



جمعية المحللين الماليين - سورية  
**Syrian Financial Analysts Society**

## **CHAPTER 6**

### **ECONOMICS OF INTERNATIONAL TRADE**

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## LEARNING OUTCOMES

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After completing this chapter, you should be able to do the following:

- a** Define imports and exports and describe the need for and trends in imports and exports;
  - b** Describe comparative advantages among countries;
  - c** Describe the balance of payments and explain the relationship between the current account and the capital and financial account;
  - d** Describe why a country runs a current account deficit and describe the effect of a current account deficit on the country's currency;
  - e** Describe types of foreign exchange rate systems;
  - f** Describe factors affecting the value of a currency;
  - g** Describe how to assess the relative strength of currencies;
  - h** Describe foreign exchange rate quotes;
  - i** Compare spot and forward markets.
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## INTRODUCTION

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# 1

When you walk into a supermarket where you can buy Scottish salmon, Kenyan vegetables, Thai rice, South African wine, and Colombian coffee, you are experiencing the benefits of international trade. Without international trade, consumers' needs may not be fulfilled because people would only have access to products and services produced domestically. Certain products and services may be missing—perhaps food, vaccines, or insurance products.

**International trade** is the exchange of products, services, and capital between countries. The growth in international trade, from \$296 billion in 1950 to \$18.2 trillion in 2011,<sup>1</sup> can be viewed as both a cause and consequence of globalisation, one of the four key forces driving the investment industry discussed in the Investment Industry: A Top-Down View chapter.

Consider the effect of international trade on a multinational company such as Nestlé. At the end of 2013, the Switzerland-based company had factories in 86 countries and sold its products in 196 countries.<sup>2</sup> International trade has contributed significantly to Nestlé's growth in sales and profit. But it also comes with challenges. One of those challenges is the risk associated with foreign exchange rate fluctuations, changes in the relative value of different countries' currencies. Multinational companies, such as Nestlé, do business in several currencies, so they are affected by changes in exchange rates. Thus, investment professionals who try to forecast Nestlé's future sales and profits must consider foreign exchange rate fluctuations.

Today, the factors driving supply and demand, and thus prices, are global. An understanding of how international trade and foreign exchange rate fluctuations affect economies, companies, and investments is important. We discussed in the Microeconomics chapter how companies and individuals make decisions to allocate scarce resources. In the Macroeconomics chapter, we discussed the factors that affect economies, such as economic growth, inflation, and unemployment. We now bring into the discussion the international dimension of economics, which investment professionals must also take into account before deciding which assets to invest in.

This chapter will give you a better understanding of how international trade and foreign exchange rate fluctuations affect both your daily life and the work of investment professionals.

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<sup>1</sup> Data are from [www.wto.org/english/res\\_e/booksp\\_e/anrep\\_e/wtr12-1\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/anrep_e/wtr12-1_e.pdf) (accessed 12 September 2012).

<sup>2</sup> Information is from <http://www.nestle.com/aboutus/annual-report> (accessed 24 March 2014).

## 2

### IMPORTS AND EXPORTS

The flow of goods and services in international trade between countries is primarily measured by imports and exports. **Imports** refer to products and services that are produced outside a country's borders and then brought into the country. For example, many countries in the European Union import natural gas from Russia. **Exports** refer to products and services that are produced within a country's borders and then transported to another country. For example, Japan exports consumer electronics to the rest of the world.

Imports and exports represent the flow of products and services in international trade. They are important components of a country's balance of payments, which is discussed in Section 4.

#### 2.1 The Need for Imports and Exports

Imports and exports arise for a variety of reasons, including the following:

- Gain access to resources
- Create additional demand for products and services
- Provide greater choice to customers
- Improve quality and/or reduce the prices of products and services

A common reason for international trade is to gain access to resources for which there is no or insufficient supply domestically. For example, Japanese manufacturers need access to such resources as metals and minerals, machinery and equipment, and fuel to produce the cars and consumer electronics that they then export to the rest of the world. Imports are a way for Japanese manufacturers to gain access to those resources for which there is no or insufficient supply domestically. Japanese manufacturers may import metals and minerals from Australia, Canada, and China; machinery and equipment from Germany; and fuel from the Middle East.

International trade creates additional demand for products and services that are produced domestically. For example, if Japanese manufacturers could not sell cars and consumer electronics abroad, they would have to limit their production to the quantity that can be consumed in Japan, which is a relatively small market. This lower production would translate into lower sales and profits for the Japanese manufacturers, which would probably have a negative effect on the Japanese economy—GDP may be lower and unemployment higher.

International trade provides consumers with a greater choice of products and services. Imports give consumers access to goods and services that may not be available domestically. For example, consumers in the United Kingdom would not be able to enjoy bananas or a cup of tea if importing these products was not possible. Imports may also enable consumers to access products and services that better suit their needs.

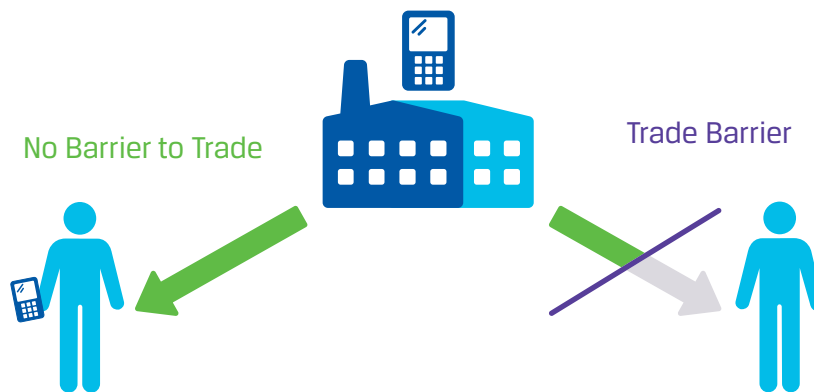
Imported products and services may be less expensive and/or of better quality than domestically produced ones. By increasing competition between suppliers of products and services, international trade promotes greater efficiency, which helps keep prices down. International trade also stimulates innovation, which generates better-quality products and services.

## 2.2 Trends in Imports and Exports

Two major trends have promoted international trade: fewer trade barriers and better transportation and communications.

**Trade barriers** are restrictions, typically imposed by governments, on the free exchange of products and services. These restrictions can take different forms. Common trade barriers include the following:

- **Tariffs:** Taxes (duties) levied on imported products and services. They allow governments not only to establish trade barriers, often to protect domestic suppliers, but also to raise revenue.
- **Quotas:** Limits placed on the quantity of products that can be imported.
- **Non-tariff barriers:** These barriers include a range of measures, such as certification, licensing, sanctions, or embargoes, that make it more difficult and expensive for foreign producers to compete with domestic producers.



