CHAPTER 19
MULTINATIONAL FINANCIAL MANAGEMENT

(Difficulty: E = Easy, M = Medium, and T = Tough)

Multiple Choice: Conceptual

Easy:

International operations motivation **Answer: e Diff: E**

1. Which of the following are reasons why companies move into international operations?

   a. To take advantage of lower production costs in regions of inexpensive labor.
   b. To develop new markets for their finished products.
   c. To better serve their primary customers.
   d. Because important raw materials are located abroad.
   e. All of the statements above are correct.

Multinational financial management **Answer: d Diff: E**

2. Multinational financial management requires that

   a. The effects of changing currency values be included in financial analyses.
   b. Legal and economic differences be considered in financial decisions.
   c. Political risk be excluded from multinational corporate financial analyses.
   d. Statements a and b are correct.
   e. All of the statements above are correct.

Currency depreciation **Answer: a Diff: E**

3. If the inflation rate in the United States is greater than the inflation rate in Sweden, other things held constant, the Swedish currency will

   a. Appreciate against the U.S. dollar.
   b. Depreciate against the U.S. dollar.
   c. Remain unchanged against the U.S. dollar.
   d. Appreciate against other major currencies.
   e. Appreciate against the dollar and other major currencies.

EMU **Answer: c Diff: E**

4. What is the common currency of the EMU?

   a. U.S. dollar.
   b. British pound.
   c. Euro.
   d. French franc.
   e. None of the statements above is correct.

Medium:

International bond markets **Answer: d Diff: M**

5. Which of the following statements is incorrect?

   a. Any bond sold outside the country of the borrower is called an international bond.
   b. Foreign bonds and Eurobonds are two important types of international bonds.
   c. Foreign bonds are bonds sold by a foreign borrower but denominated in the currency of the country in which the issue is sold.
   d. The term Eurobond specifically applies to any foreign bonds denominated in U.S. currency.
   e. None of the statements above is correct.

Interest rate parity **Answer: a Diff: M**

6. In Japan, 90-day securities have a 4 percent annualized return and 180-day securities have a 5 percent annualized return. In the United States, 90-day securities have a 4 percent annualized return and 180-day securities have an annualized return of 4.5 percent. All securities are of equal risk. Japanese securities are denominated in terms of the Japanese yen. Assuming that interest rate parity holds in all markets, which of the following statements is most correct?

   a. The yen-dollar spot exchange rate equals the yen-dollar exchange rate in the 90-day forward market.
   b. The yen-dollar spot exchange rate equals the yen-dollar exchange rate in the 180-day forward market.
   c. The yen-dollar exchange rate in the 90-day forward market equals the yen-dollar exchange rate in the 180-day forward market.
   d. Statements a and b are correct.
   e. Statements b and c are correct.

Interest rate parity **Answer: c Diff: M**

7. Currently, a U.S. trader notes that in the 6-month forward market, the Japanese yen is selling at a premium (that is, you receive more dollars per yen in the forward market than you do in the spot market), while the British pound is selling at a discount. Which of the following statements is most correct?

   a. If interest rate parity holds, 6-month interest rates should be the same in the U.S., Britain, and Japan.
   b. If interest rate parity holds among the three countries, the United States should have the highest 6-month interest rates and Japan should have the lowest rates.
   c. If interest rate parity holds among the three countries, Britain should have the highest 6-month interest rates and Japan should have the lowest rates.
   d. If interest rate parity holds among the three countries, Japan should have the highest 6-month interest rates and Britain should have the lowest rates.
   e. If interest rate parity holds among the three countries, the United States should have the highest 6-month interest rates and Britain should have the lowest rates.

Tough:

Interest rate parity **Answer: b Diff: T R**

8. Today in the spot market, $1 = 1.82 Swiss francs and $1 = 130 Japanese yen. In the 90-day forward market, $1 = 1.84 Swiss francs and $1 = 127 Japanese yen. Assume that interest rate parity holds worldwide. Which of the following statements is most correct?

   a. Interest rates on 90-day risk-free U.S. securities are higher than the interest rates on 90-day risk-free Swiss securities.
   b. Interest rates on 90-day risk-free U.S. securities are higher than the interest rates on 90-day risk-free Japanese securities.
   c. Interest rates on 90-day risk-free U.S. securities equal the interest rates on 90-day risk-free Japanese securities.
   d. Since interest rate parity holds interest rates should be the same in all three countries.
   e. Statements a and b are correct.

Multiple Choice: Problems

Easy:

Exchange rates **Answer: b Diff: E**

9. If one Swiss franc can purchase $0.71 U.S. dollar, how many Swiss francs can one U.S. dollar buy?

   a. 0.71
   b. 1.41
   c. 1.00
   d. 2.81
   e. 0.50

Exchange rates **Answer: a Diff: E**

10. If one U.S. dollar buys 1.0279 euros, how many dollars can you purchase for one euro?

   a. 0.9729
   b. 1.0000
   c. 1.0279
   d. 0.6100
   e. 1.3145

Exchange rates **Answer: b Diff: E**

11. Currently, in the spot market $1 = 106.45 Japanese yen, 1 Japanese yen = 0.00966 euro, and 1 euro = 9.0606 Mexican pesos. What is the exchange rate between the U.S. dollar and the Mexican peso?

a. $1.00 = 2,222 Mexican pesos
b. $1.00 = 9.3171 Mexican pesos
c. $1.00 = 0.0556 Mexican peso
d. $1.00 = 0.1073 Mexican peso
e. $1.00 = 152.6 Mexican pesos

Exchange rates **Answer: c Diff: E**

12. A currency trader observes the following quotes in the spot market:

122 Japanese yen = 1 U.S. dollar
2.28 Swiss francs = 1 British pound
1 British pound = 1.6542 U.S. dollars

Given this information, what is the exchange rate between the Swiss franc (SF) and the Japanese yen?

a. 1.4 yen = 1 SF
b. 32.4 yen = 1 SF
c. 88.5 yen = 1 SF
d. 168.2 yen = 1 SF
e. 460.1 yen = 1 SF

Exchange rates and realized return **Answer: b Diff: E**

13. One year ago, a U.S. investor converted dollars to yen and purchased 100 shares of stock in a Japanese company at a price of 3,150 yen per share. The stock's total purchase cost was 315,000 yen. At the time of purchase, in the currency market 1 yen equaled $0.00952. Today, the stock is selling at a price of 3,465 yen per share, and in the currency market $1 equals 130 yen. The stock does not pay a dividend. If the investor were to sell the stock today and convert the proceeds back to dollars, what would be his realized return on his initial dollar investment from holding the stock?

