



## Module 5

### The Open Economy

#### Introduction

Earlier study modules have simplified economic analysis by assuming a closed economy but most economies are not closed. In the twenty-first century, national economies are becoming more closely interrelated and the notion of globalisation is increasingly accepted.

In this module, we will introduce balance of payment (BOP) accounts where surplus in BOP will increase a country's foreign exchange reserves.

Then you will learn about exchange rate, its determinants and exchange rates systems. A government's monetary policy will influence the exchange rates and hence aggregate demand. You will be introduced channels of monetary policy in an open economy as opposed to a closed economy.

Lastly, we will discuss about absolute and comparative advantage theories, the advantages of participating in international trade and trade policies which may favour free trade or protectionism.

Upon completion of this module you will be able to:



#### Outcomes

- *define* the concept of the exchange rate.
- *explain* the determinants of exchange rates.
- *compare* and contrast fixed and flexible exchange rates systems.
- *explain* the importance of foreign exchange reserves in a fixed exchange rate system.
- *distinguish* the short-run from the long-run determinants of the exchange rates.
- *explain* how monetary policy influences the exchange rates and hence aggregate demand.
- *outline* the channels of monetary policy in an open economy as opposed to a closed economy.
- *compare* and contrast the exchange-rate policies of devaluation and revaluation.

- *list policies that change expenditures, and contrast them with expenditure-switching policies.*
- *understand the expenditure switching policies.*
- *list and elaborate on the reasons for which countries engage in international trade.*
- *distinguish between absolute and comparative advantage.*
- *name and define some alternative trade theories.*
- *explain how gains from trade are shared by trading partners.*
- *extrapolate different types of trade policy from current economic news events.*
- *state arguments in favour and against free trade.*



### Terminology

<b>Absolute advantage:</b>	A country has an absolute advantage when it is more efficient than any other country at producing a product.
<b>Current account:</b>	The current account summarises all foreign transactions associated with exchange of goods and services. It includes four types of transactions: trade in merchandise, trade in services, flow of investment income and transfers.
<b>Current account deficit:</b>	The current account of the balance of payments is in surplus when a country exports more goods and services that it imports.
<b>Exchange rate:</b>	The rate at which one currency is converted into another.
<b>Mixed economy:</b>	Certain sectors of the economy are left to private ownership and free market mechanisms, while other sectors have significant government ownership and government planning.

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## Overview

Previous study modules have simplified economic analysis by assuming a closed economy but most economies are open. Our local economy is linked to the rest of the world through two broad channels: trade in goods and services, and finance. We export goods and services abroad and we import goods and services from abroad. We also borrow and lend in world financial markets. In fact, in the twenty-first century, national



economies are becoming more closely interrelated and the notion of globalisation – that we are moving towards a single global economy – is increasingly accepted.

There are many degrees of engagement in international trade (exporting and importing). A country whose exports and imports constitute a large percentage of their GDP such as Canada, with its exports close to 50 per cent of its GDP and its imports over 40 per cent of its GDP, are called an *open* economy. Compared to Canada, the United States engages in relatively little international trade. With exports and imports between 12 and 15 per cent of its GDP, the U.S. is a relatively *closed* economy.

## The balance of payments accounts

The balance of payments is a record of the transaction of a country with the rest of the world. **Table 5.1** summarises the balance of payments for Canada in 2001.

<b>CANADA'S INTERNATIONAL BALANCE OF PAYMENTS, 2001 (MILLIONS OF DOLLARS)</b>			
<b>Current Account</b>			
Goods and Services Account			
Net Exports (Goods)		64,015	
Exports	414,638		
Imports	350,623		
Net Exports (Services)		-8,382	
Exports	56,612		
Imports	64,994		
Net Investment Income		-27,534	
Receipts	34,990		
Payments	62,524		
Net Transfers		1,950	
Receipts	7,024		
Payments	5,074		
<b>Current Account Balance</b>			<b>30,049</b>
<b>Capital and Financial Account</b>			
Capital Account Net Flow			
Inflow	6,482		5,678
Outflow	-804		
Financial Account Net Flow			
Canadian Liabilities, Net Inflow	83,789		
Canadian Assets, Net Outflow	-110,385		
<b>Capital and Financial Account Balance</b>			<b>-20,918</b>
<b>Statistical Discrepancy</b>			<b>-9,131</b>
<b>Change in Official Reserves</b>			<b>-3,353</b>

(Source: Statistics Canada: National Account (August, 2002))

**Table 5.1**

As you can see in this table, the balance of payments is made up of two major accounts: the current account as well as the capital and financial account. Moreover, transactions in these accounts are divided into two groups: receipts and payments. The receipts represent monetary inflows to the Canadian economy, including both foreign purchases of Canadian exports and inflows from foreigners when they buy Canadian financial assets. Receipts are considered positive, so they appear with a plus (+) sign in the accounts.

Payments naturally represent monetary outflows from the Canadian economy. They include outlays by Canadians for foreign imports and foreign financial assets. Payments are considered negative, so they are given a minus sign (–) in the accounts.

### **The current account**

The current account summarises all foreign transactions associated with exchange of goods and services. The current account includes four types of transactions: trade in merchandise (in other words, tangible goods) as well as in three invisible items: trade in services, flow of investment income and transfers.

### **Trade in goods (merchandise)**

The most significant and obvious components of the current account are exports and imports of goods: *visibles*, as they are known. Each year, the people of a country sell a broad range of merchandise exports and buy an equally broad range of merchandise imports. In years when the dollar value of exports of visibles outweighs that of imports of visibles, the current account shows a *positive merchandise balance of trade* or a *trade surplus*. In contrast, in years when imports of goods outweigh exports, the current account shows a *negative merchandise balance of trade* or a *trade deficit*. These transactions are structured on the basis of the *double bookkeeping principle*. For example, if you sell a good abroad, the proceeds from the sale will be treated as a receipt (credit) in the current account and will appear with a positive sign.

### **Trade in non-merchandise**

The three remaining *invisible* components of the current account: trade in services, investment income and transfers are collectively known as non-merchandise transactions.

### **Services**

Services include tourism, transportation (freight and shipping), insurance and telecommunication. Spending by foreigners on services offered by domestic firms such as when foreign tourists travel in a country, represents a service export that creates an inflow of funds from foreign countries. Conversely, when we travel outside our country, our spending in foreign countries is considered a service import that causes an outflow of funds to foreign hands.



## Net investment income

Payments of income on investment in assets constitute this second category of the invisible items in the current account. These incomes or returns on assets (financial instruments) are in the form of interest (return on bonds), dividends (return on stocks) and other forms of return such as profits. The same double bookkeeping principle employed for goods applies here too. For instance, for a Malaysian who holds a bond that was issued by the United States government, any interest earned on that bond is treated as a receipt (credit) in Malaysia's current account, or a positive figure. Conversely, payment to a German who owns a Malaysian government bond is treated as a payment (debit) in the current accounts, or a negative figure. Net income from assets refers to the difference between these two items.

## Transfers

The final item, "transfers", refers to items such as foreign aid or a gift from family members in one country to family members in another country. When new immigrants to the country bring funds with them, these funds are considered an inflow to the economy. In contrast, government spending on foreign aid is considered an outflow.

## Current account balance

The current account balance is the sum of the above items. When the receipts in the country's current account are lower than the payments, this results in a negative net balance known as a *current account deficit*. Conversely, when receipts on the current account outweigh payments, there is a positive net balance, which is known as a *current account surplus*. According to **Table 5.1**, Canada enjoys a current account surplus of more than \$30 billion in year 2002.

## The capital and financial account

**Table 5.1** shows another portion of the balance-of-payments statement called the *capital and financial account*. Recently many statistical agencies around the world have followed the lead of the IMF (International Monetary Fund) to divide the capital account into capital account and financial account. The financial account records direct investment and portfolio investment while the capital account includes items such as inheritances and trade in intellectual property. This division is new and for simplicity, we will refer to these accounts together as the capital account.

This account summarises the foreign transactions of financial assets involving Canadian dollars. Suppose a foreigner buys a domestic government bond or holds bank deposits valued in Canadian dollars. These transactions are treated as ownership of financial assets being exported from home to abroad and therefore, are recorded as an inflow of funds (receipts), marked with a positive sign, on the capital and financial account. Conversely, a local investor's purchase of stocks in a foreign company is viewed as an import of ownership, so the transaction is

considered an outflow, marked with a negative sign (for payments) from this account.

The current account transactions discussed above refer to trade in currently produced goods and services. Trade between countries in existing assets is recorded in the capital (financial) account. This account records direct investment and portfolio investment while the capital account includes items such as inheritances and trade in intellectual property. The most significant transactions on the capital account are associated with the buying and selling of stocks and bonds. These capital flows are often referred to as financial investment and can be divided into *portfolio investment* and *direct investment*.

### **Portfolio investment**

This refers to purchase of financial assets (of a company), stocks and bonds, when these investments do not constitute ownership or controlling interest in the company that issued these assets. Note that ownership and control pertain to *equity* purchase into a company, i.e., shares (stocks) of that company, not its *debt* (bonds). Therefore, a purchase of domestic bonds by foreigners automatically belongs to portfolio investment.

### **Direct investment**

In contrast, direct investment refers to purchase of financial assets that gives rise to ownership and controlling interest of a company. There are numerous well-known examples of direct investment.

## **Capital (financial) account balance**

When receipts on the country's capital account exceed payments, the capital account balance is positive and it is referred to as a *capital account surplus*; the obverse is a *capital account deficit*. According to **Table 5.1**, Canada faces a combined capital-financial account deficit of over \$20 billion.

### **The official settlements account**

The final item in the balance of payments account is the *official settlements account*, which records the change in official reserves. *Official reserves* are the government's holdings of foreign currency. Technically, official reserves should be listed separately, in this third account. However, in some countries, official settlement transactions appear as part of the capital and financial account under the assets. In such a case, they would be put at the end of the balance of payments account to illustrate the balancing role of official reserves.

These transactions arise from foreign exchange interventions by the central authority for the purpose of either keeping the exchange rate fixed or managing it from time to time. In other words, in order to pay for our current account deficit, we must either borrow more from abroad than we lend abroad or our official reserves must decrease to cover the shortfall.



## Balance of payments balance

It should be clear that the overall balance of payments must be zero. Individuals and firms must pay for what they buy abroad. If you were to spend more than your income, you would be obliged to finance your deficit by selling assets or negotiating a loan. Similarly, if a country runs a deficit in its current account, spending more abroad than it receives from sales to the rest of the world, the deficit would need to be financed by the sale of assets or borrowing abroad. Therefore, any current account deficit must be financed by an offsetting capital account inflow. However, the balance on the third account (the official settlement account) must also be zero since the sum of the balances on all three accounts, including the official settlement balance, always equals zero: that is:

$$\begin{aligned} & \textit{Current account balance} + \textit{Capital account balance} \\ & + \textit{Official settlement balance} = 0 \end{aligned} \quad (1)$$

A logical implication, if the third account item is positive, it means that the central bank (monetary authority) has sold foreign reserves (a flow of funds into the home country from the sale of these reserves). If this item is negative, this means that the central bank (monetary authority) has bought foreign reserves (a flow of funds out of the home country from the purchase of these reserves). As indicated above, it is also customary to lump the capital and the official balance together. This way, the capital account would include not only the private transactions but also official transactions.

In practice, another item statisticians need to be concerned about is *statistical discrepancies*. Because of data imperfection and errors and omissions, the sum of balances on all three accounts will most likely not equal zero. There may be many transactions for which there are no records, or that the authorities are unable to directly measure, or there may be funds that enter or leave the country illegally. Therefore, statistical discrepancies enter the balance of payment account as a fourth term such that:

$$\begin{aligned} & \textit{Current account balance} + \textit{Capital account balance} \\ & + \textit{Official settlement balance} + \textit{Statistical discrepancies} = 0 \end{aligned} \quad (2)$$

According to **Table 5.1**, these discrepancies, measured at more than \$9 billion, explain why the sum of the current and capital account balances do not add up to zero in year 2001.

## Current account, lending and borrowing

As discussed above, a country that has a current account deficit has to borrow from the rest of the world. Since at any point in time, many countries tend to lend and borrow at the same time, a deficit country must borrow more than it lends, becoming a *net borrower*. Similarly, a country that enjoys a current account surplus is a *net lender*, lending more to the rest of the world than it borrows.

## Exchange rates

Any transaction that appears in the balance-of-payments accounts involves trading domestic currency for another currency. When we buy foreign goods and services or invest in another country, we have to obtain some of that country's currency to make the transaction. When foreigners buy domestically produced goods and services or invest in their domestic economy, they have to obtain some of the home country's currency. We get foreign currency and foreigners get our domestic currency in the foreign exchange market. The global market is made up of thousands of people: importers and exporters, banks and specialists in the buying and selling of foreign exchange called foreign exchange brokers. In the home country's sector of this market, domestic currency is exchanged for major currencies such as the U.S. dollar, Japanese yen, European euro and other international currencies.

