Unit 6
Open-Economy: The Balance of Payments and Exchange Rates

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Learning Objectives

- Explain how the balance of payments is calculated
- Discuss how equilibrium output is determined in an open economy, and describe the trade feedback effect and the price feedback effect.
- Discuss factors that affect exchange rates in an open economy with a floating system.

Contents

Introduction

- When people in countries with different currencies buy from and sell to each other, an exchange of currencies must also take place.
- **Exchange rate** The price of one country's currency in terms of another country's currency; the ratio at which two currencies are traded for each other.
- Within a certain range of exchange rates, trade flows in both directions, is mutually beneficial, and each country specializes in producing the goods in which it enjoys a comparative advantage.

The Balance of Payments

- **Foreign exchange** All currencies other than the domestic currency of a given country.
- **Balance of payments** The record of a country's transactions in

(1) goods and services (recorded in Current Account)

and

(2) assets (recorded in Capital Account)

with the rest of the world; also the record of a country's sources (supply) and uses (demand) of foreign exchange.

The Balance of Payments

- How to record items in the Balance of Payments?

Sales ➔ recorded as + items

Purchases ➔ recorded as – items

E.g:

any imports of goods ➔ a negative entry

exports of goods ➔ a positive entry

sales of CP shares to Americans ➔ a positive entry

purchase of an apartment in Paris by a Thai ➔ a negative entry

The Balance of Payments

- The Current Account
  - balance of trade A country's exports of goods and services minus its imports of goods and services.
  - trade deficit   Occurs when a country's exports of goods and services are less than its imports of goods and services.
  - balance on current account Net exports of goods plus net exports of services plus net investment income plus net transfer payments.
- The Capital Account
  - balance on capital account In the United States, the sum of the following (measured in a given period): the change in private U.S. assets abroad, the change in foreign private assets in the United States, the change in U.S. government assets abroad, and the change in foreign government assets in the United States.

Balance of Payments		
	Credit	Debit
Current Account		
(1) Exports	+	
Merchandise and services	+	
Investment income received	+	
(2) Imports		-
Merchandise and services		-
Investment income paid		-
Capital Account		
(3) Increase in Thai holdings of assets located abroad		-
(4) Increase in foreign holdings of assets located in Thailand	+	

TABLE 20.1 United States Balance of Payments, 2009

All transactions that bring foreign exchange into the United States are credited (+) to the current account; all transactions that cause the United States to lose foreign exchange are debited (−) to the current account

Current Account	**Billions of dollars**
Goods exports	1,045.5
Goods imports	–1,562.6
(1) Net export of goods	–517.1
Exports of services	509.2
Imports of services	–370.8
(2) Net export of services	138.4
Income received on investments	561.2
Income payments on investments	–472.2
(3) Net investment income	89.0
(4) Net transfer payments	–130.2
(5) Balance on current account (1 + 2 + 3 + 4)	–419.9
Capital Account	
(6) Change in private U.S. assets abroad (increase is –)	–727.0
(7) Change in foreign private assets in the United States	–12.3
(8) Change in U.S. government assets abroad (increase is –)	489.6
(9) Change in foreign government assets in the United States	447.6
(10) Balance on capital account (6 + 7 + 8 + 9)	197.9
(11) Net capital account transactions	–2.9
(12) Statistical discrepancy	224.9
(13) Balance of payments (5 + 10 + 11 + 12)	0

The Balance of Payments

- The United States as a Debtor Nation
  - Prior to the mid-1970s, the United States had generally run current account surpluses, and thus its net wealth position was positive. It was a creditor nation.
  - Sometime between the mid-1970s and the mid-1980s, the United States reversed its net wealth position vis-à-vis the rest of the world, and was running large current account deficits.
  - Now it is the largest debtor nation in the world.
  - This reflects the fact that for the past three decades, it has spent much more on foreign goods and services than it has earned through the sales of its goods and services to the rest of the world.

Equilibrium Output in an Open Economy

The International Sector and Planned Aggregate Expenditure

Planned aggregate expenditure in an open economy:

$$AE \equiv C + I + G + EX - IM$$

net exports of goods and services (*EX* − *IM*) The difference between a country's total exports and total imports.

