Open-Economy Macroeconomics

1. How would the following transactions be categorized in the U.S. balance of payments accounts? Would they be entered in the current account (as a payment to or from a foreigner) or the financial account (as a sale of assets to or purchase of assets from a foreigner)? How will the balance of payments on the current and financial accounts change?
   a. A French importer buys a case of California wine for $500.
   b. An American who works for a French company deposits her paycheck, drawn on a Paris bank, into her San Francisco bank.
   c. An American buys a bond from a Japanese company for $10,000.
   d. An American charity sends $100,000 to Africa to help local residents buy food after a harvest shortfall.

   Solution

   1. a. When the French importer buys the California wine, the transaction is entered as a payment from foreigners in the current account. The balance of payments on the U.S. current account will rise.
   b. When the American is paid by the French company, she is receiving factor income in exchange for export of her labor services. It is entered in the U.S. current account as an export. The balance of payments on the U.S. current account will rise.
   c. When an American buys a Japanese bond, the transaction is entered in the U.S. financial account as a purchase of a Japanese asset by an American. The balance of payments on the U.S. financial account will fall.
   d. When an American charity sends a gift to Africa, it is entered as a transfer payment to a foreigner in the U.S. current account. The balance on the U.S. current account will fall.

2. The accompanying diagram shows foreign-owned assets in the United States and U.S.-owned assets abroad, both as a percentage of foreign GDP. As you can see from the diagram, both increased around fivefold from 1980 to 2010.

![Diagram showing foreign-owned assets in the United States and U.S.-owned assets abroad as a percentage of foreign GDP from 1980 to 2010. The diagram indicates a fivefold increase in both categories. Sources: IMF; Bureau of Economic Analysis.]
2. a. No, the diagram does not indicate that the United States experienced net capital outflows. Over the same period, foreign-owned assets also flowed into the United States, increasing them as a percentage of U.S. GDP. In fact, between 1996 and 2010, the United States moved into massive deficit on its current account, which meant that it became the recipient of huge net capital inflows from the rest of the world.

   b. Yes, the diagram indicates that world economies were more tightly linked in 2010 than they were in 1980. Because the United States has more assets abroad and other countries own more assets in the United States, “financial contagion” has become a possibility—a financial crisis in one country is more likely to lead to a financial crisis in another country.

3. In the economy of Scottopia in 2010, exports equaled $400 billion of goods and $300 billion of services, imports equaled $500 billion of goods and $350 billion of services, and the rest of the world purchased $250 billion of Scottopia’s assets. What was the merchandise trade balance for Scottopia? What was the balance of payments on current account in Scottopia? What was the balance of payments on financial account? What was the value of Scottopia’s purchases of assets from the rest of the world?

   Solution

   a. The merchandise trade balance was -$100 billion ($400 billion - $500 billion).

   b. The balance of payments on current account was -$150 billion [($400 billion + $300 billion) - ($500 billion + $350 billion)]. Since the balance of payments on financial account plus the balance of payments on current account must sum to zero, the balance of payments on financial account must have been +$150 billion. If the rest of the world bought $250 billion of Scottopia’s assets, Scottopia must have bought $100 billion of assets from the rest of the world.

4. In the economy of Popania in 2010, total Popanian purchases of assets in the rest of the world equaled $300 billion, purchases of Popanian assets by the rest of the world equaled $400 billion, and Popania exported goods and services equal to $350 billion. What was Popania’s balance of payments on financial account in 2010? What was its balance of payments on current account? What was the value of its imports?

   Solution

   a. Popania’s balance of payments on financial account was +$100 billion ($400 billion - $300 billion). Since the balance of payments on financial account plus the balance of payments on current account must sum to zero, the balance of payments on current account must have been -$100 billion. If Popania exported $350 billion of goods and services, it must have imported $450 billion of goods and services.
5. Suppose that Northlandia and Southlandia are the only two trading countries in the world, that each nation runs a balance of payments on both current and financial accounts equal to zero, and that each nation sees the other’s assets as identical to its own. Using the accompanying diagrams, explain how the demand and supply of loanable funds, the interest rate, and the balance of payments on current and financial accounts will change in each country if international capital flows are possible.

5. Since the interest rate is 10% in Northlandia and 6% in Southlandia, demanders of loanable funds in Northlandia will want to borrow in Southlandia and suppliers of loanable funds in Southlandia will want to lend in Northlandia. As the supply of loanable funds falls in Southlandia, the interest rate in Southlandia will rise; as the supply of loanable funds rises in Northlandia, the interest rate in Northlandia will fall. This will narrow the gap between interest rates in the two countries. Since no one distinguishes between the assets in the two countries, interest rates will change in both countries until they are equal; as a result, there is no additional incentive for suppliers of loanable funds in Southlandia to lend in Northlandia and for demanders of loanable funds in Northlandia to borrow in Southlandia. In the accompanying diagrams, you can see that at an interest rate of 8% there is an excess supply of loanable funds in Southlandia equal to 250 and an excess demand for loanable funds in...
Northlandia will run a surplus of 250 in the financial account and a deficit of 250 in the current account; Southlandia will run a deficit of 250 in the financial account and a surplus of 250 in the current account.

