GLOBAL EDITION

Macroeconomics

ELEVENTH EDITION

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Saving and Investment in the Open Economy

With virtually no exceptions, modern economies are open economies, which means that they engage in international trade of goods and services and in international borrowing and lending. Economic openness is of tremendous benefit to the average person. Because the United States is an open economy, U.S. consumers can enjoy products from around the world (Japanese MP3 players, Italian shoes, Irish woolens) and U.S. businesses can find new markets abroad for their products (computers, beef, financial services). Similarly, the internationalization of financial markets means that U.S. savers have the opportunity to purchase German government bonds or shares in Taiwanese companies as well as domestic assets, and U.S. firms that want to finance investment projects can borrow in London or Tokyo as well as in New York.

Beyond the economic diversity and opportunity it creates, economic openness carries another important implication: In an open economy, *a country's spending need not equal its production in every period,* as would be required in a closed economy with no foreign trade and no international borrowing and lending. In particular, by importing more than they export and borrowing from abroad to pay for the difference, the residents of an open economy can temporarily spend more than they produce.

The ability of an open economy to spend more than it produces is both an opportunity and a potential problem. For example, by borrowing abroad (and by selling off U.S.-owned assets to foreign investors), the United States was able to finance a large excess of imports over exports beginning in the 1980s. As a result, U.S. citizens enjoyed higher levels of consumption, investment, and government purchases than they could have otherwise. At the same time, however, they incurred foreign debts that may be a future burden to the U.S. economy.

Why do countries sometimes borrow abroad to pay for an excess of imports over exports but at other times export more than they import and lend the difference to other countries? Why doesn't each country just balance its books and import as much as it exports each year? As we explain in this chapter, the fundamental determinants of a country's trade position are the country's saving and investment decisions. Thus although the issues of trade balances and international lending introduced here may seem at first to be unrelated to the topics covered in Chapter 4, the two sets of questions actually are closely related.

To explore how desired national saving and desired investment help determine patterns of international trade and lending, we extend the idea of goods market equilibrium, described by the saving–investment diagram, to include

Learning Objectives

5.1 Explain how the balance of payments is calculated.

5.2 Discuss goods market equilibrium in an open economy.

5.3 Discuss the factors that affect saving and investment and determine the current account balance in a small open economy.

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5.5 Analyze the relationship between the government budget deficit and the current account deficit.

a foreign sector. We show that, unlike the situation in a closed economy, in an open economy desired national saving and desired investment don't have to be equal. Instead, we show that, when a country's desired national saving exceeds its desired investment, the country will be a lender in the international capital market and will have a current account surplus. Similarly, when a country's desired national saving is less than its desired investment, the country will be an international borrower and will have a current account deficit.

By emphasizing saving and investment, we develop an important theme of this part of the book. However, to focus on the role of saving and investment, we ignore some other factors that also influence international trade and lending. The most important of these factors is the exchange rate, or the rate at which domestic currency can be exchanged for foreign currency. We fully discuss exchange rates and their role in the open economy in Chapter 13.

5.1 Balance of Payments Accounting

Explain how the balance of payments is calculated.

Examining the factors that affect international trade and lending first requires an understanding of the basics of balance of payments accounting. The **balance of payments accounts**, which are part of the national income accounts discussed in Chapter 2, are the record of a country's international transactions. As you read this section, you should refer to Table 5.1, which presents U.S. balance of payments data for 2021.

The Current Account

The **current account** measures a country's trade in currently produced goods and services, along with unilateral transfers between countries. For convenience we divide the current account into three separate components: (1) net exports of goods and services, (2) net income from abroad, and (3) net unilateral transfers.

Net Exports of Goods and Services. We discussed the concept of net exports, NX, or exports minus imports, as part of the expenditure approach to measuring GDP in Chapter 2. Here we point out that net exports often are broken into two categories: goods and services.

Examples of internationally traded goods include U.S. soybeans, French perfume, Brazilian coffee, and Japanese cars. When a U.S. consumer buys a Japanese car, for example, the transaction is recorded as an import of goods for the United States and an export of goods for Japan.

Internationally traded services include tourism, insurance, education, and financial services. The Application "The Impact of Globalization on the U.S. Economy," discusses trade in business services. When a group of friends from the United States spends a week's vacation in Mexico, for example, the friends' expenditures for accommodations, food, sightseeing tours, and so on, are in the U.S. current account as an import of tourism services. The friends' expenditures are an export of tourism services for Mexico. Similarly, when foreign students attend college in the United States, their tuition payments are exports of services for the United States and imports of services for their home countries.