a. +10.00%
b. -11.12%
c. +12.48%
d. +11.12%
e. -12.48%

Purchasing power parity **Answer: e Diff: E**

14. A telephone costs $50 in the United States. Today, in the currency markets you observe the following exchange rates:

    1 U.S. dollar = 1.0279 euros
    1 euro = 8.1794 Norwegian krones

    Assume that the currency markets are efficient and that purchasing power parity holds worldwide. What should be the price of the same telephone in Norway?

    a. 83.38 Norwegian krones
    b. 125.67 Norwegian krones
    c. 253.09 Norwegian krones
    d. 369.05 Norwegian krones
    e. 420.38 Norwegian krones

Purchasing power parity **Answer: e Diff: E**

15. A computer costs $1,100 in the United States. The same computer costs 1,265 euros in Italy. Assuming that purchasing power parity (PPP) strictly holds, what is the spot exchange rate between the dollar and the euro?

    a. $3.75 = 1 euro
    b. $1.00 = 2.50 euros
    c. $1.00 = 0.869565 euro
    d. $1.15 = 1 euro
    e. $1.00 = 1.15 euros

Purchasing power parity **Answer: a Diff: E**

16. A textbook sells for $75 in the U.S. market. Exchange rates are such that 1 British pound (£) equals $1.58 U.S. dollars. Assume that purchasing power parity holds, what should the textbook sell for in Britain?

    a. £ 47.47
    b. £ 75.00
    c. £118.50
    d. $47.47 U.S.
    e. £ 61.24

Purchasing power parity **Answer: d Diff: E**

17. A product sells for $750 in the United States. The exchange rate is such that $1 equals 1.0279 euros. If purchasing power parity (PPP) holds, what is the price of the product (in euros) in the EMU countries?

    a. 123.750 euros
    b. 454.550 euros
    c. 750.000 euros
    d. 770.925 euros
    e. 925.393 euros

Purchasing power parity **Answer: c Diff: E**

18. Hockey skates sell in Canada for 105 Canadian dollars. Currently, 1 Canadian dollar equals 0.71 U.S. dollar. If purchasing power parity (PPP) holds, what is the price of hockey skates in the United States?

a. $ 14.79
b. $ 71.00
c. $ 74.55
d. $ 85.88
e. $147.88

Purchasing power parity **Answer: e Diff: E**

19. A box of candy costs 28.80 Swiss francs (SF) in Switzerland and $20 in the United States. Assuming that purchasing power parity (PPP) holds, what is the current exchange rate?

a. $1 U.S. = 0.69 SF
b. $1 U.S. = 0.85 SF
c. $1 U.S. = 1.21 SF
d. $1 U.S. = 1.29 SF
e. $1 U.S. = 1.44 SF

Interest rate parity **Answer: e Diff: E**

20. In the spot market, 1 U.S. dollar can be exchanged for 121 Japanese yen. In the 1-year forward market, 1 U.S. dollar can be exchanged for 125 Japanese yen. The 1-year, risk-free rate of interest is 5.2 percent in the United States. If interest rate parity holds, what is the yield today on 1-year, risk-free Japanese securities?

a. 1.83%
b. 4.71%
c. 5.03%
d. 5.37%
e. 8.68%

Interest rate parity **Answer: a Diff: E**

21. The nominal rate of interest on six-month, risk-free U.S. securities is 6 percent. Currently in the spot market, $1 U.S. = 104.84 Japanese yen. In the six-month forward market, $1 U.S. = 104.84 Japanese yen. If interest rate parity holds, what is the current nominal interest rate on six-month, risk-free Japanese securities?

a. 6.0%
b. 3.0%
c. 12.0%
d. 6.1%
e. 5.7%

Currency appreciation **Answer: a Diff: E**

22. Suppose that 288 yen could be purchased in the foreign exchange market for two U.S. dollars today. If the yen is expected to depreciate by 8 percent tomorrow, how many yen could two U.S. dollars buy tomorrow?

a. 311 yen
b. 288 yen
c. 144 yen
d. 267 yen
e. 156 yen

Eurobonds versus domestic bonds **Answer: d Diff: E R**

23. A foreign investor who holds tax exempt Eurobonds paying 9 percent interest is considering investing in an equivalent-risk domestic bond in a country with a 27 percent withholding tax on interest paid to foreigners. If 9 percent after-taxes is the investor's required return, what before-tax rate would the domestic bond need to pay to provide that after-tax return?

a. 9.00%
b. 10.20%
c. 11.28%
d. 12.33%
e. 13.57%

Credit and exchange rate risk **Answer: d Diff: E**

24. Solartech Corporation, a U.S. exporter, sold a solar heating station to a Japanese customer at a price of 143.5 million yen, when the exchange rate was 140 yen per dollar. In order to close the sale, Solartech agreed to make the bill payable in yen, thus agreeing to take on exchange rate risk for the transaction. The terms were net 6 months. If the yen fell against the dollar such that one dollar would buy 154.4 yen when the invoice was paid, what dollar amount would Solartech actually receive after it exchanged yen for U.S. dollars?

a. $1,000,000
b. $1,025,000
c. $1,075,958
d. $ 929,404
e. $ 975,610

Medium:

Inventory value and exchange rates **Answer: b Diff: M**

25. A year ago, MC Hammer Company had inventory in Britain valued at 240,000 pounds. The exchange rate for dollars to pounds was £1 = 2 U.S. dollars. This year the exchange rate is £1 = 1.82 U.S. dollars. The inventory in Britain is still valued at 240,000 pounds. What is the gain or loss in inventory value in U.S. dollars as a result of the change in exchange rates?

a. -$240,000
b. -$ 43,200
c. $ 0
d. $ 43,200
e. $ 47,473

Currency depreciation **Answer: d Diff: M**

26. One British pound can purchase 1.82 U.S. dollars today in the foreign exchange market and currency forecasters predict that the U.S. dollar will depreciate by 12 percent against the pound over the next 30 days. How many dollars will a pound buy in 30 days?