6. Based on the exchange rates for the first trading days of 2011 and 2012 shown in the accompanying table, did the U.S. dollar appreciate or depreciate during 2011? Did the movement in the value of the U.S. dollar make American goods and services more or less attractive to foreigners?

<table>
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<tr>
<td>US$1.55 to buy 1 British pound sterling</td>
<td>US$1.57 to buy 1 British pound sterling</td>
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<tr>
<td>29.08 Taiwan dollars to buy US$1</td>
<td>30.28 Taiwan dollars to buy US$1</td>
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<tr>
<td>US$0.99 to buy 1 Canadian dollar</td>
<td>US$1.01 to buy 1 Canadian dollar</td>
</tr>
<tr>
<td>81.56 Japanese yen to buy US$1</td>
<td>76.67 Japanese yen to buy US$1</td>
</tr>
<tr>
<td>US$1.34 to buy 1 euro</td>
<td>US$1.31 to buy 1 euro</td>
</tr>
<tr>
<td>0.93 Swiss francs to buy US$1</td>
<td>0.93 Swiss francs to buy US$1</td>
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The U.S. dollar appreciated against the Taiwanese dollar and the euro; it depreciated against the British pound sterling, the Canadian dollar, and the Japanese yen. And it stayed the same against the Swiss franc. When the U.S. dollar depreciates, foreign goods are less attractive to American buyers and American goods are more attractive to foreign buyers, other things equal. The opposite is true when the U.S. dollar appreciates.

7. Go to http://fx.sauder.ubc.ca. Using the table labeled “The Most Recent Cross-Rates of Major Currencies,” determine whether the British pound (GBP), the Canadian dollar (CAD), the Japanese yen (JPY), the euro (EUR), and the Swiss franc (CHF) have appreciated or depreciated against the U.S. dollar (USD) since January 3, 2012. The exchange rates on January 3, 2012, are listed in the table in Problem 6 above.

Answers will vary. On March 30, 2012, the exchange rate was U.S.$1.33 per euro, U.S.$1.60 per British pound sterling, U.S.$1 per Canadian dollar, 82.43 Japanese yen per U.S. dollar, and 0.90 Swiss francs per U.S. dollar. Since January 3, 2012, the U.S. dollar appreciated against the euro, the British pound, and the Swiss franc. It depreciated against the Canadian dollar and the Japanese yen.
8. Suppose the United States and Japan are the only two trading countries in the world. What will happen to the value of the U.S. dollar if the following occur, other things equal?

a. Japan relaxes some of its import restrictions.
b. The United States imposes some import tariffs on Japanese goods.
c. Interest rates in the United States rise dramatically.
d. A report indicates that Japanese cars last much longer than previously thought, especially compared with American cars.

Solution

8. a. If Japan relaxes import restrictions, Japanese residents will demand more U.S. goods and more U.S. dollars to buy those goods. The U.S. dollar will appreciate due to the increase in the demand for U.S. dollars.
b. If the United States imposes import restrictions, Americans will buy fewer Japanese goods. Americans will want to exchange fewer U.S. dollars for yen, so the supply of U.S. dollars will decrease and the U.S. dollar will appreciate.
c. A dramatic rise in U.S. interest rates will attract Japanese buyers of American assets as well as discourage Americans from buying Japanese assets. There will be an increase in the demand for U.S. dollars and a decrease in the supply of U.S. dollars; the U.S. dollar will appreciate.
d. A report indicating that Japanese cars last much longer than previously thought, especially when compared with American cars, will increase the demand for Japanese cars and the demand for Japanese yen. The yen will appreciate and the U.S. dollar will depreciate.

9. From January 1, 2001, to June 2003, the U.S. federal funds rate decreased from 6.5% to 1%. During the same period, the marginal lending facility rate at the European Central Bank decreased from 5.75% to 3%.

a. Considering the change in interest rates over the period and using the loanable funds model, would you have expected funds to flow from the United States to Europe or from Europe to the United States over this period?
b. The accompanying diagram shows the exchange rate between the euro and the U.S. dollar from January 1, 2001, through September 2008. Is the movement of the exchange rate over the period January 2001 to June 2003 consistent with the movement in funds predicted in part a?

