Chapter 22
(*Economics* Chapter 37)

EXCHANGE RATES AND FINANCIAL LINKS BETWEEN COUNTRIES

FUNDAMENTAL QUESTIONS

1. How does a commodity standard fix exchange rates between countries?

   A commodity standard exists when exchange rates are based on the values of different currencies in terms of some commodity. The **gold standard,** in general use between 1880 and 1914, fixed the value of countries' currencies in terms of how much currency was needed to buy an ounce of gold. Fixing the value of currencies in terms of gold also fixes the relative value of all currencies to one another. For example, if the value of an ounce of gold is 20 U.S. dollars and its value is also 200 Mexican pesos, then a U.S. dollar has the same value as 10 Mexican pesos. As long as countries fix the value of their currencies in terms of some commodity, the relative values of those currencies stay the same.

2. What kinds of exchange-rate arrangements exist today?

   The gold standard ended with World War I. Since then, many exchange-rate systems have been tried. At the present time, nations use a variety of exchange-rate arrangements, including fixed exchange rates, freely floating exchange rates, and **managed floating exchange rates.**

3. How is equilibrium determined in the foreign exchange market?

   Equilibrium is determined in foreign exchange markets the same way it's determined in other markets: by the intersection of supply and demand curves. The demand for a currency, such as the U.S dollar, comes from the desire of people in other countries to buy things in the United States; the supply of U.S. currency to the foreign exchange market comes from U.S. residents' desire to buy things from foreign countries.

4. How do fixed and floating exchange rates differ in their adjustment to shifts in supply and demand for currencies?

   With floating exchange rates, the foreign exchange market adjusts automatically to shifts in supply and demand, the same way perfectly competitive markets for products adjust. With fixed exchange rates, a government can try to maintain the fixed rate through intervention in the foreign exchange market, although this is unlikely to work unless the shifts in supply and demand are temporary. A **fundamental disequilibrium** usually requires a currency devaluation.

5. What are the advantages and disadvantages of fixed and floating exchange rates?

   Fixed exchange rates require that a nation match its macroeconomic policies to those of the country or countries to which its currency is pegged; this limits a country's ability to set its own policies. Floating exchange rates allow countries to follow their own macroeconomic policies.

6. How does a change in the exchange rate affect the prices of goods traded between countries?

   Changes in exchange rates change the prices people must pay for imported products. When the domestic currency depreciates (decreases in value) against another currency, foreign goods become more expensive for domestic buyers and domestic goods become less expensive for foreign buyers. When the domestic currency appreciates (increases in value) against another currency, foreign goods become less expensive for domestic buyers and domestic goods become more expensive for foreign buyers.

   A few examples will help make this clearer. Let's say that yesterday the U.S. dollar exchange rate for the Japanese yen was \$1 = ¥200. Today, the exchange rate changed to \$1 = ¥300. The dollar has appreciated relative to the yen, since a dollar will buy more yen than before. A Japanese VCR that costs ¥60,000 in Japan sold for \$300 yesterday (¥60,000/¥200 per \$) but costs only \$200 today (¥60,000/¥300 per \$): foreign goods become less expensive to domestic buyers when a currency appreciates. On the other hand, a bushel of wheat that sells for \$3 in the United States cost buyers in Japan ¥600 yesterday (\$3 × ¥200 per \$) but costs them ¥900 today (\$3 × ¥300 per \$): domestic goods become more expensive to foreign buyers when a currency appreciates.

   Let's say that yesterday the U.S. dollar exchange rate for the euro was \$1 = €3. Today, the exchange rate changed to \$1 = €2. The dollar has depreciated relative to the euro, since a dollar will buy fewer euros than before. A German BMW that costs €60,000 in Germany sold for \$20,000 yesterday (€60,000/€3 per \$) but costs \$30,000 today (€60,000/€2 per \$): foreign goods become more expensive to domestic buyers when a currency depreciates. On the other hand, a bushel of wheat that sells for \$3 in the United States cost buyers in Germany €9 yesterday (\$3 × €3 per \$), but costs them only €6 today (\$3 × €2 per \$): domestic goods become less expensive to foreign buyers when a currency depreciates.