The foreign exchange market operates on a daily basis. It opens on Monday morning in Hong Kong, which is still Sunday evening in Toronto and New York. As the day advances, markets open in Singapore, Tokyo, Bahrain, Frankfurt, London, New York, Montreal, Toronto and Vancouver. The price at which one currency can be exchanged for another is called *the foreign rate of exchange*, or simply *the rate of exchange*. **Table 5.2** shows the exchange rate between a selected number of world currencies and the U.S. dollar (\$).

Exchange Rates for 28/08/02		
Country	per US\$	per C\$
Australia	1.81	1.16
Britain	0.65	0.42
Canada	1.55	-
EURO	1.02	0.65
Hong Kong	7.8	5.02
Japan	118.16	76.07
Sweden	9.28	5.97
United States	-	0.64

(Source: The Economist, August 28, 2002)

**Table 5.2**

As indicated in **Table 5.2**, there are many exchange rates for a certain currency. Furthermore, nominal exchange rates or alternatively, *market rates of exchange* between currencies, are quoted in two ways:

1. the number of units of foreign currency you can get for one unit of domestic currency, or





2. the number of units of domestic currency you can get for one unit of foreign currency.

In August 2002, for example, the nominal exchange rate between the Canadian dollar (C\$) and the U.S. dollar (US\$) was quoted as either US\$0.64 for one Canadian dollar, or, equivalently, C\$ 1.55 for one US dollar. In this unit, we define the nominal exchange rate as the number of units of domestic currency you can get for one unit of foreign currency – the second way – or equivalently, as the price of foreign currency in terms of domestic currency. This rate will be denoted by  $E$ . Accordingly, for Canada,  $E$ , in terms of U.S. dollars, is equal to 1.55 (and not 0.64).

### Exchange rate determination

Exchange rates among foreign currencies change every day, indeed every minute during the day. These changes are called *nominal appreciations* or *nominal depreciations*, appreciations or depreciations for short. An *appreciation* of the domestic currency is a *decrease* in the price of the foreign currency in terms of the domestic currency. Given our definition of the exchange rate as the price of the foreign currency in terms of domestic currency, an appreciation corresponds to a *decrease* in the exchange rate,  $E$ .

Similarly, a *depreciation* of the domestic currency is an increase in the price of the foreign currency in terms of a domestic currency, and thus corresponds to an *increase* in  $E$ . It is customary in foreign exchange markets to quote the value of every currency in terms of the U.S. dollar. Therefore, appreciations and depreciations tend to be expressed in terms of the U.S. dollar.

## Foreign exchange market

Similar to any other market, the foreign exchange market (financial or non-financial) can be characterised by demand and supply – in this case by demand and supply of foreign currency. **Figure 5.1** illustrates the supply and demand for the foreign currency (U.S. dollars) in terms of domestic currency (Canadian dollars) in the exchange market with the exchange rate measured on the vertical axis as the domestic currency price of foreign exchange.

### Demand for foreign currency (exchange)

The demand for foreign currency, in terms of domestic currency, is a relationship between the price of the foreign currency and its quantity demanded in exchange for our own currency. The quantity of a foreign currency demanded in the foreign exchange market is the amount that traders plan to buy during a given time period at a given exchange rate. However, the exchange rate is only one factor. The quantity demanded is also determined by others including:

- Domestic and foreign interest rates.
- Domestic and foreign income.

- Domestic and foreign inflation rates.
- The expected future exchange rate.

As is customary, we will choose the U.S. dollar (\$) as the foreign currency. This relationship can be expressed in as a curve as shown in **Figure 5.1**. As expected, the relationship between the price of the foreign currency and the quantity of it demanded is an inverse one.

For example, if the price of the U.S. dollar rose against the local currency, let us say Canadian dollar, from C\$1.55, per one (US) \$ to C\$1.60, but nothing else changed, the quantity of U.S. dollars that people plan to buy in the foreign exchange market would decrease. The reason for the demand curve's downward slope can be understood by considering the factors behind this curve. The demand for a currency is derived from the demand for its underlying elements. People demand the U.S. dollar primarily because of their demand for:

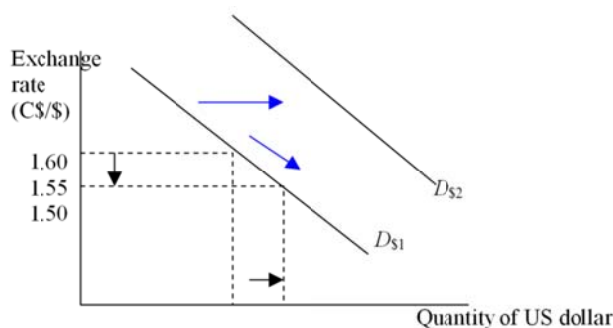
1. American goods and services (American exports) and
2. American financial assets such as bank accounts, bonds, stocks, businesses and real estate.

Nevertheless, the *law of demand* applies to dollars just as it does to anything else that people value.

For example, when the price of the U.S. dollar (\$) drops (appreciation of the local currency), there is an *import effect*: foreigners can purchase U.S.-made goods and services more cheaply. Appreciation of the local currency also affects the demand for American assets. The stronger the local currency, other things remaining the same, the larger the expected profit from buying American dollars and the greater the quantity of Canadian dollars demanded.

For the two reasons we have just reviewed, *ceteris paribus*, when the exchange rate rises, the quantity of the U.S. dollars demanded decreases and when the exchange rate falls, the quantity of the U.S. dollars demanded increases.

**Figure 5.1** shows the demand curve for U.S. dollars in the foreign exchange market.



**Figure 5.1**



According to **Figure 5.1**, the lower the rate of exchange (appreciation of C\$), the greater the demand for the foreign currency, as shown from the downward-pointing arrow.

## Changes in the demand for dollars

As indicated above, there are other factors besides the exchange rate that influence the demand for a foreign currency, including domestic and foreign interest rates, domestic and foreign income. While changes in the exchange rate cause a *movement along* the demand curve, changes in these factors cause the demand for the currency to *shift*. We shall examine the impact of these factors in detail.

### Interest rates

People and businesses buy financial assets to make a return. The higher the interest rate that people can make on domestic assets compared to foreign assets, the more domestic assets they buy. In analysing this issue, we should be careful not to view each interest rate in isolation. What matters in deciding which asset to buy is not whether domestic interest rate ( $i$ ) is high or low, or whether in fact it has risen or fallen, but rather, how it compares with the foreign interest rate ( $i^*$ ). The critical question then is: ‘What is the *interest rates differential* ( $i - i^*$ )?’ For example, if the foreign interest rate rises and the domestic interest rate remains constant, the interest rate differential ( $i - i^*$ ) decreases. Similarly, if the foreign interest rate stays constant while the domestic interest rate falls, the interest rate differential ( $i - i^*$ ) decreases. The smaller this interest gap (differential), the more attractive foreign assets are and the less attractive domestic assets become. The smaller the gap, the greater the demand for foreign assets and thereby, the greater the demand for foreign dollars in the foreign exchange market. In terms of **Figure 5.1**, the demand curve shifts to the right.

### Incomes

When an economy grows, its GDP increases and investment prospects become more attractive in that environment. The faster the (real) growth of the economy, the greater the inflow of investment and hence the greater the demand for foreign currency. Again, what matters in deciding which asset to buy is how fast the domestic economy ( $Y$ ) expands in comparison with the foreign economy ( $Y^*$ ). This relates to the *income differential* ( $Y - Y^*$ ). For example, if foreign income rises and domestic income remains flat (no growth), the income differential decreases. Similarly, if foreign income stays constant (no growth) while the domestic economy shrinks (recession), the differential decreases. The smaller this income gap (differential), the more attractive are the prospects from investing in foreign economy and the greater the demand for foreign currency, and vice versa. In terms of **Figure 5.1**, the demand curve shifts to the right.

### Inflation rates

When prices change, they tend to affect exports and imports. If, for example, domestic prices rise at a faster rate than foreign prices (there is a

higher domestic inflation rate relative to the foreign rate), a country's products become more expensive than foreign products. Citizens will, therefore, buy a lesser quantity of domestic products and more foreign (American) products, increasing the amount of foreign currency demanded. (There is a rightward shift in the demand curve.) Again, what matters in deciding which products to buy is not whether domestic inflation rate is high or low, or whether it rises or falls, but rather how it compares with the foreign inflation rate. In other words, 'What is the *inflation rates differential*?'

### Exchange rate expectations

Other things remaining the same, the higher the expected future exchange rate, the greater the demand for a foreign currency (U.S. dollars). To see why, suppose you, a Canadian, are planning to buy US dollars since you are *expecting* the U.S. dollar to gain value in the near future (say, a week). Let us assume that you buy the U.S. dollars at today's rate of exchange of C\$1.55 and you are expecting the exchange rate to rise to C\$1.60. If your prediction turns out correct, you will sell your U.S. dollars for Canadian dollars, at the end of the week to obtain C\$1.60 per each U.S. dollar, making a gain of C\$0.05 for every U.S. dollar initially purchased.

The higher the expected future exchange rate with other things remains the same, the greater the expected profit, the greater is the demand for the U.S. dollars. Again, in terms of **Figure 5.1**, the demand for the U.S. dollar shifts to the right.

In summary, the following events increase the demand for the foreign currency (U.S. dollars) and shifts the demand curve rightward from  $D_{\$1}$  to  $D_{\$2}$  in **Figure 5.1**, and vice versa:

- An increase in the foreign interest rate (a decrease in interest differential).
- An increase in the growth of foreign economy (a decrease in income growth differential).
- An increase in domestic inflation rate (an increase in inflation differential).
- A rise in the expected future exchange rate.

### Supply of foreign currency (exchange)

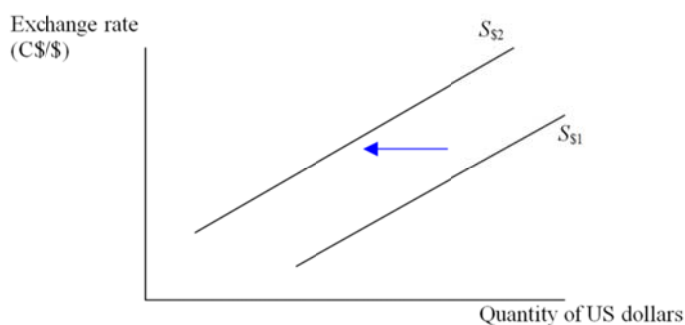
The supply of the foreign currency, in terms of domestic currency, is a relationship between the price of the foreign currency and its quantity supplied in exchange for our own currency. The quantity of a foreign currency supplied in the foreign exchange market is the amount that traders plan to sell during a given time period at a given exchange rate. However, the exchange rate is only one factor. The quantity demanded is also determined by other factors including:

- Domestic and foreign interest rates.
- Domestic and foreign income.

- Domestic and foreign inflation rates.
- The expected future exchange rate.

Again, choosing the U.S. dollar as the foreign currency, the supply relationship can be expressed as a curve in **Figure 5.2**. As expected, the relationship between the price of the currency and its quantity supplied is a positive one.

People supply U.S. dollars in the foreign exchange market when they buy other currencies. The reason for this is that U.S. dollars are supplied in exchange for Canadian dollars to finance foreign purchases of either Canadian goods and services or Canadian financial assets. When the price of U.S. dollars rises, it will be cheaper for Americans to buy Canadian goods, services and assets and hence to supply more U.S. dollars in exchange for Canada dollars. Therefore, the supply of the U.S. dollar rises as its price does. The law of supply applies to dollars just as it does to anything else that people plan to sell.



**Figure 5.2**

The higher the exchange rate, with all else remaining the same, the greater the quantity of dollars supplied in the foreign exchange market. For example, if the price of the U.S. dollar rises from C\$1.55 to C\$1.60, but nothing else changes, the quantity of U.S. dollars that people plan to sell in the foreign exchange market will increase. The reason for the supply curve's upward slope can be understood if you consider the fact that the supply of foreign currency is derived from the demand for domestic currency, which itself is derived from demand for its underlying elements. People supply the U.S. dollar in exchange for domestic currency primarily because of their demand for:

1. domestic goods and services (domestic exports), and
2. domestic assets.

For example, when the price of the U.S. dollar increases (depreciation of the Canadian dollars), the *export effect* occurs: it will be cheaper for Americans to purchase Canadian goods and services. Depreciation of the C\$ also affects the demand for Canadian assets. The weaker the Canadian dollar with other things remaining the same, the larger the expected profit from buying Canadian dollars. Therefore, as the Canadian dollar

depreciates, the demand for domestic currency rises as also does the supply of U.S. dollars that needs to be exchanged for it.

### Changes in the supply of dollars

As indicated above, there are other factors, besides the exchange rate, that influence the supply of a foreign currency including domestic and foreign interest rates, domestic and foreign income and etc. While changes in the exchange rate cause a movement along the demand curve, **Figure 5.2**, changes in these factors cause the demand for the currency to *shift*. Let us now look at the impact of these factors.

#### Interest rates

Recall that one of the determinants of investment flow is the interest rate differential. If the foreign interest rate rises and the domestic interest rate remains constant, the domestic interest rate differential ( $i - i^*$ ) decreases. In this case, domestic assets are relatively less attractive than foreign assets, causing the demand for domestic assets to drop. This, in turn, causes the demand for domestic currency (or the supply of foreign currency) to fall. In terms of **Figure 5.3**, the supply curve shifts to the left.

