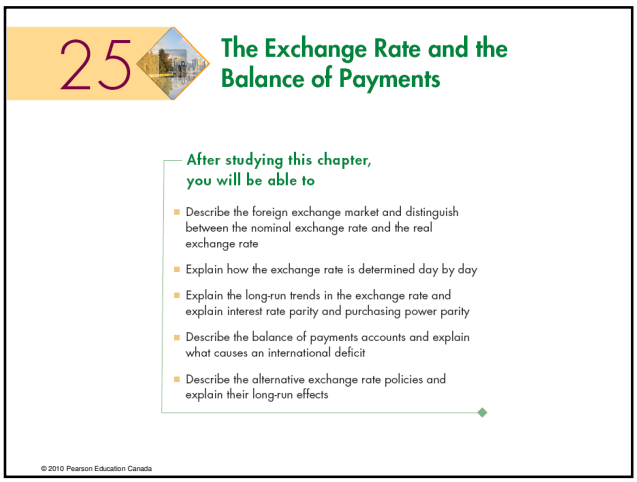


The Canadian dollar is one of 100s of different monies.

The three big monies: the U.S. dollar, yen, and euro.

In February 2007, one Canadian dollar bought 85 U.S. cents.

By November 2007, the Canadian dollar soared to $US1.09.

Why do currency exchange rates fluctuate?

From the early 1980s until 1999, Canada's imports exceeded its exports and Canada borrowed a total of $223 billion.

During the 2000s, Canada's exports exceeded its imports, and Canada repaid $178 billion of its earlier borrowing.

Why does Canada sometimes borrow from foreigners, and at other times repay its international debts?

Currencies and Exchange Rates

To buy goods and services produced in another country we need money of that country.

Foreign bank notes, coins, and bank deposits are called **foreign currency**.

We get foreign currency in the foreign exchange market.

Currencies and Exchange Rates

The Foreign Exchange Market

We get foreign currency and foreigners get Canadian dollars in the foreign exchange market.

The **foreign exchange market** is the market in which the currency of one country is exchanged for the currency of another.

Currencies and Exchange Rates

Exchange Rates

The price at which one currency exchanges for another is called a **foreign exchange rate**.

A fall in the value of one currency in terms of another currency is called *currency depreciation*.

A rise in value of one currency in terms of another currency is called *currency appreciation*.

Currencies and Exchange Rates

Nominal and Real Exchange Rates

The **nominal exchange rate** is the value of the Canadian dollar expressed in units of foreign currency per Canadian dollar.

It is a measure of how much of a foreign currency exchanges for one Canadian dollar.

Currencies and Exchange Rates

The **real exchange rate** is the relative price of foreign-produced goods and services.

It is a measure of the quantity of real GDP of other countries that we get for a unit of Canadian real GDP.

Call the Canadian price level P, the Chinese price level P^*, the nominal exchange rate E yuan per dollar, then the

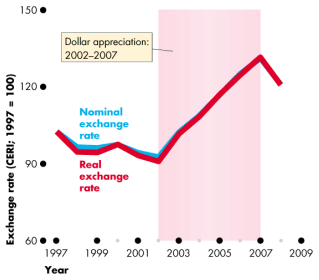
$$\text{Real exchange rate} = E \times (P/P^*).$$

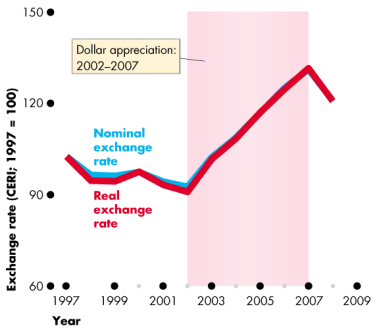
The real exchange rate equal the nominal exchange rate multiplied by the ratio of the Canadian price level to the foreign price level.

Currencies and Exchange Rates

Canadian Dollar Effective Exchange Rate

The **Canadian dollar effective exchange rate (CERI)** is the average exchange rate of the Canadian dollar against other currencies, with each currency weighted by its importance in Canada's international trade.





