APPENDIX A

Answers to Self-Test Questions

CHAPTER 1

1. Multinational corporations can capitalize on comparative advantages (such as a technology or cost of labor) that they have relative to firms in other countries, which allows them to penetrate those other countries' markets. Given a world of imperfect markets, comparative advantages across countries are not freely transferable. Therefore, MNCs may be able to capitalize on comparative advantages. Many MNCs initially penetrate markets by exporting but ultimately establish a subsidiary in foreign markets and attempt to differentiate their products as other firms enter those markets (product cycle theory).

2. Weak economic conditions or unstable political conditions in a foreign country can reduce cash flows received by the MNC, or they can result in a higher required rate of return for the MNC. Either of these effects results in a lower valuation of the MNC.

3. First, there is the risk of poor economic conditions in the foreign country. Second, there is country risk, which reflects the risk of changing government or public attitudes toward the MNC. Third, there is exchange rate risk, which can affect the performance of the MNC in the foreign country.

CHAPTER 2

1. Each of the economic factors is described, holding other factors constant.

a. *Inflation.* A relatively high U.S. inflation rate relative to other countries can make U.S. goods less attractive to U.S. and non-U.S. consumers, which results in fewer U.S. exports, more U.S. imports, and a lower (or more negative) current account balance. A relatively low U.S. inflation rate would have the opposite effect.

b. *National income.* A relatively high increase in the U.S. national income (compared with other countries) tends to cause a large increase in demand for imports and can cause a lower (or more negative) current account balance. A relatively low increase in the U.S. national income would have the opposite effect.

c. *Exchange rates.* A weaker dollar tends to make U.S. products cheaper to non-U.S. firms and makes non-U.S. products expensive to U.S. firms. Thus, U.S. exports are expected to increase while U.S. imports are expected to decrease. However, some conditions can prevent these effects from occurring, as explained in the chapter. Normally,

a stronger dollar causes U.S. exports to decrease and U.S. imports to increase because it makes U.S. goods more expensive to non-U.S. firms and makes non-U.S. goods less expensive to U.S. firms.

d. *Government restrictions.* When the U.S. government imposes new barriers on imports, U.S. imports decline, causing the U.S. balance of trade to increase (or be less negative). When non-U.S. governments impose new barriers on imports from the United States, the U.S. balance of trade may decrease (or be more negative). When governments remove trade barriers, the opposite effects are expected.

2. When the United States imposes tariffs on imported goods, foreign countries may retaliate by imposing tariffs on goods exported by the United States. Thus, there is a decline in U.S. exports that may offset any decline in U.S. imports.

3. A global recession might cause governments to impose trade restrictions so that they can protect local firms from intense competition and prevent additional layoffs within the country. However, if other countries impose more barriers in retaliation, this strategy could backfire.

CHAPTER 3

1. ($.80 − $.784)/$.80 = .02, or 2 percent.

2. ($.19 − $.188)/$.19 = .0105, or 1.05 percent.

3. Multinational corporations use the spot foreign exchange market to exchange currencies for immediate delivery. They use the forward foreign exchange market and the currency futures market to lock in the exchange rate at which currencies will be exchanged at a future time. They use the currency options market when they wish to lock in the maximum (minimum) amount to be paid (received) in a future currency transaction but maintain flexibility in the event of favorable exchange rate movements.

Multinational corporations use the Eurocurrency market to engage in short-term investing or financing and use the Eurocredit market to engage in medium-term financing. They can obtain long-term financing by issuing bonds in the Eurobond market or by issuing stock in the international markets.

CHAPTER 4

1. Economic factors affect the yen's value as follows.

a. If U.S. inflation is higher than Japanese inflation, then the U.S. demand for Japanese goods may increase (to avoid the higher U.S. prices) and the Japanese demand for U.S. goods may decrease (to avoid the higher U.S. prices). Consequently, there is upward pressure on the value of the yen.

b. If U.S. interest rates increase and exceed Japanese interest rates, then the U.S. demand for Japanese interest-bearing securities may decline (since U.S. interest-bearing securities are more attractive) while the Japanese demand for U.S. interest-bearing securities may rise. Both forces place downward pressure on the yen's value.

c. If U.S. national income increases more than Japanese national income, then the U.S. demand for Japanese goods may increase more than the Japanese demand for U.S. goods. Assuming that the change in national income levels does not affect exchange rates indirectly through effects on relative interest rates, the forces should place upward pressure on the yen's value.

d. If government controls reduce the U.S. demand for Japanese goods, they place downward pressure on the yen's value. If the controls reduce the Japanese demand for U.S. goods, they place upward pressure on the yen's value.

The opposite scenarios of those described here would cause the expected pressure to be in the opposite direction.

2. The U.S. capital flows with Country A may be larger than U.S. capital flows with Country B. Therefore, the change in the interest rate differential has a larger effect on the capital flows with Country A, causing the exchange rate to change. If the capital flows with Country B are nonexistent, then interest rate changes do not change the capital flows and so do not change the demand and supply conditions in the foreign exchange market.

3. Smart Banking Corp. should not pursue the strategy because a loss would result, as shown here.

a. Borrow $5 million.

b. Convert $5 million to C$5,263,158 (based on the spot exchange rate of $.95 per C$).

c. Invest the C$ at 9 percent annualized, which represents a return of .15 percent over 6 days, so the C$ received after 6 days is C$5,271,053 (computed as C$5,263,158 × [1 + .0015]).

d. Convert the C$ received back to U.S. dollars after 6 days: C$5,271,053 = $4,954,789 (based on anticipated exchange rate of $.94 per C$ after 6 days).

e. The interest rate owed on the U.S. dollar loan is .10 percent over the 6-day period. Thus, the amount owed as a result of the loan is $5,005,000 [computed as $5,000,000 × (1 + .001)].

f. The strategy is expected to cause a gain of $4,954,789 − $5,005,000 = −$50,211.

Chapter 5

1. The net profit to the speculator is −$.01 per unit.

The net profit to the speculator for one contract is −$500 (computed as −$.01 × 50,000 units).

The spot rate would need to be $.66 for the speculator to break even.

The net profit to the seller of the call option is $.01 per unit.

2. The speculator should exercise the option.

The net profit to the speculator is $.04 per unit.

The net profit to the seller of the put option is −$.04 per unit.

3. The premium paid is higher for options with longer expiration dates (other things being equal). Firms may prefer not to pay such high premiums.

Chapter 6

1. Market forces cause the demand and supply of yen in the foreign exchange market to change, which causes a change in the equilibrium exchange rate. The central banks could intervene to affect the demand or supply conditions in the foreign exchange market, but they would not always be able to offset the changing market forces. For example, if there were a large increase in the U.S. demand for yen and no increase in the supply of yen for sale, then the central banks would have to increase the supply of yen in the foreign exchange market to offset the increased demand.

2. The Fed could use direct intervention by selling some of its dollar reserves in exchange for pesos in the foreign exchange market. It could also use indirect intervention by attempting to reduce U.S. interest rates through monetary policy. Specifically, it could increase the U.S. money supply, which places downward pressure on U.S. interest rates (assuming that inflationary expectations do not change). The lower U.S. interest rates should discourage foreign investment in the United States and encourage increased investment by U.S. investors in foreign securities. Both forces tend to weaken the dollar's value.

3. A weaker dollar tends to increase the demand for U.S. goods because the price paid for a specified amount in dollars by non-U.S. firms is reduced. In addition, the U.S. demand for foreign goods is reduced because it takes more dollars to obtain a specified amount in foreign currency once the dollar weakens. Both forces tend to stimulate the U.S. economy and therefore improve productivity and reduce unemployment in the United States.

CHAPTER 7

1. No. The cross exchange rate between the pound and the C$ is appropriate, based on the other exchange rates. There is no discrepancy to capitalize on.

2. No. Covered interest arbitrage involves the exchange of dollars for pounds. Assuming that the investors begin with $1 million (the starting amount will not affect the final conclusion), the dollars would be converted to pounds as shown here:

$$\$1 \text{ million} / \$1.60 \text{ per £} = £625{,}000$$

The British investment would accumulate interest over the 180-day period, resulting in

$$£625{,}000 \times 1.04 = £650{,}000$$

After 180 days, the pounds would be converted to dollars:

$$£650{,}000 \times \$1.56 \text{ per pound} = \$1{,}014{,}000$$

This amount reflects a return of 1.4 percent above the amount with which U.S. investors initially started. The investors could simply invest the funds in the United States at 3 percent. Thus, U.S. investors would earn less using the covered interest arbitrage strategy than investing in the United States.

3. No. The forward rate discount on the pound does not perfectly offset the interest rate differential. In fact, the discount is 2.5 percent, which is larger than the interest rate differential. Hence U.S. investors do worse when attempting covered interest arbitrage than when investing their funds in the United States because the interest rate advantage on the British investment is more than offset by the forward discount.