![Exchange rate diagram]

Source: Federal Reserve Bank of St. Louis.
9. a. The federal funds rate and the marginal lending facility rate suggest that interest rates in the United States went from being higher than European rates at the beginning of the period to lower than European rates at the end of the period. The loanable funds model suggests that U.S. lenders, attracted by relatively increasing interest rates in Europe, would have sent some of their loanable funds to Europe.

b. During this period, the dollar depreciated against the euro. This depreciation is consistent with funds moving out of the United States and into Europe.

10. In each of the following scenarios, suppose that the two nations are the only trading nations in the world. Given inflation and the change in the nominal exchange rate, which nation’s goods become more attractive?

   a. Inflation is 10% in the United States and 5% in Japan; the U.S. dollar–Japanese yen exchange rate remains the same.
   b. Inflation is 3% in the United States and 8% in Mexico; the price of the U.S. dollar falls from 12.50 to 10.25 Mexican pesos.
   c. Inflation is 5% in the United States and 3% in the euro area; the price of the euro falls from $1.30 to $1.20.
   d. Inflation is 8% in the United States and 4% in Canada; the price of the Canadian dollar rises from US$0.60 to US$0.75.

10. a. If inflation is 10% in the United States and 5% in Japan, and the U.S. dollar–Japanese yen exchange rate remains the same, Japanese goods and services will be more attractive than U.S. ones.

b. If inflation is 3% in the United States and 8% in Mexico, and the price of the U.S. dollar falls from 12.50 to 10.25 Mexican pesos, both the lower inflation and the depreciation of the dollar (appreciation of the peso) make American goods more attractive.

c. If inflation is 5% in the United States and 3% in the euro area, and the price of the euro falls from $1.30 to $1.20, both the lower inflation in the euro area and the appreciation of the dollar (depreciation of the euro) make euro area goods more attractive.

d. If inflation in the United States is higher than in Canada, this makes Canadian goods more attractive. However, if the U.S. dollar depreciates against the Canadian dollar, this makes American goods more attractive. In this case, the depreciation of the U.S. dollar is so dramatic that it overwhelms the difference in inflation rates. American goods are more attractive.

11. Starting from a position of equilibrium in the foreign exchange market under a fixed exchange rate regime, how must a government react to an increase in the demand for the nation’s goods and services by the rest of the world to keep the exchange rate at its fixed value?

11. If there is an increase in the demand for that nation’s goods and services, there will also be an increase in the demand for its currency, putting upward pressure on the value of the currency. There are three ways in which the central bank can keep the exchange rate at its fixed value. First, it can increase supply of the domestic currency by purchasing foreign assets. Second, it can decrease interest rates, which would discourage foreign investors from buying domestic assets (decreasing the demand for the domestic currency) and encourage domestic residents to buy foreign assets (increasing the supply of the domestic currency). Third, it can impose foreign exchange controls that limit the ability of foreigners to buy the domestic currency.
12. Suppose that Albernia’s central bank has fixed the value of its currency, the bern, to the U.S. dollar (at a rate of US$1.50 to 1 bern) and is committed to that exchange rate. Initially, the foreign exchange market for the bern is also in equilibrium, as shown in the accompanying diagram. However, both Albernians and Americans begin to believe that there are big risks in holding Albernian assets; as a result, they become unwilling to hold Albernian assets unless they receive a higher rate of return on them than they do on U.S. assets. How would this affect the diagram? If the Albernian central bank tries to keep the exchange rate fixed using monetary policy, how will this affect the Albernian economy?

![Exchange rate diagram](image)

12. If both Albernians and Americans begin to believe that the Albernian assets are risky, this will reduce the demand for the bern (from $D_1$ to $D_2$ in the accompanying diagram), as Americans become less willing to buy Albernian assets, and increase the supply of the bern (from $S_1$ to $S_2$), as Albernians become more willing to buy American assets. Both the decrease in demand and the increase in supply will put downward pressure on the bern; in the diagram, the equilibrium value of the bern falls to $1.00. Since the central bank is committed to a value of $1.50 for the bern, it must act to make Albernian assets more attractive by raising the interest rate. This will have a contractionary effect on the Albernian economy.

![Exchange rate diagram](image)

13. Your study partner asks you, “If central banks lose the ability to use discretionary monetary policy under fixed exchange rates, why would nations agree to a fixed exchange rate system?” How do you respond?
13. You would respond by explaining the advantages of a fixed exchange rate. First, it reduces some uncertainty that might make businesses reluctant to undertake international transactions. In particular, it eliminates any uncertainty about the value of the currency. When businesses enter into a contract that calls for payment in a foreign currency at some time in the future, they know exactly how much it will cost them in the domestic currency. Also, by committing to a fixed exchange rate, the country eliminates any possibility that it will engage in inflationary policies.