Determining the Level of Imports

When income rises, imports tend to go up. Algebraically,

$$IM = mY$$

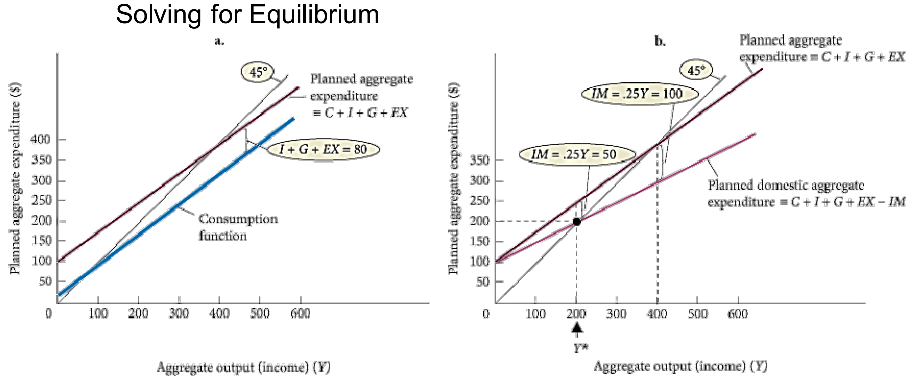
where Y is income and m is some positive number.

marginal propensity to import (*MPM*) The change in imports caused by a $1 change in income.

Equilibrium Output in an Open Economy

The International Sector and Planned Aggregate Expenditure

Solving for Equilibrium



The Open-Economy Multiplier

$$\text{open - economy multiplier} = \frac{1}{1-(MPC - MPM)}$$

The effect of a sustained increase in government spending (or investment) on income—that is, the multiplier—is smaller in an open economy than in a closed economy.

The reason: When government spending (or investment) increases and income and consumption rise, some of the extra consumption spending that results is on foreign products and not on domestically produced goods and services.

Imports and Exports

- The Determinants of Imports
  - The same factors that affect households' consumption behavior and firms' investment behavior are likely to affect the demand for imports.
  - The relative prices of domestically produced and foreign-produced goods also determine spending on imports.

Imports and Exports

- The Determinants of Exports
  - The demand for U.S. exports depends on economic activity in the rest of the world as well as on the prices of U.S. goods relative to the price of rest-of-the-world goods.
  - When foreign output increases, U.S. exports tend to increase. U.S. exports also tend to increase when U.S. prices fall relative to those in the rest of the world.

The Trade Feedback Effect

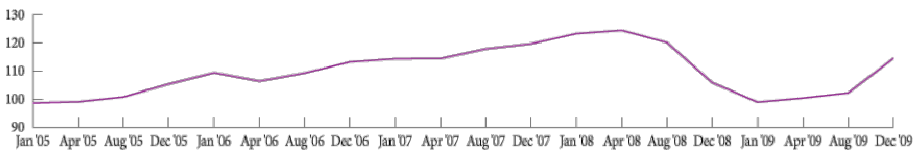
- **trade feedback effect** The tendency for an increase in the economic activity of one country to lead to a worldwide increase in economic activity, which then feeds back to that country.
  - An increase in U.S. imports increases other countries' exports, which stimulates those countries' economies and increases their imports, which increases U.S. exports, which stimulates the U.S. economy and increases its imports, and so on. This is the trade feedback effect.
  - In other words, an increase in U.S. economic activity leads to a worldwide increase in economic activity, which then "feeds back" to the United States.

ECONOMICS IN PRACTICE

The Recession Takes Its Toll on Trade

During recessions, people in many countries become more protectionist and seek to protect jobs in their own home industries by limiting imports.

The figure below shows the rise in trade levels in the world over the period 2005 to the middle of 2008 followed by large declines in the 2008–2009 recession.



Import and Export Prices and the Price Feedback Effect

- Export prices of other countries affect U.S. import prices. A country’s export prices tend to move fairly closely with the general price level in that country.
- The general rate of inflation abroad is likely to affect U.S. import prices. If the inflation rate abroad is high, U.S. import prices are likely to rise.
- **price feedback effect** The process by which a domestic price increase in one country can “feed back” on itself through export and import prices. An increase in the price level in one country can drive up prices in other countries. This in turn further increases the price level in the first country.

The Open Economy with Flexible Exchange Rates

- floating, or market-determined, exchange rates Exchange rates that are determined by the unregulated forces of supply and demand.
- The Market for Foreign Exchange
  - Governments, private citizens, banks, and corporations exchange pounds for dollars and dollars for pounds every day.
  - Those who demand pounds are holders of dollars seeking to exchange them for pounds.
  - Those who supply pounds are holders of pounds seeking to exchange them for dollars.