TABLE 5.1

Balance of Payments Accounts of the United States, 2021 (Billions of Dollars)

Current Account				
Net exports of goods and services (NX)			**−861.4**	
Exports of goods and services		2532.9		
Goods	1761.7			
Services	771.2			
less Imports of goods and services		3394.3		
Goods	2853.1			
Services	541.2			
Net income from abroad (NFP)			**174.9**	
Income receipts from abroad		1090.8		
less Income payments to residents of other countries		915.9		
Net unilateral transfers*			**−137.5**	
Current Account Balance (CA)				**−824.0**
Financial Account				
Financial Account				
Net financial flows			**645.5**	
Increase in foreign-owned assets in U.S. (financial inflow)		1858.8		
Foreign official assets	266.2			
Other foreign-owned assets	1592.6			
less Increase in U.S.-owned assets abroad (financial outflow)		1213.3		
U.S. official reserve assets	114.0			
Other U.S.-owned assets abroad	1099.3			
Financial Derivatives, Net**			**41.7**	
Financial Account Balance (FA)				**687.2**
Statistical Discrepancy				**137.0**
Memoranda:				
Balance on goods and services (trade balance)				−861.4
Balance on goods, services, and income				−686.5
Balance of payments = Increase in U.S. official reserve assets minus increase in foreign official assets = 114.0 − 266.2				−152.2

Note: Numbers may not add to totals shown owing to rounding.

*Net unilateral transfers includes the balance on secondary income (transfers of income) and the capital account (transfers of assets). The capital account is usually very small.

**The sign has been reversed from BEA Table 1 so that a positive number is a net increase in foreign-owned assets in U.S. (an inflow).

Source: "U.S. International Transactions: Fourth Quarter and Year 2021," Table 1, BEA news release downloaded from *www.bea.gov/sites/default/files/2022-03/intinv421.pdf*, and International Transactions Accounts, Table 9.1, downloaded from *https://www.bea.gov/data/intl-trade-investment/international-transactions*.

Table 5.1 shows that in 2021, U.S. exports of goods were more than twice as large as exports of services. Imports of goods were over five times as large as imports of services. Note also that exports of goods were much smaller than imports of goods but the reverse is true for services—U.S. firms export more services to other countries than are imported into the United States.

Net Income from Abroad. Net income from abroad equals income receipts from abroad minus income payments to residents of other countries. It is almost equal to net factor payments from abroad, *NFP*, discussed in Chapter 2.[1] We will ignore the difference between *NFP* and net income from abroad and treat the two as equivalent concepts.

The income receipts flowing into a country consist of compensation received by residents working abroad plus investment income from assets abroad. Investment income from assets abroad includes interest payments, dividends, royalties, and other returns that residents of a country receive from assets (such as bonds, stocks, and patents) that they own in other countries. An example is

In Touch with Data and Research

The Balance of Payments Accounts in Malaysia

We continue the example of Malaysia from Chapter 2 in this case. The Malaysian balance of payments statistics are governed by the Statistics Act of 1965 (revised in 1989). Generally, all data sources are on a quarterly basis, and updates of survey coverage are performed on a quarterly basis as well. Balance of payments estimates are compiled in millions of ringgits and are, as much as possible, in accordance with the international standards recommended by the International Monetary Fund (IMF). The Department of Statistics Malaysia (DOSM) is an official compiler of balance of payments estimates for Malaysia on a quarterly basis. It releases the official estimates for the previous year in the September of the following year, while the Central Bank of Malaysia releases preliminary balance of payments (BOP) estimates for the previous year in the March of the following year. Projections for the following year are made available by the Ministry of Finance (MOF) in the October of the current year.

The DOSM obtains data from various sources including surveys, Bank Negara Malaysia (BNM), government agencies such as Royal Malaysia Customs and the Pilgrimage Fund Board, and other administrative sources.

The data are published in the DOSM's *Quarterly Balance of Payments* reports and BNM's *Quarterly Bulletin*. The DOSM also reports the data published in the *Quarterly Balance of Payments* to the IMF. Any errors detected are announced in the current or next publication or dissemination. Select government agencies, such as the MOF, BNM, and the Economic Planning Unit of the Prime Minister's Department, have access to the data one week before release to the public. Statistical discrepancies and other problems are resolved at a quarterly technical meeting held with BNM. Revisions of quarterly BOP for the previous year are published together with data for the first quarter of the current year. If there are major changes regarding methodology, source data, and statistical techniques, an announcement is made by the DOSM through the department's website as well as its publication.[2]

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[1]Net factor payments from abroad are presented in the national income and product accounts (NIPA), and net income from abroad is presented in the balance of payments accounts (BPA). The Bureau of Economic Analysis publishes a "reconciliation table" (in the Appendix section of BEA Current and Historical Data in *Survey of Current Business*) to account for the relatively minor differences between the NIPA and BPA accounts.

[2]Balance of payments data can also be obtained online by visiting the DOSM's website at *http://www.statistics.gov.my/portal/index.php?lang=en* and clicking on "Statistical Releases" under the heading "Products & Services." In addition, the data can also be accessed via BNM's "Rates & Statistics" page at *http://www.bnm.gov.my/index.php?ch=statistic&lang=en*.

interest received by a U.S. saver who owns a French government bond. Another example is the profits earned by a U.S. company from its foreign subsidiary. In both examples, the income is recorded as income receipts from abroad.