The Foreign Exchange Market

The Demand for One Money Is the Supply of Another Money

When people who are holding one money want to exchange it for Canadian dollars, they demand Canadian dollars and they supply that other country's money.

So the factors that influence the demand for Canadian dollars also influence the supply of foreign currency–U.S. dollars, euros, pounds, and yen.

The factors that influence the demand for another country's money also influence the supply of Canadian dollars.

The Foreign Exchange Market

Demand in the Foreign Exchange Market

The quantity of Canadian dollars that traders plan to buy in the foreign exchange market during a given period depends on

1. The exchange rate
2. World demand for Canadian exports
3. Interest rates in Canada and other countries
4. The expected future exchange rate

The Foreign Exchange Market

The Law of Demand for Foreign Exchange

The demand for dollars is a *derived demand*.

People buy Canadian dollars so that they can buy Canadian-produced goods and services or Canadian assets.

Other things remaining the same, the higher the exchange rate, the smaller is the quantity of Canadian dollars demanded in the foreign exchange market.

The Foreign Exchange Market

The exchange rate influences the quantity of Canadian dollars demanded for two reasons:

- Exports effect
- Expected profit effect

Exports Effect

The larger the value of Canadian exports, the greater is the quantity of Canadian dollars demanded on the foreign exchange market.

But exports depend on the exchange rate–the lower the exchange rate, the greater is the value of Canadian exports.

The Foreign Exchange Market

Expected Profit Effect

The larger the expected profit from holding Canadian dollars, the greater is the quantity of Canadian dollars demanded today.

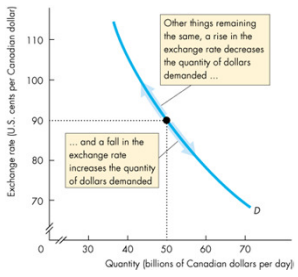
But expected profit depends on the exchange rate.

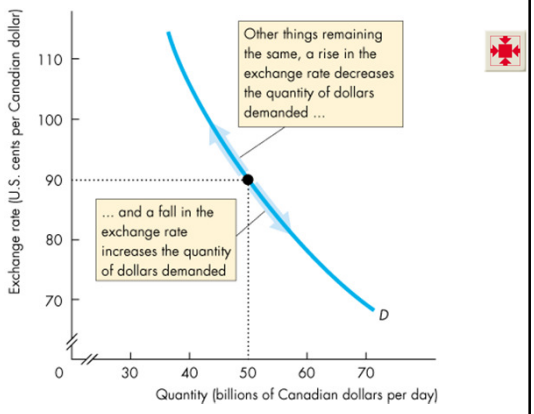
The lower today's exchange rate, other things remaining the same, the larger is the expected profit from buying Canadian dollars and the greater is the quantity of Canadian dollars demanded today.

The Foreign Exchange Market

The Demand Curve for Canadian Dollars

Figure 25.2 illustrates the demand curve for Canadian dollars on the foreign exchange market.





The Foreign Exchange Market

Supply in the Foreign Exchange Market

The quantity of Canadian dollars supplied in the foreign exchange market is the amount that traders plan to sell during a given time period at a given exchange rate.

This quantity depends on

1. The exchange rate
2. Canadian demand for imports
3. Interest rates in Canada and other countries
4. The expected future exchange rate

The Foreign Exchange Market

The Law of Supply of Foreign Exchange

Other things remaining the same, the higher the exchange rate, the greater is the quantity of Canadian dollars supplied in the foreign exchange market.

The exchange rate influences the quantity of Canadian dollars supplied for two reasons:

- Imports effect
- Expected profit effect

The Foreign Exchange Market

Imports Effect

The larger the value of Canadian imports, the larger is the quantity of Canadian dollars supplied on the foreign exchange market.

The higher the exchange rate, the greater is the value of Canadian imports, so the greater is the quantity of Canadian dollars supplied.