7. Why don't similar goods sell for the same price all over the world?

Before we answer this question, let's look at why we would expect similar goods to sell at the same price. Let's suppose that gold sells for $350 per ounce in Philadelphia and for $400 per ounce in New York today. You (and many other people) could make a profit through **arbitrage** by buying gold in Philadelphia, driving to New York, and selling the gold there. But if you and others do this, the demand for gold in Philadelphia will increase, pulling the price of gold above $350, while in New York the supply of gold will increase, pushing the price of gold below $400. Arbitrage moves the prices of gold in Philadelphia and New York toward the same price; arbitrage will continue until gold has the same price in both cities.

In world markets, we would expect the same sort of process to work: arbitrage should make the cost of a good the same in all countries. If gold costs $400 per ounce in the United States, and the exchange rate between U.S. dollars and euros is $1 = €5, gold should cost €2,000 ($400 × €5 per $) in France. If gold doesn't cost €2,000, then there are opportunities for arbitrage, which will eventually bring the price of gold to the same value in both New York and Paris. When monies have the same purchasing power in different markets, there is **purchasing power parity (PPP).**

In reality, prices around the world frequently differ from purchasing power parity. A McDonald's Big Mac may cost $2.20 in New York but cost the equivalent of $3.15 in Paris. Deviations from PPP occur for the following reasons:

a. Goods are not identical in different countries. Although McDonald's tries hard to make Big Macs identical around the world, the atmosphere of eating on Seventh Avenue in New York isn't the same as on the Champs Élysées.
b. Information is costly. A Parisian would have to make an international phone call to find out the price of a Big Mac today in New York.
c. Shipping costs affect prices. The cost of mailing a Big Mac from New York to Paris is more than the price difference.
d. Tariffs and other restrictions on trade affect prices. If the French government has a tax on imported hamburgers, the cost to the Parisian will be higher.

8. How do we find the domestic currency return on a foreign bond?

In addition to buying and selling goods between countries, the world economy also trades financial instruments like stocks and bonds. To be able to decide whether buying a U.S. bond or buying a Japanese bond is the better choice, you need to calculate the domestic currency return on the Japanese bond to find how much the interest paid in yen is expected to be worth in dollars in the future; you already know the return in dollars for the U.S. bond, since it pays interest in dollars. The domestic currency return on the Japanese bond is the interest rate paid by the bond plus the percentage change in the exchange rate. For example, if the Japanese bond pays 4 percent interest and the exchange rate between the dollar and the yen stays constant, the domestic currency return is still 4 percent. If instead the yen is expected to appreciate by 3 percent per year, buying the Japanese bond gives you a 7 percent return: the 4 percent interest plus the 3 percent increase in the value of the yen.

9. What is the relationship between domestic and foreign interest rates and changes in the exchange rate?

We have already looked at the idea of purchasing power parity and how arbitrage can bring prices of internationally traded goods into line. The same idea can be applied to international financial investments. **Interest rate parity (IRP)** occurs when the domestic currency return is the same for investments in different countries. When interest rate parity does not hold, arbitrageurs can make a profit by buying financial assets in one country and simultaneously selling similar assets in another country. In the process, exchange rates will change to make domestic currency returns move toward equality.

Key Terms

gold standard
gold exchange standard
reserve currency
International Monetary Fund (IMF)
World Bank
foreign exchange market intervention
devaluation
equilibrium exchange rates
managed floating exchange rates
appreciate
depreciate
fundamental disequilibrium
speculators
open economy
multiple exchange rates
arbitrage
purchasing power parity (PPP)
interest rate parity (IRP)

Quick-Check Quiz

Section 1: Past and Current Exchange-Rate Arrangements

1. Which of the following describes a gold standard?
   a. a currency that is used to settle international debts and that is held by governments to use in foreign exchange market interventions
   b. an exchange-rate system in which each nation fixes the value of its currency in terms of gold but buys and sells the U.S. dollar rather than gold to maintain fixed exchange rates
   c. the buying or selling of currencies by a government or central bank to achieve a specified exchange rate
   d. the exchange rates that are established in the absence of government foreign exchange market intervention
   e. a system whereby national currencies are fixed in terms of their value in gold, thus creating fixed exchange rates between currencies