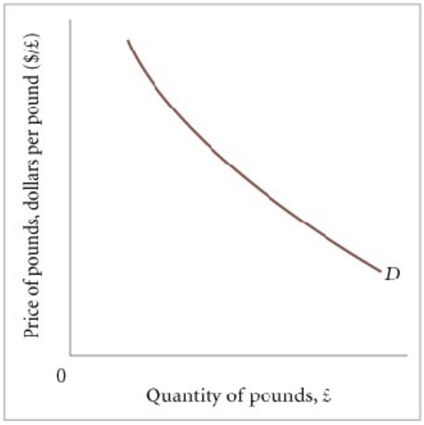
The Market for Foreign Exchange

The Demand for Pounds (Supply of Dollars)

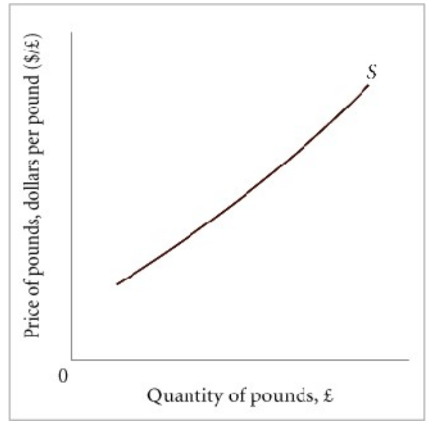
1. Firms, households, or governments that import British goods into the United States or want to buy British-made goods and services
2. U.S. citizens traveling in Great Britain
3. Holders of dollars who want to buy British stocks, bonds, or other financial instruments
4. U.S. companies that want to invest in Great Britain
5. Speculators who anticipate a decline in the value of the dollar relative to the pound

The Supply of Pounds (Demand for Dollars)

1. Firms, households, or governments that import U.S. goods into Great Britain or want to buy U.S.-made goods and services
2. British citizens traveling in the United States
3. Holders of pounds who want to buy stocks, bonds, or other financial instruments in the United States
4. British companies that want to invest in the United States
5. Speculators who anticipate a rise in the value of the dollar relative to the pound



When the price of pounds falls, British-made goods and services appear less expensive to U.S. buyers. If British prices are constant, U.S. buyers will buy more British goods and services and the quantity of pounds demanded will rise.



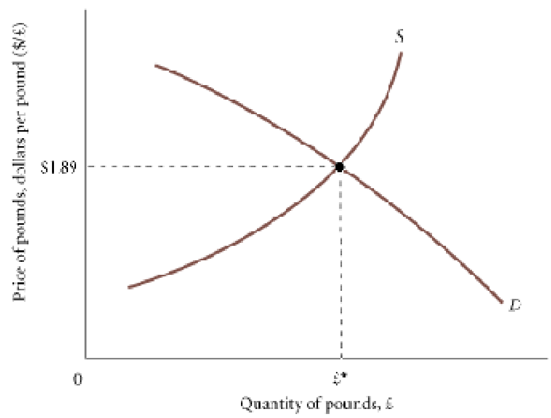
When the price of pounds rises, the British can obtain more dollars for each pound. This means that U.S.-made goods and services appear less expensive to British buyers. Thus, the quantity of pounds supplied is likely to rise with the exchange rate.

The Open Economy with Flexible Exchange Rates

- The equilibrium exchange rate occurs at the point at which the quantity demanded of a foreign currency equals the quantity of that currency supplied.
  - **appreciation of a currency** The rise in value of one currency relative to another.
  - **depreciation of a currency** The fall in value of one currency relative to another.

The Open Economy with Flexible Exchange Rates

When exchange rates are allowed to float, they are determined by the forces of supply and demand.
An excess demand for pounds will cause the pound to appreciate against the dollar.
An excess supply of pounds will lead to a depreciating pound.



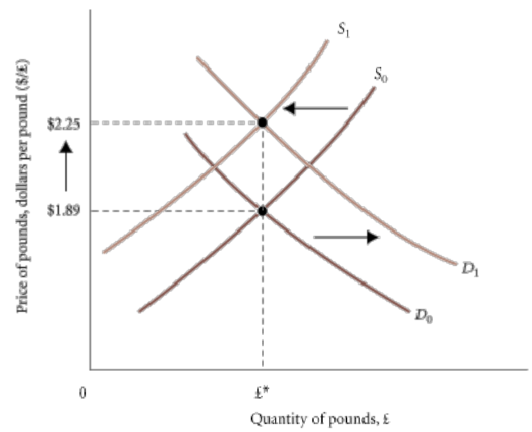
Factors That Affect Exchange Rates

- Purchasing Power Parity: The Law of One Price
  - law of one price If the costs of transportation are small, the price of the same good in different countries should be roughly the same.
  - purchasing-power-parity theory A theory of international exchange holding that exchange rates are set so that the price of similar goods in different countries is the same.
  - A high rate of inflation in one country relative to another puts pressure on the exchange rate between the two countries, and there is a general tendency for the currencies of relatively high-inflation countries to depreciate.