Further clarification may be helpful here. Whereas U.S. investors could not benefit from covered interest arbitrage, British investors could capitalize on covered interest arbitrage. Although British investors would earn 1 percent less interest on the U.S. investment, they would be purchasing pounds forward at a discount of 2.5 percent at the end of the investment period. If interest rate parity does not hold, then investors from only one of the two countries of concern could benefit from using covered interest arbitrage.

4. If there is a discrepancy in the pricing of a currency, one may capitalize on it by using the various forms of arbitrage described in the chapter. As arbitrage occurs, the

exchange rates will be pushed toward their appropriate levels because arbitrageurs will buy an underpriced currency in the foreign exchange market (an increase in demand for currency places upward pressure on its value) and will sell an overpriced currency in the foreign exchange market (an increase in the supply of currency for sale places downward pressure on its value).

5. The 1-year forward discount on pounds would become more pronounced (by about 1 percentage point more than before) because the spread between the British interest rates and U.S. interest rates would increase.

CHAPTER 8

1. If Japanese prices rise because of inflation in that country, then the value of the yen should decline. Thus, even though the importer might need to pay more yen, it would benefit from a weaker yen value (it would pay fewer dollars for a given amount in yen). Thus, there could be an offsetting effect if PPP holds.

2. Purchasing power parity does not necessarily hold. In our example, Japanese inflation could rise (causing the importer to pay more yen) and yet the Japanese yen would not necessarily depreciate by an offsetting amount, or at all. Therefore, the dollar amount to be paid for Japanese supplies could increase over time.

3. High inflation will cause a balance-of-trade adjustment, whereby the United States will reduce its purchases of goods in these countries, while the demand for U.S. goods by these countries should increase (according to PPP). Consequently, there will be downward pressure on the values of these currencies.

4.
$$\begin{aligned} e_f &= I_h - I_f \\ &= 3\% - 4\% \\ &= -.01, \text{ or } -1\% \end{aligned}$$
$$\begin{aligned} S_{t+1} &= S(1 + e_f) \\ &= \$.85[1 + (-.01)] \\ &= \$.8415 \end{aligned}$$

5.
$$\begin{aligned} e_f &= \frac{1 + i_h}{1 + i_f} - 1 \\ &= \frac{1 + .06}{1 + .11} - 1 \\ &\cong -.045, \text{ or } -4.5\% \end{aligned}$$
$$\begin{aligned} S_{t+1} &= S(1 + e_f) \\ &= \$.90[1 + (-.045)] \\ &= \$.8595 \end{aligned}$$

6. According to the IFE, the increase in interest rates by 5 percentage points reflects an increase in expected inflation by 5 percentage points.

If the inflation adjustment occurs, then the balance of trade should be affected because Australian demand for U.S. goods rises while the U.S. demand for Australian goods declines. Thus, the Australian dollar should weaken.

If U.S. investors believed in the IFE, they would not attempt to capitalize on higher Australian interest rates because they would expect the Australian dollar to depreciate over time.

CHAPTER 9

1. U.S. 4-year interest rate $= (1 + .07)^4 = 131.08$ percent, or 1.3108. Mexican 4-year interest rate $= (1 + .20)^4 = 207.36$ percent, or 2.0736.

$$p = \frac{1 + i_b}{1 + i_f} - 1 = \frac{1.3108}{2.0736} - 1$$
$$= -.3679, \text{ or } -36.79\%$$

2. Canadian dollar

$$\frac{|\$.80 - \$.82|}{\$.82} = 2.44\%$$

Japanese yen

$$\frac{|\$0.12 - \$.011|}{\$.011} = 9.09\%$$

The forecast error was larger for the Japanese yen.

3. The forward rate of the peso would have overestimated the future spot rate because the spot rate would have declined by the end of each month.

4. Semistrong-form efficiency would be refuted because the currency values do not adjust immediately to useful public information.

5. The peso would be expected to depreciate because its forward rate would exhibit a discount (be less than the spot rate). Thus, the forecast derived from the forward rate is less than the spot rate, which implies anticipated depreciation of the peso.

6. As the chapter suggests, forecasts of currencies are subject to a high degree of error. Thus, if a project's success is very sensitive to the future value of the bolivar, there is much uncertainty. This project could easily backfire because the future value of the bolivar is very uncertain.

CHAPTER 10

1. Managers have more information about the firm's exposure to exchange rate risk than do shareholders and may be able to hedge it more easily than shareholders could. Shareholders may prefer that the managers hedge for them. Also, cash flows may be stabilized as a result of hedging, which can reduce the firm's cost of financing.

2. The Canadian supplies would have less exposure to exchange rate risk because the Canadian dollar is less volatile than the Mexican peso.

3. The Mexican source would be preferable because the firm could use peso inflows to make payments for material that is imported.

4. No. If exports are priced in dollars then the dollar cash flows received from exporting will depend on Mexico's demand, which will be affected by the peso's value. If the peso depreciates, Mexican demand for the exports would likely decrease.

5. The earnings generated by the European subsidiaries will be translated to a smaller amount in dollar earnings if the dollar strengthens. Thus, the consolidated earnings of the U.S.-based MNCs will be reduced.

CHAPTER 11

1.

$$\text{Amount of A\$ to be invested today} = \text{A\$3,000,000}/(1 + .12)$$
$$= \text{A\$2,678,571}$$
$$\text{Amount of U.S.\$ to be borrowed to convert to A\$} = \text{A\$2,678,571} \times \$.85$$
$$= \$2,276,785$$
$$\text{Amount of U.S.\$ needed in 1 year to pay off loan} = \$2,276,785 \times (1 + .07)$$
$$= \$2,436,160$$

2. The forward hedge would be more appropriate. Given a forward rate of $.81, Montclair would need $2,430,000 in 1 year (computed as A$3,000,000 × $.81) when using a forward hedge.

3. Montclair could purchase currency call options in Australian dollars. The option could hedge against the possible appreciation of the Australian dollar. Yet if the Australian dollar depreciates, Montclair could let the option expire and purchase the Australian dollars at the spot rate at the time it needs to send payment. A disadvantage of the currency call option is that a premium must be paid for it. Thus, if Montclair expects the Australian dollar to appreciate over the year, the money market hedge would probably be a better choice since the flexibility provided by the option would not be useful in this case.

4. Even though Sanibel Co. is insulated from the beginning of a month to the end of the month, the forward rate will become higher each month because the forward rate moves with the spot rate. Thus, the firm will pay more dollars each month even though it is hedged during the month. Sanibel will be adversely affected by the consistent appreciation of the pound.

5. Sanibel Co. could engage in a series of forward contracts today to cover the payments in each successive month. In this way, it locks in the future payments today and does not have to agree to the higher forward rates that may exist in future months.

6. A put option on SF2 million would cost $60,000. If the spot rate of the SF reached $.68 as expected, then the put option would be exercised, which would yield $1,380,000 (computed as SF2,000,000 × $.69). Accounting for the premium costs of $60,000, the receivables amount would convert to $1,320,000. If Hopkins remains unhedged, it expects to receive $1,360,000 (computed as SF2,000,000 × $.68). Thus, the unhedged strategy is preferable.

CHAPTER 12

1. Salem could attempt to purchase its chemicals from Canadian sources. Then, if the Canadian dollar depreciates, the reduction in dollar inflows resulting from its exports to Canada will be partially offset by a reduction in dollar outflows needed to pay for the Canadian imports. An alternative possibility for Salem is to finance its business with Canadian dollars, but this would probably be a less efficient solution.

2. A possible disadvantage is that Salem would forgo some of the benefits if the Canadian dollar appreciated over time.

3. The consolidated earnings of Coastal Corp. will be adversely affected if the pound depreciates because the British earnings will be translated into dollar earnings for the consolidated income statement at a lower exchange rate. Coastal could attempt to hedge its translation exposure by selling pounds forward. If the pound depreciates then the company will benefit from its forward position, which could help offset the translation effect.

4. This argument has no perfect solution. It appears that shareholders penalize the firm for poor earnings even when the reason for poor earnings is a weak euro that has adverse translation effects. It is possible that translation effects could be hedged to stabilize earnings, but Everhart may consider informing the shareholders that the major earnings changes have been due to translation effects and not to changes in consumer demand or other factors. Perhaps shareholders would not respond so strongly to earnings changes if they were well aware that the changes were primarily caused by translation effects.

5. Lincolnshire has no translation exposure because it has no foreign subsidiaries. Kalafa has translation exposure resulting from its subsidiary in Spain.

Chapter 13

1. Possible reasons include

- more demand for the product (depending on the product),
- better technology in Canada, and
- fewer restrictions (less political interference).

2. Possible reasons include

- more demand for the product (depending on the product),
- greater probability of earning superior profits (since many goods have not been marketed in Mexico in the past),
- cheaper factors of production (such as land and labor), and
- possible exploitation of monopolistic advantages.