International trade barriers have steadily been reduced since the passage of the General Agreement on Tariffs and Trade (GATT) in 1947 and the creation of the World Trade Organization (WTO) in 1995. The WTO, with more than 150 member nations, is designed to help countries negotiate new trade agreements and ensure adherence to existing trade agreements. The WTO also provides a dispute resolution process between countries. In addition, international trade has been promoted by the creation of regional trade agreements, such as the Association of Southeast Asian Nations' (ASEAN) Free Trade Area (AFTA), the North American Free Trade Agreement (NAFTA), the Southern Common Market (MERCOSUR), and the African Continental Free Trade Area (AfCFTA).

Improvements in transportation and communications have also helped international trade. Large shipping containers allow manufacturers to transport non-perishable products more easily on ships, trains, and trucks, while jumbo jets transport perishable products quickly around the globe. The ability to communicate digitally has also contributed to the increase in the trade of services.

### 3

## COMPARATIVE ADVANTAGES AMONG COUNTRIES

Rather than producing everything themselves, countries often specialise in products and services for which they have a **comparative advantage**—that is, products and services that they can produce relatively more efficiently than other countries. They then trade these products and services in which they have a comparative advantage for other products and services that another country can produce more efficiently. According to the theory of comparative advantage, countries export products and services in which they have a comparative advantage and they import products and services in which they do not have a comparative advantage. The combination of specialisation and international trade ultimately benefits all countries, leading to a better allocation of resources and increased wealth.

The source of a comparative advantage can be related to natural, human, or capital resources. Some countries have access to natural resources, such as fossil fuels, metals, or minerals. Meanwhile, other countries can produce products and services less expensively than others or make products that require more expertise. For example, the United States imports clothing and toys, but exports high technology products, such as airplanes and power turbines.

Example 1 illustrates how and why comparative advantage works.

### EXAMPLE 1. COMPARATIVE ADVANTAGE

Consider two fictional countries, Growland and Makeland, where there is demand for two different types of products, shoes and kettles. The number of units of labour it takes in each country to make shoes and kettles is as follows:

	Shoes	Kettles
Growland	10 units	10 units
Makeland	20 units	40 units

#### No Reason to Trade?

It may appear that there is no reason why Growland would want to trade with Makeland because Growland is able to produce both shoes and kettles less expensively than Makeland. Growland has what is called an absolute advantage over Makeland. An **absolute advantage** is when a country is more efficient at producing a product or a service than other countries—that is, it needs less resources to produce the product or service.

### Growland for Kettles, Makeland for Shoes

According to the theory of comparative advantage, however, both countries will be better off if Growland produces kettles, Makeland produces shoes, and then they trade with each other. In Growland, it takes the same number of units of labour to produce shoes and kettles. So making an additional kettle requires giving up the production of one pair of shoes. In Makeland, by contrast, it takes twice the number of units of labour to produce kettles than to produce shoes. So making an additional kettle requires giving up the production of two pairs of shoes. The opportunity cost of producing an additional kettle is less in Growland (one pair of shoes) than in Makeland (two pairs of shoes), which indicates that Growland is more efficient than Makeland at producing an additional kettle. Thus, Growland has what is called a comparative advantage in producing kettles compared with Makeland.

Similarly, the opportunity cost of producing a pair of shoes is one kettle in Growland and half a kettle in Makeland. Thus, Makeland has a comparative advantage in producing shoes compared with Growland.

### Specialising and Trading Is a Winning Combination

Our example implies that Growland should specialise in producing kettles, Makeland should specialise in producing shoes, and the countries should trade with each other. The combination of specialisation and international trade maximises productivity and increases consumption opportunities in both countries, which ultimately benefits both economies.

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## BALANCE OF PAYMENTS

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# 4

The **balance of payments** tracks transactions between a country and the rest of the world over a period of time, usually a year. According to the International Monetary Fund (IMF), an international organisation whose mission includes facilitating international trade, “transactions consist of those involving goods, services, and income; those involving financial claims on, and liabilities to, the rest of the world; and those (such as gifts) classified as transfers”.<sup>3</sup> The balance of payments shows the flow of money in and out of the country as a result of exports and imports of products and services. It also reflects financial transactions and financial transfers between resident and non-resident economic entities. Economic entities include individuals, companies, governments, and government agencies. Resident entities are based in the country (domestic), whereas non-resident entities are based in other countries (foreign).

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<sup>3</sup> IMF, “Chapter II”, in *Balance of Payments Manual*, International Monetary Fund (2012):6 ([www.imf.org/external/pubs/ft/bopman/bopman.pdf](http://www.imf.org/external/pubs/ft/bopman/bopman.pdf), accessed 11 September 2012).

Analysing a country's balance of payments helps in understanding the country's macroeconomic environment. Questions that can be answered by analysing a country's balance of payments include, "How much does the country consume and invest compared with how much it saves?" and "Does the country depend on foreign capital to fund its consumption and investments?"

The balance of payments includes two accounts:

- The **current account** indicates how much the country consumes and invests (outflows) compared with how much it receives (inflows). It is primarily driven by the trade of products and services with the rest of the world—that is, exports and imports.
- The capital and financial account records the ownership of assets. In particular, it reflects investments by domestic entities in foreign entities and investments by foreign entities in domestic entities. These investments can be acquisitions of production facilities or purchases and sales of financial securities, such as debt and equity securities.

In theory, the sum of the current account and the capital and financial account is equal to zero. In other words, the balance of payments should sum to zero. Before explaining why this is the case, we need to understand what drives each account.

## 4.1 Current Account

As illustrated in Exhibit 1, the current account includes three components:

- Products (often referred to as goods in this context) and services
- Income
- Current transfers

**Exhibit 1 Components of the Current Account**

Current Account
<p style="text-align: center;"><b>Goods and Services</b></p> <p style="text-align: center;">Exports – Imports = Net exports = Balance of trade</p>
<p style="text-align: center;"><b>Income</b></p> <p style="text-align: center;">Salaries + Income on financial investments</p>
<p style="text-align: center;"><b>Current Transfers</b></p> <p style="text-align: center;">Unilateral transfers, such as gifts or workers' remittance</p>

#### 4.1.1 Components of the Current Account

The goods and services account is usually the largest component of a country's current account. It reflects the flow of money in and out of the country as a result of the trade of products and services—that is, the inflow of money (positive number) from exports of products and services from domestic entities to foreign entities and the outflow of money (negative number) from imports of products and services by domestic entities from foreign entities.