a. 1.82
b. 3.64
c. 1.12
d. 2.04
e. 1.63

Cross rates **Answer: e Diff: M**

27. Suppose exchange rates between U.S. dollars and Swiss francs is SF 1.6564 = $1.00 and the exchange rate between the U.S. dollar and the euro is $1.00 = 1.0279 euros. What is the cross rate of the Swiss franc to the euro?

a. 0.8643
b. 1.6564
c. 1.0279
d. 0.4315
e. 1.6114

Cross rates **Answer: b Diff: M**

28. Currently, 1 British pound (£) equals 1.569 U.S. dollars and 1 U.S. dollar equals 1.0279 euros. What is the cross exchange rate between the pound and the euro?

a. £1 = 0.8756 euro
b. £1 = 1.6128 euros
c. £1 = 1.2423 euros
d. £1 = 1.0000 euros
e. £1 = 0.6200 euro

Cross rates **Answer: a Diff: M**

29. The following exchange rates are quoted in the spot market:

- 1 U.S. dollar = 106.45 Japanese yen.
- 1 euro = 103.57 Japanese yen.
- 1 Canadian dollar = 0.68046 U.S. dollar.

What should the exchange rate be between the euro and the Canadian dollar (CD)?

a. 1 CD = 0.6994 euro
b. 1 CD = 0.8186 euro
c. 1 CD = 2.8042 euros
d. 1 CD = 0.3566 euro
e. 1 CD = 1.4298 euros

Forward exchange rates **Answer: a Diff: M R**

30. If the spot rate of the Swiss franc is 1.51 Swiss francs per dollar and the 180-day forward rate is 1.30 Swiss francs per dollar, then the forward rate for the Swiss franc is selling at a _____ to the spot rate.

a. Premium of 14%
b. Premium of 18%
c. Discount of 18%
d. Discount of 14%
e. Discount of 8%

Exchange rates and asset value **Answer: a Diff: M**

31. In 1995, a particular Japanese imported automobile sold for 1,476,000 yen or $8,200. If the car still sells for the same amount of yen today but the current exchange rate is 144 yen per dollar, what is the car selling for today in U.S. dollars?

a. $10,250
b. $12,628
c. $ 8,200
d. $ 5,964
e. $13,525

Exchange rates and operating profit **Answer: c Diff: M**

32. In the currency markets, 1 U.S. dollar = 0.6373 British pound and 1 U.S. dollar equals 1.0279 euros. Wolverine Cola produces cherry cola in England at a cost of 0.55 British pound per unit. The product is sold in France for 1.25 euros. In terms of U.S. dollars, how much profit is Wolverine realizing on each unit sold?

a. $0.7857
b. $0.2571
c. $0.3531
d. $0.1095
e. $0.1394

Exchange rates and operating profit **Answer: e Diff: M**

33. Lewis Interiors imports lumber from Canada. Each unit costs 8 Canadian dollars. The company sells the lumber in its European stores for 8 euros. Currently exchange rates are:

- $1 Canadian = $0.6784 U.S.
- 1 euro = $0.9406 U.S.

How much profit measured in U.S. dollars does Lewis make on each unit of lumber sold?

a. $0.72
b. $3.29
c. $3.08
d. $4.27
e. $2.10

Exchange rates and operating profit **Answer: e Diff: M**

34. The following exchange rates are quoted in the spot market:

- $1 U.S. = 116.6 Japanese yen.
- 1 Canadian dollar = $0.66 U.S.

Crane Cola is a U.S. company with worldwide operations. The company can produce a liter of cola in Canada at a cost of 0.45 Canadian dollars. The cola can be sold in Japan for 120 Japanese yen. How much operating profit (measured in U.S. dollars) does the company make on each liter of cola sold in the Japanese market?

a. $0.3474
b. $0.2970
c. $0.2899
d. $0.2886
e. $0.7322

Exchange rates and operating profit **Answer: d Diff: M**

35. Cypress Foods, a U.S. company, has a subsidiary that produces lime juice in Brazil and sells it in Japan. The exchange rates are such that 1 U.S. dollar equals 1.75 Brazilian real, and 1 U.S. dollar equals 120 Japanese yen. Cypress spends 1.2 real to produce one unit of lime juice and sells it for 100 Japanese yen. What is the profit in U.S. dollars realized from each unit of lime juice sold?

a. $0.69
b. $1.27
c. $0.90
d. $0.15
e. $0.57

Exchange fluctuations and T-bills **Answer: a Diff: M**

36. Six months ago, a Swiss investor bought a 6-month U.S. Treasury bill at a price of $9,708.74, with a maturity value of $10,000. The exchange rate at that time was 1.420 Swiss francs per dollar. Today, at maturity, the exchange rate is 1.324 Swiss francs per dollar. What is the annualized rate of return to the Swiss investor?

a. -7.92%
b. -4.13%
c. 6.00%
d. 8.25%
e. 12.00%

Forward market hedge **Answer: e Diff: M R**

37. Sunware Corporation, a U.S. based importer, makes a purchase of crystal glassware from a firm in Canada for 38,040 Canadian dollars or $24,000, at the spot rate of 1.585 Canadian dollars per U.S. dollar. The terms of the purchase are net 90 days, and the U.S. firm wants to cover this trade payable with a forward market hedge to eliminate its exchange rate risk. Suppose the firm completes a forward hedge at the 90-day forward rate of 1.60 Canadian dollars. If the spot rate in 90 days is actually 1.55 Canadian dollars, how much will the U.S. firm have saved in U.S. dollars by hedging its exchange rate exposure?

a. -$396
b. -$243
c. $ 0
d. $243
e. $767

Purchasing power parity **Answer: e Diff: M**

38. A telephone costs $100 in the United States. The same telephone costs 150 Canadian dollars. Assume that purchasing power parity holds. What is the exchange rate between U.S. and Canadian dollars?

a. $1 Canadian = $0.75 U.S.
b. $1 Canadian = $0.15 U.S.
c. $1 Canadian = $0.33 U.S.
d. $1 Canadian = $1.50 U.S.
e. $1 Canadian = $0.67 U.S.