3. U.S. firms prefer to enter a country when the foreign country's currency is weak. U.S. firms normally would prefer that the foreign currency appreciate after they invest their dollars to develop the subsidiary. The executive's comment suggests that the euro is too strong, so any U.S. investment of dollars into Europe will not convert into enough euros to make the investment worthwhile.

4. It may be easier to engage in a joint venture with a Chinese firm, which is already well established in China, to circumvent barriers.

5. The government may attempt to stimulate the economy in this way.

Chapter 14

1. In addition to earnings generated in Jamaica, the NPV is based on some factors not controlled by the firm; these factors include the expected host government tax on profits, the withholding tax imposed by the host government, and the salvage value to be

received when the project is terminated. Furthermore, exchange rate projections will affect the estimates of dollar cash flows received by the parent as earnings are remitted.

2. The most obvious effect is on the cash flows that will be generated by the sales distribution center in Ireland. These cash flow estimates will likely be revised downward (due to lower sales estimates). It is also possible that the estimated salvage value could be reduced. Exchange rate estimates could be revised as a result of revised economic conditions. Estimated tax rates imposed on the center by the Irish government could also be affected by the revised economic conditions.

3. New Orleans Exporting Co. must account for the cash flows that will be forgone as a result of the plant because some of the cash flows that used to be received by the parent through its exporting operation will be eliminated. The NPV estimate will be reduced after this factor is accounted for.

4. a. An increase in the risk will cause an increase in the required rate of return on the subsidiary, which results in a lower discounted value of the subsidiary's salvage value.

b. If the rupiah depreciates over time, the subsidiary's salvage value will be reduced because the proceeds will convert to fewer dollars.

5. The dollar cash flows of Wilmette Co. would be affected more because the periodic remitted earnings from Thailand to be converted to dollars would be larger. The dollar cash flows of Niles would not be affected so much because interest payments would be made on the Thai loans before earnings could be remitted to the United States. Thus, a smaller amount in earnings would be remitted.

6. The demand for the product in the foreign country may be very uncertain, causing the total revenue to be uncertain. The exchange rates can be very uncertain, creating uncertainty about the dollar cash flows received by the U.S. parent. The salvage value may be very uncertain; this will have a larger effect if the lifetime of the project is short (for projects with a very long life, the discounted value of the salvage value is small anyway).

CHAPTER 15

1. Acquisitions have increased in Europe to capitalize on the inception of the euro, which created a single currency for many European countries. This has not only eliminated the exchange rate risk on transactions between the participating European countries, it has also made it easier to compare valuations among European countries to determine where targets are undervalued.

2. Common restrictions include government regulations such as antitrust restrictions, environmental restrictions, and red tape.

3. The establishment of a new subsidiary allows an MNC to create the subsidiary it desires without assuming existing facilities or employees. However, the process of building a new subsidiary and hiring employees will normally take longer than the process of acquiring an existing foreign firm.

4. The divestiture is now more feasible because the dollar cash flows to be received by the U.S. parent are reduced as a result of the revised projections of the krona's value.

CHAPTER 16

1. First, consumers on the islands could develop a philosophy of purchasing homemade goods. Second, they could discontinue their purchases of exports by Key West Co. as a form of protest against specific U.S. government actions. Third, the host governments could impose severe restrictions on the subsidiary shops owned by Key West Co. (including the blockage of funds to be remitted to the U.S. parent).

2. First, the islands could experience poor economic conditions, which would cause lower income for some residents. Second, residents could be subject to higher inflation or higher interest rates, which would reduce the income that they could allocate to exports. Depreciation of the local currencies could also raise the local prices to be paid for goods exported from the United States. All these factors could reduce the demand for goods exported by Key West Co.

3. Financial risk is probably a bigger concern. The political risk factors are unlikely, given that the product is produced by Key West Co. and since there are no substitute products available in other countries. The financial risk factors deserve serious consideration.

4. This event has heightened the perceived country risk for any firms that have offices in populated areas (especially next to government or military offices). It has also heightened the risk for firms whose employees commonly travel to other countries and for firms that provide office services or travel services.

5. Rockford Co. could estimate the net present value (NPV) of the project under three scenarios: (1) include a special tax when estimating cash flows back to the parent (probability of scenario = 15%), (2) assume the project ends in 2 years and include a salvage value when estimating the NPV (probability of scenario = 15%), and (3) assume no Canadian government intervention (probability = 70%). This results in three estimates of NPV, one for each scenario. This method is less arbitrary than the one considered by Rockford's executives.

CHAPTER 17

1. Growth may have caused Goshen to require a large amount for financing that could not be completely provided by retained earnings. In addition, the interest rates may have been low in these foreign countries to make debt financing an attractive alternative. Finally, the use of foreign debt can reduce the exchange rate risk since the amount in periodic remitted earnings is reduced when interest payments are required on foreign debt.

2. If country risk has increased, Lynde can attempt to reduce its exposure to that risk by removing its equity investment from the subsidiary. When the subsidiary is financed with local funds, the local creditors have more to lose than the parent if the host government imposes any severe restrictions on the subsidiary.

3. Not necessarily. German and Japanese firms tend to have more support from other firms or from the government if they experience cash flow problems and can therefore afford to use a higher degree of financial leverage than firms from the same industry in the United States.

4. Local debt financing is favorable because it can reduce the MNC's exposure to country risk and exchange rate risk. However, the high interest rates will make the local debt

very expensive. If the parent makes an equity investment in the subsidiary to avoid the high cost of local debt, it will be more exposed to country risk and exchange rate risk.

5. The answer to this question depends on whether or not you believe that unsystematic risk is relevant. If the CAPM is used as a framework for measuring risk, then the foreign project's risk is determined to be low because the systematic risk is low. That is, the risk is specific to the host country and is not related to U.S. market conditions. However, if the project's unsystematic risk is relevant then the project is considered to have a high degree of risk. The project's cash flows are very uncertain even though the systematic risk is low.

Chapter 18

1. A firm may be able to obtain a lower coupon rate by issuing bonds denominated in a different currency. The firm converts the proceeds from issuing the bond to its local currency in order to finance local operations. However, there is exchange rate risk because the firm will need to make coupon payments (and the principal payment) in the currency denominating the bond. If that currency appreciates against the firm's local currency, then the financing costs could become larger than expected.

2. The risk is that the Swiss franc would appreciate against the pound over time since the British subsidiary will periodically convert some of its pound cash flows to francs to make the coupon payments.

The risk here is less than it would be if the proceeds were used to finance U.S. operations. The Swiss franc's movement against the dollar is much more volatile than the Swiss franc's movement against the pound. The Swiss franc and the pound have historically moved in tandem to some degree against the dollar, which means that there is a fairly stable exchange rate between the two currencies.

3. If these firms borrow U.S. dollars and convert them to finance local projects, then they will need to use their own currencies to obtain dollars and make coupon payments. These firms would be highly exposed to exchange rate risk.

4. Paxson Co. is exposed to exchange rate risk. If the yen appreciates, the number of dollars needed for conversion into yen will increase. To the extent that the yen strengthens, Paxson's cost of financing when financing with yen could be higher than when financing with dollars.

5. The nominal interest rate incorporates expected inflation (according to the international Fisher effect). Therefore, the high interest rates reflect high expected inflation. Cash flows can be enhanced by inflation because a given profit margin converts into larger profits as a result of inflation, even if costs increase at the same rate as revenues.

Chapter 19

1. The exporter may not trust the importer or may be concerned about the government imposing exchange controls that prevent payment to the exporter. Meanwhile, the importer may not trust that the exporter will ship the goods ordered and therefore may not pay until the goods are received. Commercial banks can help by providing guarantees to the exporter in case the importer does not pay.

2. In accounts receivable financing, the bank provides a loan to the exporter secured by the accounts receivable. If the importer fails to pay the exporter, the exporter is still

responsible to repay the bank. Factoring involves the sales of accounts receivable by the exporter to a so-called factor, in which the exporter is no longer responsible for the importer's payment.

3. The guarantee programs of the Export-Import Bank provide medium-term protection against the risk of nonpayment by the foreign buyer due to political risk.

CHAPTER 20

1. $r_f = (1 + i_f)(1 + e_f) - 1$

If $e_f = -6\%$, $r_f = (1 + .09)[1 + (-.06)] - 1$

$= .0246$, or 2.46%

If $e_f = 3\%$, $r_f = (1 + .09)(1 + .03) - 1$

$= .1227$, or 12.27%

2. $E[r_f] = 50\%(2.46\%) + 50\%(12.27\%)$

$= 1.23\% + 6.135\%$

$= 7.365\%$

3. $e_f = \dfrac{1 + r_f}{1 + i} - 1$

$= \dfrac{1+.08}{1+.05} - 1$

$= .0286$, or 2.86%

4. $E[e_f]$ = (Forward rate − Spot rate)/Spot rate

= (\$.60 − \$.62)/\$.62

= −.0322, or −3.22%

$E[e_f] = (1 + i_f)[1 + E[e_f]] - 1$

$= (1 + .09)[1 + (-.0322)] - 1$

$= .0548$, or 5.48%

5. The two-currency portfolio will not exhibit much lower variance than either individual currency because the currencies tend to move together. Thus, the diversification effect is limited.