Factors That Affect Exchange Rates

Purchasing Power Parity: The Law of One Price

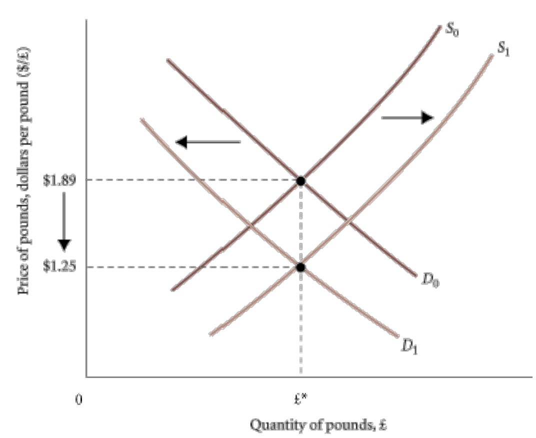
The higher price level in the United States makes imports relatively less expensive.
U.S. citizens are likely to increase their spending on imports from Britain, shifting the demand for pounds to the right, from D_0 to D_1.
At the same time, the British see U.S. goods getting more expensive and reduce their demand for exports from the United States.
The supply of pounds shifts to the left, from S_0 to S_1.
The result is an increase in the price of pounds. The pound appreciates, and the dollar is worth less.



Factors That Affect Exchange Rates

Relative Interest Rates

If U.S. interest rates rise relative to British interest rates, British citizens holding pounds may be attracted into the U.S. securities market.
To buy bonds in the United States, British buyers must exchange pounds for dollars.
The supply of pounds shifts to the right, from S_0 to S_1.
However, U.S. citizens are less likely to be interested in British securities because interest rates are higher at home.
The demand for pounds shifts to the left, from D_0 to D_1.
The result is a depreciated pound and a stronger dollar.



The Effects of Exchange Rates on the Economy

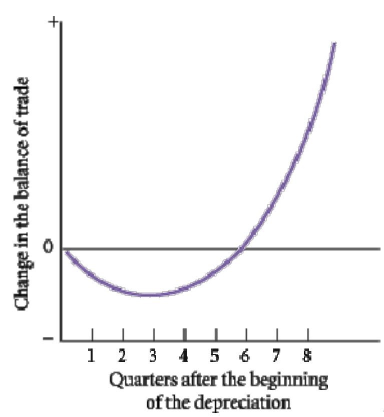
- The level of imports and exports depends on exchange rates as well as on income and other factors.
- When events cause exchange rates to adjust, the levels of imports and exports will change.
- Changes in exports and imports can, in turn, affect the level of real GDP and the price level.
- Further, exchange rates themselves also adjust to changes in the economy.
- Exchange Rate Effects on Imports, Exports, and Real GDP
  - A depreciation of a country's currency is likely to increase its GDP

The Effects of Exchange Rates on the Economy

- Exchange Rates and the Balance of Trade: The J Curve
  - J-curve effect Following a currency depreciation, a country's balance of trade may get worse before it gets better. The graph showing this effect is shaped like the letter J, hence the name J-curve effect.

Initially, a depreciation of a country's currency may worsen its balance of trade.
The negative effect on the price of imports may initially dominate the positive effects of an increase in exports and a decrease in imports.

balance of trade = dollar price of exports × quantity of exports
− dollar price of imports × quantity of imports



The Effects of Exchange Rates on the Economy

- Exchange Rates and Prices
  - The depreciation of a country's currency tends to increase its price level.
- Monetary Policy with Flexible Exchange Rates
  - A cheaper dollar is a good thing if the goal of the monetary expansion is to stimulate the domestic economy. If consumers substitute U.S.-made goods for imports, they will spend more on domestic products, so the multiplier actually increases.
  - Tight monetary policy works through a higher interest rate, which lowers investment and consumption spending, reducing aggregate expenditure and output, and lowering the price level. This also attracts foreign buyers into U.S. financial markets, driving up the value of the dollar, which reduces the price of imports and helps fight inflation.

The Effects of Exchange Rates on the Economy

- Fiscal Policy with Flexible Exchange Rates
  - The openness of the economy and flexible exchange rates do not always work to the advantage of policy makers.
  - Without a fully accommodating Fed, three factors work to reduce the multiplier:
  - A higher interest rate from the increase in money demand may crowd out private investment and consumption;
  - Some of the increase in income from the expansion will be spent on imports; and
  - A higher interest rate may cause the dollar to appreciate, discouraging exports and further encouraging imports.
- Monetary Policy with Fixed Exchange Rates
  - Monetary policy cannot play a role when a country has a fixed exchange rate unless it imposes capital controls.