The difference between exports and imports of products and services is called **net exports**, also referred to as the **balance of trade** or **trade balance**.<sup>4</sup> If the value of exports is equal to the value of imports—that is, if net exports are zero—the country's trade is balanced. In reality, this is rarely the case. If the value of exports is higher than the value of imports—that is, if net exports are positive—the country has a **trade surplus**. Alternatively, if the value of exports is lower than the value of imports—that is, if net exports are negative—the country has a **trade deficit**.

The income account reflects the flow of money in and out of the country from salaries and from income on financial investments. For example, if a domestic company has a debt or equity investment in a foreign company, any income—such as interest payments on debt or dividend payments on equity—received by the domestic company is included in income in the country's current account. In this example, the interest or dividend payments are reported as inflows because they represent money coming into the country from other countries.

<sup>4</sup> Balance of trade may be used by some to refer only to the difference between exports and imports of goods. In this chapter, when we refer to balance of trade, we include both goods and services.

The current transfers account includes unilateral transfers, such as gifts or workers' remittance. Gifts of aid from one country are outflows for that country and inflows for the receiving country. Money sent home by migrant workers is an outflow from the country where they work and an inflow to the country to which the money is sent.

The sum of the goods and services account, the income account, and the current transfers account gives the **current account balance**. A positive current account balance is called a **current account surplus**, whereas a negative current account balance is called a **current account deficit**. For most countries, the goods and services account is larger than the sum of the income account and the current transfers account. In other words, the trade balance tends to dominate the current account balance. So, countries that have a trade surplus because they export more than they import tend to have a current account surplus. In contrast, countries that have a trade deficit because they import more than they export tend to have a current account deficit.

#### 4.1.2 Importance of the Current Account

Exhibit 2 lists the five countries with the largest estimated current account surpluses and the five countries with the largest estimated current account deficits in 2013.

#### Exhibit 2 Countries with the Largest Estimated Current Account Surpluses and Deficits in 2013

Country	Rank (out of 193)	Current Account Balance Surplus (+) or Deficit (-) (\$US billions)
<i>Largest estimated current account surpluses</i>		
Germany	1	+257.1
China	2	+176.6
Saudi Arabia	3	+132.2
Netherlands	4	+82.9
Russia	5	+74.8
<i>Largest estimated current account deficits</i>		
Canada	189	-59.5
India	190	-74.8
Brazil	191	-77.6
United Kingdom	192	-93.6
United States	193	-360.7

Source: Based on data from <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2187rank.html> (accessed 6 March 2014).

A current account surplus indicates that the country is saving. That is, the country has more inflows than outflows, so it has the ability to lend to or invest in other countries. As can be seen in Exhibit 2, Germany, China, Saudi Arabia, the Netherlands, and Russia had current account surpluses in 2013. By contrast, a country that is running

a current account deficit spends more than it earns so it needs to borrow or receive investments from other countries. As indicated in Exhibit 2, the United States, the United Kingdom, Brazil, India and Canada had current account deficits in 2013.

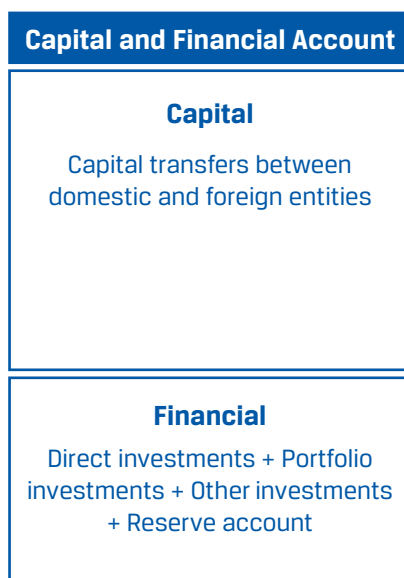
## 4.2 Capital and Financial Account

The current account indicates whether a country has a surplus or a deficit. The follow-up questions are, How does a country with a current account surplus invest its savings? and How does a country with a current account deficit fund its needs? These questions are answered by analysing the capital and financial account.

As the name suggests, the capital and financial account refers to the combination of two accounts:

- The **capital account**, which primarily reports capital transfers between domestic entities and foreign entities, such as debt forgiveness or the transfer of assets by migrants entering or leaving the country.
- The **financial account**, which reflects the investments domestic entities make in foreign entities and the investments foreign entities make in domestic entities.

### Exhibit 3 Components of the Capital and Financial Account



As illustrated in Exhibit 3, the financial account includes four components:

- Direct investments are long-term investments between domestic entities and foreign entities. For example, if a Brazilian company purchases a production facility in the United Kingdom, the transaction will be reported as an inflow

to the financial account in the United Kingdom because it is money coming in from other countries. The same transaction will be reported as an outflow from the financial account in Brazil because it is money sent abroad.

- Portfolio investments reflect the purchases and sales of securities, such as debt and equity securities, between domestic entities and foreign entities.
- Other investments are largely made up of loans and deposits between domestic entities and foreign entities.
- The reserve account shows the transactions made by the monetary authorities of a country, typically the central bank.

### 4.3 Relationship between the Current Account and the Capital and Financial Account

The capital and financial flows move in the opposite direction of the goods and services flows that give rise to them. As stated earlier, the sum of the current account balance and the capital and financial account balance should in theory be equal to zero. If a country has a current account surplus, it should have a capital and financial account deficit of the same magnitude—the country is a net saver and ends up being a net lender to the rest of the world. Alternatively, if a country has a current account deficit, it should have a capital and financial account surplus of the same magnitude—the country is a net borrower from the rest of the world.

In practice, however, the capital and financial account balance does not exactly offset the current account balance because of measurement errors. All the items reported in the balance of payments must be measured independently by using different sources of data. For example, data are collected from customs authorities on exports and imports, from surveys on tourist numbers and expenditures, and from financial institutions on capital inflows and outflows. Some of the inputs are based on sampling techniques, so the resulting figures are estimates.

Because measuring the items reported in the balance of payments is difficult, it is in practice rare, if not impossible, to end up with a capital and financial account balance that exactly offsets the current account balance. So, there is a need for a “plug” figure that makes the sum of all the money flows in and out of a country equal to zero. This plug figure is called errors and omissions.

Exhibit 4 shows a simplified version of the balance of payments of Germany in 2012.