2. Which of the following describes a gold exchange standard?
   a. a currency that is used to settle international debts and that is held by governments to use in foreign exchange market interventions
   b. an exchange-rate system in which each nation fixes the value of its currency in terms of gold but buys and sells the U.S. dollar rather than gold to maintain fixed exchange rates
   c. the buying or selling of currencies by a government or central bank to achieve a specified exchange rate
   d. the exchange rates that are established in the absence of government foreign exchange market intervention
   e. a system whereby national currencies are fixed in terms of their value in gold, thus creating fixed exchange rates between currencies

3. Which of the following describes a reserve currency?
   a. a currency that is used to settle international debts and that is held by governments to use in foreign exchange market interventions
   b. an exchange-rate system in which each nation fixes the value of its currency in terms of gold but buys and sells the U.S. dollar rather than gold to maintain fixed exchange rates
   c. the buying or selling of currencies by a government or central bank to achieve a specified exchange rate
   d. the exchange rates that are established in the absence of government foreign exchange market intervention
   e. a system whereby national currencies are fixed in terms of their value in gold, thus creating fixed exchange rates between currencies

4. Which of the following describes foreign exchange market intervention?
   a. a currency that is used to settle international debts and that is held by governments to use in foreign exchange market interventions
   b. an exchange-rate system in which each nation fixes the value of its currency in terms of gold but buys and sells the U.S. dollar rather than gold to maintain fixed exchange rates
   c. the buying or selling of currencies by a government or central bank to achieve a specified exchange rate
   d. the exchange rates that are established in the absence of government foreign exchange market intervention
   e. a system whereby national currencies are fixed in terms of their value in gold, thus creating fixed exchange rates between currencies

5. Which of the following describes equilibrium exchange rates?
   a. a currency that is used to settle international debts and that is held by governments to use in foreign exchange market interventions
   b. an exchange-rate system in which each nation fixes the value of its currency in terms of gold but buys and sells the U.S. dollar rather than gold to maintain fixed exchange rates
   c. the buying or selling of currencies by a government or central bank to achieve a specified exchange rate
   d. the exchange rates that are established in the absence of government foreign exchange market intervention
   e. a system whereby national currencies are fixed in terms of their value in gold, thus creating fixed exchange rates between currencies

6. The Bretton Woods system
   a. created the International Monetary Fund and the World Bank.
   b. set a gold exchange standard.
   c. used the U.S. dollar as a reserve currency.
   d. tried to maintain exchange rates through foreign exchange market intervention.
   e. was and did all of the above.

Section 2: Fixed or Floating Exchange Rates

1. Currency appreciation is
   a. a decrease in the value of a currency under floating exchange rates.
   b. an increase in the value of a currency under floating exchange rates.
   c. a decrease in the value of a currency under fixed exchange rates.
   d. an increase in the value of a currency under fixed exchange rates.
   e. resetting the pegged value of a currency.

2. Currency depreciation is
   a. a decrease in the value of a currency under floating exchange rates.
   b. an increase in the value of a currency under floating exchange rates.
   c. a decrease in the value of a currency under fixed exchange rates.
   d. an increase in the value of a currency under fixed exchange rates.
   e. resetting the pegged value of a currency.

3. Which of the following statements about fixed and floating exchange rates is *false*?
   a. Fixed exchange rates put pressure on a nation to manage its macroeconomic policy in concert with other nations.
   b. Floating exchange rates put pressure on a nation to manage its macroeconomic policy in concert with other nations.
   c. Speculators are more likely to be a problem under fixed exchange rates than under floating exchange rates.
   d. Fixed exchange rates can force a devaluation in the event of fundamental disequilibrium.
   e. Floating exchange rates adjust automatically to changes in demand and supply.

Section 3: Prices and Exchange Rates

1. When one currency increases in value relative to other currencies, we say that the currency has
   a. depreciated.
   b. appreciated.
   c. diminished.
   d. expanded.
   e. been redevalued.

2. When one currency decreases in value relative to other currencies, we say that the currency has
   a. depreciated.
   b. appreciated.
   c. diminished.
   d. expanded.
   e. been revalued.

3. If the exchange rate between U.S. dollars and euros changes from $.15 = €1 to $.20 = €1, the euro has
   a. depreciated.
   b. appreciated.
   c. diminished.
   d. expanded.
   e. been redevalued.