#### Incomes

Another factor that determines which assets to buy is the relative growth of the domestic economy ( $Y$ ) in comparison with foreign income ( $Y^*$ ), i.e., *income differential* ( $Y - Y^*$ ). If the differential decreases, the domestic economy becomes relatively less attractive and the demand for domestic assets dwindles. This causes the demand for domestic investment opportunities to fall as well as the demand for domestic currency, which is equal to the supply of the foreign currency in this two-currency situation. In terms of **Figure 5.3**, the supply curve shifts to the left.

#### Inflation rates

At any given rate of exchange between domestic and the foreign currency (the U.S. dollar), increases in the price of domestic products relative to foreign (American) products means that Americans will purchase fewer domestic products, reducing their demand for domestic currency. This fall in the demand for our currency corresponds to a fall in the supply of the foreign currency (U.S. dollar), shown as a leftward shift in the supply curve. Again, what matters in deciding which products to buy is how domestic inflation compares with the foreign inflation rate: the *inflation rates differential*.

#### Exchange rate expectations

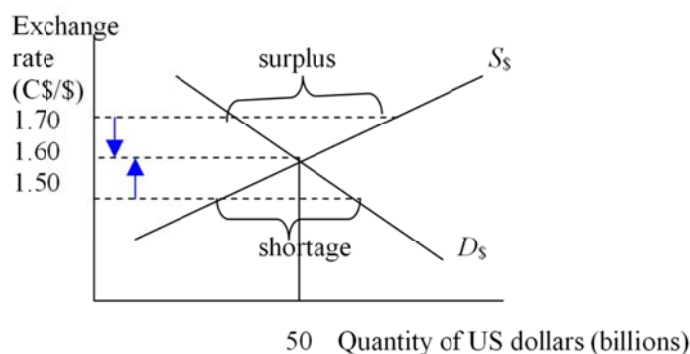
Similarly, the higher the expected future exchange rate, other things remaining the same, the smaller the expected profit (in domestic economy) and the smaller is the demand for domestic currency (or the smaller is the supply of U.S. dollars). Again, in terms of **Figure 5.2**, the supply curve shifts to the left.

In conclusion, a drop in the interest rate differential; a relative slow-down in the growth of the domestic economy; a rise in the inflation differential; a rise in the expected future exchange rate; decreases the demand for the domestic currency (decreases the supply of U.S. dollars); causes the supply curve to shift leftward from  $S_{S1}$  to  $S_{S2}$ . This is shown along the arrow in **Figure 5.2**. The opposite will happen if the scenarios are reversed.

### Market equilibrium

Recall that in competitive markets, the forces of demand and supply bring the market to an equilibrium point. Foreign exchange markets are no exception. **Figure 5.3** shows such a situation. When the government allows the value of its currency to vary (fluctuate), markets for currencies will move towards equilibrium where the quantity supplied equals the quantity demanded and there is neither a shortage nor a surplus of a currency. Such a system of exchange rates where the central bank allows the exchange rate to be determined by the foreign exchange market is referred to as a *flexible (or floating) exchange rate system*.

The demand curve is shown by  $D_S$  and the supply curve by  $S_S$  in **Figure 5.3**.



**Figure 5.3**

Foreign exchange markets around the world are brought together through a worldwide computer network. Information flows from dealer to dealer and the price adjusts second by second to keep buying plans and selling plans in balance. Foreign exchange markets are indeed very efficient.

As discussed earlier, in efficient markets the price (the exchange rate in this case) acts as a regulator. If the exchange rate is too high, there is a *surplus* (excess of supply) of a currency. When the exchange rate is too low, there is a *shortage* (excess demand) of a currency. For example, at the exchange rate C\$1.70, in **Figure 5.3**, (C\$1.70 per US\$1), there is a surplus of U.S. dollars, whereas, at the rate of exchange C\$1.50, there is a shortage of U.S. dollars.

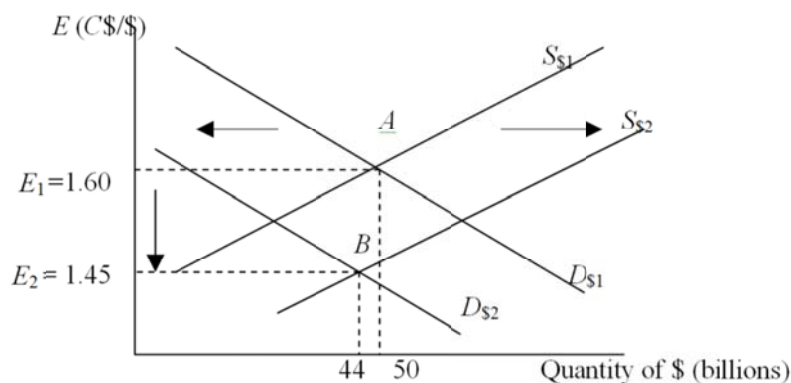
What happens is that when a surplus situation is faced – too many sellers and not enough buyers – the rate is pressured down towards the equilibrium point, C\$1.60. Conversely, when there is a shortage of the

currency – too many buyers and enough sellers – the rate is bid up, along the arrows shown in this figure.

## Changes in exchange rates

As we have seen, several factors can cause a shift in the foreign exchange demand and supply curves. Let us examine the impact of some of these factors.

Suppose again that the home country is Canada and the foreign economy, its largest trade partner, is the U.S. Now suppose that Canadian economy experiences a lower inflation rate than the U.S. As explored earlier, this has two effects on the foreign exchange market. By making domestic products less expensive compared to the U.S. products, (a) it reduces the demand for U.S. dollars – Canadians buy a lesser volume of American products in favour of Canadian products – and (b) it increases the supply of U.S. dollars since Americans find Canadian products more attractive hence they increase their demand for Canadian products. As a result, this will increase their demand for Canadian dollars, which means an increase in supply of U.S. dollars.



**Figure 5.4**

Starting from an initial equilibrium point, point  $A$ , corresponding to the exchange rate  $E_1$  (1.60) and quantity of the U.S. dollar transacted (\$50 billion), the lower inflation rate in Canada causes the demand curve to shift leftward from  $D_{\$1}$  to  $D_{\$2}$  and the supply curve to shift rightward from  $S_{\$1}$  to  $S_{\$2}$ . As a result of these demand-and-supply changes, the exchange rate falls to  $E_2$  (1.45), depicting an appreciation of Canadian dollars and the volume of transactions falls to 44 billion, point  $B$ .

The question that arises is why the exchange rate sometimes exhibits volatile behaviour, given that the volume of dollars traded may barely change. The answer is that, as we saw earlier, the demand and supply of the foreign currency are influenced by the same set of variables that tend to push demand and supply in opposite directions.





## Real exchange rates

The previous section, as illustrated by **Figure 5.4**, tells us only about changes in the relative price of the two currencies. However, to domestic (Canadians) tourists thinking of visiting the U.S., the question is not only how many U.S. dollars they can get for 1 C\$, but also how many goods their dollar will be able to buy. It does them little good to get more US\$ per Canadian dollars if the U.S. dollar prices of goods in the U.S. have increased proportionately. In the same way, an American firm thinking of exporting to Canada needs to know not only the nominal exchange rate but also the price in C\$ of Canadian products with which it will have to compete. This leads us to the construction of *real exchange rates*, the price of Canadian goods in terms of American goods.

Consider the case of a McDonald's Big Mac bought in Canada and a Big Mac bought in the U.S. In 2002, a Big Mac costs US\$2.30 in the United States and in Canada, it costs C\$2.90. The first step would be to convert this price in US\$ to a price in C\$. In order to do this, we need the current rate of exchange, which is assumed to be  $E = 1.60$  (a US\$ is worth C\$1.60), so the price of a Big Mac in Canadian dollars is calculated as follows:

$$P_{US}^{US} \times E = P_C^{US}$$

$$\text{US\$}2.30 \times 1.60 = \text{C\$}3.68.$$

Here the superscript denotes the country of origin and the subscripts denotes the currency in which the price is measured, where the subscripts of US and C denote the U.S. and Canada, respectively.

Therefore, the Canadian dollar price of a U.S. Big Mac in 2002 equals C\$3.68. The second step would be to compute the relative price of a Big Mac (ratio of the price of the Big Mac) in the two countries:

$$\text{Real exchange rate} = q = P_C^{US} / P_C^C \quad (3)$$

$$q = \text{C\$}3.68 / \text{C\$}2.90 = 1.269.$$

This equation tells us that, measured in a common currency, the U.S. Big Mac costs 27 per cent more than the Canadian Big Mac.

But since the United States and Canada produce more Big Macs, we need to construct a real exchange rate that reflects the relative price of *all* the goods produced in the two countries. In order to do this, we must use a combined prices index instead of an individual price, such as that of a Big Mac.

Therefore, if  $P^{can}$  and  $P^{us}$  are, say, the GDP deflator for Canada and the U.S. respectively, and if  $E$  is the nominal exchange rate between C\$ and US\$ (C\$/US), then

$$q = E \times P^{us} / P^{can} \quad (4)$$

where multiplying  $P^{us}$  by the exchange rate,  $E$ , gives us the price of American goods in Canadian dollars,  $E \times P^{us}$ , and the price of Canadian goods in C\$ is  $P^{can}$ .

An increase in the relative price of domestic goods in terms of foreign goods is called a *real appreciation*; a decrease is called a *real depreciation*. The word *real*, as opposed to nominal, indicates that we are now referring to changes in the relative price of goods rather than in the relative price of currencies. Given our definition of the real exchange rate as the price of foreign goods in terms of domestic goods, ( $q = E \times P^{us} / P^{can}$ ), a real appreciation corresponds to a *decrease* in the real exchange rate. Similarly, a real depreciation corresponds to an increase in  $q$ .



### Study skills

- Which of the following events would cause a real depreciation of the domestic currency?
  - Reduction in  $E$
  - Increase in  $E$
  - Reduction in  $P^*$  (foreign price)
  - Increase in  $P$
- Use the following information to calculate the real exchange rate in year 2001 and year 2002. Has the real exchange rate appreciated or depreciated?

Year	$E$	$P$	$P^*$
2001	1.6	1.2	1.5
2002	1.55	1.5	1.7

### Solutions:

- B. The real exchange rate is defined as  $E \times P^*/P$ , where  $*$  denotes the foreign variable. Real depreciation requires that this ratio rise. Only a rise in  $E$  can do this amongst these choices.
- $q(2001) = 1.6 \times 1.5 / 1.2 = 2$ , and  $q$  in (2002) =  $1.55 \times 1.7 / 1.5 = 1.75$ . Since  $q$  has fallen, the real exchange rate has appreciated.

### Exchange rate regimes

Under a *flexible (or floating) exchange rate*, the central bank allows the exchange rate to be determined by the foreign exchange market. In **Figure 5.4**, we examined the factors that influence the demand and supply and, therefore, the exchange rate.

Flexible exchange rates offer one main *advantage*: market forces quickly eliminate shortages or surpluses so that inflows and outflows soon match each other. However, flexible rates also have an important *disadvantage*. Dramatic changes in exchange rates mean considerable risks for businesses involved in importing or exporting.

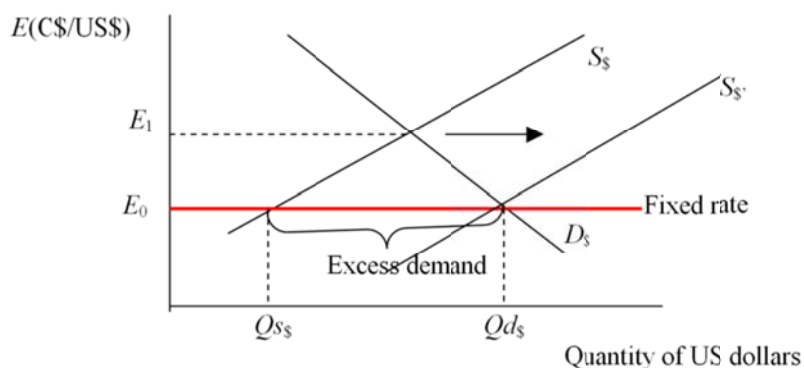


Consider, for example, a local importer of American-made products. If domestic currency depreciates suddenly, the price of the products is pushed up to the point that the products become too expensive for domestic consumers and quantity demanded decreases. Domestic exporters and their suppliers face similar uncertainty. Suppose, for example, our currency jumps up in value in relation to the American dollar. The exporter who exports domestic products to the American market finds that they become too expensive for the American market and quantity demanded decreases. Because of these fluctuations, incomes and employment in the import and export industries are harmed.

To avoid the uncertainty caused by flexible exchange rates, governments often intervene directly in foreign exchange markets. *Fixed exchange rates* offer the most striking option. In a fixed rate system, central banks stand ready to buy and sell their currency (in exchange for foreign currency) at a fixed exchange rate to make up for any excess supply or demand arising from private transactions. Such purchases and sales are referred to as exchange market *intervention*. In order to be able to ensure that the rate stays fixed, it is obviously necessary to hold an inventory of foreign exchange that can be sold in exchange for domestic currency. Thus, central banks hold reserves of major (*vehicle*) currencies – mostly U.S. dollars – and gold that can be sold for U.S. dollars and other currencies for the purpose of exchange market intervention.