Interest rate parity **Answer: a Diff: M**

39. 90-day investments in Great Britain have a 6 percent annualized return and a 1.5 percent quarterly (90-day) return. In the U.S., 90-day investments of similar risk have a 4 percent annualized return and a 1 percent quarterly (90-day) return. In the 90-day forward market, 1 British pound (£) = $1.65. If interest rate parity holds, what is the spot exchange rate?

a. £1 = $1.6582
b. £1 = $1.8000
c. £1 = $0.6031
d. £1 = $1.0000
e. £1 = $0.8500

Interest rate parity **Answer: d Diff: M R**

40. In the spot market, 1 U.S. dollar equals 1.035 euros. 6-month German securities have an annualized return of 6 percent (and therefore have a 6-month periodic return equal to 3 percent). 6-month U.S. securities have an annualized return of 6.5 percent and a periodic return of 3.25 percent. If interest rate parity holds, what is the dollar to euro exchange rate in the 180-day forward market?

a. $1 U.S. = 0.9685 euro
b. $1 U.S. = 0.9593 euro
c. $1 U.S. = 1.0000 euro
d. $1 U.S. = 1.0325 euros
e. $1 U.S. = 1.0475 euros

Interest rate parity **Answer: d Diff: M**

41. In the spot market, 1-year risk-free securities yield 5 percent in the United States. In the spot market, the exchange rate is such that 1 U.S. dollar equals 1.35 Canadian dollars. In the 1-year forward exchange market, the exchange rate is such that 1 U.S. dollar equals 1.45 Canadian dollars. Assume that interest rate parity holds. What is the interest rate on 1-year risk-free Canadian securities?

a. 2.3%
b. 10.8%
c. 12.4%
d. 12.8%
e. 13.5%

Tough:

NPV of foreign investment cash flows **Answer: b Diff: T**

42. Trent Transport, a U.S. based company, is considering expanding its operations into a foreign country. The required investment at time = 0 is $10 million. The firm forecasts total cash inflows of $4 million per year for two years, $6 million for the next two years, and then a possible terminal value of $8 million. In addition, due to political risk factors, Trent believes that there is a 50 percent chance that the gross terminal value will be only $2 million and that there is a 50 percent chance that it will be $8 million. However, the government of the host country will block 20 percent of all cash flows. Thus, cash flows that can be repatriated are 80 percent of those projected. Trent's cost of capital is 15 percent, but it adds one percentage point to all foreign projects to account for exchange rate risk. Under these conditions, what is the project's NPV?

a. $1.01 million
b. $2.77 million
c. $3.09 million
d. $5.96 million
e. $7.39 million

Forward market hedge **Answer: e Diff: T R**

43. Suppose a U.S. firm buys $200,000 worth of television tubes from an English manufacturer for delivery in 60 days with payment to be made in 90 days (30 days after the goods are received). The rising U.S. deficit has caused the dollar to depreciate against the pound recently. The current exchange rate is 0.65 pound per U.S. dollar. The 90-day forward rate is £0.60/dollar. The firm goes into the forward market today and buys enough British pounds at the 90-day forward rate to completely cover its trade obligation. Assume the spot rate in 90 days is 0.55 British pound per U.S. dollar. How much in U.S. dollars did the firm save by eliminating its foreign exchange currency risk with its forward market hedge?

a. $ 4,750.00
b. $ 9,495.50
c. $ 0
d. $14,888.25
e. $19,696.97

Exchange rates and operating profit **Answer: b Diff: T**

44. Topeka Foods is a leading producer of orange juice. The company is based in the United States but it produces its orange juice in Mexico for sale in the United States and Japan. It costs the company 15 pesos to produce a liter of orange juice in Mexico. Each liter of orange juice sells for $2.50 in the United States and for 400 yen in Japan. Profits from Japan are then converted back to U.S. dollars. Assume that exchange rates are 10 pesos per dollar and 120 yen per dollar. What would the company's total dollar profit be if it sold 10 million liters in the United States and 8 million liters in Japan?

a. $18.0 million
b. $24.7 million
c. $28.3 million
d. $50.9 million
e. $91.0 million

Interest rate parity **Answer: b Diff: T**

45. Currently in the spot market $1 U.S. = 116.6 Japanese yen, and in the 1-year forward market, $1 U.S. = 112.8 Japanese yen. In the spot market 1-year, risk-free U.S. securities yield 5.5 percent. Assuming that interest rate parity holds, what is the interest rate on 1-year, risk-free Japanese securities? (Hint: If you cannot get one of the following answers, increase the number of decimals in your calculations.)

a. 9.05%
b. 2.06%
c. 49.95%
d. 5.50%
e. 3.37%

Interest rate parity **Answer: c Diff: T N**

46. Risk-free Canadian securities that mature in one year have a 7 percent nominal rate. Risk-free Japanese securities with a one-year maturity have a 4 percent nominal rate. Currently, in the one-year forward market, 1 Canadian dollar equals 70 Japanese yen (¥). Assuming that interest rate parity holds, what is the current spot exchange rate between the Canadian dollar and the Japanese yen?

a. 66.62 ¥ = $1 Canadian
b. 68.04 ¥ = $1 Canadian
c. 72.02 ¥ = $1 Canadian
d. 73.62 ¥ = $1 Canadian
e. 122.50 ¥ = $1 Canadian

Interest rate parity **Answer: b Diff: T**

47. In the spot market $1 U.S. equals 1.85 Brazilian real, and in the 1-year forward market 1 U.S. dollar equals 1.98 real. Interest rates on 1-year, risk-free securities are 4.8 percent in the United States. If interest rate parity holds, what is the interest rate on 1-year, risk-free Brazilian securities?

a. 2.13%
b. 12.14%
c. 28.61%
d. 26.05%
e. 7.03%

EAR on foreign debt **Answer: c Diff: T R**

48. Swenser Corporation arranged a 2-year, $1,000,000 loan to fund a foreign project. The loan is denominated in euros, carries a 10 percent nominal rate, and requires equal semiannual payments. The exchange rate at the time of the loan was 1.05 euros per dollar but immediately dropped to 0.95 euros per dollar before the first payment came due. The loan carried no exchange rate protection and was not hedged by Swenser in the foreign exchange market. Thus, Swenser must convert U.S. funds to euros to make its payments. If the exchange rate remains at 0.95 euros through the end of the loan period, what effective interest rate will Swenser end up paying on the foreign loan?

a. 10.36%
b. 17.44%
c. 19.78%
d. 11.50%
e. 20.00%

Multiple Part:

(The following information applies to the next three problems.)