4. If the exchange rate between U.S. dollars and euros changes from $.15 = €1 to $.20 = €1, the U.S. dollar has
   a. depreciated.
   b. appreciated.
   c. diminished.
   d. expanded.
   e. been redevalued.

5. Arbitrage is
   a. simultaneously buying different goods in the same market.
   b. the condition that exists when average wages buy the same market basket of goods in different countries.
   c. simultaneously buying in a market where the price is low and selling in a market where the price is high to profit from the price differential.
   d. the condition under which monies have the same purchasing power in different markets.
   e. the settlement by outside mediators of disputes concerning foreign exchange.

6. Purchasing power parity (PPP) is
   a. simultaneously buying different goods in the same market.
   b. the condition that exists when average wages buy the same market basket of goods in different countries.
   c. simultaneously buying in a market where the price is low and selling in a market where the price is high to profit from the price differential.
   d. the condition under which monies have the same purchasing power in different markets.
   e. the settlement by outside mediators of disputes concerning foreign exchange.

7. Which of the following statements is true?
   a. When the domestic currency depreciates, foreign goods become cheaper for domestic buyers.
   b. When the domestic currency appreciates, foreign goods become more expensive for domestic buyers.
   c. When a foreign currency depreciates, American goods become cheaper for foreign buyers.
   d. When a foreign currency depreciates, American goods become more expensive for foreign buyers.
   e. When the domestic currency depreciates, American goods become more expensive for foreign buyers.

Section 4: Interest Rates and Exchange Rates

1. When deciding whether to buy a bond denominated in a foreign currency or a domestic bond, the buyer must take into account
   a. only the interest rate on the domestic bond.
   b. only the interest rate on the foreign bond.
   c. only the interest rates on both domestic and foreign bonds.
   d. the interest rates on the foreign and domestic bonds and the expected changes in the exchange rate.
   e. the interest rates on the foreign and domestic bonds and the current exchange rate.

2. Interest rate parity exists when the domestic interest rate equals the
   a. foreign interest rate.
   b. exchange rate.
   c. expected change in the exchange rate.
   d. foreign interest rate plus the expected change in the exchange rate.
   e. expected change in the foreign bond price.

3. When foreign-issued assets are subject to political risks, buyers must be paid
   a. in their own domestic currency.
   b. in another country's currency.
   c. a risk premium.
   d. below-market interest rates.
   e. interest rates based only on IRP.