#### Exhibit 4 Balance of Payment of Germany in 2012

Accounts	Amount (€ billions)
<i>Current account</i>	
Exports of goods	+1,097.3
Imports of goods	-909.1
Net exports of goods	+188.2

**Exhibit 4 (Continued)**

Accounts	Amount (€ billions)
Supplementary trade items	-27.3
Net exports of services	-3.1
Trade surplus	+157.8
Income	+64.4
Current transfers	-36.8
Current account surplus	+185.4
<i>Capital and financial account</i>	
Capital account surplus	+0.0
Direct investments	-47.0
Portfolio investments	-65.7
Other investments	-120.9
Reserve account	-1.3
Financial account deficit	-234.9
Capital and financial account deficit	-234.9
Errors and omissions	+49.5
Total	0.0

Source: Based on data from [http://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Monthly\\_Report\\_Articles/2013/2013\\_03\\_balance.pdf?\\_\\_blob=publicationFile](http://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Monthly_Report_Articles/2013/2013_03_balance.pdf?__blob=publicationFile) (accessed 6 March 2014).

Exhibit 4 shows that in 2012, Germany had a current account surplus of €185.4 billion and was thus a net saver. The current account surplus was primarily driven by a trade surplus of €157.8 billion, indicating that Germany exported more than it imported during the year. As a consequence of its current account surplus, Germany is a net lender to other countries through a combination of direct, portfolio, and other investments. In 2012, Germany's capital and financial account deficit was €234.9 billion.

The difference of €49.5 billion between the current account balance and the capital and financial account balance labelled errors and omissions is the plug figure that is needed because of measurement errors. The plug figure is often a large amount, indicating how difficult it is to measure accurately the items reported in the balance of payments.

#### 4.4 Why Does a Country Run a Current Account Deficit and How Does It Affect Its Currency?

We saw in Exhibit 2 that some countries, such as the United States, the United Kingdom, Brazil, India, and Canada, run large current account deficits. Is running a current account deficit a bad sign, and should all countries aim at maximising their current account balance? The answer to both questions is, not necessarily. First, the

sum of the current account balances of all countries is, by definition, equal to zero. In other words, an inflow for one country is an outflow for another country. So, it is impossible for all countries to have a current account surplus.

Second, a current account deficit must be put in context before drawing conclusions. A developing country may run a current account deficit because it needs to import many products (such as machinery and equipment) and services (such as communication services) to help its economy evolve. As the initial period of heavy investment ends and the economy gets stronger, the developing country may experience a decrease in imports and an increase in exports, progressively reducing or even eliminating the current account deficit. This scenario can also apply to transition economies that are moving from a socialist planned economy to a market economy. In such a scenario, the current account deficit may only be temporary. Alternatively, a mature economy may run a current account deficit because its consumption far exceeds its production and its ability to export. Thus, when reviewing the economic outlook for a country running a current account deficit, an investment professional must factor in the country's stage of economic development and understand what drives the current account balance.

There is a long-running debate about the risk for a country of running a persistent current account deficit. As mentioned earlier, a current account deficit means that the country spends more than it earns and makes up the difference by borrowing or receiving investments from other countries. Some economists argue that as long as foreign entities are willing to continue holding the assets and the currency of the country with a current account deficit, running a current account deficit does not matter. But what if foreign entities become unwilling to hold the assets and the currency of the country running a current account deficit?

Consider the example of the country running the largest current account deficit, the United States. Because the United States has a large trade deficit with many countries, those countries hold US dollars. These US dollars can be held as bank deposits in the United States or they can be invested. For example, foreign companies may use their US dollars to acquire US companies, or they may invest in debt and equity securities issued by US companies. Other governments may also invest in bonds (debt securities) issued by the US government—these bonds are called US Treasury securities or US Treasuries.

But if other countries decide that they want to reduce their exposure to the United States, they may start selling US assets, which will have a negative effect on the price of these assets. In addition, they may decide to convert their US dollars into other currencies, which will cause a **depreciation** of the US dollar relative to other currencies—that is, the US dollar will get weaker and a unit of the US currency will buy less units of foreign currencies. Put another way, foreign currencies will get stronger relative to the US dollar, a situation referred to as an **appreciation** of foreign currencies relative to the US dollar. To encourage entities in other countries to invest in the United States, the Federal Reserve Board (or the Fed), which is the US central bank, may increase interest rates. An increase in interest rates would increase the cost of financing for individuals, companies, and the government in the United States. So, the combination of lower asset prices, a weaker US dollar, and higher interest rates would likely hurt the US economy, potentially leading to a lower GDP, maybe even a recession, and higher unemployment.

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## FOREIGN EXCHANGE RATE SYSTEMS

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# 5

International trade requires payments. These payments involve an exchange of currencies and are thus affected by foreign exchange rates and foreign exchange rate systems. The rate at which one currency can be exchanged for another is called the foreign exchange rate or **exchange rate**, and it is expressed as the number of units of one currency it takes to convert into the other currency.

International trade payments can be made in the country's domestic currency or in a foreign currency. For example, assume a supermarket chain located in France imports dairy products from the United Kingdom and has to pay the UK producers in British pounds. The exchange rate between the pound and the euro is usually stated in euros per pound (€/£). An exchange rate of €1.20/£1 means that it takes 1 euro and 20 cents to convert into 1 pound. If the French supermarket chain has to pay the UK dairy producers £100,000, it will have to convert €120,000 ( $£100,000 \times €1.20/£1$ ).

The exchange rates between world currencies, such as the US dollar (US\$), euro, British pound, and Japanese yen (¥) are just like prices of products and services. As discussed in the Microeconomics chapter, prices change continuously depending on supply and demand. If a lot of people want to buy a particular currency, such as the euro, demand for the euro will increase and the price of the euro will rise. It will take more of the other currency to buy a euro. In this case, the euro is said to appreciate (get stronger) relative to other currencies. Alternatively, if a lot of people want to sell the euro, demand for the euro will decrease and the price of the euro will fall. It will take less of the other currency to buy a euro. In this case, the euro is said to depreciate (get weaker) relative to other currencies.

There are three main types of exchange rate systems:

- Fixed rate
- Floating rate
- Managed floating rate

At the Bretton Woods conference in 1944, the major nations of the Western world agreed to an exchange rate system in which the value of the US dollar was defined as \$35 per ounce of gold. So, a dollar was equivalent to one thirty-fifth of an ounce of gold. All other currencies were defined or “pegged” in terms of the US dollar. Such a system of exchange rates, which does not allow for fluctuations of currencies, is known as a **fixed exchange rate system** or regime.