You observe the following exchange rates and interest rates:

- In the spot market, 1 EMU euro equals 0.88 U.S. dollar.
- In the spot market, 1 Canadian dollar equals 0.70 EMU euro.
- In the three-month forward market, 1 EMU euro equals 0.75 U.S. dollar.
- In the three-month forward market, 1 EMU euro equals 1.21 Canadian dollars.
- Three-month risk-free Canadian securities have a 6 percent nominal annual interest rate.

Assume that interest rate parity holds, the market is in equilibrium, and that there are no arbitrage opportunities.

Cross rates **Answer: a Diff: E N**

49. What is the spot exchange rate between the U.S. dollar and the Canadian dollar?

    a. $0.62 U.S. = $1 Canadian
    b. $0.76 U.S. = $1 Canadian
    c. $0.80 U.S. = $1 Canadian
    d. $1.25 U.S. = $1 Canadian
    e. $1.32 U.S. = $1 Canadian

Purchasing power parity **Answer: d Diff: E N**

50. A new tennis racket costs $120 in the United States. Assuming that purchasing power parity holds, how much should the exact same tennis racket cost if bought in Europe with EMU euros?

    a. 84.00 EMU euros
    b. 105.60 EMU euros
    c. 113.62 EMU euros
    d. 136.36 EMU euros
    e. 171.43 EMU euros

Forward exchange rates **Answer: a Diff: M N**

51. Which of the following statements is most correct?

    a. The market is forecasting that the U.S. dollar will weaken against the Canadian dollar over the next three months.
    b. The market is forecasting that the U.S. dollar will weaken against the EMU euro over the next three months.
    c. The market is forecasting that the EMU euro will strengthen against the Canadian dollar over the next three months.
    d. Statements a and c are correct.
    e. All of the statements above are correct.

CHAPTER 19
ANSWERS AND SOLUTIONS

1. International operations motivation **Answer: e Diff: E**

2. Multinational financial management **Answer: d Diff: E**

3. Currency depreciation **Answer: a Diff: E**

4. EMU **Answer: c Diff: E**

The euro is the official currency of the EMU, so the correct choice is statement c.

5. International bond markets **Answer: d Diff: M**

6. Interest rate parity **Answer: a Diff: M**

7. Interest rate parity **Answer: c Diff: M**

As the yen is selling at a premium, this means that the interest rates in Japan are lower than in the U.S. Thus, when you invest in yen, you get part of your return from the interest rate and part when you convert back to dollars. The opposite is true of the rates in Britain. Therefore, the only answer that satisfies this situation is statement c.

8. Interest rate parity **Answer: b Diff: T R**

The easiest way to do this is to make an example up. Assume the annual interest rate in the U.S. is 16 percent. Suppose in the U.S. you start off with $1.00, so after 90 days you will have $1.00 × 0.16/4 = $1.04.

In Switzerland, you will start with 1.00 × 1.82 = SF 1.82 and end up with 1.04 × 1.84 = SF 1.9136. The return in Switzerland is 1.9136/1.82 – 1 = 5.14%. (This is higher than the 4% U.S. rate.)

In Japan, you will start with 1.00 × 130 = 130 yen and end up with 1.04 × 127 = 132.08 yen. The return is 132.08/130 – 1 = 1.6%. (This is lower than the 4% U.S. rate.) Therefore, only statement b is correct.

9. Exchange rates **Answer: b Diff: E**

Dollars should sell for 1/0.71, or 1.41 Swiss francs per dollar.

10. Exchange rates **Answer: a Diff: E**

You can get 1/1.0279, or 0.9729 dollar for one euro.

11. Exchange rates **Answer: b Diff: E**

Find the $ to peso rate:
106.45 × 0.00966 × 9.0606 = 9.3171.

$1.00 = 9.3171 pesos.

12. Exchange rates **Answer: c Diff: E**

122JY/$1US × $1.6542US/1BP × 1BP/2.28SF = 201.8124JY/2.28SF
= 88.5JY/1SF.

13. Exchange rates and realized return **Answer: b Diff: E**

The return is calculated as: (3,465/130)/(3,150 × 0.00952) − 1 = -0.1112 or -11.12%.

14. Purchasing power parity **Answer: e Diff: E**

The cost of the telephone in Norway is 50 × 1.0279 × 8.1794 = 420.3803 Norwegian krones.

15. Purchasing power parity **Answer: e Diff: E**

To find the spot exchange rate between the dollar and euro, we know from purchasing power parity that:
$1,100 = 1,265 euros
1,265 euros/1,100 = $1.00
$1.00 = 1.15 euros.

16. Purchasing power parity **Answer: a Diff: E**

We are looking for the textbook price in pounds.
£/T = (£1/$1.58 U.S.) × ($75 U.S./1 T)
£/T = £47.47.

17. Purchasing power parity **Answer: d Diff: E**

$750 equals 770.925 [(750)(1.0279)] euros. If PPP holds, the product should cost the same in both markets.

18. Purchasing power parity **Answer: c Diff: E**

105 Canadian dollars equals 74.55 [(105)(0.71)] U.S. dollars. If PPP holds the skates should cost the same in both markets.

19. Purchasing power parity **Answer: e Diff: E**

If PPP holds, the candy should cost the same in each country, so that 28.80 Swiss francs equals 20 U.S. dollars. This relationship implies that 1 U.S. dollar equals 1.44 Swiss francs.

20. Interest rate parity **Answer: e Diff: E**

Remember, the interest rate parity formula is stated as:
Forward rate/Spot rate = $(1 + k_h)/(1 + k_f)$.
Remember, that both the forward rate and the spot rate are stated in units of home currency per units of foreign currency.

$$(1/125)/(1/121) = (1 + 0.052)/(1 + k_f)$$
$$0.9680 = 1.052/(1 + k_f)$$
$$1 + k_f = 1.052/0.9680$$
$$1.08678 = 1 + k_f$$
$$8.68\% = k_f.$$

21. Interest rate parity **Answer: a Diff: E**

This is an interest rate parity question; however, you don't even need the equation to figure out this one. If the forward rate equals the spot rate, then the interest rates in the two countries must be the same.