In case of an excess supply of the foreign currency (which is the counterpart of an excess demand for domestic currency), the intervention takes the form of the domestic central bank's purchasing the foreign currency (U.S. dollars) in exchange for its own currency. The excess supply situation has translated into an increase in the official reserves held by the central bank, which appears as a negative entry in the official settlement account – a surplus in the balance of payments. Conversely, in case of an excess demand for the foreign currency (which is the counterpart of an excess supply of domestic currency), the intervention takes the form of the domestic central bank's selling the foreign currency (U.S. dollars) in exchange for its own currency. The excess demand situation has translated into a decrease in the official reserves held by the central bank, which appears as a positive entry in the official settlement account – a deficit in the balance of payments.

**Figure 5.5** illustrates the case of a deficit. This occurs where the exchange rate is fixed below the equilibrium level,  $E_0$ . At this rate of exchange, the central bank has to meet the excess demand by exchanging foreign currency for domestic currency, Canadian dollars in this case.



**Figure 5.5**

As shown in **Figure 5.5**, there is an excess demand for U.S. dollars at this fixed rate of exchange ( $Q_{d_S} - Q_{s_S}$ ) which, if not removed, will result in an increase in the exchange rate towards its market value,  $E_1$ . To prevent this from happening, the Central Bank of Canada must intervene by selling U.S. dollars out of its inventories of reserves in exchange for its own currency, C\$. This intervention causes the US dollar supply curve to shift rightward. Note, however, this is an ongoing operation and, if necessary, intervention has to continue.

The ability of a country to maintain the value of its currency depends on its stock of foreign exchange reserves. If a country persistently runs a deficit in its balance of payments, the central bank will eventually run out of reserves and will be unable to continue intervention. The outcome is either a realignment of the fixed value of the exchange rate with the market value, or a serious currency crisis. In many well-known developments such as the financial crisis in Mexico in the last decade and more recently in Asia, South America and Russia, the realignment of the local currency was accompanied by a *currency crisis*.

Realignment of the fixed exchange rate takes two different forms. *Devaluation* refers to an official decrease in the value of the currency (an increase in  $E$ ), vis-à-vis another currency: usually the U.S. dollar, since the dollar is the world's most widely used currency. During the Gold-Exchange Standard (1944–1973), currencies were defined in terms of their gold content and as such, a devaluation was defined against the U.S. dollar and ultimately against gold. *Revaluation* is the opposite of devaluation. It refers to an increase in the value of the currency (a decrease in  $E$ ).

Under flexible exchange rates, intervention is not required. In a system of *clean floating*, central banks do not intervene in foreign exchange markets and thus allow exchange rates to be freely determined. In this case, the official settlement account does not change as no entry is necessary. In practice, however, the flexible rate system has not been one of clean floating but rather than *managed (dirty) floating*. Under managed floating, central banks intervene by buying or selling foreign currency, thus attempting to influence exchange rates.



Suppose the central bank sets a target range: a range that it will attempt, by intervening in foreign exchange markets, to keep the exchange rate within. Alternatively, suppose there is a minimum psychological level of the exchange rate below which if the market rate falls, the market will expect the central bank to intervene to prop up the currency. In either case, the central bank will be dealing with a non-clearing level of exchange rate and, therefore, in its pursuit of its objectives, it will either face a surplus or a shortage of the foreign currency in foreign exchange markets. In case of a shortage, the central bank will have to use its stock of foreign currency reserves and in case of a surplus, it will have to add to its stock of foreign currency reserves. Either way, these transactions will appear as changes in the official settlement account.

## The exchange rate and the aggregate demand curve

A full discussion of the aggregate demand side of the economy requires that we incorporate the fourth component of aggregate demand, net exports ( $X - M$ ) as follows:

$$Y = C + I + G + (X - M) \quad (5)$$

where the last term on the right-hand side, as you recall, represents the net exports,  $NX$ , or the trade account balance. To have a better understanding of how net exports affect the economy, first let us examine the determinants of ( $X - M$ ).

## Current account

As you know, the current account balance (CAB) is defined as:

$$CAB = \text{Net exports of goods and services} \\ + \text{Net investment income} + \text{Net transfers}. \quad (6)$$

Fluctuations in net exports are the main source of fluctuations in the current account balance. The other two items have trends, but they do not fluctuate much. Therefore, you can study the current account balance by looking at what determines net exports.

## Net exports

The key determinants of exports and imports are the exchange rates (or more precisely real exchange rates), domestic and foreign incomes. A *real exchange rate appreciation*, for example, makes our exports more expensive to foreigners and our imports cheaper to domestic consumers, thereby decreasing our net exports. This decrease, in turn, has a negative impact on the aggregate demand curve. Similarly, *real exchange rate depreciation* – by making our exports cheaper and our imports more expensive – causes aggregate demand to rise.

*Changes in income* also affect aggregate demand. An increase in domestic income increases our imports and hence reduces aggregate

demand, whereas an increase in foreign income (by increasing our exports) raises aggregate demand.

From a different perspective, net exports are determined by *the government budget and private saving and investment*. To see how net exports are determined according to this view, we need to rearrange equation (1) as follows:

$$Y - C - G - I = NX$$

As we did in Module 3, define disposable income ( $YD$ ) as income ( $Y$ ) minus taxes ( $T$ ):

$$YD = Y - T \quad (7)$$

By substituting in the above equation

$$(YD + T) - C - G - I = NX$$

or,

$$(YD - C) + (T - G) - I = NX$$

This can be written as

$$(Sp - I) + (T - G) = NX \quad (8)$$

where  $(YD - C)$  is *private (sector) saving* and we denote it by  $Sp$ .  $(Sp - I)$  represent the *private sector surplus or deficit*. If saving exceeds investment, the private sector surplus is lent to other sectors. If *investment exceeds saving*, the resulting private sector deficit will be financed by borrowing from other sectors.  $(T - G)$  represents the *government sector surplus or deficit* and is equal to net taxes minus government expenditures on goods and services.  $(T - G)$  is also referred to as *government saving*,  $Sg$ . A positive  $Sg$  represents a government sector surplus which is to be lent out to other sectors, and a negative  $Sg$  (government deficit) must be financed by borrowing from other sectors.

This equation shows the relationship between the three balances. Accordingly, *net exports equal the sum of the government surplus and the private surplus*. It is also true that net exports plus debt interest (and other small transfers) equals the current account balance. The question that arises is: "What is the relationship over time between net exports (or current account balance) and the government budget balance?"

The answer is that generally, there is a tendency for the government budget deficit on the left-hand side of equation (8), to move together in the same direction with the trade deficit (or current account deficit), on the right-hand side. This, however, does not necessarily imply equality between the two, as the private-sector balance could be either positive or negative but only coincidentally equal to zero. Nonetheless, observations support the fact that there is a tendency for the current account to go into



a deeper deficit when the government budget goes into a deeper deficit. Because of this tendency, they have been called *twin deficits*.

Substituting in equation (8), we obtain an alternative relationship as follows:

$$S - I = NX \quad (9)$$

where  $S_p + S_g = S$  denotes *domestic (national) saving*. Equation (9) tells us that, in an open economy, the excess of domestic savings over domestic investment must equal net exports. This relationship also helps us understand why the two deficits in equation (8) are linked. We know from the balance of payment equation, equation (1) that current account and capital account (including the official settlement account) must offset each other for balance of payments equilibrium. Therefore, equation (9) can be interpreted in terms of trade in goods and services equalling capital flows in terms of net lending or borrowing.

$$\text{Net Foreign Lending} = \text{Trade Balance} \quad (10)$$

If domestic savings is greater than domestic investment, the excess domestic savings is lent abroad (to foreigners), and if domestic savings is less than domestic investment, the shortfall is borrowed from abroad. Therefore, the left-hand side of equation (9) is equal to *net foreign investment*, which is the amount that domestic residents are either lending to or borrowing (on a net basis) from foreigners. Accordingly, another way to look at the equilibrium condition is that net foreign investment must equal the trade balance in equilibrium.

The key to understanding this link is the phenomenon of international capital mobility. In today's world, economies are linked through highly mobile international capital. In the closed economy model of Units 3 and 4, we discussed three methods of financing a government deficit: raising taxes, printing money and borrowing from the (domestic) public. In an open economy framework, a fourth possibility emerges: borrowing from abroad. High capital mobility or unrestricted capital flows allow governments as well as the private sector to borrow directly in international financial markets.

## Interest rate parity

One of the most popular theories of exchange rate determination in the short run is *Interest Parity Theory*. Consider two kinds of homogeneous assets: a Canadian dollar asset (say a Canadian dollar saving deposit) and a U.S. dollar asset (a U.S. dollar saving deposit). These two assets are assumed alike in every respect (risk of default, tax treatments and other regulatory and banking restrictions) except for their returns. For example, suppose the Canadian dollar saving deposit in Toronto earns 5 per cent a year and a U.S. dollar saving deposit in New York earns 3 per cent a year. In this situation, capital should fly to Toronto since saving deposits in Toronto pay 2 per cent (5–3) more return than those in New York. The only reason why all the money in New York does not fly to Toronto is the

possibility of exchange rate changes in the future (while all the money is deposited in Toronto) in a direction that might wipe out the 2 per cent interest advantage that Toronto has over New York.

Suppose people expect the Canadian dollar to depreciate by 2 per cent. This depreciation must be subtracted from the 5 per cent interest to obtain a return of 3 per cent a year that Americans can earn by depositing funds in a Toronto bank. The expected depreciation of the Canadian dollar works as a negative return to American investors who will be converting the Canadian proceeds at the time of withdrawals into their own currency. In this case, the two returns are equal, and the situation is referred to as interest rate parity, which means equality between rates of interest (3 per cent deposit rate in New York = 5 per cent deposit rate in Toronto minus 2 per cent expected depreciation of Canadian dollar).

Adjusted for risk of exchange rate changes (*exchange risk*), interest rate parity always prevails. Funds move to get the highest return available. Suppose that saving deposits in Toronto pay 5 per cent return as opposed to 3 per cent paid to similar deposits in New York. This time, however, assume that Canadian dollar is expected to depreciate by 1 per cent. A quick comparison indicates that it is advantageous to deposit money in Toronto. Therefore, funds flow into Toronto's market. For the few seconds that this opportunity lasts – a sign that in efficient markets, profits disappear very quickly – the demand for Canadian dollars rises and the exchange rate rises, causing it to appreciate until the expected rates of return are equal.

## Exchange rate policy

Sometimes governments initiate a change in the exchange rates to affect domestic output and prices. To see how policymakers can use exchange rate policy to different ends, let us consider the following scenarios.

### High exchange rates (low currency values)

A low target rate for our domestic currency makes our exports cheap and imports more expensive. This policy stimulates export revenues and inhibits import spending, thereby increasing net exports. Therefore, by initiating a drop in the value of the currency, the central bank can help increase net exports and hence aggregate demand. Hence, raising the exchange rate (depreciation) serves as an *expansionary policy*. Both real output and employment are boosted and any recessionary gap that exists is reduced.

However, there are several *problems* in setting a high exchange rate. First is the danger of inflation. This hazard is especially imminent if the economy is near its potential output, when shifts in the aggregate demand curve primarily affect prices. Second is the chance that a country's trading partners may respond by raising *their* exchange rates to maintain their own export markets. When this happens, currencies return to their original relative values, and the original policy achieves nothing.





Despite these risks, a policy of high exchange rates has sometimes been pursued with success. In the past, for example, countries such as Taiwan and South Korea have depressed the values of their currencies as a way of encouraging export-driven growth. Evidence of this strategy was found in their *large holdings of foreign currency* which resulted from the balance-of-payments surpluses associated with a high exchange rate policy. More recently, the evidence from Latin America indicates that Argentina, which had until lately fixed its peso against the U.S. dollar, suffered a tremendous economic crisis mainly because its *exports were driven out of competition* by its strong currency relative to the currencies of its immediate neighbours who had experienced significant depreciation during the economic crisis of year 1997.

### Low exchange rates (high currency values)

Setting a high target for the currency has the opposite effect. High currency value targets (low exchange rates) make imports cheaper and boost prices of domestic exports. Therefore, lowering the exchange rate serves as *contractionary policy* by reducing net exports and decreasing aggregate demand. This puts downward pressure on inflation as well as on real output and employment.

Nonetheless, using a low exchange rate as an anti-inflationary tool has its problems. Not only will a low exchange rate policy cause a reduction in output and employment, especially in exporting industries, but it will also *reduce the government's foreign currency holdings*.

Sooner or later, through continual balance-of-payments deficits, the holdings are depleted. In this situation, countries sometimes attempt to bolster their currency reserves by measures such as forcing citizens to sell their foreign currency to the government rather than allowing them to trade it privately. These laws produce *underground foreign exchange markets*, with prices set at equilibrium levels determined by demand and supply.