The advantage of a fixed exchange rate system is that it eliminates **currency risk** (or **foreign exchange risk**), which is the risk associated with the fluctuation of exchange rates. In a fixed-rate regime, importers and exporters know with greater certainty the amount that they will pay or receive for the products and services they trade. A disadvantage is that, as the competitiveness of economies changes over time, an economy that becomes uncompetitive will see its current account balance worsen because its currency becomes overvalued; its exports are too expensive from the buyer's perspective and its imports are too cheap from the seller's perspective. Under

a fixed exchange rate system, the only solution to this problem is for the country to formally devalue its currency. **Devaluation** is the decision made by a country's central bank to decrease the value of the domestic currency relative to other currencies, an action that many governments are reluctant to take.

To overcome the disadvantages of a fixed exchange rate system, the Bretton Woods system was abandoned in 1973 and currency values were left to market forces. Thus, since 1973, the major currencies, such as the US dollar, the euro, and the British pound, have existed under a **floating exchange rate system**. In a pure floating exchange rate system, a country's central bank does not intervene and lets the market determine the value of its currency. That is, the exchange rate between the domestic currency and foreign currencies is only driven by supply and demand for each currency.

In a **managed floating exchange rate system**, a central bank intervenes to stabilise its country's currency. To do so, it buys its domestic currency using foreign currency reserves to strengthen the domestic currency or it buys foreign currency using domestic currency to weaken the domestic currency. For example, in the wake of the European sovereign debt crisis in 2012, many investors converted their euros to Swiss francs, viewing the Swiss franc as a safer currency than the euro. The strengthening of the Swiss franc started eroding the competitiveness of Swiss exporters and pushed the Swiss National Bank, Switzerland's central bank, to intervene. To drive the price of the Swiss franc down, the Swiss National Bank sold its domestic currency and bought foreign currencies, such as the euro; the Swiss National Bank did the opposite of what investors were doing. In the process, it accumulated foreign currency reserves. This example shows that central banks do not usually aim for a completely fixed exchange rate, but typically try to maintain the value of their country's currency within a certain range. Central banks typically intervene infrequently, so generally, such a system operates as a floating exchange rate system.

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## 6

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### CURRENCY VALUES

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This section identifies some major factors that affect the value of a currency and then describes how to assess the relative value of currencies.

#### 6.1 Major Factors That Affect the Value of a Currency

Major factors that influence the value of a currency include the country's

- balance of payments,
- level of inflation,
- level of interest rates,
- level of government debt, and
- political and economic environment.

### 6.1.1 Balance of Payments

As discussed earlier, an important factor that affects the value of a currency is the current account balance. In a floating exchange rate system, the exchange rate should adjust to correct an unsustainable current account deficit or surplus. So, if a country has a large current account deficit, the domestic currency should depreciate relative to foreign currencies. The relative price of that country's exports in overseas markets should fall, making exports more competitive. At the same time, the relative price of imports in the country should rise, making imports more expensive. Exporting more and importing less should in theory reduce the current account deficit and could even turn it into a surplus. In contrast, if a country has a large current account surplus, the domestic currency should appreciate relative to foreign currencies. The domestic currency's appreciation should have a negative effect on exports and a positive effect on imports, reducing the current account surplus. So, a floating exchange rate system tends to be self-adjusting.

But, as discussed earlier, the self-adjusting mechanism does not always work in practice because there are many factors other than international trade that influence exchange rates. In addition, the natural correction that should lead to a reduction of the current account deficit or surplus may not occur if the country belongs to a single currency zone. For example, as of March 2014, the euro is the common currency used by 18 European countries. Some countries, such as France, Belgium, and Italy, run large current account deficits. The self-adjusting mechanism should lead to a depreciation of the euro and reduce the current account deficits of these countries. But the euro is also the currency used by Germany, the country running the largest current account surplus, as shown in Exhibit 2. Because 18 European countries use the same currency but face very different economic environments, it makes it difficult, if not impossible, for natural corrections to take place.

### 6.1.2 Level of Inflation

As discussed in the Macroeconomics chapter, inflation erodes the purchasing power of a country's currency—that is, as prices increase, a unit of domestic currency buys less foreign products and services. Example 2 illustrates the effect of inflation on the purchasing power of a country's currency.

#### EXAMPLE 2. EFFECT OF INFLATION ON A COUNTRY'S CURRENCY

The following table shows the price of identical loaves of bread in Ireland and in the United Kingdom in January and in June.

	Ireland	United Kingdom	Exchange Rate
January	€1.20	£1.00	€1.20/£1
June	€1.20	£1.10	€1.09/£1

In January, the loaf of bread costs €1.20 in Ireland and £1.00 in the United Kingdom, which implies an exchange rate of €1.20/£1. If inflation in the United Kingdom drives the price of the bread to £1.10 in June, but the price remains €1.20 in Ireland, then the purchasing power of the pound is lower in June than

it was in January. The exchange rate has moved from €1.20/£1 to €1.20/£1.10 or €1.09/£1. A pound buys fewer euros, so the pound has depreciated relative to the euro.

A country with a consistently high level of inflation will see the value of its currency fall compared with a country that has a consistently low level of inflation.

### 6.1.3 Level of Interest Rates

Higher interest rates, unless they are driven by inflation, usually increase capital flows into a country because they make investments in that country more attractive, all other factors being equal. Increased investments in the country create a demand for the country's currency. Thus, higher interest rates push the value of the currency higher.

As discussed in the Macroeconomics chapter, raising interest rates is a way for central banks to control inflation. When a central bank raises interest rates, it may attract more foreign investors to buy that currency, making the currency appreciate. The appreciating currency makes imports less expensive and thus helps reduce inflation.

In addition, some countries that have balanced economic growth and higher relative interest rates may see an increase in capital flows into their currency. This increase occurs because many investors see higher interest rates as a way of achieving a higher yield. But high interest rates can also reduce capital inflows if investors believe they might lead to higher inflation and potential currency depreciation.

### 6.1.4 Level of Government Debt

If it appears that a government is over-indebted and may be unable to make a promised payment of interest or principal—that is, it may default on its payments—investors may decide that they no longer want to hold the bonds issued by that government. If investors sell the government bonds they hold and take their money out of the country, it will cause a depreciation of the country's currency.

### 6.1.5 Political and Economic Environment

Capital tends to flow to countries with political stability and strong economic performance. Countries with political instability and/or poor economic prospects, such as low growth or high unemployment, are likely to see the value of their currencies decrease. As an economy grows, capital flows will also often increase. Over the past few years, such countries as Australia and Canada have received increased capital flows because of their strong economic prospects.

Government policies toward foreign investors also affect capital flows. Capital flows usually increase when a country becomes more open to outside investors and liberalises **foreign direct investments (FDIs)**—that is, direct investments made by foreign investors and companies. For example, India is slowly allowing foreign ownership in some of its domestic companies.