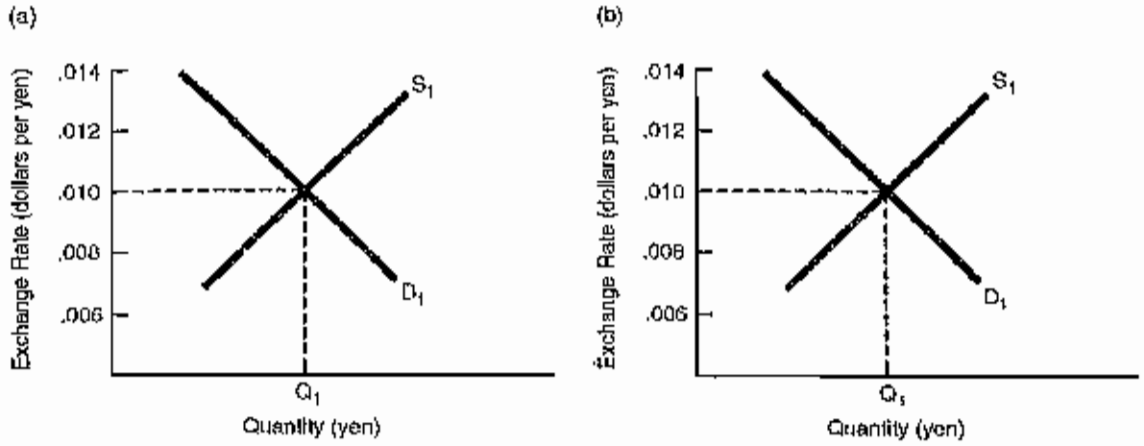
Practice Questions and Problems

Section 1: Past and Current Exchange-Rate Arrangements

1. From about 1880 to 1914, most currencies were fixed in value in terms of _____ .
2. The Bretton Woods agreement of 1944 set up two international financial institutions that are still active today. Name the two institutions that match the descriptions below.
   a. Supervises exchange-rate arrangements and lends money to member countries experiencing problems meeting their external financial obligations: _____
   b. Makes loans and provides technical expertise to developing countries: _____
3. A(n) _____ is a deliberate decrease in the official value of a currency.
4. Today, the major industrial countries determine the value of their currencies through _____ .
5. The _____ was introduced in 1999 as the eventual replacement for the currencies of several European countries.
6. Under a gold standard, if gold is worth $35 per ounce in the United States and 175 francs per ounce in France, _____ franc(s) will exchange for $1.
7. Under a gold standard, if gold is worth $20 per ounce in the United States and 10 marks per ounce in Germany, _____ mark(s) will exchange for $1.

Section 2: Fixed or Floating Exchange Rates

1. The U.S. demand for Japanese yen comes from the desire of _____ (U.S., Japanese) citizens for _____ (U.S., Japanese) goods.
2. The U.S. supply of Japanese yen comes from the desire of _____ (U.S., Japanese) citizens for _____ (U.S., Japanese) goods.
3. If U.S. citizens decide that they want to buy more Mazda automobiles from Japan, the U.S. _____ (demand for, supply of) yen will _____ (increase, decrease).
4. If Japanese citizens decide they want to buy fewer IBM computers from the United States, the U.S. _____ (demand for, supply of) yen will _____ (increase, decrease).
5. The two graphs below show the current U.S. demand for and supply of Japanese yen. The exchange rate between yen and dollars floats freely.



a. The current exchange rate in dollars per yen is _____ .

b. The current exchange rate in yen per dollar is _____ .

c. On graph a, sketch in a new demand or supply curve (whichever is appropriate) that shows the effects of a decrease in the purchase of Japanese Mazda automobiles by U.S. residents.

d. With the change in demand, the dollar _____ (appreciates, depreciates) relative to the yen, and the yen _____ (appreciates, depreciates) relative to the dollar.

e. On graph b, sketch in a new demand or supply curve (whichever is appropriate) that shows the effects of a decrease in the purchase of Boeing airplanes (made in the United States) by Japanese airlines.

f. With the change in supply, the dollar _____ (appreciates, depreciates) relative to the yen, and the yen _____ (appreciates, depreciates) relative to the dollar.

Section 3: Prices and Exchange Rates

1. An economy that trades goods and financial assets with the rest of the world is _____ .
2. We say that a currency has appreciated when its value _____ (increases, decreases) relative to other currencies; we say that a currency has depreciated when its value _____ (increases, decreases) relative to other currencies.
3. Yesterday the exchange rate between the U.S. dollar and the British pound was \$1.50 = £1. Today the exchange rate between the U.S. dollar and the British pound is \$2.00 = £1.
   a. Yesterday the exchange rate was \$1 = _____ .
   b. Today the exchange rate is \$1 = _____ .
   c. The pound has _____ (appreciated, depreciated) relative to the dollar.
   d. The dollar has _____ (appreciated, depreciated) relative to the pound.
   e. A British Rolls-Royce costs £150,000. Yesterday the Rolls-Royce would have cost an American _____ ; today the Rolls-Royce costs _____ . The dollar has _____ (appreciated, depreciated) relative to the pound, making the Rolls-Royce _____ (more, less) expensive to Americans.
   f. An American Boeing airliner costs \$60 million. Yesterday the Boeing would have cost a British airline _____ ; today the Boeing costs _____ . The dollar has _____ (appreciated, depreciated) relative to the pound, making the Boeing _____ (more, less) expensive to the British airline.
4. When the domestic currency depreciates, domestic goods become _____ expensive to foreign buyers and foreign goods become _____ expensive to domestic buyers.
5. When the domestic currency appreciates, domestic goods become _____ expensive to foreign buyers and foreign goods become _____ expensive to domestic buyers.
6. Let's say that the exchange rate between dollars and pounds is \$1.50 = £1 and that an ounce of gold sells for £300 in London.
   a. What must the price of gold in New York be for purchasing power parity to hold? _____
   b. If gold sells for \$400 in New York and £300 in London, would you buy gold in New York or in London to make a profit from arbitrage? _____
   c. If the inflation rate in the United States is 10 percent this year and there is no inflation in Britain, what will the exchange rate be in a year if purchasing power parity is maintained? _____

7. Let's say that the exchange rate between dollars and euros is \$.50 = €1 and that an ounce of gold sells for \$300 in New York.
   a. What must the price of gold in Berlin, Germany, be for purchasing power parity to hold?