ECONOMICS IN PRACTICE

China's Increased Flexibility

Most economies in the world operate with flexible exchange rates. One exception among the major trading countries has been China, whose government has acted to keep the value of its currency, the yuan, stable and relatively low.

An undervalued yuan increases demand for Chinese goods from abroad, but it also hurts the Chinese population by making foreign goods more expensive. In the late spring of 2010, after much pressure from its trading partners, the Chinese government announced that it would make the yuan more flexible.

China Warns on Currency Moves

The Wall Street Journal

ECONOMICS IN PRACTICE

Losing Monetary Policy Control

In 1999 the European Central Bank (ECB) was created and a common currency for much of Europe, the euro, was introduced.

Countries across Europe dismantled their own monetary authorities and ceded control over monetary policy to the ECB.

The recession that began in 2008 has proven to be a tough test for the ECB as it has tried to fashion monetary policy for a set of nations whose economies differ in many ways, including fiscal discipline.

With a common currency, problems with Greek debt have substantial effects on stronger economies like Germany's.

Euro Trips Amid Identity Crisis

The Wall Street Journal

An Interdependent World Economy

- The increasing interdependence of countries in the world economy has made the problems facing policy makers more difficult.
- We used to be able to think of the United States as a relatively self-sufficient region.
- Forty years ago economic events outside U.S. borders had relatively little effect on its economy. This situation is no longer true.
- The events of the past four decades have taught us that the performance of the U.S. economy is heavily dependent on events outside U.S. borders.

REVIEW TERMS AND CONCEPTS

- appreciation of a currency
- balance of payments
- balance of trade
- balance on capital account
- balance on current account
- depreciation of a currency
- exchange rate
- floating, *or* market-determined, exchange rates
- foreign exchange
- J-curve effect
- law of one price

marginal propensity to import (*MPM*)

net exports of goods and services (*EX* − *IM*)

price feedback effect

purchasing-power-parity theory

trade deficit

trade feedback effect

Planned aggregate expenditure in an open economy:

$AE \equiv C + I + G + EX - IM$

Open-economy multiplier =

$$\frac{1}{1-(MPC-MPM)}$$

CHAPTER 20 APPENDIX

World Monetary Systems Since 1900

The Gold Standard

The gold standard was the major system of exchange rate determination before 1914. All currencies were priced in terms of gold—an ounce of gold was worth so much in each currency.

Problems with the Gold Standard

The gold standard implied that a country had little control over its money supply. When major new gold fields were discovered, the world's supply of gold (and therefore of money) increased. When no new gold was discovered, the supply of money remained unchanged and prices and income tended to fall.

Fixed Exchange Rates and the Bretton Woods System

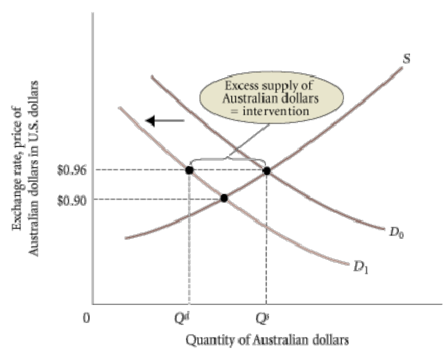
Under this system, countries were to maintain fixed exchange rates with one another in terms of the U.S. dollar instead of pegging their currencies directly to gold. Countries experiencing a "fundamental disequilibrium" in their balance of payments were allowed to change their exchange rates, invoking rivalry that led to the creation of the International Monetary Fund (IMF).

CHAPTER 20 APPENDIX

World Monetary Systems Since 1900

"Pure" Fixed Exchange Rates

► **FIGURE 20A.1 Government Intervention in the Foreign Exchange Market**
If the price of Australian dollars were set in a completely unfettered market, one Australian dollar would cost 0.96 U.S. dollars when demand is D_0 and 0.90 when demand is D_1.
If the government has committed to keeping the value at 0.96, it must buy up the excess supply of Australian dollars ($Q^s - Q^d$).



Problems with the Bretton Woods System

There was a basic asymmetry built into the rules of international finance. Also, this system permitted devaluations only when a country had a "chronic" current account deficit and was in danger of running out of foreign exchange reserves. Since its demise in 1971, the world's exchange rate system can be described as "managed floating," a flexibly fluctuating alternative where governments intervene if markets are becoming "disorderly."