### Monetary policy and exchange rates

As suggested by interest parity, an increase in the domestic interest rate relative to those of other currencies causes our currency to appreciate. This is because as domestic interest rates rise, demand for the foreign currency drops while the supply of the foreign currency increases in the foreign exchange market – where upon the exchange rate falls. Similarly, when domestic interest rates fall relative to those in other countries, the demand for foreign currency increases and the supply of foreign currency decreases, forcing the exchange rate higher (depreciation of our currency).

Interest rates themselves are normally determined by the demand for and supply of money (see Modules 3 and 4). However, it is the central bank that influences the supply of money (and consequently the exchange rate) through its *monetary policy*.

Therefore, if the central bank wishes to raise the value of its currency, it can force up interest rates using contractionary monetary policy. Conversely, an expansionary money policy of low interest rates can be applied to depreciate the exchange rate. In either case, the central bank influences the currency by adjusting its equilibrium value.

### The exchange rate in the long run: Purchasing power parity

The *purchasing power parity* (PPP) theory of the exchange rate states that, in the long run, the nominal exchange rate moves primarily as a result of the difference in price level behaviour between two countries. Under this theory, the nominal exchange will appreciate or depreciate to the point where the average price of goods, as measured by some overall price index, will be the same when measured in a common currency.

We can gain an understanding of PPP by looking at this theory from the perspective of a single good that is produced in two different countries. Recall the example of a McDonald's Big Mac sold in Canada and in the U.S. In that illustration, we assumed that in year 2002, a Big Mac costs US\$2.30 in the U.S. while it was sold for C\$2.90 in Canada. We also assumed that  $E = 1.60$  (a US\$ is worth C\$1.60) so that the Canadian dollar price of a U.S. Big Mac equals C\$3.68 ( $\text{US\$}2.30 \times 1.60$ ). The relative price of a big Mac (real exchange rate,  $q$ ) equals  $\text{C\$}3.68/\text{C\$}2.90 = 1.269$ . This equation tells us that, measured in a common currency, the U.S. Big Mac costs 26.9 per cent more than the Canadian Big Mac. Evidently, the two monies do not have the same value.

If, however, we were to calculate the relative Big Mac price using 1.269 as the exchange rate, this relative price would be equal to 1. The situation we have just described is called *purchasing power parity*, which means *equal value of money*. In this example, the PPP level of the nominal exchange rate is the level that would make the real exchange rate (the relative price) equal 1.

This Big Mac standard implies that the Canadian dollar is undervalued by 26.9 per cent and therefore, PPP would predict that the nominal exchange rate would appreciate 26.9 per cent: falling to 1.269.

With reference to the Big Mac example, when you relate PPP as a theory about the general level of prices in two economies as opposed to the relationship between a single good, the PPP level of the exchange rate is the one that would equate price levels in two countries.

Market forces prevent the exchange rate from moving *too* far from PPP or from remaining away from PPP indefinitely. However, pressures to move to PPP work slowly. There are several reasons for slow movement towards PPP. The first reason is that *market baskets differ* across countries. The second reason for slow movement towards PPP is that there are many barriers to the *movement of goods* between countries. Some are natural barriers – transportation costs are one obvious extra cost – while others (tariffs, for example) are imposed by governments. Sometimes movement of final goods is not enough: workers and capital



would have to move. Third and probably of greatest importance, many goods – land is the classic example – are *non-tradable* and cannot move.

## The importance of current account

An unsustainable current account imbalance matters for a number of different reasons. Each type of imbalance deficit and surplus creates its own set of problems. However, a deficit tends to result in more immediate and pressing problems than a surplus. Before we begin considering the types of problem likely to confront a chronic deficit country, let us examine what running a deficit implies.

A country with a current account *deficit* is absorbing more goods and services from foreigners than it is earning from export of goods and services to them. Therefore, a deficit signifies that a country is living beyond its means. But does it make a difference how the current account deficit is being used?

As it turns out, there are striking similarities between the case of a government budget deficit and that of a current account deficit. Therefore, the argument put forth here is similar to the one presented in the budget deficit case.

If the deficit is used to purchase *capital equipment* that will enhance the country's future earning capacity, running a deficit might make good economic sense. The deficit should then be financed by long-term capital inflows through the public or private sectors. When the time comes for the accumulated debt to be serviced and repaid, spending will have to fall below the value of domestic production. However, if the deficit is used to finance imports of *consumers goods*, running a deficit make no sense and the deficit will become unmanageable and the growing debt may never be serviced — and worse still, never be repaid. The problems associated with a situation such as this can be presented in the following categories.

1. As the current account worsens, foreign indebtedness increases and '*country risk*' ratings are expected to increase. Country credit ratings are compiled regularly by international banks and by financial service companies. Highly indebted countries with poor scores on credit ratings generally have to pay high rates of interest for further credits. The more these countries rely on foreign creditors, the greater is the country's exposure to the volatility of international capital markets. Furthermore, if the creditors lose confidence in the debtor country, the supply of capital can dry up regardless of the interest rate paid by the debtor nation. There are numerous examples of such a collapse of creditor confidence amongst heavily indebted developing countries, such as Mexico, Indonesia and Brazil.
2. The loss of confidence can lead to excessively large *devaluations* of the exchange rate, which involves both loss of real income and inflationary repercussions that only add to the problems of the deficit country. A best example to illustrate this would be Turkey.

3. Accumulation of *external debt* may pose a serious problem from the perspective of foreign ownership. The borrower's debt accumulation is the creditor's demand for assets as collateral. Korea is the best example of escalating external debt at nearly 50 per cent of its GDP in the 1990s.

### Corrective policy options

What can be done to tackle the problems of chronic deficits and surpluses? The following section discusses policy options available to governments.

Recall equation (9):  $S - I = NX$ . According to this equation, the counterpart of the current account deficit, ( $NX < 0$ ), is the excess of investment over savings, ( $S - I < 0$ ). Therefore, to cure this problem either ( $S - I$ ) should decrease or  $NX$  increase or both. These policy options fall into two groups: expenditure-changing policies and expenditure-switching policies.

1. **Expenditure changing policies:** These policies tend to change the aggregate domestic spending ( $C + I + G$ ). They are increased in the presence of a current account surplus and reduced by that of a current account deficit. In this current case, faced by a current account deficit, the government should either increase the domestic savings or reduce investment. But as discussed earlier, domestic savings consist of private savings ( $Sp$ ) and government savings ( $Sg$ ). In order to encourage private savings, the government can increase the return on savings by *increasing interest rates* on saving accounts or by offering better tax treatment of retired saving deposits. Note that such policies at the same time tend to *discourage consumption*. An increase in the general level of interest rates also tends to *discourage investment*. Furthermore, *increases in business taxes and/or consumption taxes* motivates less spending and more saving. To encourage government savings (reducing the budget deficit), the government should either *reduce its expenditures or increase its taxes*.
2. **Expenditure switching policies:** In contrast to expenditure changing policies, these policies tend to *change the composition of the aggregate expenditure* directly rather than its level. For example, faced by a current account deficit, the government can implement an expenditure switching policy that discourages spending on imports in favour of domestically produced products. Conversely, faced by a surplus, the government can employ an expenditure switching policy that encourages spending on imported goods vis-à-vis domestically produced products. In other words, this type of policy tends to induce consumers to switch their spending from foreign to domestic and vice versa.

Expenditure switching policies consist of *exchange rate policy*: revaluation (appreciation) and devaluation (depreciation) as well as *commercial policy* including but not limited to:



- Tariffs, which are similar to taxes typically on imports but sometimes on exports.
- Quotas, which are quantitative restrictions on imported products.
- Export subsidies, which are the opposite of taxes.
- Dumping, the act of selling exported products to foreign markets at a price below costs or below domestic prices.

The reality, however, is that these types of policies tend to create frictions with the trading partners and are rarely an efficient way of rectifying a balance of payment crisis.

### **Causes and implications of trade deficits**

There are a few reasons that account for large trade deficits. First, a country is growing more rapidly than the economies of its trading partners. The strong growth of the country (means high growth of income) enables the people to buy more imported goods and services. Hence, the total volume of its imports is higher than its exports. Secondly, the large trade deficits may be caused by the frequent rise of the oil price in the international market. If a country imports a large proportion of its oil, rising prices tend to aggravate trade deficits. Finally, the declining of a country's saving rate (measured as saving divided by total income) may also contribute to the large trade deficits. For example, if saving rate is decreased while the investment rate remains the same, or even increased, then the difference or gap between saving rate and investment rate will be met via foreign purchases of the country's real and financial assets. This leads to a large capital and financial capital surpluses. This is because the foreign investors or savers are willingly financing a larger portion of their investment, people of the country will be able to save less than otherwise and consume more. Part of that added consumption spending is on imported goods and services.

The large trade deficits should be of significant concern to the country. Nevertheless, most researchers see both advantages and disadvantages to trade deficits, as follows:

#### **Increased current consumption**

At the time a trade deficit is occurring, consumers of the country benefit. A trade deficit means that the consumers of the country are receiving more goods and services as imports from abroad than its exports. In this case, domestic consumers are able to consume outside its production possibilities curve. However, it is important to note that the increase in current consumption may come at the expense of reduced future consumption. If the trade deficits decline, the consumers may have to consume less than before and may be less than they produce.

#### **Increased indebtedness level**

A trade deficit is considered not favourable because it must be financed by borrowing from the rest of the world, selling off assets, or dipping into official reserves. Recall that trade deficits are financed primarily by net

repayments of foreign currencies to a country. When the exports of the country are not sufficient to finance its imports, the country increases both its debt to people abroad and the value of foreign claims against assets in the country. Hence, financing of the country trade deficits has yielded a larger foreign accumulation of claims against the country's real and financial assets than the country's claims against foreign assets. For example, in 2006, foreigners have owned about US\$2.5 trillion more U.S. assets (such as land, corporations, stocks, bonds, loan notes, etc.) than U.S. citizens and institutions owned in foreign assets. If the United States wants to regain ownership of these domestic real and financial assets, it will have to export more than it imports at some future times. In this situation, domestic consumption will be lower as the United States will need to export more of its output abroad than it receives as imports.

## International trade

The rapid growth of foreign trade and investment flows and the resulting spread of international business and markets are part of a trend known as *globalisation*. Markets are no longer contained within national boundaries. Every day you rely on people from around the world, whom you do not know, to provide you with goods and services that you enjoy. Such interdependence is possible because people trade with one another.

Some countries such as Belgium and Canada are more dependent on international trade whereas some show less reliance on trade (the U.S. and Japan). Nonetheless, every country, regardless of its size, depends to some extent on other economies and is influenced by events outside its borders.

## Why do countries trade?

The most straightforward answer to this question is that trade brings significant economic gains to all parties engaged in it. It increases production by allowing specialisation in products in which a country is competitive, it increases variety for consumers and it promotes competition.

### Specialisation and trade

The most important gain from international trade is specialisation. Without trade, a country would have to produce everything it consumes and be self-sufficient. With international trade, the same country can focus on producing products in which it is efficient, allowing it to compete in the expanded markets. The country's income will increase as a result of specialisation and increased exports, which enables it to import products from the rest of the world. This increases the standard of living of the nation since the standard of living is best measured by the amount of consumption and imports per capita, and these, in turn, are also driven by specialisation.



As the first step in developing a framework to analyse gains from specialisation, let us look into the sources of these gains: absolute and comparative advantage.

### Absolute advantage

The easiest way to grasp the concepts of absolute and comparative advantage is to consider the case of two trading partners; persons, firms and nations. Accordingly, a person, a firm or a country will enjoy an *absolute advantage* over another country in the production of a product if it uses fewer resources to produce that product than the other country does. Suppose a lawyer who practices law can use a secretary to prepare her documents for her. The lawyer can type three pages per hour, while her secretary can type 10 pages per hour. Also, suppose that the secretary does not have the required training to practice law. Therefore, the lawyer can do a better job in practicing law and the secretary can produce more typed pages than the lawyer. The lawyer, thus, enjoys an absolute advantage over the secretary in practicing law and the secretary has an absolute advantage in typing.

If each trading partner specialises in the product for which it has absolute advantage, everyone can benefit. The lawyer should specialise in practicing law and the secretary in typing. This way, the volume of production increases beyond the levels that would have been achieved if each party were confined to self-sufficiency and forced to produce everything. The gains from specialisation can be alternatively explained in the context of productivity and saved resources. Since each partner can produce one product more efficiently (using fewer resources than the other), specialisation allows trading partners to save resources.

As indicated earlier, the principle of absolute advantage (and also comparative advantage, to be explored in the following subsection) are general enough to apply to all possibilities. Accordingly, two firms or two nations can specialise in products that they have an absolute advantage in. In fact, trade allows two nations to move out beyond their previous resource and productivity constraints.

### Comparative advantage

A country enjoys comparative advantage in a product when it can produce that commodity or item at a lower cost relative to other products – lower marginal cost – than other producers. **Table 5.3** illustrates a hypothetical case. Suppose there are two countries, Home (H) and Foreign (F). Also, suppose that there are two goods produced by both countries, wheat (X) and cloth (Y), and there is one factor of production (labour). The number in each cell of the table below shows the amount of (labour) work required to produce one unit of each product. As indicated in the second column, two hours of work is required to produce one unit (in cubic metres) of wheat in H compared to 20 hours in F whereas in the third column, five hours of work is required to produce one (in metres) unit of cloth in H compared to 10 hours in F.