The Foreign Exchange Market

Expected Profit Effect

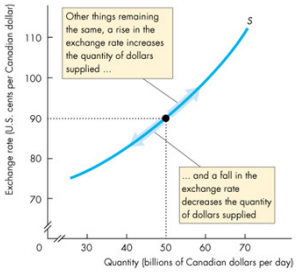
For a given expected future Canadian dollar exchange rate, the lower the current exchange rate,

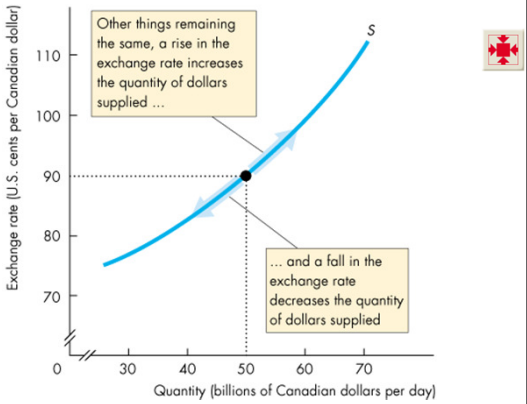
the greater is the expected profit from holding Canadian dollars, and the smaller is the quantity of Canadian dollars supplied on the foreign exchange market.

The Foreign Exchange Market

Supply Curve for Canadian Dollars

Figure 25.3 illustrates the supply curve of Canadian dollars in the foreign exchange market.

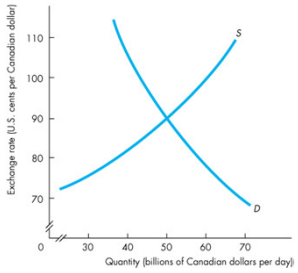




The Foreign Exchange Market

Market Equilibrium

Figure 25.4 shows how demand and supply in the foreign exchange market determine the exchange rate.

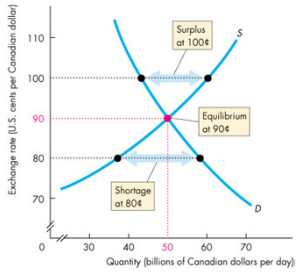


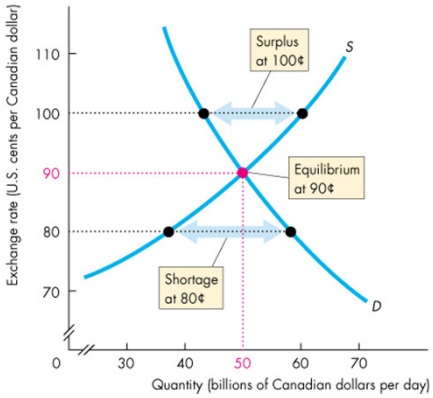
The Foreign Exchange Market

If the exchange rate is too high, a surplus of Canadian dollars drives it down.

If the exchange rate is too low, a shortage of Canadian dollars drives it up.

The market is pulled (quickly) to the equilibrium exchange rate at which there is neither a shortage nor a surplus.





Exchange Rate Fluctuations

Changes in the Demand for Canadian Dollars

A change in any influence on the quantity of Canadian dollars that people plan to buy, other than the exchange rate, brings a change in the demand for Canadian dollars and a shift in the demand curve for Canadian dollars.

These other influences are

- World demand for Canadian exports
- Canadian interest rate relative to the foreign interest rate
- The expected future interest rate

Exchange Rate Fluctuations

World Demand for Canadian Exports

At a given exchange rate, if world demand for Canadian exports increases, the demand for dollars increases and the demand curve for Canadian dollars shifts rightward.

Canadian Interest Rate Relative to the Foreign Interest Rate

The Canadian interest rate minus the foreign interest rate is called the **Canadian interest rate differential**.

If the Canadian interest differential rises, the demand for dollars increases and the demand curve for Canadian dollars shifts rightward.