CHAPTER 21

1. The subsidiary in Country Y should be more adversely affected because the blocked funds will not earn as much interest over time. In addition, the funds will likely be converted to dollars at an unfavorable exchange rate because the currency is expected to weaken over time.

2. $$E[r] = (1 + i_f)[1 + E[e_f]] - 1$$
$$= (1 + .14)(1 + .08) - 1$$
$$= .2312, \text{ or } 23.12\%$$

3. $$E[e_f] = (\text{Forward rate} - \text{Spot rate})/\text{Spot rate}$$
$$= (\$.19 - \$.20)/\$.20$$
$$= -.05, \text{ or } -5\%$$
$$E[r] = (1 + i_f)[1 + E[e_f]] - 1$$
$$= (1 + .11)[1 + (-.05)] - 1$$
$$= .0545, \text{ or } 5.45\%$$

4. $$e_f = \frac{1 + r}{1 + i_f} - 1$$
$$= \frac{1 + .06}{1 + .90} - 1$$
$$= -.4421, \text{ or } -44.21\%$$

If the bolivar depreciates by less than 44.21 percent against the dollar over the 1-year period, then a 1-year deposit in Venezuela will generate a higher effective yield than a 1-year U.S. deposit.

5. Yes. Interest rate parity would discourage U.S. firms only from covering their investments in foreign deposits by using forward contracts. As long as the firms believe that the currency will not depreciate to offset the interest rate advantage, they may consider investing in countries with high interest rates.

APPENDIX B
Supplemental Cases

CHAPTER 1 RANGER SUPPLY COMPANY
Motivation for International Business

Ranger Supply Company is a large manufacturer and distributor of office supplies. It is based in New York but sends supplies to firms throughout the United States. It markets its supplies through periodic mass mailings of catalogues to those firms. Its clients can make orders over the phone, and Ranger ships the supplies upon demand. Ranger has had very high production efficiency in the past. This is attributed partly to low employee turnover and high morale, as employees are guaranteed job security until retirement.

Ranger already holds a large proportion of the market share in distributing office supplies in the United States. Its main competition in the United States comes from one U.S. firm and one Canadian firm. A British firm has a small share of the U.S. market but is at a disadvantage because of its distance. The British firm's marketing and transportation costs in the U.S. market are relatively high.

Although Ranger's office supplies are similar to those of its competitors, it has been able to capture most of the U.S. market because its high efficiency enables it to charge low prices to retail stores. It expects a decline in the aggregate demand for office supplies in the United States in future years. However, it anticipates strong demand for office supplies in Canada and in Eastern Europe over the next several years. Ranger's executives have begun to consider exporting as a method of offsetting the possible decline in domestic demand for its products.

a. Ranger Supply Company plans to attempt penetrating either the Canadian market or the Eastern European market through exporting. What factors deserve to be considered in deciding which market is more feasible?

b. One financial manager has been responsible for developing a contingency plan in case whichever market is chosen imposes export barriers over time. This manager proposed that Ranger should establish a subsidiary in the country of concern under such conditions. Is this a reasonable strategy? Are there any obvious reasons why this strategy could fail?

Chapter 2 MapleLeaf Paper Company
Assessing the Effects of Changing Trade Barriers

MapleLeaf Paper Company is a Canadian firm that produces a particular type of paper not produced in the United States. It focuses most of its sales in the United States. In the past year, for example, 180,000 of its 200,000 rolls of paper were sold to the United States, and the remaining 20,000 rolls were sold in Canada. It has a niche in the United States, but because there are some substitutes, the U.S. demand for the product is sensitive to any changes in price. In fact, MapleLeaf has estimated that the U.S. demand rises (declines) 3 percent for every 1 percent decrease (increase) in the price paid by U.S. consumers, other things held constant.

A 12 percent tariff had historically been imposed on exports to the United States. Then, on January 2, a free trade agreement between the United States and Canada was implemented, eliminating the tariff. MapleLeaf was ecstatic about the news, as it had been lobbying for the free trade agreement for several years.

At that time, the Canadian dollar was worth $.76. MapleLeaf hired a consulting firm to forecast the value of the Canadian dollar in the future. The firm expects the Canadian dollar to be worth about $.86 by the end of the year and then stabilize after that. The expectations of a stronger Canadian dollar are driven by an anticipation that Canadian firms will capitalize on the free trade agreement more than U.S. firms, which will cause the increase in the U.S. demand for Canadian goods to be much higher than the increase in the Canadian demand for U.S. goods. (However, no other Canadian firms are expected to penetrate the U.S. paper market.) MapleLeaf expects no major changes in the aggregate demand for paper in the U.S. paper industry. It is also confident that its only competition will continue to be two U.S. manufacturers that produce imperfect substitutes for its paper. Its sales in Canada are expected to grow by about 20 percent by the end of the year because of an increase in the overall Canadian demand for paper and then remain level after that. MapleLeaf invoices its exports in Canadian dollars and plans to maintain its present pricing schedule, since its costs of production are relatively stable. Its U.S. competitors will also continue their pricing schedule. MapleLeaf is confident that the free trade agreement will be permanent. It immediately begins to assess its long-run prospects in the United States.

a. Based on the information provided, develop a forecast of MapleLeaf's annual production (in rolls) needed to accommodate demand in the future. Since orders for this year have already occurred, focus on the years following this year.

b. Explain the underlying reasons for the change in the demand and the implications.

c. Will the general effects on MapleLeaf be similar to the effects on a U.S. paper producer that exports paper to Canada? Explain.

Chapter 3 Gretz Tool Company
Using International Financial Markets

Gretz Tool Company is a large U.S.-based multinational corporation with subsidiaries in eight different countries. The company provided an initial cash infusion to establish each subsidiary. However, each subsidiary has had to finance its own growth since then. The parent and subsidiaries of Gretz typically use Citigroup (with branches in numerous countries) when possible to facilitate any flow of funds necessary.

a. Explain the various ways in which Citigroup could facilitate Gretz's flow of funds, and identify the type of financial market where that flow of funds occurs. For each type

of financing transaction, specify whether Citigroup would serve as the creditor or would simply be facilitating the flow of funds to Gretz.

b. Recently, the British subsidiary called on Citigroup for a medium-term loan and was offered the following alternatives:

LOAN DENOMINATED IN	ANNUALIZED RATE
British pounds	13%
U.S. dollars	11%
Canadian dollars	10%
Japanese yen	8%

What characteristics do you think would help the British subsidiary determine which currency to borrow?

CHAPTER 4 BRUIN AIRCRAFT, INC.
Factors Affecting Exchange Rates

Bruin Aircraft, Inc., is a designer and manufacturer of airplane parts. Its production plant is based in California. About one-third of its sales are exports to the United Kingdom. Though Bruin invoices its exports in dollars, the demand for its exports is highly sensitive to the value of the British pound. In order to maintain its parts inventory at a proper level, it must forecast the total demand for its parts, which is somewhat dependent on the forecasted value of the pound. The treasurer of Bruin was assigned the task of forecasting the value of the pound (against the dollar) for each of the next 5 years. He was planning to request from the firm's chief economist forecasts on all the relevant factors that could affect the pound's future exchange rate. He decided to organize his worksheet by separating demand-related factors from the supply-related factors, as illustrated by the headings below:

Factors that can affect the value of the pound	Check (✓) here if the factor influences the U.S. demand for pounds	Check (✓) here if the factor influences the supply of pounds for sale

Help the treasurer by identifying the factors in the first column and then checking the second or third (or both) columns. Include any possible government-related factors and be specific (tie your description to the specific case background provided here).

CHAPTER 5 CAPITAL CRYSTAL, INC.
Using Currency Futures and Options

Capital Crystal, Inc., is a major importer of crystal from the United Kingdom. The crystal is sold to prestigious retail stores throughout the United States. The imports are denominated in British pounds (£). Every quarter, Capital needs £500 million. It is currently attempting to determine whether it should use currency futures or currency options to hedge imports 3 months from now, if it will hedge at all. The spot rate of the pound is $1.60. A 3-month futures contract on the pound is available for $1.59 per unit. A call option on the pound is available with a 3-month expiration date and an exercise price of $1.60. The premium to be paid on the call option is $.01 per unit.