Exhibit 5 summarises the major factors that affect the value of a currency.

### Exhibit 5 Major Factors Affecting the Value of a Currency

Factor	Effect on the Value of the Currency
Balance of payments	A current account deficit tends to lead to a depreciation of the domestic currency.
Level of inflation	High inflation tends to lead to a depreciation of the domestic currency.
Level of interest rates	High interest rates tend to lead to an appreciation of the domestic currency.
Level of government debt	High government debt tends to lead to a depreciation of the domestic currency.
Political and economic environment	Political instability and poor economic prospects tend to lead to a depreciation of the domestic currency.

There may be factors other than the ones listed in Exhibit 5 that affect the value of a currency, particularly if the currency has the status of reserve currency, which is the case of the US dollar. A **reserve currency** is a currency that is held in significant quantities by many governments and financial institutions as part of their foreign exchange reserves. A reserve currency also tends to be the international pricing currency for products and services traded on a global market and for commodities, such as oil and gold. Because the US dollar is a reserve currency, the demand for US financial assets and for US dollars is higher than it would be based on the country's macroeconomic outlook alone. Many economists believe that a decline in the demand for US financial assets and for US dollars may take place over many years as alternative reserve currencies emerge. However, major foreign investors holding US financial assets and substantial US dollar reserves—such as non-US central banks—do not want to cause the value of their holdings to drop by embarking on large sales of these assets.

## 6.2 Relative Strength of Currencies

The concept of **purchasing power parity** has long been used to explain relative currency valuations—that is, whether currencies are fairly valued relative to each other. Purchasing power parity is an economic theory based on the principle that a basket of goods in two different countries should cost the same after taking into account the exchange rate between the two countries' currencies.

Example 3 illustrates what happens if two identical products have different prices and how prices and the exchange rate should adjust.

### EXAMPLE 3. ARBITRAGE OPPORTUNITY

Assume that the exchange rate is currently 10 Mexican pesos for 1 US dollar (M\$10/\$1). In the United States, a particular car sells for \$30,000, whereas in Mexico, the same car sells for M\$270,000. Given the exchange rate, the car

costs \$30,000 in the United States but the equivalent of \$27,000 [ $M\$270,000 / (M\$10/\$1)$ ] in Mexico. In other words, it is cheaper for a US citizen to buy the car in Mexico.

The fact that the same product sells for different prices presents an **arbitrage opportunity**—that is, an opportunity to take advantage of the price difference between the two markets. If consumers are able to do this without incurring extra costs, then the following may happen:

- 1 US consumers will demand Mexican pesos to buy cars in Mexico. This demand will cause the Mexican peso to appreciate relative to the US dollar.
- 2 Demand for the car sold in Mexico will increase, so the price Mexican retailers charge will also increase.
- 3 By contrast, demand for the car sold in the United States will decrease because consumers will go to Mexico to buy it. Thus, the price US retailers charge for the car will decrease.

Eventually, these events should cause the prices in the two countries and the exchange rate to change until the price difference vanishes. But the adjustment process may take time.

In practice, buying the car in Mexico and bringing it to the United States may not be as advantageous as it seems in theory. Anything that limits the free trade of goods will limit the opportunities people have to take advantage of these arbitrage opportunities and will influence currency valuations. The following are examples of three such limits:

- *Import and export restrictions.* Restrictions, such as tariffs, quotas, and non-tariff barriers discussed in Section 2.2, may make it difficult to buy products in one market and bring them into another. If the United States imposes a tax on cars imported from Mexico, then it may no longer be advantageous to buy the car in Mexico instead of in the United States.
- *Transportation costs.* The gains from arbitrage are limited if it is expensive to transport products from one market to another. Transportation costs may be limited for US consumers going to Mexico to buy a car, but costs would be much higher if they had to ship a car from Germany or Japan.
- *Perishable products.* It may be impractical or difficult to transfer products from one market to another. There may be a place that sells low-priced sandwiches in France, but that may not help consumers who live in Italy.

Purchasing power parity is the concept behind the *Economist's* Big Mac index. On a regular basis, the *Economist* records the price of McDonald's Big Mac hamburgers in various countries around the world, and then it estimates what the exchange rates should be to make the price of Big Macs the same in all the countries. This exchange rate relies on purchasing power parity and assumes that an identical product, the Big Mac, should have the same price everywhere. Otherwise, there would be an arbitrage opportunity, such as the one described in Example 3. The *Economist* constructs a table

of purchasing power parity exchange rates relative to the US dollar and then compares them with the actual exchange rates to help identify whether currencies are under- or overvalued relative to the US dollar.

Example 4 illustrates how the *Economist* uses Big Macs to calculate purchasing power parity exchange rates and how it determines which currencies are under- and overvalued relative to the US dollar.

#### EXAMPLE 4. PURCHASING POWER PARITY EXCHANGE RATES

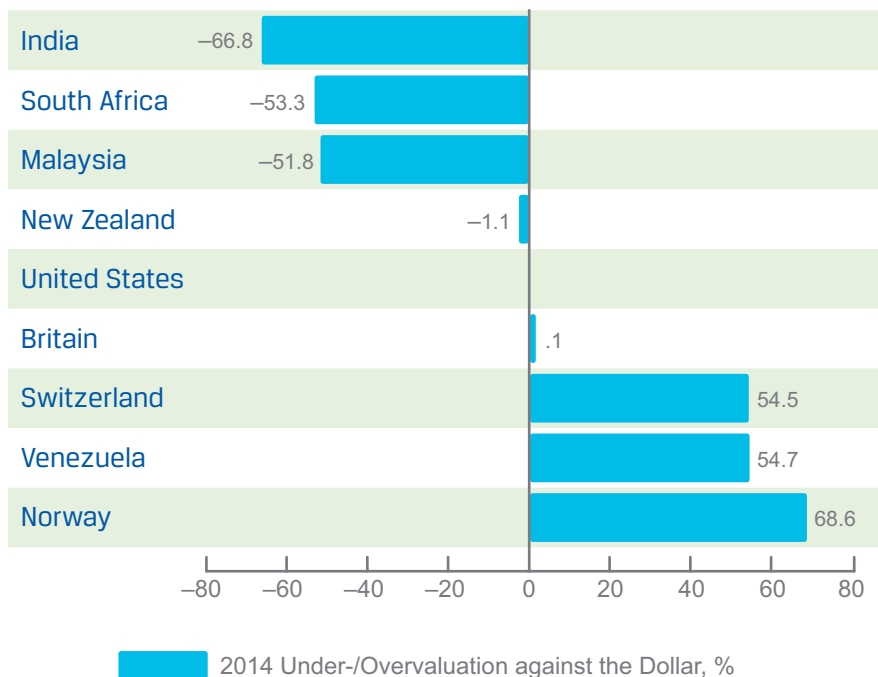
In January 2014,

Cost of a Big Mac in the United States	US\$4.62
Cost of a Big Mac in South Africa (in rands)	R23.50
Implied exchange rate	R5.09/US\$1