Exchange Rate Fluctuations

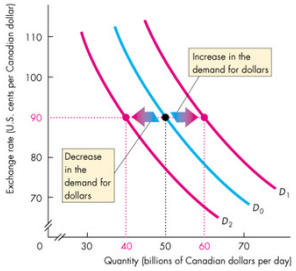
The Expected Future Exchange Rate

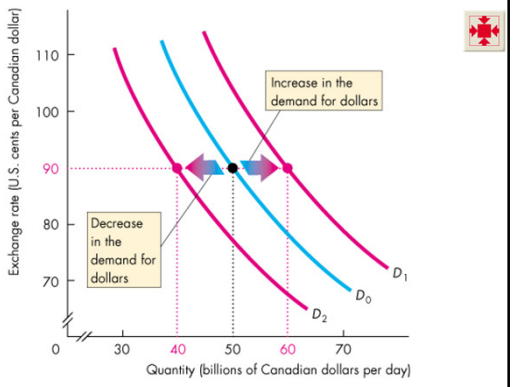
At a given current exchange rate, if the expected future exchange rate for Canadian dollars rises,

the demand for Canadian dollars increases and the demand curve for dollars shifts rightward.

Exchange Rate Fluctuations

Figure 25.5 shows how the demand curve for Canadian dollars shifts in response to changes in Canadian exports, the Canadian interest rate differential, and expectations of future exchange rates.





Exchange Rate Fluctuations

Changes in the Supply of Dollars

A change in any influence on the quantity of Canadian dollars that people plan to sell, other than the exchange rate, brings a change in the supply of dollars and a shift in the supply curve of dollars.

These other influences are

- Canadian demand for imports
- Canadian interest rates relative to the foreign interest rate
- The expected future exchange rate

Exchange Rate Fluctuations

Canadian Demand for Imports

At a given exchange rate, if the Canadian demand for imports increases, the supply of Canadian dollars on the foreign exchange market increases and the supply curve of Canadian dollars shifts rightward.

Canadian Interest Rates Relative to the Foreign Interest Rate

If the Canadian interest differential rises, the supply for Canadian dollars decreases and the supply curve of Canadian dollars shifts leftward.

Exchange Rate Fluctuations

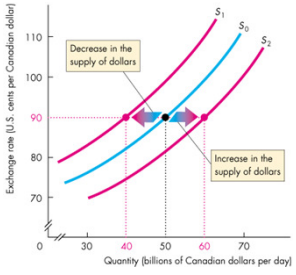
The Expected Future Exchange Rate

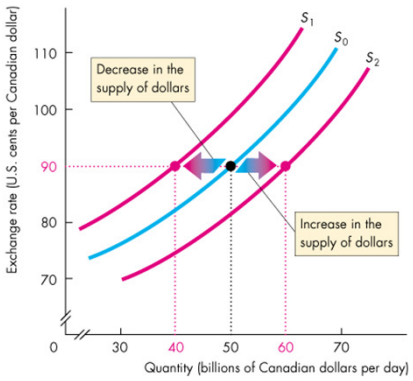
At a given current exchange rate, if the expected future exchange rate for Canadian dollars rises,

the supply of Canadian dollars decreases and the demand curve for dollars shifts leftward.

Exchange Rate Fluctuations

Figure 25.6 shows how the supply curve of Canadian dollars shifts in response to changes in Canadian demand for imports, the Canadian interest rate differential, and expectations of future exchange rates.





Exchange Rate Fluctuations

Changes in the Exchange Rate

- If demand for Canadian dollars increases and supply does not change, the exchange rate rises.
- If demand for Canadian dollars decreases and supply does not change, the exchange rate falls.
- If supply of Canadian dollars increases and demand does not change, the exchange rate falls.
- If supply of Canadian dollars decreases and demand does not change, the exchange rate rises.

Exchange Rate Fluctuations

Exchange Rate Expectations

The exchange rate changes when it is *expected to change*.

But expectations about the exchange rate are driven by deeper forces.

Two such forces are

- Interest rate parity
- Purchasing power parity

Exchange Rate Fluctuations

Interest Rate Parity

A currency is worth what it can earn.