	X	Y
Home (H)	2	5
Foreign (F)	20	10

**Table 5.3 Labour content of one unit of output of X or Y**

Accordingly, H is more efficient (productive) than F in the production of X: two labour hours required to produce one unit of X versus 20 hours. Thus, H has an absolute advantage in X. On the other hand, note that H is more efficient than F in producing Y as well, five labour hours versus 10. Thus, H enjoys an absolute advantage in Y. Hence it is possible for a country to enjoy an absolute advantage in both goods.

However, the pattern of trade, as we have learnt from the 18<sup>th</sup> century British economist David Ricardo, is not determined by absolute advantage but rather by comparative advantage. In this example, we can show H has a comparative advantage in X (wheat) while F has a comparative advantage in Y (cloth).

The simplest way of showing the pattern of comparative advantage is to translate these numbers into *opportunity costs*. Recall that the opportunity cost of producing a product is the foregone alternative – the amount of the second product that needs to be sacrificed to produce one unit of the first product. Therefore, in this illustration, the opportunity cost of X is measured in terms of Y and the opportunity of Y is measured in terms of X. **Table 5.4** shows these opportunity costs.

	X	Y
Home (H)	$2/5 = 0.4$	$5/2 = 2.5$
Foreign (F)	$20/10 = 2$	$10/20 = 0.5$

**Table 5.4 Opportunity costs of X and Y**

Accordingly, the opportunity cost of X in terms of Y in Home is 0.4. This suggests that in order to produce one unit of X, Home must give up 0.4 units of Y. The logic behind this is that to produce one unit of X, the country must add two units of labour (work hours). This can be arranged by relocating two units of labour from the other sector, Y. But, since one unit of Y requires five units of labour, removing two units of labour from Y causes only a drop of  $2/5$  of a unit of Y. The same logic applies to all. Therefore, the opportunity cost of Y in the home country is  $5/2$  (2.5). For Foreign country, the opportunity costs of X and Y are 2 and 0.5, respectively.

Now, we are in a position to establish comparative advantages. Since Home has a lower opportunity cost in X (0.4) compared to Foreign (2), Home has a comparative advantage in producing X. Similarly, since Foreign's opportunity cost of Y is less than of Home, 0.5 versus 2.5,





Foreign has a comparative advantage in producing Y. Therefore, Home will export X and Foreign will export Y. Of course, Home's imports will be Foreign's exports and Foreign's imports will be Home's exports.

The pattern of international trade is determined by comparative advantage.

Note that the above conclusion is reached despite the fact in our example Home is assumed to have an absolute advantage in both X and Y. Thus, as Ricardo showed us, the pattern of trade is *not* determined by absolute advantage but relative advantage, otherwise Home would have been found exporting both products and not just X. In other words, although Foreign has an absolute disadvantage in both X and Y, its margin of disadvantage (deficiency) is smaller in Y than in X and hence relatively speaking, it has a relative (comparative) advantage in Y. Similarly, Home's margin of advantage in Y is smaller than that in X; therefore, Home has a relative advantage in X.

The important point is that specialisation and trade can benefit all trading partners; even those that may be inefficient producers in an absolute sense. If markets are competitive and if foreign exchange markets are linked to goods-and-services exchange, countries will specialise in producing those products in which they have a comparative advantage.

### Terms of trade

We have established the fact that both nations benefit from trade. A question that arises is how the benefits of trade are shared between nations. The answer is that distribution of gains depends on the international price of products, the *terms of trade*. Terms of trade are the international price of one product in terms of another product. Terms of trade must be set in such a way that they are beneficial to both trading sides or otherwise, there will not be an incentive to trade. In other words, the rate at which a country will end up selling its exports for an imported product must be at least equal to or better than the rate that country can exchange the same two goods internally – its opportunity cost – in the absence of trade. In terms of the example above, in order for Home to export one unit of X, it must be able to import at least 0.4 units of Y; otherwise, the trade is not beneficial to Home. The reason for this is that in Home, one unit of X exchanges for 0.4 units of Y in the pre-trade situation.

Similarly, in order for the foreign country to engage in trade, it must be able to import one unit of X in exchange for at most two units of Y – its opportunity cost – or less, or otherwise, there will be no gains from trade for it. Therefore, terms of trade consist of a range of prices that may be acceptable to both sides. In our example, the limits of terms of trade are as follows:

$$0.4 < \text{terms of trade} < 2$$

or

$$0.4 < \text{price of X in terms of Y} < 2$$

The actual terms of trade are then set by the international demand for each product. The closer the final international price is to Home's opportunity cost (0.4), the smaller the gains from trade for Home and the larger the gains for Foreign. Conversely, the closer the international price is to Foreign's opportunity's cost (2), the larger the gains for Home and the smaller the gains for Foreign.



### Study skills

Refer to the following table to answer the next two questions. The table shows the possible output levels from one hour of labour input.

	Milk (Litre)	Bananas (Kilo)
Home	12	5
Foreign	4	6

- According to the table, Home has
  - an absolute advantage in milk.
  - an absolute advantage in bananas.
  - a comparative disadvantage in both.
  - the potential to export both goods.
- The opportunity cost of one litre of milk in Home is
  - 5/12 kg of bananas.
  - 12/5 kg of bananas.
  - 3 kg of bananas.
  - 2 kg of bananas.

### Solutions:

- Home can simply produce more milk than Foreign. Home has an absolute disadvantage in bananas only, so B is wrong. A country cannot have relative advantage in both goods, and thus C and D are wrong.
- The opportunity cost of one litre milk is the quantity of bananas to be sacrificed. To produce one litre of milk, Home needs 1/12 unit (hours) of labour work to be transferred from the other sector. But removing 1/12 hours of work from bananas causes a loss of 5/12 kg of bananas. Remember that one hour of work in Bananas produces 5 units, therefore, 1/12 hours of work produces 5/12 units.

## The sources of comparative advantage

The sources of comparative advantage can be broadly categorised into two groups. According to Ricardo – *Ricardian theory of trade* – the existence of a country's comparative advantage is explained by its



technological superiority: *productivity*. The alternative and more popular explanation is the one advanced by two Swedish economists by the names of Heckscher and Ohlin. Their theory is based on the concept of *factor endowments*: the quantity and quality of labour, land and natural resources of a country.

The *Heckscher-Ohlin theorem* of international trade explains the existence of a country's comparative advantage by its factor endowments: a country has a comparative advantage in the production of a product if that country is relatively well endowed with inputs used intensively in the production of that product.

Factor endowments seem to explain a significant portion of actual world trade patterns. This idea is simple. A country with a lot of good fertile land per person is likely to have a comparative advantage in agriculture. A country with a large amount of labour but little capital is likely to have a comparative advantage in labour-intensive goods.

Comparative advantage, however, is certainly not the only reason that countries trade. For instance, it does not explain why many countries both import and export the same kinds of goods. Trade of this nature is known as *intra-industry* trade — trade within the same industry — as opposed to inter-industry trade — trade between industries — as explained under the Ricardian and Heckscher-Ohlin theories of trade. Intra-industry trade occurs as industries differentiate their products to please the wide variety of tastes that exists worldwide. In fact, the bulk of trade amongst industrialised countries is of intra-industry type. Automobiles serve as a good example of a product that follows this pattern. A country such as the US exports cars of large models with powerful engines, and at the same time imports smaller and more fuel-efficient cars. Product differentiation is a natural response to diverse preferences across economies.

In contrast to inter-industry trade which tends to occur under perfect competition and conditions of constant costs, intra-industry trade requires an environment of imperfect competition and decreasing costs (increasing returns to scale). In reality, most manufacturing industries such as cars, chemicals, petrochemicals and pharmaceuticals are characterised by increasing returns and monopolistic or oligopolistic market conditions, which means there are advantages to producing large quantities of output.

Switzerland is famous for watches, which it exports. This specialisation is best explained by

- A. the large population of Switzerland, which provides many potential watch makers.
- B. Swiss steel refineries, which produce steel used in watch parts.
- C. Swiss diamond mines, as diamonds are used in watch parts.
- D. economies of scale in the watch industry.



### Study skills

**Solution:**

D. As the watch industry became established, an input supply network developed within Switzerland. Also, existing watch makers could teach their techniques to new workers. Both developments lowered the cost of firm expansion or the cost to new firms.

## Trade policy

Having covered the basic economics of international trade, you are now prepared to think about *trade policy* more directly. The next step is to go over the main instruments of trade policy. The most common objective of trade policy is to restrict imports. Trade policies are forms of *protection* by which some sectors of the economy are shielded from foreign competition. Trade policies, sometimes called trade *barriers* or trade *obstacles*, take many forms. The most common trade policies are tariffs, export subsidies and quotas, but there are other forms as explained below.

A list of protective policies includes:

- Tariffs.
- Quotas (quantitative restrictions).
- Export subsidies.
- Government procurement policies.
- Administrative barriers to trade (red tape).
- Other regulations.

A *tariff* is usually a tax on imports, but sometimes on exports as well. Import tariffs tend to act as a tax on imports. They restrict imports by raising the domestic price of imported products. The objective of tariffs may be primarily increasing revenue for the government or alternatively, reducing foreign competition to protect domestic industries. Tariffs vary by product and country of origin. Tariffs are most visible in manufacturing sectors. *Export subsidies* are government payments made to domestic firms to encourage exports and can also act as a barrier to trade.

High-technology and aerospace industries that depend on intensive research and development are prime examples of industries that rely heavily on export subsidies. Agriculture is another example of an industry that governments around the world tend to target this way. Farm subsidies remain very much a part of the international trade landscape today. Many countries, especially in Europe, continue to appease their farmers by heavily subsidising exports of agricultural products.

The most common non-tariff barrier is the *quota*. A quota is a limit on the quantity of imports and is usually implemented by means of licences. These licences are obtained by importers from the government, normally for a price (creating revenue) or governments grant them an allowance to



bring in a specific number of units of goods. Import quotas can work in two ways.

A government can impose an import quota itself or it can ask foreign producers to set their own voluntary quotas, which are known as *voluntary export restraints* (VERs). Nowadays, most quotas are found in agricultural sectors and textile industries. The difference between quotas and VERs is that unlike ordinary quotas, VERs do not generate revenue for the government, nor can they be given to domestic importers.

When it comes to *government procurement*, most countries give preference to domestic producers. This means that a domestic government will give preference to a local supplier even if a lower price could be obtained elsewhere. Such a policy creates an incentive for domestic suppliers to quote higher prices than they otherwise would. The extent to which preferential purchasing causes prices to rise depends on the level of local competition.

The term *administrative barriers* refers to the cost of filling in forms, lining up at customs offices, waiting to get permission to export, and all the other administrative procedures that make it harder (and more costly) to export rather than to produce and sell locally. While it is difficult to measure the effects of administrative barriers to trade, many small business people argue that such barriers are a serious impediment.

Quite frequently, *regulations* seem to be focused on a non-trade objective such as making sure the food supply is safe or making sure that monopoly power is not abused but in fact they often serve to keep foreign products out of the domestic market.

### **The case for trade protection**

The gains in economic welfare associated with specialisation and the law of comparative advantage are generally large enough to make a compelling case for free trade. Consequently, it is common for economists to oppose government policies that prevent trade. The apparent policy implication is that the best policy is a policy of free trade. In other words, countries should not use tariffs, quotas, preferential procurement policies, export subsidies or other interventions in businesses associated with international trade. This is, in fact, the prescription made by Ricardo, and this prescription is widely accepted by modern economists.

However, a few complications persist. First, even if we agree that free trade is the best policy for the world as a whole, it does not follow that every country faces a unilateral incentive to avoid trade barriers. In fact, much of the international conflict over trade policy reflects an attempt by one country to gain from interventionist trade policy at the expense of other countries. From the nationalist public interest point of view, it might be defensible to pursue a policy whose principle effect is to transfer benefits from other countries. Nonetheless, particular cases of trade protection can be defended with either economic or non-economic arguments.

Second, the prescription that free trade is the best policy does not hold perfectly. Especially in the presence of economies of scale and imperfect competition, there are potential benefits to be obtained from intervention. The following is a list of rationales for trade policy.

1. Raising revenue.
2. Improving a country's terms of trade through monopoly tariffs (to exploit monopoly power in world markets).
3. Increasing employment.
4. Protecting a country's safety standards and shielding domestic workers from imports produced by cheap foreign labour.
5. The 'infant industry' argument for protection.
6. Non-economic objectives (military or cultural objectives).

Tariffs have been traditionally the most popular tool of trade policy. In recent years, however, this tool has lost its usefulness because of the world economy's progress towards further trade liberalisation both under the World Trade Organization (WTO) and through the growing number of regional trading blocs. Nonetheless, one reason for many countries, especially developing countries, to employ tariffs has been its revenue implication for the government. Tariffs generate revenue for governments in the same way that taxes do.