In January 2014, a Big Mac cost US\$4.62 in the United States and R23.50 in South Africa, which implies a purchasing power parity exchange rate of R5.09/US\$1 (R23.50/US\$4.62). The actual exchange rate in January 2014 was R10.88/US\$1. This means that, based on purchasing power parity, the South African rand is undervalued relative to the US dollar because it takes more South African rand than purchasing power parity implies to buy a US dollar. Put another way, if in January 2014 a Big Mac cost R23.50 in South Africa and the actual exchange rate was R10.88/US\$1, the cost of a Big Mac in the United States should be US\$2.16. But the cost was US\$4.62, which means that the South African rand was undervalued by more than 50%; converting R23.50 to US dollars would only give us US\$2.16, which is not enough to buy a Big Mac in the United States.

Exhibit 6 shows the currencies identified by the *Economist* as the most under- and overvalued as of January 2014.

**Exhibit 6 The Economist's Big Mac Index**



Source: "Big Mac Index," *Economist*, <http://www.economist.com/content/big-mac-index> (accessed 6 March 2014).

As of January 2014, the most undervalued currencies were the Indian rupee, the South African rand, and the Malaysian ringgit. The most overvalued currencies were the Norwegian krone, the Venezuelan peso, and the Swiss franc. The British pound and the New Zealand dollar were fairly valued compared with the US dollar.

The purchasing power parity exchange rates constructed using Big Macs are only loosely representative of actual exchange rates because they are based on just one product. In reality, purchasing power parity exchange rates should reflect a representative basket of goods, but the Big Mac index serves as an easily understandable proxy.

Although purchasing power parity provides a way to explain relative currency valuations, it has limitations. Two of these limitations are the difficulty of identifying a basket of goods for comparison between countries and, as discussed earlier, the barriers to international trade. These problems help explain why evidence suggests that purchasing power parity does not hold very well in the short to medium term. But in the long term, deviations of actual exchange rates from purchasing power parity rates eventually correct themselves. In other words, purchasing power parity tends to apply only in the long term.

## FOREIGN EXCHANGE MARKET

# 7

The **foreign exchange market** is where currencies are traded. It is a very active and liquid market with an average of \$5 trillion traded globally every day. It is not in a centralised location but is a highly integrated decentralised network that connects buyers and sellers via information and computer technology.

### 7.1 Foreign Exchange Rate Quotes

If you have ever converted money, maybe at the airport when visiting a country that uses a different currency than your home country, you are aware that the bank or currency dealer always displays two exchange rates for a particular currency.

- The **bid exchange rate** (or bid rate) is the exchange rate at which the bank or currency dealer will buy the foreign currency.
- The **offer exchange rate** (or offer rate), also called the **ask exchange rate** (or ask rate), is the exchange rate at which the bank or dealer will sell the foreign currency.



The difference between the bid and offer (ask) rates is known as the bid–offer spread (bid–ask spread). The bid–offer spread is how the bank or currency dealer makes money—these intermediaries make a profit by buying a unit of currency more cheaply than they sell it. The bid–offer spread will vary from bank to bank, from currency to currency, and according to market conditions. The more a currency is traded, the smaller the bid–offer spread.

Example 5 shows how bid and offer rates are used to convert currencies. Remember that you are not responsible for calculations. The presentation of formulas and illustrative calculations in Examples 5 and 6 may enhance your understanding.

**EXAMPLE 5. CONVERTING CURRENCIES USING BID AND OFFER RATES**

A currency dealer in a US airport indicates the following bid and offer rates:

	Bid	Offer
British pound (£)	\$1.50/£1	\$1.60/£1

Customer A, who has just arrived from the United Kingdom, wants to convert £1,000 into US dollars. Customer B, who is leaving shortly for the United Kingdom, wants to convert \$1,600 into pounds.

From the US perspective, the British pound is the foreign currency and the US dollar is the domestic currency. Customer A wants to sell the foreign currency (£) and buy the domestic currency (\$), which means that the currency dealer has to buy the foreign currency (£). Thus, the currency dealer applies the bid rate of \$1.50/£1 and Customer A will receive \$1,500 ( $£1,000 \times (\$1.50/£1)$ ) for the £1,000.

Customer B wants to sell the domestic currency (\$) and buy the foreign currency (£), which means that the currency dealer has to sell the foreign currency (£). Thus, the currency dealer applies the offer rate of \$1.60/£1 and Customer B will receive £1,000 [ $\$1,600/(\$1.60/£1)$ ] for the \$1,600.

The currency dealer made a profit of \$100. It received £1,000 from Customer A and passed the entire amount to Customer B. At the same time, the currency dealer received \$1,600 from Customer B but passed only \$1,500 to Customer A. So, the currency dealer is left with a profit of \$100. This profit is the result of the bid–offer spread.

If you are ever confused, just remember that the exchange rate works to the advantage of the dealer; a dealer will pay as little as possible for any currency.

## 7.2 Spot and Forward Markets

Foreign exchange transactions may take place in the spot market or in the forward market. The **spot market** is where currencies are traded now and delivered immediately. The exchange rate for the transaction is called the spot exchange rate or **spot rate**. In contrast, the **forward market** is where currencies are traded now but delivered at some future date, such as one month or three months from now. The exchange rate for the transaction is called the forward exchange rate or **forward rate**, and there are as many forward rates as there are delivery dates. For example, there is a one-month forward rate for delivery in one month, a two-month forward rate for delivery in two months, and so on.

In Example 5, both currency transactions were spot transactions: Customers A and B wanted to convert currencies immediately. However, in many instances, investors or companies want to determine now the exchange rate for a currency transaction that will occur at a later date.

Let us return to the example of the French supermarket chain importing dairy products from the United Kingdom that has to pay its UK dairy producers £100,000. If the French supermarket needs to make the payment now and convert euros into pounds immediately, the exchange rate at which the conversion takes place is the spot rate. Assuming a spot rate of €1.20/£1, the French supermarket chain has to convert €120,000 to pay its invoice today, as shown earlier.