The return on a currency is the interest rate on that currency plus the expected rate of appreciation over a given period.

When the rates of returns on two currencies are equal, **interest rate parity** prevails.

Interest rate parity means *equal interest rates* when exchange rate changes are taken into account.

Market forces achieve interest rate parity very quickly.

Exchange Rate Fluctuations

Purchasing Power Parity

A currency is worth the value of goods and services that it will buy.

The quantity of goods and services that one unit of a particular currency will buy differs from the quantity of goods and services that one unit of another currency will buy.

When two quantities of money can buy the same quantity of goods and services, the situation is called **purchasing power parity**, which means *equal value of money*.

Exchange Rate Fluctuations

Instant Exchange Rate Response

The exchange rate responds instantly to news about changes in the variables that influence demand and supply in the foreign exchange market.

Suppose that the Bank of Japan is considering raising the interest rate next week.

With this news, currency traders expect the demand for yen to increase and the demand for dollars to decrease—they expect the Canadian dollar to depreciate.

Exchange Rate Fluctuations

But to benefit from a yen appreciation, yen must be bought and dollars must be sold *before* the exchange rate changes.

Each trader knows that all the other traders share the same information and have similar expectations.

Each trader knows that when people begin to sell dollars and buy yen, the exchange rate will change.

To transact before the exchange rate changes means transacting right away, as soon as the news is received.

Exchange Rate Fluctuations

Nominal and Real Exchange Rates in Short Run and the Long Run

The equation that links the nominal exchange rate (E) and real exchange rate (RER) is

$$RER = E \times (P/P^*)$$

where P is the Canadian price level and P^* is the Japanese price level.

In the short run, this equation determines *RER.*

In the short run, (P/P^*) doesn't change and a change in E brings an equivalent change in *RER*.

Exchange Rate Fluctuations

In the long run, *RER* is determined by the real forces of demand and supply in markets for goods and services.

So in the long run E determined by *RER* and the price levels. That is

$$E = RER \times (P^*/P)$$

A rise in the Japanese price level P^* brings an appreciation of the Canadian dollar in the long run.

A rise in the Canadian price level P brings a depreciation of the Canadian dollar in the long run.

Financing International Trade

We've seen how the exchange rate is determined, but what is the effect of the exchange rate?

How does currency appreciation or appreciation influence Canadian international trade?

We record international transactions in the balance of payments accounts.

Financing International Trade

Balance of Payments Accounts

A country's **balance of payments accounts** records its international trading, borrowing, and lending.

There are three balance of payments accounts:

1. Current account
2. Capital account
3. Official settlements account

Financing International Trade

The **current account** records

- receipts from exports of goods and services sold abroad,
- payments for imports of goods and services from abroad,
- net interest paid abroad, and
- net transfers (such as foreign aid payments).

The *current accounts balance* = exports - imports + net interest income + net transfers.

Financing International Trade

The **capital account** records foreign investment in Canada minus Canadian investment abroad.

The **official settlements account** records the change in Canadian official reserves.

Canadian official reserves are the government's holdings of foreign currency.

If Canadian official reserves *increase*, the official settlements account is *negative*.

The sum of the balances of the three accounts always equals zero.

Financing International Trade

Borrowers and Lenders

A country that is borrowing more from the rest of the world than it is lending to it is called a **net borrower**.

A country that is lending more to the rest of the world than it is borrowing from it is called a **net lender**.

Canada is currently a net lender, but in most years before 2000 Canada was a net borrower.

Financing International Trade

Debtors and Creditors

A **debtor nation** is a country that during its entire history has borrowed more from the rest of the world than it has lent to it.

Canada is a debtor nation.

A **creditor nation** is a country that has invested more in the rest of the world than other countries have invested in it.

The difference between being a borrower/lender nation and being a creditor/debtor nation is the difference between stocks and flows of financial capital.

Financing International Trade

Being a net borrower is not a problem provided the borrowed funds are used to finance capital accumulation that increases income.