The income payments flowing out of a country consist of compensation paid to foreign residents working in the country plus payments to foreign owners of assets in the country. For example, the wages paid by a U.S. company to a Swedish engineer who is temporarily residing in the United States, or the dividends paid by a U.S. automobile company to a Mexican owner of stock in the company, are both income payments to residents of other countries.

Net Unilateral Transfers. **Unilateral transfers** are payments from one country to another that do not correspond to the purchase of any good, service, or asset. Examples are official foreign aid (a payment from one government to another) or a remittance of money from a resident of one country to family members living in another country. A country's net unilateral transfers equal unilateral transfers received by the country minus unilateral transfers flowing out of the country. The negative value of net unilateral transfers in Table 5.1 shows that the United States is a net donor to other countries.

Current Account Balance. Adding net exports of goods and services, net income from abroad, and net unilateral transfers yields a number called the **current account balance**. If the current account balance is positive, the country has a current account surplus. If the current account balance is negative, the country has a current account deficit. As Table 5.1 shows, in 2021 the United States had a $824.0 billion current account deficit, equal to the sum of net exports of goods and services ($NX = -\$861.4$ billion), net income from abroad ($NFP = \$174.9$ billion), and net unilateral transfers ($-\$137.5$ billion).

The Financial Account

International transactions involving assets, either real or financial, are recorded in the **financial account**. When a U.S. firm or resident sells an asset to another country, for example, if a U.S. hotel is sold to Italian investors, the transaction is recorded as an increase in foreign-owned assets in the United States, which is a **financial inflow**, because funds flow into the United States to pay for the asset. Similarly, when the home country buys an asset from abroad—say a U.S. resident opens a Swiss bank account—the transaction involves a **financial outflow** from the United States and is recorded as an increase in U.S.-owned assets abroad.

The **financial account balance** equals the value of financial inflows minus the value of financial outflows plus the net increase in foreign-owned derivatives (which are financial assets whose value is based on, or "derived" from, the values of other assets) in the United States. When residents of a country sell more assets to foreigners than they buy from foreigners, the financial account balance is positive, creating a financial account surplus. When residents of the home country purchase more assets from foreigners than they sell, the financial account balance is negative, creating a financial account deficit. Table 5.1 shows that in 2021, U.S. residents increased their holdings of foreign assets (ignoring financial derivatives and unilaterally transferred assets) by $1213.3 billion while foreigners increased their holdings of U.S. assets by $1858.8 billion. Thus the United States had net financial flows of $645.5 billion

in 2021 ($1858.8 billion minus $1213.3 billion). Adding the net change in financial derivatives, the financial account balance in 2021 was $687.2 billion.

The Balance of Payments. In Table 5.1 one set of financial flows—transactions in official reserve assets—has been broken out separately. These transactions differ from other financial account transactions in that they are conducted by central banks (such as the Federal Reserve in the United States), which are the official institutions that determine national money supplies. Held by central banks, **official reserve assets** are assets, other than domestic money or securities, that can be used in making international payments. Historically, gold was the primary official reserve asset, but now the official reserves of central banks also include government securities of major industrialized economies, foreign bank deposits, and special assets created by the International Monetary Fund.

Central banks can change the quantity of official reserve assets they hold by buying or selling reserve assets on open markets. For example, the Federal Reserve could increase its reserve assets by using dollars to buy gold. According to Table 5.1 (see the line "U.S. official reserve assets"), in 2021 the U.S. central bank acquired $114.0 billion of official reserve assets. In the same year foreign central banks increased their holdings of dollar-denominated reserve assets by $266.2 billion (see the line "Foreign official assets"). The **balance of payments** is the net increase (domestic less foreign) in a country's official reserve assets. A country that increases its net holdings of reserve assets during a year has a balance of payments surplus, and a country that reduces its net holdings of reserve assets has a balance of payments deficit. For the United States in 2021 the balance of payments was −$152.2 billion (equal to the $114.0 billion increase in U.S. reserve assets minus the $266.2 billion increase in foreign dollar-denominated reserve assets). Thus the United States had a balance of payments deficit of $152.2 billion in 2021.

For the issues we discuss in this chapter, the balances on current account and on financial account play a much larger role than the balance of payments. We explain the macroeconomic significance of the balance of payments in Chapter 13 when we discuss the determination of exchange rates.

The Relationship Between the Current Account and the Financial Account

The logic of balance of payments accounting implies a close relationship between the current account and the financial account. Except for errors arising from problems of measurement, *in each period the current account balance and the financial account balance must sum to zero.* That is, if

$$CA = \text{current account balance and}$$
$$FA = \text{financial account balance,}$$

then

$$CA + FA = 0. \tag{5.1}$$

The reason that Eq. (5.1) holds is that every international transaction involves a swap of goods, services, or assets between countries. The two sides of the swap always have offsetting effects on the sum of the current account and the financial account balances, $CA + FA$. Thus the sum of the current account and the financial account balances must equal zero.