Spot and Forward Rates:
$1 U.S. = 104.84 yen; 1 yen = $0.0095 U.S.

$$\frac{\text{Forward exchange rate}}{\text{Spot exchange rate}} = \frac{1 + k_h}{1 + k_f}$$
$$\frac{\$0.0095 \text{ U.S.}}{\$0.0095 \text{ U.S.}} = \frac{1.06}{1 + k_f}$$
$$1 = \frac{1.06}{1 + k_f}$$
$$1 + k_f = 1.06$$
$$k_f = 0.06 = 6\%.$$

22. Currency appreciation **Answer: a Diff: E**

If one gets 288 yen for two dollars, the exchange rate is 144 yen per dollar. If the yen depreciates by 8% we would get more yen per dollar. One U.S. dollar will equal 144 × 1.08 = 155.5 yen. Two dollars yields 311 yen (2 × 155.5 yen = 311 yen).

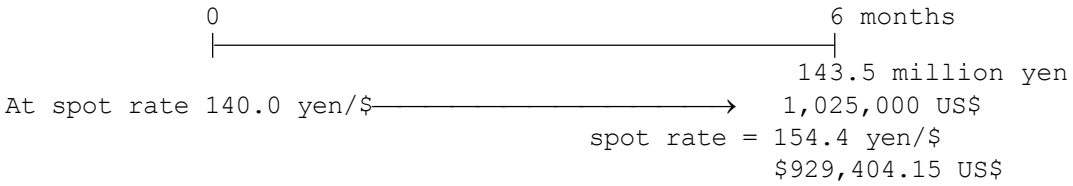
23. Eurobonds versus domestic bonds **Answer: d Diff: E R**

Gross up the interest rate on the domestic bond:
$k_{d(pretax)} = 0.09/(1 - 0.27) = 12.33\%$.

Solution check:
After-tax return: 12.33% - 0.27(12.33%) = 12.33% - 3.33% = 9.0%.

24. Credit and exchange rate risk **Answer: d Diff: E**

Time line:



Calculate the amount received in U.S. dollars after the 143,500,000 yen are exchanged for dollars at the spot rate of 154.4 yen, when the invoice is paid.
143,500,000/154.4 = $929,404.15 ≈ $929,404.

25. Inventory value and exchange rates **Answer: b Diff: M**

Inventory, this year = £240,000 × $1.82 = $436,800
Inventory, last year = £240,000 × $2.00 = 480,000
Loss = ($ 43,200)

26. Currency depreciation **Answer: d Diff: M**

The British pound will appreciate against the dollar by 12%.
£1 = $1.82 U.S. × 1.12 = $2.04 U.S.

27. Cross rates **Answer: e Diff: M**

SF/Euro = (1.6564/1) × (1/1.0279) = 1.6564/1.0279 = 1.6114 SF/Euro.

28. Cross rates **Answer: b Diff: M**

1 British pound can be exchanged for 1.569 U.S. dollars. 1.569 U.S. dollars can then be exchanged for 1.6128 [(1.569)(1.0279)] euros. It follows that 1 pound is worth 1.6128 euros.

29. Cross rates **Answer: a Diff: M**

The units you are looking for are number of euros per Canadian dollar (CD).
Euro/CD = Euro/Yen × Yen/U.S.$ × U.S.$/CD
= (1 Euro/103.57 Yen) × (106.45 Yen/$1 U.S.) × ($0.68046 U.S./$1 CD)
= 0.6994 Euro/CD.

30. Forward exchange rates **Answer: a Diff: M R**

(1.30 - 1.51)/1.51 = -0.139 ≈ -14%. Because one can obtain fewer Swiss francs for a dollar in the forward market, the forward currency is selling at a 14 percent premium to the spot rate.

31. Exchange rates and asset value **Answer: a Diff: M**

Exchange rate in 1995 = 1,476,000/$8,200 = 180 yen per dollar.
Today's exchange rate = 144 yen per dollar; 144/180 = 0.80.
Today's price = $8,200/0.8 = $10,250.
Alternatively, 1,476,000/144 = $10,250.

32. Exchange rates and operating profit **Answer: c Diff: M**

Step 1: Determine cost in dollars:

$$\frac{£0.55}{1 \text{ unit}} \times \frac{\$1 \text{ U.S.}}{£0.6373} = \$0.8630 \text{ U.S. per unit.}$$

Step 2: Determine revenue in dollars:

$$\frac{1.25 \text{ euros}}{1 \text{ unit}} \times \frac{\$1 \text{ U.S.}}{1.0279 \text{ euros}} = \$1.2161 \text{ U.S. per unit.}$$

Step 3: Calculate profit:
Profit = $1.2161 - 0.8630 = $0.3531.

33. Exchange rates and operating profit **Answer: e Diff: M**

Step 1: Calculate the cost of lumber in U.S. dollars. You need an answer in U.S. dollars, so convert everything to U.S. dollars.
Cost:

$$\frac{\$\text{U.S.}}{\text{L}} = \frac{8 \text{ C\$}}{\text{L}} \times \frac{\$0.6784 \text{ U.S.}}{1 \text{ C\$}}$$

$$= \$5.4272 \text{ U.S.}$$

Step 2: Calculate lumber revenues in U.S. dollars.
Revenues:

$$\frac{\$ \text{ U.S.}}{\text{L}} = \frac{8 \text{ E}}{\text{L}} \times \frac{\$0.9406 \text{ U.S.}}{1 \text{ E}}$$

$$= \$7.5248 \text{ U.S.}$$

Step 3: Calculate the lumber profit in U.S. dollars.
Profit = Revenues − Cost = $7.5248 - $5.4272 = $2.0976 ≈ $2.10 U.S.

34. Exchange rates and operating profit **Answer: e Diff: M**

We eventually want everything in U.S. dollars, so convert to U.S. dollars when you get the chance.

Step 1: Calculate revenues in terms of U.S. dollars:
Rev(U.S.) = (120 Y/1 L) × ($1 U.S./116.6 Y)
= $1.0292 U.S.

Step 2: Calculate the cost of production in terms of U.S. dollars:
Cost(U.S.) = (0.45 CD/1 L) × ($0.66 U.S./1.0 CD)
= $0.2970 U.S./L.

Step 3: Calculate the profit in U.S. dollars:
Profit = Revenues - Cost
= $1.0292 - $0.2970
= $0.7322 U.S.