Being a net borrower is a problem if the borrowed funds are used to finance consumption.

Financing International Trade

Current Account Balance

The current account balance (*CAB*) is

$$CAB = NX + \text{Net interest income} + \text{Net transfers}$$

The main item in the current account balance is net exports (*NX*).

The other two items are much smaller and don't fluctuate much.

Financing International Trade

The **government sector surplus or deficit** is equal to net taxes, *T*, minus government expenditure on goods and services *G*.

The **private sector surplus or deficit** is saving, *S*, minus investment, *I*.

Net exports is equal to the sum of government sector balance and private sector balance:

$$NX = (T - G) + (S - I)$$

Financing International Trade

For Canada in 2007,

- Net exports was a surplus of $31 billion.
- Government sector surplus was $41 billion
- Private sector deficit was $10 billion

Net exports equals the sum of the government sector surplus and the private sector deficit.

Financing International Trade

Where is the Exchange Rate?

In the short run, a fall in the nominal exchange rate lowers the real exchange rate, which makes our imports more costly and our exports more competitive.

So in the short run, fall in the nominal exchange rate decreases the current account deficit.

But in the long run, a change in the nominal exchange rate leaves the real exchange rate unchanged.

So in the long run, the nominal exchange rate plays no role in influencing the current account balance.

Exchange Rate Policy

Three possible exchange rate policies are

- Flexible exchange rate
- Fixed exchange rate
- Crawling peg

Flexible Exchange Rate

A **flexible exchange rate** policy is one that permits the exchange rate to be determined by demand and supply with *no* direct intervention in the foreign exchange market by the central bank.

Exchange Rate Policy

Fixed Exchange Rate

A **fixed exchange rate** policy is one that pegs the exchange rate at a value decided by the government or central bank and that blocks the unregulated forces of demand and supply by direct intervention in the foreign exchange market.

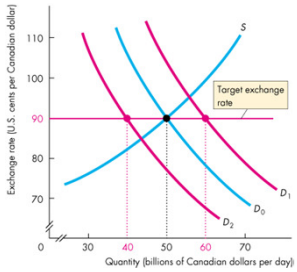
A fixed exchange rate requires active intervention in the foreign exchange market.

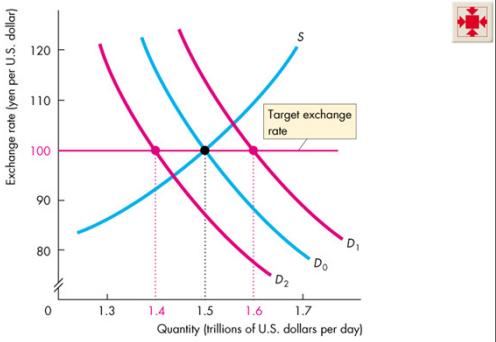
Exchange Rate Policy

Figure 25.7 shows how the Bank can intervene in the foreign exchange market to keep the exchange rate close to a target rate.

Suppose that the target is 90 U.S. cents per Canadian dollar.

If demand increases, the Bank of Canada sells Canadian dollars to increase supply.

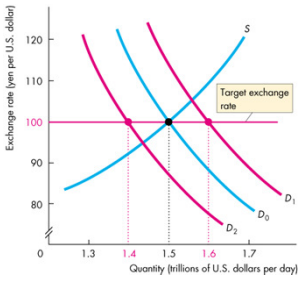




Exchange Rate Policy

If demand decreases, the Bank of Canada buys Canadian dollars to decrease supply.

Persistent intervention on one side of the foreign exchange market cannot be sustained.



Exchange Rate Policy

Crawling Peg

A **crawling peg** exchange rate policy is one that selects a target path for the exchange rate with intervention in the foreign exchange market to achieve that path.

China is a country that operates a crawling peg.

A crawling peg works like a fixed exchange rate except that the target value changes.

The idea behind a crawling peg is to avoid wild swings in the exchange rate that might happen if expectations became volatile and to avoid the problem of running out of reserves, which can happen with a fixed exchange rate.