Capital is confident that the value of the pound will rise to at least $1.62 in 3 months. Its previous forecasts of the pound's value have been very accurate. The management style of Capital is extremely risk averse. Managers receive a bonus at the end of the year if they satisfy minimal performance standards. The bonus is fixed, regardless of how high above the minimum level one's performance is. If performance is below the minimum, then there is no bonus and future advancement within the company is unlikely.

a. As a financial manager of Capital, you have been assigned the task of choosing among three possible strategies: (1) hedge the pound's position by purchasing futures, (2) hedge the pound's position by purchasing call options, or (3) do not hedge. Offer your recommendation and justify it.

b. Assume the previous information provided, except for this difference: Capital has revised its forecast of the pound to be worth $1.57 3 months from now. Given this revision, recommend whether Capital should (1) hedge the pound's position by purchasing futures, (2) hedge the pound's position by purchasing call options, or (3) not hedge. Justify your recommendation. Is your recommendation consistent with maximizing shareholder wealth?

Chapter 6 Hull Importing Company
Effects of Intervention on Import Expenses

Hull Importing Company is a U.S.-based firm that imports small gift items and sells them to retail gift shops across the United States. About half of the value of Hull's purchases comes from the United Kingdom, while the remaining purchases are from Mexico. The imported goods are denominated in the currency of the country where they are produced. Hull normally does not hedge its purchases.

In previous years, the Mexican peso and pound fluctuated substantially against the dollar (although not by the same degree). Hull's expenses are directly tied to these currency values because all of its products are imported. It has been successful because the imported gift items are unique and are attractive to U.S. consumers. However, Hull has been unable to pass on higher costs (due to a weaker dollar) to its consumers, because consumers would then switch to different gift items sold at other stores.

a. Hull expects that Mexico's central bank will increase interest rates and that Mexico's inflation will not be affected. Offer any insight on how the peso's value may change and how Hull's profits would be affected as a result.

b. Hull closely monitors government intervention by the Bank of England (the British central bank). Assume that the Bank of England intervenes to strengthen the pound's value with respect to the dollar by 5 percent. Would this have a favorable or unfavorable effect on Hull's business?

Chapter 7 Zuber, Inc.
Using Covered Interest Arbitrage

Zuber, Inc., is a U.S.-based MNC that has been aggressively pursuing business in Eastern Europe since the Iron Curtain was lifted in 1989. Poland has allowed its currency's value to be market determined. The spot rate of the Polish zloty is $.40. Poland also has begun to allow investments by foreign investors as a method of attracting funds to help build its economy. Its interest rate on 1-year securities issued by the federal government is

14 percent, which is substantially higher than the 9 percent rate currently offered on 1-year U.S. Treasury securities.

A local bank has begun to create a forward market for the zloty. This bank was recently privatized and has been trying to make a name for itself in international business. The bank has quoted a 1-year forward rate of $.39 for the zloty. As an employee in Zuber's international money market division, you have been asked to assess the possibility of investing short-term funds in Poland. You are in charge of investing $10 million over the next year. Your objective is to earn the highest return possible while maintaining safety (since the firm will need the funds next year).

While the exchange rate has just become market determined, there is a high probability that the zloty's value will be volatile for several years as it seeks its true equilibrium value. The expected value of the zloty in 1 year is $.40, but there is a high degree of uncertainty about this. The actual value in 1 year may be as much as 40 percent above or below this expected value.

a. Would you be willing to invest the funds in Poland without covering your position? Explain.

b. Suggest how you could attempt covered interest arbitrage. What is the expected return from using covered interest arbitrage?

c. What risks are involved in using covered interest arbitrage here?

d. If you had to choose between investing your funds in U.S. Treasury bills at 9 percent or using covered interest arbitrage, what would be your choice? Defend your answer.

Chapter 8 Flame Fixtures, Inc.
Business Application of Purchasing Power Parity

Flame Fixtures, Inc., is a small U.S. business in Arizona that produces and sells lamp fixtures. Its costs and revenues have been very stable over time. Its profits have been adequate, but Flame has been searching for means of increasing profits in the future. It has recently been negotiating with a Mexican firm called Corón Company, from which it will purchase some necessary parts. Every 3 months, Corón Company will send a specified number of parts with the bill invoiced in Mexican pesos. By having the parts produced by Corón, Flame expects to save about 20 percent on production costs. Corón is willing to work out a deal only if it is assured that it will receive a minimum specified amount of orders every 3 months over the next 10 years, for a minimum specified amount. Flame will be required to use its assets to serve as collateral in case it does not fulfill its obligation.

The price of the parts will change over time in response to the costs of production. Flame recognizes that the cost to Corón will increase substantially over time as a result of the very high inflation rate in Mexico. Therefore, the price charged in pesos likely will rise substantially every 3 months. However, Flame feels that, because of the concept of purchasing power parity (PPP), its dollar payments to Corón will be stable. According to PPP, if Mexican inflation is much higher than U.S. inflation, the peso will weaken against the dollar by that difference. Since Flame does not have much liquidity, it could experience a severe cash shortage if its expenses are much higher than anticipated.

The demand for Flame's product has been stable and is expected to continue that way. Since the U.S. inflation rate is expected to be very low, Flame likely will continue pricing its lamps at today's prices (in dollars). It believes that by saving 20 percent on

production costs it will substantially increase its profits. It is about ready to sign a contract with Corón Company.

a. Describe a scenario that could cause Flame to save even more than 20 percent on production costs.

b. Describe a scenario that could cause Flame to actually incur higher production costs than if it simply had the parts produced in the United States.

c. Do you think that Flame will experience stable dollar outflow payments to Corón over time? Explain. (Assume that the number of parts ordered is constant over time.)

d. Do you think that Flame's risk changes at all as a result of its new relationship with Corón Company? Explain.

Chapter 9 Whaler Publishing Company
Forecasting Exchange Rates

Whaler Publishing Company specializes in producing textbooks in the United States and marketing these books in foreign universities where the English language is used. Its sales are invoiced in the currency of the country where the textbooks are sold. The expected revenues from textbooks sold to university bookstores are shown in Exhibit B.1.

Whaler is comfortable with the estimated foreign currency revenues in each country. However, it is uncertain about the U.S. dollar revenues to be received from each country. At this time (which is the beginning of year 16), Whaler is using today's spot rate as its best guess of the exchange rate at which the revenues from each country will be converted into U.S. dollars at the end of this year (which implies a zero percentage change in the value of each currency). Yet it recognizes the potential error associated with this type of forecast. Therefore, it desires to incorporate the risk surrounding each currency forecast by creating confidence intervals for each currency. First, it must derive the annual percentage change in the exchange rate over each of the last 15 years for each currency to derive a standard deviation in the percentage change of each foreign currency. By assuming that the percentage changes in exchange rates are normally distributed, it plans to develop two ranges of forecasts for the annual percentage change in each currency: (1) one standard deviation in each direction from its best guess to develop a 68 percent confidence interval, and (2) two standard deviations in each direction from its best guess to develop a 95 percent confidence interval. These confidence intervals can then be applied to today's spot rates to develop confidence intervals for the future spot rate 1 year from today.

Exhibit B.1 Expected Revenues from Textbooks Sold to University Bookstores

UNIVERSITY BOOKSTORES IN	LOCAL CURRENCY	TODAY'S SPOT EXCHANGE RATE	EXPECTED REVENUES FROM BOOKSTORES THIS YEAR
Australia	Australian dollars (A$)	$ .7671	A$38,000,000
Canada	Canadian dollars (C$)	.8625	C$35,000,000
New Zealand	New Zealand dollars (NZ$)	.5985	NZ$33,000,000
United Kingdom	Pounds (£)	1.9382	£34,000,000

The exchange rates at the beginning of each of the last 16 years for each currency (with respect to the U.S. dollar) are shown here:

BEGINNING OF YEAR	AUSTRALIAN DOLLAR	CANADIAN DOLLAR	NEW ZEALAND DOLLAR	BRITISH POUND
1	$1.2571	$.9839	$1.0437	£2.0235
2	1.0864	.9908	.9500	1.7024
3	1.1414	.9137	1.0197	1.9060
4	1.1505	.8432	1.0666	2.0345
5	1.1055	.8561	.9862	2.2240
6	1.1807	.8370	.9623	2.3850
7	1.1279	.8432	.8244	1.9080
8	.9806	.8137	.7325	1.6145
9	.9020	.8038	.6546	1.4506
10	.8278	.7570	.4776	1.1565
11	.6809	.7153	.4985	1.4445
12	.6648	.7241	.5235	1.4745
13	.7225	.8130	.6575	1.8715
14	.8555	.8382	.6283	1.8095
15	.7831	.8518	.5876	1.5772
16	.7671	.8625	.5985	1.9382

The confidence intervals for each currency can be applied to the expected book revenues to derive confidence intervals in U.S. dollars to be received from each country. Complete this assignment for Whaler Publishing Company, and also rank the currencies in terms of uncertainty (degree of volatility). Since the exchange rate data provided are real, the analysis will indicate (1) how volatile currencies can be, (2) how much more volatile some currencies are than others, and (3) how estimated revenues can be subject to a high degree of uncertainty as a result of uncertain exchange rates. (If you use a spreadsheet to do this case, you may want to retain it because the next chapter's case is an extension of this one.)

