1a. The exchange rate between the dollar and the mark was .58 ($ per mark) in April 1995. If the exchange rises, is this an appreciation or depreciation of the dollar? Explain.
b. At the exchange rate of .58, how many dollars would a 50,000 mark BMW cost?
c. At the exchange rate of .58, how many marks would a $30,000 Camaro cost?

2. As the dollar appreciates relative to the mark, what happens to the U.S. cost of imports from Germany? the German cost of U.S. exports?

3a. Suppose that gold costs $300 per ounce in the U.S. and 500 marks per ounce in Germany. If purchasing power parity holds, what must the exchange rate between dollars and marks be?
b. If the exchange rate was greater than the answer you gave in (a), how would “arbitrage” equate the price of gold in the two countries?
c. Does empirical evidence support purchasing power parity in the short run? in the long run?

4a. Suppose that the 60 day forward market in marks was .60. Under what conditions should you buy marks in the forward market?
b. If the spot market in marks is currently at an exchange rate of .55 and the 60 day forward is at .60, do foreign exchange traders expect the dollar to appreciate or depreciate against the mark over the next 60 days? Why?

5. According to PPP, the exchange rate (in dollars per unit of foreign currency) will be \( \frac{P}{P_f} \), where \( P \) is the domestic price level and \( P_f \) is the foreign price level. Using the equation of exchange, this can be used to show that \( e = \frac{m_y}{m_{f_y}} \) where the variables without subscripts indicate domestic variables and with the \( f \) subscripts denote foreign variables. Based on the above, explain how each of the following would affect the value of the dollar:
a. an increase in U.S. money supply growth.
b. a recession in the U.S.
c. a recession in foreign countries.

6. Explain how each of the following will affect the supply and demand for foreign currency in the foreign exchange market, and the exchange rate. Assume flexible exchange rates.
a. an increase in interest rates in the U.S.
b. an increase in income in the U.S.
c. an increase in inflation in other countries.
d. an increase in inflation in the U.S.

7a. Suppose that the U.S. has inflation of 10% and Germany has inflation of 20%. If the exchange rate is currently .5 dollars per mark, what would you expect it to be at the end of next year if purchasing power parity holds?
b. Suppose that 1 year U.S. government bonds currently have a nominal interest rate of 14%. Assuming no risk on either type of bond, what interest rate would 1 year German bonds have to pay in order that you prefer German bonds? Keep in mind that at the end of the year, you want dollars so the exchange rate is important.
c. Given your answer in b, why isn’t it a good idea to pick bonds by comparing nominal interest rates in different countries (ignoring differences in risk)? What should you compare instead?

8. Suppose that Japan and the U.S. agree that the trade deficit between the countries needs to be reduced by decreasing U.S. imports from Japan and increasing U.S. exports to Japan. To achieve this, the central banks have been asked to intervene. What should the U.S. central bank do -- sell foreign currency reserves or buy U.S. dollars? Why?

9a. Suppose there is a fixed exchange rate system. Suppose that the balance of payments is initially zero and that U.S. inflation rises relative to foreign countries.
a. Given that exchange rates are fixed, what will the U.S. and Central banks be forced to do (buy dollars or foreign currency)?
b. Given these actions by Central banks, what will happen to the U.S. money supply? the money supply in foreign countries? the U.S. balance of payments?
c. Given the money supply changes in (b), explain how the reserve movements force the inflation rates of the U.S. and other countries to converge.
Answers:

1a. An increase in $ per mark is a depreciation of the dollar since it will cost more dollars to buy a mark.
   b. \(0.58 \times 50000 = 29000\)
   c. \((1/0.58) \times 30000 = 51,724\) marks.

2. As the dollar appreciates ($ per mark falls) the U.S. cost of German imports falls and the German cost of U.S. exports rises.

3a. \(e = \frac{300}{500} = 0.6\) $ per mark
   b. If the exchange rate was greater than 0.6, then the dollar would be “under valued” and gold would be cheaper in the U.S. than in Germany. For example, if the exchange rate was 0.8, gold would cost $300 in the U.S. and $400 in Germany. Arbitrage would be profitable since gold could be purchased in the U.S. for less than it can be sold for in Germany. The arbitrage would drive gold prices up in the U.S. and down in Germany until the prices became equal.
   c. In the short run, there is little evidence of purchasing power parity except with easily traded commodities. In the long run, there is more support for PPP.

4. You should buy marks in the forward market only if you think that the spot market exchange rate will be above 0.6 in the future. For example, if the spot market exchange rate is 0.7 in 60 days, you would have a contract to buy marks at 0.6 and you could sell them in the spot market for 0.7.
   b. The fact that the forward rate exceeds the spot rate is an indication that foreign exchange traders believe the spot rate will rise in the future.

5a. \(e\) will rise and the dollar would depreciate.
   b. \(e\) will rise and the dollar would depreciate.
   c. \(e\) will fall and the dollar would appreciate.

6a. supply of foreign currency increases and demand decreases so \(e\) falls (appreciation)
   b. demand for foreign currency increases so \(e\) rises (depreciation)
   c. supply increases and demand decreases so \(e\) falls (appreciation)
   d. supply decreases and demand increases so \(e\) rises (depreciation)

7a. The dollar should appreciate by 10% so it would be 0.45 dollars per mark.
   b. Since the dollar would appreciate by 10%, there is a 10% loss on marks. Thus, if a German bond paid 24%, it would generate a total yield of 14% (24% in interest minus 10% loss in the value of the mark).
   c. Nominal interest rates do not reflect the true difference in returns across countries since movements in exchange rates are important. Notice that real interest rates are a better measure. The 14% nominal yield in the U.S. translates into a 4% real yield and the 24% nominal yield in Germany yields a real yield of 4%. When the real returns are identical, the investor is indifferent between the two countries’ bonds.

8. To reduce the trade deficit with Japan, we would want to weaken the dollar since that will decrease our imports and increase our exports. To weaken the dollar, the governments should agree to sell dollars and buy yen. This will increase the demand for yen and depreciate the dollar relative to the yen.

9a. With the increase in U.S. inflation, there will be an increase in the demand for foreign currency and a decrease in the supply. If exchange rates are frozen, there will be a shortage of foreign currency. This implies that foreign central banks will have to sell extra foreign currency (buy dollars).
   b. As the foreign governments buy dollars and sell foreign currency, the U.S. money supply shrinks and foreign money supplies grow. This will lead to a U.S. balance of payments deficit since foreign countries are building up reserves of U.S. dollars.
   c. The change in the money supplies in (b) reduces our price level and increases foreign prices. This will offset the original changes in supply and demand presented in (a).