By setting tariffs on imported products, a large country – a country that is either the sole player or one of the small number of players in the world market – can turn its terms of trade to its advantage. A major player, by setting a tariff on its imports, reduces the world demand for that product and hence reduces the price for the imported product, which in turn increases the terms of trade.

Because imports are a withdrawal from an economy's circular flow, they have a dampening effect on total spending and output. Thus, a reduction in the level of imports through trade barriers can potentially increase the level of economic activity in a country and provide more jobs for domestic workers. In reality, however, this may only be valid at the sectoral level, not at the national level. That is, the increase in economic activity may only materialise within the sector that has been boosted by the government trade policy. In fact, evidence suggests that the projected employment gain in the targeted sector may be offset by an employment loss in other sectors that are paid less attention.

A related argument suggests that imports produced by cheap foreign labour need to be blocked from entering an industrialised country in order to protect the job domestic workers. In its basic form, however, this argument is flawed because it ignores the reason pertaining to the differences among wage rates in various countries. Workers in countries with a higher per capita GDP tend to earn more than workers elsewhere because of their higher productivity. When average wages in various countries are compared with these different productivity levels, workers

in industrialised nations still possess an advantage over low-wage foreign labour in many types of production.

An *infant* industry is made of domestic producers that are young and far from established compared to foreign competitors. These industries are inexperienced and often too small to be able to compete on a globally based volume and scale. Therefore, their governments may try to protect producers behind tariff barriers until they have matured, gained experience and the necessary scale of production to be left alone. The trouble is that normally governments have difficulty in identifying producers that qualify for these protective measures. Furthermore, a nation's efforts to help its own industries are also countered by similar measures by its trade partners – trade retaliation.

Among the most important *non-economic* arguments one can refer to are national security and cultural sovereignty.

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## Activity 5.1



### Activity

If some countries are so keen to reduce barriers to trade, why do many others frequently attempt to erect barriers?

### Trade agreements and trade liberalisation

Trade agreements and trade liberalisation are two essential mechanisms which can be used to increase the rate of growth of world trade.

- *Trade agreements* involve the reduction/removal of tariffs on each other's goods between two countries. It also includes the reduction of bureaucracy by simplifying import/export procedures.
- *Trade liberalisation* might involve creating free-trade areas. This creates larger markets, greater access to raw materials and more competition. It also encourages the lowering of unit costs, thus, allowing firms to gain economies of scale. Lower prices and greater choice also increase consumers' welfare.

### Regional trade agreements

There has been a significant expansion of regional trade agreements across the world economy over the last two decades. Some of these agreements are simply free-trade agreements which involve a reduction in current tariff and non-tariff import controls to liberalise trade in goods and services between countries. The more sophisticated regional trade agreements include regional rules on flows of investment, coordination of competition policies, agreements on environmental policies and free movement of labour.

**Examples of regional trade agreements are as follows:**

- The Association of Southeast Asian Nations (ASEAN) Free Trade Area (AFTA).
- The European Union (EU) – a customs union, a single market and now with a single currency.
- The European Free Trade Area (EFTA).
- The North American Free Trade Agreement (NAFTA) –000 created in 1994.
- The South Asian Free Trade Area (SAFTA) created in January 2006 and containing countries such as India and Pakistan.
- Mercosur – a customs union between Brazil, Argentina, Uruguay, Paraguay and Venezuela.
- The Common Market of Eastern and Southern Africa (COMESA).

**Economic integration between countries**

There are various versions of economic integration between countries. A free trade area is a mild form of integration where countries agree to remove tariff and non-tariff barriers between them to promote free trade in goods and services. The North American Free Trade Area (NAFTA), the European Free Trade Area (EFTA) and ASEAN Free Trade Area (AFTA) are some of the examples. **Table 3** summarises the different stages of economic integration between countries.

Stage of economic integration	No internal trade barriers	Common external tariff	Factor and asset mobility	Common currency	Common economic policy
Free trade area	X				
Customs union	X	X			
Single market	X	X	X		
Monetary union	X	X	X	X	
Economic union	X	X	X	X	X

**Table 5.5 Stages of economic integration between countries**

Does a country always gain from a free trade agreement with another country? The following article entitled ‘Malaysian protest against free trade talks with U.S.’ gives you some insights of why certain parties are against free trade agreements.

**Understanding World Trade Organization (WTO)**

World Trade Organization (WTO) is the international organisation whose primary role is to encourage trade for the benefit of member countries. WTO currently has 153 members, of which 117 are developing countries or separate customs territories. WTO activities are supported by a





Secretariat of some 700 staff, led by the WTO Director-General. The Secretariat is located in Geneva, Switzerland. WTO is run by its member countries or governments. All major trade decisions are made by the membership as a whole, either by ministers (who usually meet at least once every two years) or by their ambassadors or delegates (who meet regularly in Geneva).

The bulk of the WTO's functions come from the 1986-94 negotiations called the Uruguay Round and earlier negotiations under the General Agreement on Tariffs and Trade (GATT). The WTO is currently the host to new negotiations, under the 'Doha Development Agenda' launched in 2001. WTO provides a forum for member countries to negotiate trade agreements and to settle trade disputes. Essentially, the WTO is a place where member governments try to sort out the trade issues or problems they face with each other. Hence, WTO was born out of negotiations, and everything the WTO does is the result of negotiations. For example, when countries have faced trade barriers and wanted them lowered, the negotiations have helped to open markets for international trade. Once the member countries negotiated and signed the WTO agreements, the agreements provide the legal ground rules for international trade and binding governments to keep their trade policies within agreed limits. Besides, WTO also provides a legal and institutional framework for the implementation and monitoring of these trade agreements, as well as for settling disputes arising from their interpretation and application. The current body of trade agreements comprising the WTO comprised of 16 different multilateral agreements (to which all WTO members are parties) and two different plurilateral agreements (to which only some WTO members are parties).

Decisions made in the WTO are commonly taken by consensus of the entire membership. The highest institutional body is the Ministerial Conference, which meets about every two years. More specifically, the WTO's main activities are:

- negotiating the reduction or elimination of obstacles to trade (import tariffs, other barriers to trade) and agreeing on rules governing the conduct of international trade (for example, antidumping, subsidies or product standards.)
- administering and monitoring the application of the WTO's agreed rules for trade in goods, trade in services and trade-related intellectual property rights
- monitoring and reviewing the trade policies of our members, as well as ensuring transparency of regional and bilateral trade agreements
- settling disputes among our members regarding the interpretation and application of the agreements
- building capacity of developing country government officials in international trade matters
- assisting the process of accession of some 30 countries who are not yet members of the organisation

- conducting economic research and collecting and disseminating trade data in support of the WTO's other main activities
- explaining to and educating the public about the WTO, its mission and its activities.

The founding and guiding principles of WTO remain the pursuit of open borders, the guarantee of most-favoured-nation principle and non-discriminatory treatment by and among countries members, and a commitment to transparency in the implement of its activities. The opening of national markets to international trade, with justifiable exceptions or with adequate flexibilities, will encourage and contribute to sustainable development, increase people's welfare, reduce poverty, and foster peace and stability. At the same time, such market opening must be accompanied by sound domestic and international policies that contribute to economic development according to each member's needs and aspirations.

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## Module summary



### Summary

In this module you learned:

When currency is not allowed to vary (fixed exchange rates), the central bank must intervene in the foreign exchange market to prevent the exchange rate from changing. This is done by the central bank's drawing on its supply of foreign exchange reserves. A central bank can intervene in the foreign exchange market to smoothen fluctuations in its national currency. When this is done, the central bank is said to be involved in managing its currency (managed float).

Net exports (the trade balance) are equal to the government sector balance plus the private sector balance. In a world of freely floating exchange rates, problems relating to balance of payments are unlikely to surface. Impending deficits or surpluses, if not matched by offsetting capital flows, will bring about exchange rate fluctuations which will neutralise the threatened imbalance.

Exchange rate fluctuations may, however, raise difficulties for the authorities no less acute than the balance of payments difficulties experienced by countries with a fixed exchange rate regime. Factors that shift the demand and supply curves for a particular currency and the equilibrium point are inflation differences, interest rates differences, income growth differences and exchange rates expectations.

Deficit countries can ease their balance of payments by curbing net government spending or encouraging saving. Surplus countries can stimulate import demand and reduce the surplus through expansionary budget policies. These are referred to as expenditure-changing policies. Expenditure-switching policies refer to price incentives designed to induce a switch in spending between traded and non-traded goods and services. Two such policies are: commercial policy and exchange rate changes.

The theory of comparative advantage provides the rationale for free trade. Ricardo showed that both trading partners could benefit from specialisation in the good in which they have the comparative advantage. Comparative advantage hinges on the notion of opportunity cost. The Heckscher-Ohlin theorem builds on the theory of comparative advantage by focusing on the different factor endowments of countries. Tariffs, quotas and export subsidies are examples of trade barriers.

## Assignment



### Assignment

1. What is the exchange rate and how is it determined?
2. What are the influences of interest rates and the expected future exchange rate on the demand for, and supply of dollars as well as the actual exchange rate in the foreign exchange market?
3. How do purchasing power parity and interest rate parity affect exchange rate expectations?
4. How can the Bank of Canada influence the foreign exchange market?
5. What is the current account and what is the capital account? What is the relationship between these two accounts?
6. How is a current account deficit financed?
7. What is real exchange rate? How is it calculated?
8. What causes a real appreciation of a currency?
9. What are the long-run determinants of the exchange rates?
10. What is the purchasing power parity rate of exchange?
11. What is a “managed floating rates of exchange” system?
12. How does the central bank maintain a fixed exchange rate?
13. What is a devaluation? What is a revaluation? How are they different from a depreciation and appreciation?
14. How does monetary policy influence the exchange rate, aggregate demand and output?
15. What are expenditure changing and exchange rate switching policies?
16. What is comparative advantage?
17. Why does trade benefit all trading parties?
18. What are terms of trade and how are they related to the concept of real exchange rates?
19. Name the trade barriers that are commonly used in your country.
20. List the advantages and disadvantages of trade protection.



## Assessment



### Assessment

1. In what ways do imports affect your life? (Think of imported goods or services that you have used recently.)
2. Which of the following goods and services are tradable, and which are not? In each case, explain your answer briefly.
  - A. Cars
  - B. Computers
  - C. Haircuts
  - D. Restaurant meals
3. Does your country's current account show a deficit or a surplus? How about your country's capital account? What is the situation like from the perspective of the individual components of the current account? Can you explain your findings?
4. For each transaction below, identify where it appears on your country's current account and whether it is classified as a receipt or a payment:
  - A. A domestic fabric dealer buys fabrics from abroad.
  - B. A foreign bank is paid interest by your government.
  - C. A domestic resident spends her holidays abroad.
  - D. You send funds to relatives living abroad.
5. For each transaction below, identify where it appears in your country's capital account and whether it is classified as a receipt or a payment:
  - A. A foreign company opens a chain of stores in your country.
  - B. Your neighbour buys 1,000 Microsoft shares on the New York Stock Exchange.
  - C. An American purchases a bond issued by your government.
  - D. A foreign giant media company takes over your national newspaper.
  - E. You open an account in a Euro-bank in U.S. dollars.
6. Consider the following hypothetical economy.

<b>Balance of Payments Accounts (in \$millions)</b>			
	<b>Receipts</b>	<b>Payments</b>	<b>Balance</b>
<b>Current Account</b>			
Merchandise trade	183.4	323.6	_____
Trade in services	187.9	_____	+ 90
Investment income	192.3	157.9	_____
Transfers	_____	24.5	+ 32
<b>Capital Account</b>			
Portfolio investment	_____	65.9	- 20
Direct investment	32.7	45.8	_____
Other capital flows	_____	15.2	+ 22

- A. Fill in the blanks.
  - B. Calculate the current account balance.
  - C. Calculate the capital account balance.
  - D. Does the balance of payments balance?
7. In Yorktonia, the foreign currency's demand and supply schedules are given as follows:

<b>Price of US dollars (in Yorktonia's currency)</b>	<b>Quantity of US Dollars Supplied (\$ billions per year)</b>	<b>Quantity of US Dollars Demanded (\$ billions per year)</b>
0.1.70	75	35
0.1.65	65	45
0.1.60	55	55
0.1.55	45	65
0.1.50	35	75

- A. Sketch the demand and supply of the US dollar curves based on the information provided above.
- B. If the exchange rates were flexible, what would the market value of the U.S. dollar be in terms of our local currency?
- C. If instead the government set a target exchange rate of US\$1.65, will there be an exceed demand or excess supply of the U.S. dollar in terms of the local currency?
- D. Does Yorktonia face a balance of payments surplus or deficit at this target exchange rate?