Chapter 10 Whaler Publishing Company
Measuring Exposure to Exchange Rate Risk

Recall the situation of Whaler Publishing Company from the previous chapter. Whaler needed to develop confidence intervals of four exchange rates in order to derive confidence intervals for U.S. dollar cash flows to be received from four different countries. Each confidence interval was isolated on a particular country.

Assume that Whaler would like to estimate the range of its aggregate dollar cash flows to be generated from other countries. A computer spreadsheet should be developed to facilitate this exercise. Whaler plans to simulate the conversion of the expected currency cash flows to dollars, using each of the previous years as a possible scenario (recall that exchange rate data are provided in the original case in Chapter 9). Specifically, Whaler will determine the annual percentage change in the spot rate of each currency for a given year. Then, it will apply that percentage to the respective existing spot rates to determine a possible spot rate in 1 year for each currency. Recall that today's spot rates are assumed to be as follows:

- Australian dollar = $.7671
- Canadian dollar = $.8625

- New Zealand dollar = $.5985
- British pound = £1.9382

Once the spot rate is forecast for 1 year ahead for each currency, the U.S. dollar revenues received from each country can be forecast. For example, from year 1 to year 2, the Australian dollar declined by about 13.6 percent. If this percentage change occurs this year, the spot rate of the Australian dollar will decline from today's rate of $.7671 to about $.6629. In this case, the A$38 million to be received would convert to $25,190,200. The same tasks must be done for the other three currencies as well in order to estimate the aggregate dollar cash flows under this scenario.

This process can be repeated, using each of the previous years as a possible future scenario. There will be 15 possible scenarios, or 15 forecasts of the aggregate U.S. dollar cash flows. Each of these scenarios is expected to have an equal probability of occurring. By assuming that these cash flows are normally distributed, Whaler uses the standard deviation of the possible aggregate cash flows for all 15 scenarios to develop 68 percent and 95 percent confidence intervals surrounding the "expected value" of the aggregate level of U.S. dollar cash flows to be received in 1 year.

a. Perform these tasks for Whaler in order to determine these confidence intervals on the aggregate level of U.S. dollar cash flows to be received. Whaler uses the methodology described here, rather than simply combining the results for individual countries (from the previous chapter) because exchange rate movements may be correlated.

b. Review the annual percentage changes in the four exchange rates. Do they appear to be positively correlated? Estimate the correlation coefficient between exchange rate movements with either a calculator or a spreadsheet package. Based on this analysis, you can fill out the following correlation coefficient matrix:

	A$	C$	NZ$	£
A$	1.00	—	—	—
C$		1.00	—	—
NZ$			1.00	—
£				1.00

Would aggregate dollar cash flows to be received by Whaler be more risky than they would if the exchange rate movements were completely independent? Explain.

c. One Whaler executive has suggested that a more efficient way of deriving the confidence intervals would be to use the exchange rates instead of the percentage changes as the scenarios and derive U.S. dollar cash flow estimates directly from them. Do you think this method would be as accurate as the method now used by Whaler? Explain.

Chapter 11 Blackhawk Company
Forecasting Exchange Rates and the Hedging Decision

This case is intended to illustrate how forecasting exchange rates and hedging decisions are related. Blackhawk Company imports goods from New Zealand and plans to purchase NZ$800,000 1 quarter from now to pay for imports. As the treasurer of Blackhawk, you are responsible for determining whether and how to hedge this payables position. Several tasks will need to be completed before you can make these decisions.

The entire analysis can be performed using LOTUS or Excel spreadsheets. Your first goal is to assess three different models for forecasting the value of NZ$ at the end of the quarter (also called the future spot rate, or FSR).

- Using the forward rate (FR) at the beginning of the quarter.
- Using the spot rate (SR) at the beginning of the quarter.
- Estimating the historical influence of the inflation differential during each quarter on the percentage change in the NZ$ (which leads to a forecast of the FSR of the NZ$).

The historical data to be used for this analysis are provided in Exhibit B.2.

a. Use regression analysis to determine whether the forward rate is an unbiased estimator of the spot rate at the end of the quarter.

b. Use the simplified approach of assessing the signs of forecast errors over time. Do you detect any bias when using the FR to forecast? Explain.

c. Determine the average absolute forecast error when using the forward rate to forecast.

d. Determine whether the spot rate of the NZ$ at the beginning of the quarter is an unbiased estimator of the SR at the end of the quarter using regression analysis.

e. Use the simplified approach of assessing the signs of forecast errors over time. Do you detect any bias when using the spot rate to forecast? Explain.

Exhibit B.2 Historical Data for Hedging Analysis

QUARTER	SPOT RATE OF NZ$ AT BEGINNING OF QUARTER	90-DAY FORWARD RATE OF NZ$ AT BEGINNING OF QUARTER	SPOT RATE OF NZ$ AT END OF QUARTER	LAST QUARTER'S INFLATION DIFFERENTIAL	PERCENTAGE CHANGE IN NZ$ OVER QUARTER
1	$.3177	$.3250	$.3233	–.05%	1.76%
2	.3233	.3272	.3267	–.46	1.05
3	.3267	.3285	.3746	.66	14.66
4	.3746	.3778	.4063	.94	8.46
5	.4063	.4093	.4315	.58	6.20
6	.4315	.4344	.4548	.23	5.40
7	.4548	.4572	.4949	.02	8.82
8	.4949	.4966	.5153	1.26	4.12
9	.5153	.5169	.5540	.86	7.51
10	.5540	.5574	.5465	.54	–1.35
11	.5465	.5510	.5440	1.00	–.46
12	.5440	.5488	.6309	1.09	15.97
13	.6309	.6365	.6027	.78	–4.47
14	.6027	.6081	.5409	.23	–10.25
15	.5491	.5538	.5320	.71	–3.11
16	.5320	.5365	.5617	1.18	5.58
17	.5617	.5667	.5283	.70	–5.95
18	.5283	.5334	.5122	–.31	–3.05
19	.5122	.5149	.5352	.62	4.49
20	.5352	.5372	.5890	.87	10.05
21 (Now)	.5890	.5878	(to be forecasted)	.28	(to be forecasted)

f. Determine the average absolute forecast error when using the spot rate to forecast. Is the spot rate or the forward rate a more accurate forecast of the future spot rate? Explain.

g. Use the following regression model to determine the relationship between the inflation differential (DIFF, defined as U.S. inflation minus New Zealand inflation) and the percentage change in the NZ$ (denoted PNZ$):

$$\text{PNZ\$} = b_0 + b_1(\text{DIFF})$$

Once you have determined the coefficients b_0 and b_1, use them to forecast PNZ$ based on a forecast of 2 percent for DIFF in the upcoming quarter. Then, apply your forecast for PNZ$ to the prevailing spot rate (which is $.589) to derive the expected FSR of the NZ$.

h. Blackhawk plans to develop a probability distribution for the FSR. First, it will assign a 40 percent probability to the forecast of FSR derived from the regression analysis in the previous question. Second, it will assign a 40 percent probability to the forecast of FSR based on either the forward rate or the spot rate (whichever was more accurate according to your earlier analysis). Third, it will assign a 20 percent probability to the forecast of FSR based on either the forward rate or the spot rate (whichever was less accurate according to your earlier analysis).

Fill in the table that follows:

PROBABILITY	FSR
40%	
0	
20	

i. Assuming that Blackhawk does not hedge, fill in the following table:

PROBABILITY	FORECASTED DOLLAR AMOUNT NEEDED TO PAY FOR IMPORTS IN 90 DAYS
40%	
40	
20	
6	

j. Based on the probability distribution for the FSR, use the table that follows to determine the probability distribution for the real cost of hedging if a forward contract is used for hedging (recall that the prevailing 90-day forward rate is $.5878).

PROBABILITY	FORECASTED DOLLAR AMOUNT NEEDED IF HEDGED WITH A FORWARD CONTRACT	FORECASTED AMOUNT NEEDED IF UNHEDGED	FORECASTED REAL COST OF HEDGING PAYABLES
40%			
40			
20			

k. If Blackhawk hedges its position, it will use either a 90-day forward rate, a money market hedge, or a call option. The following data are available at the time of its decision.

- Spot rate = $.589.
- 90-day forward rate = $.5878.
- 90-day U.S. borrowing rate = 2.5 percent.
- 90-day U.S. investing rate = 2.3 percent.
- 90-day New Zealand borrowing rate = 2.4 percent.
- 90-day New Zealand investing rate = 2.1 percent.
- Call option on NZ$ has a premium of $.01 per unit.
- Call option on NZ$ has an exercise price of $.60.

Determine the probability distribution of dollars needed for a call option if used (include the premium paid) by filling out the following table:

PROBABILITY	FSR	DOLLARS NEEDED TO PAY FOR PAYABLES
40%		
40		
20		

l. Compare the forward hedge with the money market hedge. Which is superior? Why?

m. Compare either the forward hedge or the money market hedge (whichever is better) with the call option hedge. If you hedge, which technique should you use? Why?

n. Compare the hedge you believe is the best with an unhedged strategy. Should you hedge or remain unhedged? Explain.