      _____

   b. If gold sells for \$400 in New York and €400 in Berlin, would you buy gold in New York or Berlin to make a profit from arbitrage? _____
   c. If the inflation rate in the United States is 20 percent this year and there is no inflation in Germany, what will the exchange rate be in a year if purchasing power parity is maintained?

      _____

8. A _____ is a tax on goods that are traded internationally.
9. The dollar _____ against currencies that have a higher inflation rate than the dollar and _____ against currencies that have a lower inflation rate.

Section 4: Interest Rates and Exchange Rates

1. The domestic currency return from a foreign bond equals the foreign _____ plus the percentage change in the _____ . Differences in inflation rates are one reason why the _____ may change.
2. When similar financial assets from different countries have the same interest rate when measured in the same currency, we have _____ .
3. When the domestic interest rate equals the foreign interest rate plus the expected change in the exchange rate, we have _____ .
4. Let's say that the interest rate on U.S. government bonds is 10 percent and the interest rate on similar bonds issued by the Japanese government is 15 percent. Interest rate parity holds between the United States and Japan.
   a. What do people expect to happen to the exchange rate between the U.S. dollar and the Japanese yen?

      _____

      _____

      _____

      _____

   b. Do people expect the dollar to appreciate or depreciate? Why?

      _____

      _____

      _____

      _____

c. If the expected change in the exchange rate is caused only by differences in the expected exchange rate, do people expect inflation to be higher in the United States or in Japan?

5. If interest rate parity holds and people expect higher inflation in Mexico than in Argentina, will interest rates be higher in Mexico or in Argentina? Why?

Thinking About and Applying Exchange Rates and Financial Links Between Countries

Floating Exchange Rates?

A headline in the *Wall Street Journal,* read "U.S. Slows Yen's Rise, Easing Japanese Tension." The exchange rate between the yen and the dollar had dropped from 125 yen per dollar in early January to below 110 yen per dollar in April. The article said:

> Marking the Clinton administration's first intervention in the foreign-exchange markets, the Federal Reserve Bank of New York repeatedly sold yen for dollars after the U.S. currency hit a postwar low of 109.25 yen. By late yesterday afternoon in New York, the dollar had risen about 1% against the yen.

1. Explain why the headline is correct when it talks about the yen's "rise" between January and April.

2. Use demand and supply analysis to explain the effect that the Federal Reserve's selling yen for dollars would have on the exchange rate between dollars and yen.

3. How can economists say that both the United States and Japan have adopted floating exchange rates, when the Federal Reserve acts to control exchange rates?

Chapter 22 (*Economics* Chapter 37) Homework Problems

Name _____

1. Under the gold standard, what determined the exchange rate between two countries' currencies?

2. How are the exchange rates between the dollar and other major currencies determined today?

3. People sometimes think that the same products ought to sell for equivalent prices in different countries. What do economists call this idea?

4. If the United States and its major trading partners went back on the gold standard, how would they have to change their macroeconomic policymaking?

5. Suppose the exchange rate between the U.S. dollar and the British pound is floating. What effect will each of the following have on the demand or supply of dollars, and what will happen to the price of a dollar in pounds (the exchange rate)?
   a. British Airways decides to buy 200 new Boeing 777 airliners.

   b. British Land Rovers become much more popular in the United States.

   c. The U.S. stock market booms, attracting large numbers of British investors.

   d. The Federal Reserve lowers interest rates in the United States, making British bonds more attractive to U.S. investors.

If your instructor assigns these problems, write your answers above, then tear out this page and hand it in.

Answers

Quick-Check Quiz

Section 1: Past and Current Exchange-Rate Arrangements

1. c; 2. b; 3. a; 4. c; 5. d; 6. e

If you missed any of these questions, you should go back and review Section 1 in Chapter 22 (*Economics*, Chapter 37).

Section 2: Fixed or Floating Exchange Rates

1. b; 2. a; 3. b

If you missed any of these questions, you should go back and review Section 2 in Chapter 22 (*Economics*, Chapter 37).

