlays include transfer payments and interest on the federal debt. Examples of transfer payments in the United

States include Social Security, Medicare benefits, and welfare. Although these programs provide income to the recipients of the transfers, the programs do not provide additional income to the economy. The government merely taxes some individuals in the economy and transfers the money to other individuals in the economy.

### Net Exports (NX)

If the economy were completely closed to international trade, the value of what is produced as final goods and services would equal the value of the purchases of goods and services for consumption, investment, and government. What is produced as a final good would either be sold to someone in the economy or placed into business inventories. But in an open economy, the foreign sector can buy some of an economy's final goods and services. In the United States, the fraction of exports to GDP sold to foreigners is lower than in many other major countries, but it has been growing rapidly and now exceeds 10% of GDP. In a smaller, more open economy, such as that of Sweden, the fraction of exports to GDP is almost 40%.

Because the consumers, businesses, and various governmental organizations of a country need not limit their expenditures to goods and services that are produced in that country, part of a country's total purchases of goods and services for consumption, investment, and government will be imports of foreign goods and services. Net exports are exports minus imports, and they roughly correspond to the trade balance concept introduced in Section 4.1.

## Gross Domestic Product and Expenditures

Our discussion of the relationship between the value of what is produced in a country and the purchases of various goods and services by individuals in the country can be summarized in our first fundamental national income identity:

$$\text{Gross domestic product} = \text{Consumption} + \text{Investment} + \text{Government} + \text{Net exports}$$

or, using symbols:

$$\text{GDP} = C + I + G + \text{NX} \quad (4A.1)$$

Basically, this equation states that the value of what is produced in a country, GDP, equals the total purchases of final goods and services of individuals, firms, and the government of the country plus the purchases by foreigners of domestic exports, but minus the value of what is

imported into the country because these are goods and services that are not produced in the country. There are, of course, serious measurement issues in quantifying GDP.

In 2006, the Greek statistical office reminded us of this fact by suddenly declaring GDP to be 25% higher. The change was designed to better capture a fast-growing service sector, including parts of the illegal economy, such as prostitution and money laundering. Although this led the *Financial Times* to write “Oldest profession helps boost Greek national output by 25%,” the potential consequences were quite important: The higher GDP meant that the ratio of Greece’s budget deficit to its GDP would also be lower. Thus, Greece would not be subject to certain European Union (EU) limits on the size of this ratio. However, the higher Greek GDP also meant that Greece would lose some financial aid from the EU.

## From Gross Domestic Product to Gross National Income

In a closed economy, the value of GDP must equal the income of the factors of production in the economy. Thus, the value of what is produced domestically (GDP) would equal the gross national income (GNI) of the country. In an open economy that trades and invests with other countries in the world, GNI need not equal GDP.

There are three reasons why GNI does not equal GDP in an open economy. First, the capital and labor used to produce the goods in the domestic country need not be owned by domestic residents. Hence, the income that accrues to the factors of production used in producing goods in the country would go to foreign residents and not domestic residents.

For example, Germany has historically imported many temporary workers from eastern Europe. These foreign workers take substantial amounts of their wage income back to their home countries. Similarly, in most countries, some fraction of the capital stock that is used to produce output in the country is owned by foreign residents. In the United States, Japanese car manufacturers have made substantial investments in

production facilities. As a result, many of the Toyotas and Hondas sold in the United States are actually “made in America” with American labor, but the income attributable to the capital stock goes to the owners of the equity of these firms, who are primarily Japanese.

The second related reason why GDP does not equal GNI in an open economy is that capital and labor owned by the country can be located and used to produce goods in different countries. Hence, the income of the residents of the country is augmented relative to the value of the goods produced in the country by the income from these factors of production located abroad. For example, Japan has a large capital investment in foreign countries that adds to its income. Pakistan also generates important income from workers who supply labor in other countries. In recent years, Ireland’s GDP has been much higher than its GNI because the country has attracted a great deal of foreign investment, drawn to Ireland by its low corporate tax rates. Consequently, much of Ireland’s GDP is accounted for by non-Irish factors of production.

The third reason why GNI does not equal GDP is that the country may receive unilateral transfers (gifts and grants) from abroad or may give unilateral transfers to other countries. Gifts from abroad increase a country’s income.

In summary, in an open economy, net factor income from abroad plus net unilateral transfers from abroad, which we combine and define as **net foreign income (NFI)**, provide a flow of resources that separates the income of the country from the value of final goods and services produced in a country. Thus, we have our second open-economy national income accounting identity:

$$\text{GNI} = \text{GDP} + \text{NFI} \quad (4A.2)$$

Notice that both net factor income and net unilateral transfers from abroad can be either positive or negative. Hence, net foreign income can be either positive or negative.

For many countries, such as the United States and Japan, the primary source of net factor income from abroad is the asset income generated by the country’s net international investment position.