- E. Calculate the “changes in official reserves” that would appear in Yorktonia’s balance of payments accounts.
8. For each of the following cases, draw a demand and supply graph to show the effect on the price of the U.S. dollar in terms of domestic currency:
- A contractionary monetary policy initiated by the domestic central bank in which it raises the domestic interest rate.
  - Domestic real output rises at a time when the real output in the U.S. is falling.
  - Americans find your country a more attractive place to make financial investments.
9. Assuming that the only goods in the world are Home country’s textile and French wine and also assuming that in the home country, the price of a metre of cloth is H\$5 (5 Home dollar). Determine the real exchange rate (the price of foreign goods in terms of domestic goods) between Home and France when:
- A French franc is worth H\$0.20, and the price of a bottle of wine in France is 25 francs.
  - A French franc is worth \$0.20, and the price of a bottle of wine in France is 30 francs.
  - A French franc is worth H\$0.25, and the price of a bottle of wine in France is 30 francs.
10. Home, whose currency is H\$, conducted the following transactions in year 2002:

Item	(Billions of H\$)
Imports of goods and services	350
Exports of goods and services	500
Borrowing from the rest of the world	60
Lending to the rest of the world	200
Increase in official holdings of foreign currency	10

- Calculate the three balance of payments accounts balances (the trade account balance, current account balance and capital account balance) for Home.
- Based on this information, does Home’s central bank intervene in the foreign exchange market?
- Does this country face a deficit or a surplus in its balance of payments? Why?

12. Suppose that it takes five French francs to buy one Canadian dollar, the price level in France is 1.2, and the price level in Canada is 1.5.
  - A. What is the *real* exchange rate between Canada and France (the price of French goods in terms of Canadian goods)? [Hint: First, calculate the nominal exchange rate as the price of a franc in dollars.]
  - B. What would happen to the real exchange rate if the dollar rose to eight French francs?
  - C. Comparing your answers in parts (a) and (b), is this a real *appreciation* or a real *depreciation* of the dollar? What is the percentage?
13. Suppose that the interest rate in Home country (H) is 5 per cent, the interest rate in Foreign country (F) is 1 per cent, the current nominal exchange rate, H\$ (Home dollar) price of a F\$ (Foreign dollar) is 0.01 and the expected nominal exchange rate next year is 0.011.
  - A. How many H\$ would a resident of Home country expect to earn for each Home dollar invested in Foreign bonds for one year?
  - B. Ignoring risk and transaction costs, should a Home resident prefer to invest in Home or Foreign bonds?
  - C. What is the expected rate of appreciation or depreciation of the Home dollar?
14. Under what circumstances could a country simultaneously have a balance of trade surplus and a current account deficit?
15. How would you explain the rapid growth in capital account transactions relative to merchandise trade transactions in recent years?
16. What, if anything, does the fact that a country has a current account surplus tell us about the strength of that economy?
17. How would you define balance of payments disequilibrium? Discuss some of the economic forces that tend to automatically restore the balance of payments to equilibrium.
18. What are some arguments that could be made for and against the use of strategic trade policy?
19. Which of the following is correct? Tariffs and quotas are economically inefficient because
  - A. The government does not collect any revenues under a tariff.
  - B. Imports rise, and this reduces the welfare of consumers.
  - C. Producers are saved from the pressure of foreign competition.
  - D. Domestic prices must be reduced.





Refer to the following table to answer three questions. The table shows the possible levels from one day of labour input.

	Wheat (cubic metres)	Cloth (metres)
Home	12	6
Foreign	1	12

20. Home—
- A. has absolute advantage in the production of cloth.
  - B. has an absolute advantage in the production of wheat.
  - C. has a comparative advantage in the production of cloth.
  - D. should export cloth to Foreign.
21. The opportunity cost of one cubic metre of wheat in Foreign is
- A. 1/2 metre of cloth.
  - B. 2 metres of cloth.
  - C. 6 metres of cloth.
  - D. 12 metres of cloth.
22. Which of the following statements is wrong?
- A. Foreign has an absolute advantage in wheat.
  - B. Home should export wheat to Foreign and import cloth from Foreign.
  - C. The opportunity cost of wheat is twice as high in foreign as in Home.
  - D. The opportunity cost of a metre of cloth in Home is one cubic metre of wheat.

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## Assessment answers

1. Imports are important in that they are consumer items that are produced elsewhere. Consumption per capita is the best measure of well-being and the standard of living of a nation. Also, imports offer not only product variety for different tastes but also, at times, better quality than those produced domestically.
2. Answers are:
  - A. Tradeable.
  - B. Tradeable. Both A and B are the same in this respect, because transaction costs and barriers to trade are not insurmountable.
  - C. C and D are impossible to trade since transaction costs of travelling to a different country to get a haircut or dine, as well as transaction costs of importing the service of the haircutter and the restaurant meal, are prohibitive.
3. The answer is a function of your country of choice.
4. Answers are:
  - A. Import of fabrics is an import of goods (goods or merchandise account) and is a source of payment.
  - B. The payment of interest by the government is a current-account transaction under the net flow of investment income and is classified as a payment.
  - C. Travelling abroad is a service account transaction and a payment.
  - D. Sending funds to relatives abroad is a transfer item and classified as a payment.
5. Answers are:
  - A. A foreign company opening a chain of stores in your country is a foreign direct investment and classified as a receipt, from your perspective.
  - B. The purchase of 1,000 shares of Microsoft is a portfolio transaction and a payment.
  - C. An American purchasing your government securities is a portfolio investment and a receipt.
  - D. A foreign takeover of your newspaper is a foreign direct investment and a receipt.
  - E. Opening an account in a Euro bank is a portfolio investment and a payment, from your perspective.
6. Answers are:
  - A. **Current Account**

Merchandise trade	Balance (-\$140.2) million
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Trade in services	Payments (\$97.9) million
Investment income	Balance (\$34.4) million
Transfers	Receipts (\$56.5) million

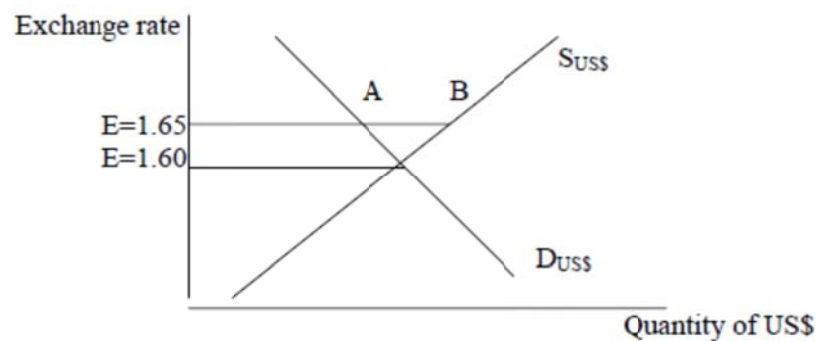
**Capital Account**

Portfolio investment	Receipts (\$45.9) million
Direct investment	Balance (-\$13.1) million
Other capital flows	Receipts (\$37.2) million

- B. Current Account Balance: + 16.2 million.  
 C. Capital Account Balance: -\$11.1 million.  
 D. No. The gap, \$5.1 billion, must be due to the changes in official reserves transactions (not shown), assuming that there are no errors or statistical discrepancies.

7. Answers are:

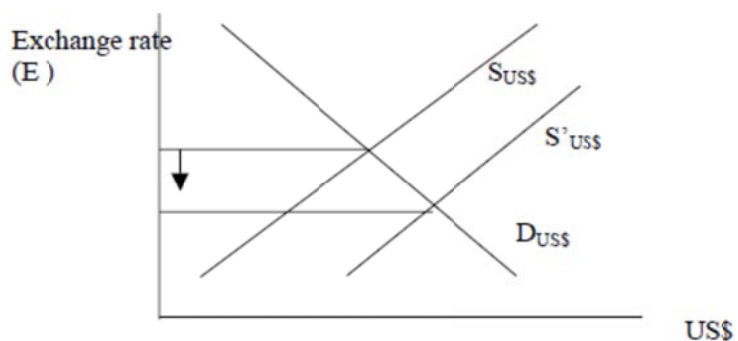
A.



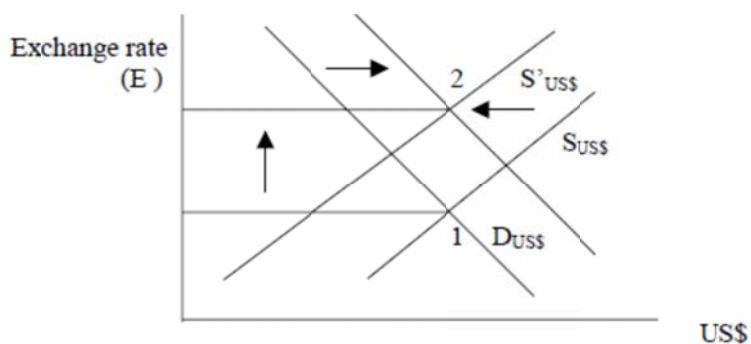
- B.  $E = \$1.60$   
 C. At 1.65 there will be an excess supply of US\$, AB.  
 D. Yorktonia faces a surplus, at this rate of exchange, of \$20 billion.  
 E. At 1.65 rate of exchange, the excess supply of \$20 billion will appear as (-20 billion) in the official reserves account.

8. Answers are:

- A. As interest rates rise, capital flows into the domestic economy from abroad, indicating an increase in supply of foreign currency. This causes a decrease in the exchange rate (an appreciation of domestic currency).



- B. The increase in domestic output increases demand for goods and services by domestic residents, including demand for imported goods and services (imports rise). This causes demand for foreign currency to increase (a shift to the right). The decrease in foreign (American) output decreases foreign demand for our currency as Americans reduce their purchase of our goods and services (the supply curve shifts to the left). The combination of the two pushes E higher (depreciation of home currency).



- C. Foreign (American) capital flowing into your economy increases demand for your currency, which is the same as an increase in the supply of the US dollar in foreign exchange markets. The exchange rate falls. This is the same as part (a).

9. Real exchange rate =  $\frac{E.P^*}{P}$  where P and P\* are Home and French prices respectively, and E, as before, is the domestic price of one unit of foreign currency.

A. Real exchange rate =  $\frac{E.P^*}{P} = \frac{0.2 \times 25}{5} = 1$

B. Real exchange rate =  $\frac{.2 \times 30}{5} = \frac{6}{5} = 1.2$

C. Real exchange rate =  $\frac{.25 \times 30}{5} = \frac{7.5}{5} = 1.5$



10. Answers are:

A. The Trade Account Balance =  $(500 - 350) = + \$150$  billion (surplus).

The Current Account Balance = Trade account balance + net inflow of net investment income =  $\$150 + 0 = \$150$  billion surplus (there is no information on the latter here).

The Capital Account Balance = capital inflow (receipts) – capital outflow (payments) =  $(\$60) - (\$200) = -\$140$  billion (deficit). The Current Account Balance, including the changes in holdings of reserves, =  $(60) - (210) = -\$150$  billion.

B. Yes. The increase in official holdings of foreign currency (+10) indicates the central bank's intervention.

C. Excluding the official holdings of foreign reserves, the balance of payments is net of the surplus in the Current Account ( $\$150$ ) and the deficit in the Capital Account ( $\$-140$ ) =  $\$10$ . That is, it shows a an overall surplus.

11. Answers are:

A.

$$\frac{\text{Price of French goods}}{\text{Price of Canadian goods}} = \left( \frac{1.2}{1.5} \right) \times \text{nominal exchange rate}(0.2) = \frac{.24}{1.5} = .16$$

B.  $\frac{1.2}{1.5} \times \left( \frac{1}{8} \right) = .1$

C. Canadian dollar has appreciated in real terms. This is so because at given prices, the nominal exchange rate appreciated (from \$1 per ff 5 to \$1 to 8 ff).

12. Answers are:

A. Home rate of return = 5%, Foreign rate of return = foreign interest rate +

$$\left( \frac{E^e - E}{E} \right) = .01 + \frac{.011 - .01}{.01} = .11 = 11\%.$$

For every H dollar invested in foreign bonds you should expect 11% return = 11¢.

B. Foreign return, 11%, is greater than Home return, 5%, therefore, Foreign bonds should be preferred.

C.  $\left( \frac{E^e - E}{E} \right) = 10\%.$

13. CA balance = Trade balance + net inflow of investment income. Therefore, CA balance can be negative (deficit) despite a trade

surplus if the second term on the right-hand side shows a deficit bigger than the trade account surplus.

14. The onslaught of computerization tends to enhance the freer capital movements that have accelerated so rapidly in the last decade. A big part of the world now benefits from unrestricted capital flow far greater than the flow of trade in goods and services. Investment opportunities are enormous compared to newly explored trade opportunities.
15. A current account surplus is a sign of a clean bill of health. The country showing a surplus need not borrow externally. All international payments are covered and there remains money to lend out.
16. When the sum of the current and capital account surplus is different from zero, payments do not match receipts and there is a need for the central authority to step in to bridge the gap, a transaction in the foreign exchange market known as changes in official reserves. This happens, however, when the exchange rates are fixed or when the central bank aims to manage its currency. Under flexible rates, the movement of the exchange rates in response to the gap between receipts and payments (excess demand/excess supply of currencies) tend to eliminate this gap, restoring equilibrium in balance of payments.
17. It is sometimes difficult to justify strategic trade policies, since they assume prior government knowledge as to which industries and firms show potential. Also, such policies are invitation for retaliation by the trade partners. This is controversial.
18. Discuss your answer with your tutor.
19. A. Home has an absolute advantage in wheat.
20. D. (12 metres of cloth).
21. A.



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