Section 3: Prices and Exchange Rates

1. b; 2. a; 3. b; 4. a

If you answered c, d, or e to any of these questions, review Section 3.a of Chapter 22 (*Economics*, Chapter 37) in the text before going on; you need to become familiar with the terminology of foreign exchange.

If you answered a when the right answer was b, or b when the right answer was a, you know the correct terms but have the directions reversed; that's easy to do with foreign exchange problems. Go back through the examples in Sections 3 and 3.a of Chapter 22 (*Economics*, Chapter 37), go through the examples in the answers to Fundamental Questions 6 and 7 on pages 440–441 of this Study Guide, and then try the questions again.

5. c; 6. d; 7. d

If you missed any of questions 5 through 7, you should go back and review Section 3 of Chapter 22 (*Economics*, Chapter 37).

Section 4: Interest Rates and Exchange Rates

1. d; 2. d; 3. c

If you missed any of these questions, you should go back and review Section 4 of Chapter 22 (*Economics*, Chapter 37).

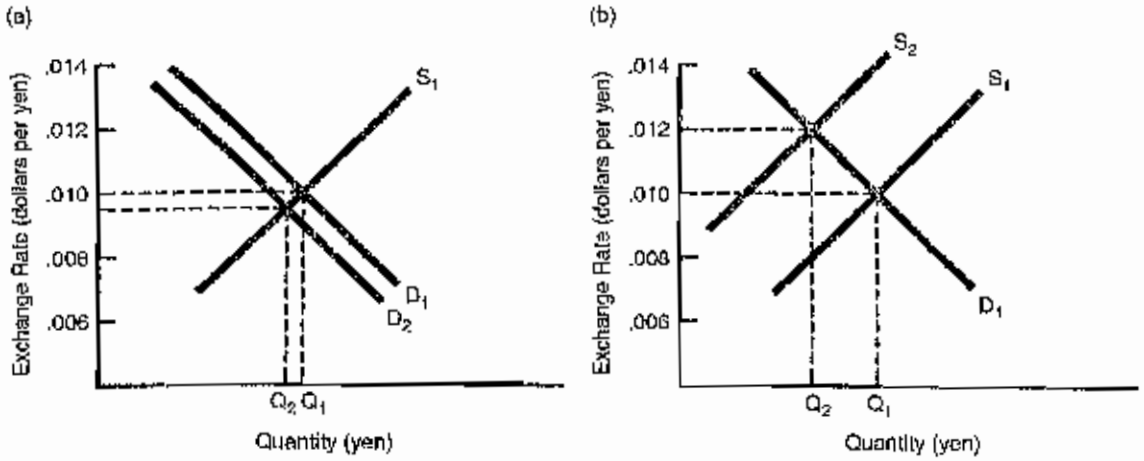
Practice Questions and Problems

Section 1: Past and Current Exchange-Rate Arrangements

1. gold
2. a. International Monetary Fund (IMF)
   b. World Bank
3. devaluation
4. managed floating exchange rates
5. euro
6. 5 (It takes five times as many francs as dollars to buy an ounce of gold [175 francs per ounce/$35 per ounce], so $1 would be equivalent to five times as many francs.)
7. 0.5 mark (It takes half as many marks as dollars to buy an ounce of gold [10 marks per ounce/$20 per ounce], so $1 would be equivalent to half as many marks.)

Section 2: Fixed or Floating Exchange Rates

1. U.S.; Japanese
2. Japanese; U.S.
3. demand for; increase (The Mazda factory in Japan wants to be paid in its own currency [yen]. U.S. buyers of Japanese products have to buy yen with dollars. Because we want to buy more yen than before, the demand for yen will increase.)
4. supply of; decrease (IBM in the United States wants to be paid in its own currency [dollars]. Japanese buyers of U.S. products have to sell yen to get dollars. Because they want to sell fewer yen than before, the supply of yen will decrease.)
5.