In the business world, however, many suppliers give credit to their customers. Assume that the French supermarket chain has two months to pay its UK dairy producers. Because the conversion of euros into pounds is not required now but in two months, the French supermarket chain faces uncertainty about the exchange rate that will prevail in two months and thus the amount it will have to give its bank or currency dealer to get the £100,000 necessary to pay its UK dairy producers. In other words, the French supermarket chain is exposed to currency risk because of the potential fluctuation of the exchange rate between the euro and the pound during the next two months.

Example 6 shows the effect of both an appreciation and a depreciation of the euro relative to the pound on the amount the French supermarket chain would have to pay its UK dairy producers.

#### EXAMPLE 6. CURRENCY APPRECIATION AND DEPRECIATION

A French supermarket chain imports dairy products from the United Kingdom and has to pay its UK dairy producers £100,000.

Spot exchange rate  
€1.20/£1

French supermarket  
chain must pay  
 $£100,000 \times €1.20/£1 =$   
€120,000

Exchange rate changes to  
€1.15/£1

It takes 5 cents less to  
buy 1 pound. Thus, the  
euro *appreciated* relative  
to the pound.

French supermarket  
chain must pay  
 $£100,000 \times €1.15/£1 =$   
€115,000

Euro appreciation relative  
to the pound is *beneficial*  
for the French importer.

Exchange rate changes to  
€1.25/£1

It takes 5 cents more to  
buy 1 pound. Thus, the  
euro *depreciated* relative  
to the pound.

French supermarket  
chain must pay  
 $£100,000 \times €1.25/£1 =$   
€125,000

Euro depreciation rela-  
tive to the pound is *det-*  
*rimental* for the French  
importer.

The French supermarket may want to determine today how many euros it will have to give its bank or currency dealer to get £100,000 in two months when it converts the euros into pounds. By using the forward market today, the French supermarket chain can lock in (fix) the exchange rate at which it will pay the invoice in two months. For example, if the two-month forward rate for delivery in two months is €1.21/£1, the French supermarket chain can use the forward market to lock in this exchange rate and determine today that it will need €121,000 to get the £100,000 necessary to pay its UK dairy producers. In doing so, it eliminates the currency risk—no matter how much the euro fluctuates relative to the pound in the next two months, the French supermarket chain has certainty about the amount it will pay its UK dairy suppliers. Reducing or eliminating risk such as currency risk is often called hedging and is further discussed in the Derivatives chapter.

Gaining certainty is important for companies because it enables them to ensure that they can meet future cash outflows, such as operating expenses and interest payments. Also, most companies prefer to focus on trading their products and services profitably, rather than focus on the intricacies of buying and selling currencies.

## SUMMARY

The next time you walk into a supermarket, you may look at the types and prices of products, such as wine, coffee, and rice, in a new light. This chapter has hopefully allowed you to see how imports and exports affect the types of products you find in shops and the prices you pay for those products. International trade and foreign exchange fluctuations are relevant to your everyday life and also to the work of investment professionals who try to assess how they will affect the valuation of assets.

Key points to remember about the economics of international trade include:

- Countries trade with each other by importing products and services that are produced in other countries and by exporting products and services produced domestically.
- Companies trade across borders to gain access to resources, to create additional demand for products and services produced domestically, to provide consumers with a greater choice of products and services, and to improve the quality and/or reduce the price of products and services.
- International trade has benefited from the reduction in trade barriers, such as tariffs, quotas, and non-tariff barriers, and from better transportation and communications.
- Countries tend to specialise in products and services for which they have a comparative advantage, and then they trade to get access to products and services that other countries can produce relatively more efficiently. The combination of specialisation and international trade ultimately benefits all countries, leading to a better allocation of resources and increased wealth.

- The balance of payments tracks transactions between residents of one country and residents of the rest of the world over a period of time, usually a year. Analysing a country's balance of payments helps in understanding the country's macroeconomic environment.
- The balance of payments includes two accounts: the current account and the capital and financial account.
- The current account reports trades of imported and exported goods and services as well as income and current transfers. A country where the value of exports is higher than the value of imports has a trade surplus. By contrast, a country where the value of exports is lower than the value of imports has a trade deficit. Because the trade balance tends to dominate the current account balance, countries that have a trade surplus tend to have a current account surplus, whereas countries that have a trade deficit tend to have a current account deficit.
- The capital account primarily reports capital transfers between domestic entities and foreign entities. The financial account includes direct investments, portfolio investments, other investments, and the reserve account.
- In theory, the sum of the current account and the capital and financial account is equal to zero. Thus, a country that has a current account surplus will have a capital and financial account deficit of the same magnitude—the country is a net saver and ends up being a net lender to the rest of the world. Alternatively, a country that has a current account deficit will have a capital and financial account surplus of the same magnitude—the country is a net borrower from the rest of the world. However, in practice, the capital and financial account balance does not exactly offset the current account balance because of measurement errors reflected in the balance of payments in errors and omissions.
- A country may run a current account deficit because it needs to import many goods to help its economy evolve or because its consumption far exceeds its production and its ability to export. A persistent current account deficit may cause a depreciation of the country's currency relative to other currencies.
- An exchange rate is the rate at which one currency can be exchanged for another. It can also be considered as the value of one country's currency in terms of another currency.
- Three main types of exchange rate systems are fixed exchange rate, floating exchange rate, and managed floating exchange rate systems. A fixed exchange rate system does not allow for fluctuations of currencies. By contrast, a floating exchange rate system is driven by supply and demand for each currency, allowing exchange rates to adjust to correct imbalances, such as current account deficits. In practice, pure floating exchange rate systems are rare. Managed floating exchange rate systems, in which a central bank will intervene to stabilise its country's currency, are more common although intervention is uncommon.
- Major factors that affect the value of a currency include the balance of payments, inflation, interest rates, government debt, and the political and economic environment. A current account deficit, high inflation, low interest rates, high government debt, political instability, and poor economic prospects tend

to lead to a depreciation in value of the domestic currency relative to foreign currencies; it will take more of the domestic currency to buy a unit of foreign currency.

- One of the simplest models for determining the relative strength of currencies is purchasing power parity, which is based on the principle that a basket of goods in two different countries should cost the same after taking into account the exchange rate between the two countries' currencies. Purchasing power parity has limitations because of the difficulty of identifying a basket of goods for comparison between countries and barriers to international trade.
- Two exchange rates are quoted in the market: the bid rate and the offer rate. The bid rate is the rate at which the dealer will buy the foreign currency, and the offer rate is the rate at which the dealer will sell the foreign currency. The bid–offer spread is how the dealer makes money.
- Foreign exchange transactions may take place with immediate delivery via the spot market or with future delivery via the forward market.
- The forward market allows importers and exporters to eliminate currency risk by fixing today the exchange rate at which they will trade in the future.