Chapter 12 Madison, Inc.

Assessing Economic Exposure

The situation for Madison, Inc., was described in this chapter to illustrate how alternative operational structures could affect economic exposure to exchange rate movements. Ken Moore, the vice president of finance at Madison, Inc., was seriously considering a shift to the proposed operational structure described in the text. He was determined to stabilize the earnings before taxes and believed that the proposed approach would achieve this objective. The firm expected that the Canadian dollar would consistently depreciate over the next several years. Over time, its forecasts have been very accurate. Moore paid little attention to the forecasts, stating that regardless of how the Canadian dollar changed, future earnings would be more stable under the proposed operational structure. He also was constantly reminded of how the strengthened Canadian dollar in some years had adversely affected the firm's earnings. In fact, he was somewhat concerned that he might even lose his job if the adverse effects from economic exposure continued.

a. Would a revised operational structure at this time be in the best interests of the shareholders? Would it be in the best interests of the vice president?

b. How could a revised operational structure be feasible from the vice president's perspective but not from the shareholders' perspective? Explain how the firm might be able to ensure that the vice president will make decisions related to economic exposure that are in the best interests of the shareholders.

Chapter 13 Blues Corporation

Capitalizing on the Opening of Eastern European Borders

Having done business in the United States for over 50 years, Blues Corporation has an established reputation. Most of Blues' business is in the United States. It has a subsidiary

in the western section of Germany, which produces goods and exports them to other European countries. Blues Corporation produces many consumer goods that could possibly be produced or marketed in Eastern European countries. The following issues were raised at a recent executive meeting. Offer your comments about each issue.

a. Blues Corporation is considering shifting its European production facility from western Germany to eastern Germany. There are two key factors motivating this shift. First, the labor cost is lower in eastern Germany. Second, there is an existing facility (currently government owned) in the former East Germany that is for sale. Blues would like to transform the facility and use its technology to increase production efficiency. It estimates that it would need only one-fourth of the workers in that facility. What other factors deserve to be considered before the decision is made?

b. Blues Corporation believes that it could penetrate the Eastern European markets. It would need to invest considerable funds in promoting its consumer goods in Eastern Europe, since its goods are not well known there. Yet it believes that this strategy could pay off in the long run because Blues could underprice the competition. At the current time, the main competition consists of businesses that are perceived to be inefficiently run. The lack of competitive pricing in this market is the primary reason for Blues Corporation to consider marketing its product in Eastern Europe. What other factors deserve to be considered before a decision is made?

c. Blues Corporation is currently experiencing a cash squeeze because of a reduced demand for its goods in the United States (although management expects the demand in the United States to increase soon). It is currently near its debt capacity and prefers not to issue stock at this time. Blues Corporation will purchase a facility in Eastern Europe or implement a heavy promotion program in Eastern Europe only if it can raise funds by divesting a significant amount of its U.S. assets. The market values of its assets are temporarily depressed, but some executives think an immediate move is necessary in order to fully capitalize on the Eastern European market. Would you recommend that Blues Corporation divest some of its U.S. assets? Explain.

Chapter 14 North Star Company
Capital Budgeting

This case is intended to illustrate that the value of an international project is sensitive to various types of input. It also is intended to show how a computer spreadsheet format can facilitate capital budgeting decisions that involve uncertainty.

This case can be performed using an electronic spreadsheet such as Excel. The following present value factors may be helpful input for discounting cash flows:

YEARS FROM NOW	PRESENT VALUE INTEREST FACTOR AT 18%
1	.8475
2	.7182
3	.6086
4	.5158
5	.4371
6	.3704

For consistency in discussion of this case, you should develop your computer spreadsheet in a format that resembles the one used in Chapter 14, with each year representing

a column across the top. The use of a computer spreadsheet will significantly reduce the time needed to complete this case.

North Star Company is considering establishing a subsidiary to manufacture clothing in Singapore. Its sales would be invoiced in Singapore dollars (S$). It has forecast net cash flows to the subsidiary as follows:

YEAR	NET CASH FLOWS TO SUBSIDIARY
1	S$8,000,000
2	10,000,000
3	14,000,000
4	16,000,000
5	16,000,000
6	16,000,000

These cash flows do not include financing costs (interest expenses) on any funds borrowed in Singapore. North Star Company also expects to receive S$30 million after taxes as a result of selling the subsidiary at the end of year 6. Assume that there will not be any withholding taxes imposed on this amount.

The exchange rate of the Singapore dollar is forecasted in Exhibit B.3 based on three possible scenarios of economic conditions. The probability of each scenario is shown below:

	FAIRLY STABLE S$	WEAK S$	STRONG S$
Probability	60%	30%	10%

Fifty percent of the net cash flows to the subsidiary would be remitted to the parent, while the remaining 50 percent would be reinvested to support ongoing operations at the subsidiary. North Star Company anticipates a 10 percent withholding tax on funds remitted to the United States.

The initial investment (including investment in working capital) by North Star in the subsidiary would be S$40 million. Any investment in working capital (such as accounts receivable, inventory, etc.) is to be assumed by the buyer in year 6. The expected salvage value has already accounted for this transfer of working capital to the buyer in year 6. The initial investment could be financed completely by the parent ($20 million, converted at the present exchange rate of $.50 per Singapore dollar to achieve S$40 million).

Exhibit B.3 Three Scenarios of Economic Conditions

END OF YEAR	SCENARIO I: FAIRLY STABLE S$	SCENARIO II: WEAK S$	SCENARIO III: STRONG S$
1	.50	.49	.52
2	.51	.46	.55
3	.48	.45	.59
4	.50	.43	.64
5	.52	.43	.67
6	.48	.41	.71

North Star Company will go forward with its intentions to build the subsidiary only if it expects to achieve a return on its capital of 18 percent or more.

North Star is considering an alternative financing arrangement. With this arrangement, the parent would provide $10 million (S$20 million), which means that the subsidiary would need to borrow S$20 million. Under this scenario, the subsidiary would obtain a 20-year loan and pay interest on the loan each year. The interest payments are S$1.6 million per year. In addition, the forecasted proceeds to be received from selling the subsidiary (after taxes) at the end of 6 years would be S$20 million (the forecast of proceeds is revised downward here because the equity investment of the subsidiary is less; the buyer would be assuming more debt if part of the initial investment in the subsidiary were supported by local bank loans). Assume that the parent's required rate of return would still be 18 percent.

a. Which of the two financing arrangements would you recommend for the parent? Assess the forecasted NPV for each exchange rate scenario to compare the two financing arrangements and substantiate your recommendation.

b. In the first question, an alternative arrangement of partial financing by the subsidiary was considered while assuming that the required rate of return by the parent would not be affected. Is there any reason why the parent's required rate of return might increase when using this financing arrangement? Explain. How would you revise the analysis in the previous question under this situation? (This question requires discussion, not analysis.)

c. Would you recommend that North Star Company establish the subsidiary even if the withholding tax is 20 percent?

d. Assume that there is some concern about the economic conditions in Singapore that could reduce net cash flows to the subsidiary. Explain how Excel could be used to reevaluate the project based on alternative cash flow scenarios. That is, how can this form of country risk be incorporated into the capital budgeting decision? (This question requires discussion, not analysis.)

e. Assume that North Star Company does implement the project, investing $10 million of its own funds with the remainder borrowed by the subsidiary. Two years later, a U.S.-based corporation notifies North Star that it would like to purchase the subsidiary. Assume that the exchange rate forecasts for the fairly stable scenario are appropriate for years 3 through 6. Also assume that the other information already provided on net cash flows, financing costs, the 10 percent withholding tax, the salvage value, and the parent's required rate of return is still appropriate. What would be the minimum dollar price (after taxes) that North Star should receive to divest the subsidiary? Substantiate your opinion.

Chapter 15 Redwing Technology Company
Assessing Subsidiary Performance

Redwing Technology Company is a U.S.-based firm that makes a variety of high-tech components. Five years ago, it established subsidiaries in Canada, South Africa, and Japan. The earnings generated by each subsidiary as translated (at the average annual exchange rate) into U.S. dollars per year are shown in Exhibit B.4.

Each subsidiary had an equivalent amount in resources with which to conduct operations. The wage rates for the labor needed were similar across countries. The inflation rates, economic growth, and degree of competition were also similar across countries.

Exhibit B.4 Translated Dollar Value of Annual Earnings in Each Subsidiary (millions)

YEARS AGO	CANADA	SOUTH AFRICA	JAPAN
5	$20	$21	$30
4	24	24	32
3	28	24	35
2	32	36	41
1	36	42	46

The average exchange rates of the respective currencies over the last 5 years are given below:

YEARS AGO	CANADIAN DOLLAR	SOUTH AFRICAN RAND	JAPANESE YEN
5	$.84	$.10	$.0040
4	.83	.12	.0043
3	.81	.16	.0046
2	.81	.20	.0055
1	.79	.24	.0064

The earnings generated by each country were reinvested rather than remitted. There were no plans to remit any future earnings, either.