35. Exchange rates and operating profit **Answer: d Diff: M**

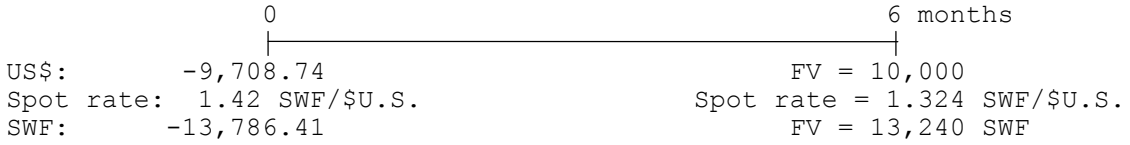
Step 1: Calculate the dollar cost of producing 1 unit of lime juice:
(1.2 real/1 unit) × ($1.00/1.75 real) = $0.6857 per unit.

Step 2: Calculate dollar revenues of selling 1 unit of lime juice:
(100 yen/1 unit) × ($1.00/120 yen) = $0.8333 per unit.

Step 3: Calculate the dollar profit per unit of lime juice sold:
Profit = Revenues - Cost
= $0.8333 - $0.6857
= $0.1476 ≈ $0.15.

36. Exchange fluctuations and T-bills **Answer: a Diff: M**

Time line:



Financial calculator solution:
Calculate the 6-month return to the Swiss investor after she has exchanged $U.S. for Swiss francs.
Inputs: N = 1; PV = -13,786.41; PMT = 0; FV = 13,240. Output: I = -3.96%.
Annualized nominal rate of return = -3.96%(2) = -7.92%.

37. Forward market hedge **Answer: e Diff: M R**

Time line:

Spot rate 1.585 $C/$U.S. 38,040 $C
Forward rate 1.60 $C/$U.S. 1.55 spot rate
90-day forward contract: $23,775

Calculate the cost of the forward contract at the forward rate:
38,040 $C/(1.60 $C/$U.S.) = $23,775.

Calculate the cost of purchasing exchange currency at the spot rate in 90 days to satisfy the payable:
38,040 $C/1.55 $C/$U.S. = $24,541.94.

Calculate the savings from the forward market hedge:
$24,541.94 - $23,775.00 = $766.94 ≈ $767.

38. Purchasing power parity **Answer: e Diff: M**

Facts given: $\hat{P}_f$ = Canadian; $\hat{P}_h$ = $100; Spot rate = ?

The purchasing power parity formula assumes that the spot rate is expressed in terms of the amount of home currency received per unit of foreign currency.

$P_h = P_f$ (Spot rate)
$100 = C$150 (Spot rate)
$0.6667= Spot rate. 1C$ = $0.6667 U.S.

39. Interest rate parity **Answer: a Diff: M**

From the interest rate parity formula it follows that Spot rate = Forward rate$(1 + k_f)/(1 + k_h)$ = (1.65 dollars/pound)(1.015)/(1.01) = 1.6582 dollars/pound. Another way to think of this is $1 invested today in the United States yields $1.01 90 days from now. Alternatively, investors could put their money in British securities. In this case, the investor would exchange $1 today for (1/1.6582) or 0.6031 pound in the spot market. This money could be invested in Great Britain. After 90 days this investment would be worth 0.6031(1.015) = 0.6121 pound. Given the forward exchange rate, 0.6121 pound is worth $1.01 90 days from now. (0.6121 × 1.65 = $1.01.) Since the two investments produce the same return, interest rate parity holds.

40. Interest rate parity **Answer: d Diff: M R**

From the interest rate parity formula it follows that Forward rate = Spot rate$(1 + k_h)/(1 + k_f)$ = (0.9662 dollar/euro)(1.0325)/(1.03) = 0.9685 dollar/euro, or 1.0325 euros per dollar. Another way to think of this is $1 invested today in the United States yields $1.0325 six months from now. Alternatively, investors could put their money in German securities. In this case, the investor would exchange $1 today for 1.035 euros. This money could be invested in Germany. After six months, this investment would be worth 1.06605 euros [(1.035)(1.03)]. At a forward exchange rate of 1 dollar equals 1.0325 euros, 1.06605 euros would be worth $1.0325. Since the two investments produce the same return, interest rate parity holds.

41. Interest rate parity **Answer: d Diff: M**

Forward rate/Spot rate $= (1 + k_h)/(1 + k_f)$.

Forward rate = \$1.00/1.45C\$
= 0.68966.

Spot rate = \$1.00/1.35C\$
= 0.74074.

$0.68966/0.74074 = (1 + 0.05)/(1 + k_f)$
$1 + k_f = 1.1277$
$k_f = 12.78\% \approx 12.8\%$.

42. NPV of foreign investment cash flows **Answer: b Diff: T**

Time line (in millions):

-10	4	4	6	6	5*	Projected cash flows
NPV=?	3.2	3.2	4.8	4.8	4	Unrestricted flows

*Calculate the expected terminal value cash flow:
Expected terminal cash flow (CF_5) = 0.5($8) + 0.5($2) = $4 + $1 = $5.

Calculate the unrestricted cash flows that can be repatriated to the parent firm:
Unrestricted cash flows = Projected cash inflows × 0.80.

Numerical solution (in millions):

Year	Projected Cash Flow	Percent Unrestricted	Unrestricted Repatriable Cash Flows
1	$4	0.80	$3.2
2	4	0.80	3.2
3	6	0.80	4.8
4	6	0.80	4.8
5	5	0.80	4.0

$$NPV = -\$10.0 + \frac{\$3.2}{(1.16)} + \frac{\$3.2}{(1.16)^2} + \frac{\$4.8}{(1.16)^3} + \frac{\$4.8}{(1.16)^4} + \frac{\$4}{(1.16)^5}$$

$$= -\$10.0 + \$2.75862 + \$2.37812 + \$3.07516 + \$2.65100 + \$1.90445$$

$$= \$2.76735 \approx \$2.77 \text{ million.}$$

Financial calculator solution (In millions):
Inputs: CF_0 = -10.0; CF_1 = 3.2; N_j = 2; CF_2 = 4.8; N_j = 2; CF_3 = 4.0; I = 16.
Output: NPV = $2.767 ≈ $2.77 million.

43. Forward market hedge **Answer: e Diff: T R**

Obligation is for 200,000 × 0.65 £ = 130,000 £.
130,000/0.60 = cost of forward contract = $216,666.67.
Spot rate in 90 days = 0.55£ per U.S. dollar.
130,000/0.55 = cost of spot rate in 90 days = $236,363.64.
Spot cost - forward cost = $236,363.64 - $216,666.67 = $19,696.97.