a. .01 dollar per yen (It takes $.01 to buy 1 yen, in dollars per yen. You can read this value from the intersection of demand and supply on the graphs.)
b. 100 yen per dollar (The exchange rate in yen per dollar is the inverse of the exchange rate in dollars per mark: 1.01 = 100. Exchange rates can be expressed either way.)
c. U.S. buyers of Japanese products are the demanders of yen (they need to buy yen to pay Japanese people), so the demand curve will shift. If we buy fewer Mazdas, the demand for yen will decrease, as shown on graph a. The size of the shift on the graph does not matter.
d. appreciates; depreciates (It takes fewer dollars now to buy a yen than it did before [.0095 dollar per yen instead of .010], so the dollar is more valuable relative to the yen. And it now takes 105.26 yen to buy a dollar [1.0095]. It takes more yen now to buy a dollar than before, so the yen is less valuable relative to the dollar.)
e. Japanese buyers of U.S. products are the sellers of yen (they need to sell yen to get dollars to pay Americans), so the supply curve will shift. If they buy fewer Boeing planes, the supply of yen will decrease, as shown on graph b. The size of the shift on the graph does not matter.
f. depreciates; appreciates (It takes more dollars now to buy a yen than it did before [.012 dollar per yen instead of .010], so the dollar is less valuable relative to the yen. And it now takes only 83.33 yen to buy a dollar [1/.012]. It takes fewer yen now to buy a dollar than before, so the yen is more valuable relative to the dollar.)

Section 3: Prices and Exchange Rates

1. open
2. increases; decreases
3. a. £.67
   b. £.50
   c. appreciated (A pound buys *more* dollars than before.)
   d. depreciated (A dollar buys *fewer* pounds than before.)
   e. $225,000; $300,000; depreciated; more
      If the Rolls-Royce costs £150,000 and each pound cost an American $1.50 yesterday, the cost of the Rolls-Royce in dollars is £150,000 × $1.50 per pound = $225,000. If the Rolls-Royce costs £150,000 and each pound cost an American $2.00 today, the cost of the Rolls-Royce in dollars is £150,000 × $2.00 per pound = $300,000.
   f. £40 million; £30 million; depreciated; less
      If the Boeing airliner costs $60 million and the exchange rate was $1.50 per pound yesterday, the cost of the Boeing in pounds is $60 million/$1.50 per pound = £40 million. If the Boeing airliner costs $60 million and the exchange rate is $2.00 per pound today, the cost of the Boeing in pounds is $60 million/$2.00 per pound = £30 million.
4. less; more
5. more; less
6. a. $450
      This is just the dollar value of £300 (£300 × $1.50 per pound).
   b. New York
      The price in dollars of gold is $400 in New York and $450 in London (answer a). For arbitrage to work, you must buy in the lower-price market and sell in the higher-price market.
   c. $1.65 = £1
      The number of dollars needed to buy a pound will increase by 10 percent of the old exchange rate [$1.50 + ($1.50 × 10 percent)].
7. a. €600
   b. Berlin
      €400 is equivalent to $200 (€400 × $.50 per €), so gold is cheaper in Berlin.
   c. $.60 = €1
      The number of dollars needed to buy one euro will increase by 20 percent of the old exchange rate [$.50 + ($.50 × 20 percent)].
8. tariff
9. appreciates; depreciates

Section 4: Interest Rates and Exchange Rates

1. interest rate; exchange rate; exchange rate
2. interest rate parity
3. interest rate parity
4. a. Since IRP holds even though the present interest rates are different, there must be an expected change in the exchange rate between dollars and yen.
   b. People expect the dollar to appreciate relative to the yen: that's why people are willing to buy bonds denominated in dollars even though the interest rate is lower.
   c. Inflation is expected to be 5 percent higher in Japan than in the United States. The higher interest rate in Japan compensates people for the expected decrease in the value of the yen.
5. Interest rates will be higher in Mexico to compensate for the decrease in the value of the Mexican peso caused by inflation.

Thinking About and Applying Exchange Rates and Financial Links Between Countries

Floating Exchange Rates?

1. The yen "rose" (appreciated) during that time because the number of yen needed to buy a dollar decreased, making the yen more valuable relative to the dollar. A U.S. product that cost $1 would have cost a Japanese buyer 125 yen in January but only about 110 yen in April.
2. Looking at the markets for dollars and yen, selling yen and buying dollars would have increased the supply of yen, lowering the price of yen; it also would have increased the demand for dollars, raising the price of dollars.
3. At any moment, the Federal Reserve (or other central bank) can affect exchange rates to a limited extent. What limits the Fed's actions in this case is its limited supply of yen to sell. Most of the time, the exchange rate is determined by market demand and supply.