44. Exchange rates and operating profit **Answer: b Diff: T**

Step 1: Calculate the dollar cost per liter:
Cost to manufacture the orange juice is 15 pesos per liter. 10 pesos = $1.
Cost = 15 pesos/1 liter × $1/10 pesos = $1.50 per liter.

Step 2: Calculate total dollar cost of sales in U.S. and Japan:
Total sales = 10,000,000 liters + 8,000,000 liters
= 18,000,000 liters.

Total cost = $1.5 × 18,000,000
= $27,000,000.

Step 3: Calculate dollar sales in U.S.:
Sales in U.S. = $2.50 × 10,000,000
= $25,000,000.

Step 4: Calculate dollar sales in Japan:
Sales in Japan = 400Y × 8,000,000
= 3,200,000,000 yen.

Japanese sales in dollars = 3,200,000,000Y × $1/120Y
= $26,666,667.

Step 5: Calculate total dollar profit:
Total revenue = $25,000,000 + $26,666,667 = $51,666,667.

Profit = Revenue − Cost
= $51,666,667 - $27,000,000
= $24,666,667 ≈ $24.7 million.

45. Interest rate parity **Answer: b Diff: T**

f_t = Forward rate; e_0 = Spot rate.

$$
\begin{aligned}
f_t/e_0 &= (1 + k_h)/(1 + k_f) \\
(1/112.8)/(1/116.6) &= (1 + 0.055)/(1 + k_f) \\
116.6/112.8 &= 1.055/(1 + k_f) \\
1.0337 &= 1.055/(1 + k_f) \\
1.0337 + 1.0337k_f &= 1.055 \\
1.0337k_f &= 0.0213 \\
k_f &= 0.0206 = 2.06\%.
\end{aligned}
$$

Remember that to use this formula, the forward and spot rates must both be quoted in home units per foreign unit. In the question, you were given foreign units (116.6 yen) per home unit ($1 U.S.). Therefore, you need to convert the numbers given in the question into home units per foreign unit before proceeding with the algebra.

46. Interest rate parity **Answer: c Diff: T N**

We must solve for the spot rate in the interest rate parity equation.

$$\frac{\text{Forward rate}}{\text{Spot rate}} = \frac{1 + k_h}{1 + k_f}$$

$$\frac{\frac{1}{70}}{\text{Spot rate}} = \frac{1.07}{1.04}$$

$$0.014857 = 1.07 \text{ Spot rate}$$

$$\text{Spot rate} = 0.013885.$$

However, this is a spot interest rate in terms of Canadian dollars per yen. Therefore, we must take the reciprocal of this, which yields: 1/0.013885 = 72.02 ¥ per Canadian dollar.

47. Interest rate parity **Answer: b Diff: T**

To use the interest rate parity formula given in the text, the exchange rates must be expressed in terms of the amount of home currency received per unit of foreign currency. The exchange rates given in the problem must be converted.

Step 1: Find the spot exchange rate expressed as U.S. dollars per 1 Brazilian real:
$1 U.S. = 1.85 real (given)
1/1.85 = $0.5405
1 real = $0.5405.

Step 2: Find the 1-year forward exchange rate expressed as U.S. dollars per 1 Brazilian real:
$1 U.S. = 1.98 real
1/1.98 = $0.5051
1 real = $0.5051.

Step 3: Use the interest rate parity formula to find the interest rate on 1-year, risk-free Brazilian securities:

$$\frac{\text{Forward exchange rate}}{\text{Spot exchange rate}} = \frac{1 + k_h}{1 + k_f}$$

$$\frac{\$0.5051}{\$0.5405} = \frac{1.048}{1 + k_f}$$

$$0.9345 = \frac{1.048}{1 + k_f}$$

$$0.9345 + 0.9345k_f = 1.048$$

$$0.9345k_f = 0.1135$$

$$k_f = 0.1214 = 12.14\%.$$

48. EAR on foreign debt **Answer: c Diff: T R**

Time line:

	0		1		2	Years	
	0	1	2	3	4	6-mo. periods	
$U.S.:	-1,000,000	282,012	282,012	282,012	282,012		
Euros:	-1,050,000	296,112	296,112	296,112	296,112		(1.05 €/$)
$U.S.:	-1,000,000	311,697	311,697	311,697	311,697		(0.95 €/$)

Financial calculator solution:
Calculate the required payments in euros:
Inputs: N = 4; I = 5; PV = -1050000; FV = 0. Output: PMT = 296,112.42 euros.

296,112 euros are needed on each payment date. At the initial exchange rate of 1.05 euros/$U.S., the payments are approximately $282,012 U.S. Payment in U.S. dollars after conversion = 296,112.42€/(1.05€/$U.S.) = $282,011.83. However, at an exchange rate of 0.95€/US$, the cost to the firm in $U.S. increases to 296,112.42/095 = $311,697.28 ≈ $311,697.

Calculate nominal annual interest rate on loan:
Inputs: N = 4; PV = -1,000,000; PMT = 311697; FV = 0.
Output: I = 9.45% semiannual rate.
Annual nominal rate = 9.45%(2) = 18.89%.

Calculate effective annual rate:
Inputs: P/YR = 2; NOM% = 18.89. Output: EFF% = 19.78%.

49. Cross rates **Answer: a Diff: E N**

We need to find the cross rate as follows:

$$\frac{\$0.88}{1 \text{ euro}} \times \frac{0.70 \text{ euro}}{1 \text{ Canadian dollar}} = \frac{\$0.62}{1 \text{ Canadian dollar}}.$$

So, the answer is $0.62 per 1 Canadian dollar.

50. Purchasing power parity **Answer: d Diff: E N**

$$\text{Spot rate} = \frac{P_h}{P_f}$$

$$\frac{\$0.88}{\text{euro}} = \frac{\$120}{P_f}$$

$$120 = 0.88P_f$$

$$136.36 \text{ EMU euros} = P_f.$$

So the tennis racket would cost 136.36 EMU euros.

51. Forward exchange rates **Answer: a Diff: M N**

The correct answer is statement a. The U.S. dollar will buy fewer units of the Canadian dollar in the future market. Statement b is incorrect; the U.S. dollar will buy more units of the EMU euro in the future market. Statement c is incorrect; the EMU euro will buy fewer units of the Canadian dollar in the future market.