A committee of vice presidents met to evaluate the performance of each subsidiary in the last 5 years. The purpose of the assessment was to determine whether Redwing should be restructured to focus future growth on any particular subsidiary or to divest any subsidiaries that might experience poor performance. Since exchange rates of the related currencies were affected by so many different factors, the treasurer acknowledged that there was much uncertainty about their future direction. The treasurer did suggest, however, that last year's average exchange rate would probably serve as at least a reasonable guess of exchange rates in future years. He did not anticipate that any of the currencies would experience consistent appreciation or depreciation.

a. Use whatever means you think are appropriate to rank the performance of each subsidiary. That is, which subsidiary do you think did the best job over the 5-year period? Justify your opinion.

b. Use whatever means you think are appropriate to determine which subsidiary deserves additional funds from the parent to push for additional growth. (Assume no constraint on potential growth in any country.) Where would you recommend the parent's excess funds be invested, based on the information available? Justify your opinion.

c. Repeat question b but now assume that all earnings generated from the parent's investment will be remitted to the parent every year. Would your recommendation change? Explain.

d. A final task of the committee was to recommend whether any of the subsidiaries should be divested. One vice president suggested that a review of the earnings translated into dollars shows that the performances of the Canadian and South African subsidiaries are highly correlated. She concluded that having both of these subsidiaries did not achieve much in diversification benefits and suggested that either one could be sold without forgoing any diversification benefits. Do you agree? Explain.

CHAPTER 16 KING, INC.
Country Risk Analysis

King, Inc., a U.S. firm, is considering the establishment of a small subsidiary in Bulgaria that would produce food products. All ingredients can be obtained or produced in Bulgaria. The final products to be produced by the subsidiary would be sold in Bulgaria and other Eastern European countries. King, Inc., is very interested in this project, as there is little competition in that area. Three high-level managers of King have been assigned the task of assessing the country risk of Bulgaria. Specifically, the managers were asked to list all characteristics of Bulgaria that could adversely affect the performance of this project. The decision on whether or not to undertake this project will be made only after this country risk analysis is completed and accounted for in the capital budgeting analysis. Since King, Inc., has focused exclusively on domestic business in the past, it is not accustomed to country risk analysis.

a. What factors related to Bulgaria's government deserve to be considered?

b. What country-related factors can affect the demand for the food products to be produced by King, Inc.?

c. What country-related factors can affect the cost of production?

CHAPTER 17 SABRE COMPUTER CORPORATION
Cost of Capital

Sabre Computer Corporation is a U.S.-based company that plans to participate in joint ventures in Mexico and in Hungary. Each joint venture involves the development of a small subsidiary that helps produce computers. Sabre's main contributions are the technology and a few key computer components used in the production process. The joint venture in Mexico specifies joint production of computers with a Mexican company owned by the government. The computers have already been ordered by educational institutions and government agencies throughout Mexico. Sabre has a contract to sell all the computers it produces in Mexico to these institutions and agencies at a price that is tied to inflation. Given the very high and volatile inflation levels in Mexico, Sabre wanted to ensure that the contracted price would adjust to cover rising costs over time.

The venture will require a temporary transfer of several managers to Mexico plus the manufacturing of key computer components in a leased Mexican plant. Most of these costs will be incurred in Mexico and will therefore require payment in pesos. Sabre will receive 30 percent of the revenue generated (in pesos) from computer sales. The Mexican partner will receive the remainder.

The joint venture in Hungary specifies joint production of personal computers with a Hungarian computer manufacturer. The computers will then be marketed to consumers throughout Eastern Europe. Similar computers are produced by some competitors, but Sabre believes it can penetrate these markets because its products will be competitively priced. Although the economies of the Eastern European countries are expected to be somewhat stagnant, demand for personal computers is reasonably strong. The computers will be priced in Hungary's currency, the forint, and Sabre will receive 30 percent of the revenue generated from sales.

a. Assume that Sabre plans to finance most of its investment in the Mexican subsidiary by borrowing Mexican pesos and to finance most of its investment in the Hungarian subsidiary by borrowing forint. The cost of financing is influenced by the

risk-free rates in the respective countries and the risk premiums on funds borrowed. Explain how these factors will affect the relative costs of financing both ventures. Address this question from the perspective of the subsidiary, not from the perspective of Sabre.

b. Will the joint venture experiencing the higher cost of financing (as determined in the previous question) necessarily experience lower returns to the subsidiary? Explain.

c. The Hungarian subsidiary has a high degree of financial leverage, but the parent's capital structure is mostly equity. What will determine whether the creditors of the Hungarian subsidiary charge a high-risk premium on borrowed funds because of the high degree of financial leverage?

d. One Sabre executive has suggested that, since the cost of debt financing by highly leveraged Hungarian-owned companies is about 14 percent, its Hungarian subsidiary should be able to borrow at about the same interest rate. Do you agree? Explain. (Assume that the chances of the subsidiary's experiencing financial problems are the same as those for these other Hungarian-owned firms.)

e. There is some concern that the economy in Hungary could become inflated. Assess the relative magnitude of an increase in inflation on (1) the cost of funds, (2) the cost of production, and (3) revenue from selling the computers.

Chapter 18 Devil Corporation

Long-Term Debt Financing

Devil Corporation is a U.S.-based company that produces DVD players. Three years ago, Devil established a production facility in the United Kingdom, since it sells DVD players there. Devil has excess capacity there and will use that facility to produce the DVD players that are to be marketed in Singapore. The DVD players will be sold to distributors in Singapore and invoiced in Singapore dollars (S$). If the exporting program is successful, Devil Corporation will probably build a facility in Singapore, but it plans to wait at least 10 years.

Prior to this exporting program, Devil Corporation decided to develop a hedging strategy to hedge any cash flows from its subsidiaries. Its plan is to issue bonds to finance the entire investment in the exporting program. Virtually all expenses associated with this program are denominated in pounds, yet the revenue generated by the program is denominated in Singapore dollars. Any revenue above and beyond expenses is to be remitted to the United States on an annual basis. Aside from the exporting program, the British subsidiary will generate just enough in cash flows to cover expenses and therefore will not be remitting any earnings to the parent. Devil Corporation is considering three different ways to finance the program for 10 years.

- Issue 10-year, Singapore dollar–denominated bonds at par value; coupon rate = 11 percent.
- Issue 10-year, pound-denominated bonds at par value; coupon rate = 14 percent.
- Issue 10-year, U.S. dollar–denominated bonds at par value; coupon rate = 11 percent.

a. Describe the exchange rate risk if Devil finances with Singapore dollars.
b. Describe the exchange rate risk if Devil finances with British pounds.
c. Describe the exchange rate risk if Devil finances with U.S. dollars.

CHAPTER 19 RYCO CHEMICAL COMPANY
Using Countertrade

Ryco Chemical Company produces a wide variety of chemical products that are sold to manufacturing firms. Some of the chemicals used in its production process are imported from Concellos Chemical Company in Brazil. Concellos uses some chemicals in its production process that are produced by Ryco (although Concellos has historically purchased these chemicals from another U.S. chemical company rather than from Ryco). The Brazilian real has been depreciating continuously against the dollar, so Concellos' cost of obtaining chemicals is always rising. Concellos will probably pay twice as much for these chemicals this year because of the weak real. It probably will attempt to pass on most of its higher costs to its customers in the form of higher prices. However, it may not always be able to pass on higher costs from a weak real: its competitors make all their chemicals locally, and their costs are directly tied to Brazil's inflation. Its competitors sell all their goods locally. This year, Concellos planned to charge Ryco a price in real that was substantially above last year's price.

Representatives from Ryco are flying to Brazil to discuss its trade problems with Concellos. Specifically, Ryco wants to avoid its exposure to the high inflation rate in Brazil. This adverse effect is somewhat offset by the consistent decline in the value of the real, which allows Ryco to obtain more real with a given amount of dollars every year. However, the offset is not perfect, and Ryco wants to create a better hedge against Brazilian inflation.

a. Describe a countertrade strategy that could reduce Ryco's exposure to Brazilian inflation.

b. Would Concellos be willing to consider this strategy? Is there any favorable effect on Concellos that may motivate it to accept the strategy?

c. Assume that both parties agree on countertrade. Why would the cost of obtaining imports still rise over time for Concellos? Would Concellos earn lower profits as a result?

CHAPTER 20 FLYER COMPANY
Composing the Optimal Currency Portfolio for Financing

As treasurer for Flyer Company, you must develop a strategy for short-term financing. The firm, based in the United States, currently has no transaction exposure to currency movements. Assume the following data as of today:

CURRENCY	SPOT EXCHANGE RATE	ANNUALIZED INTEREST RATE
Australian dollar	$ .75	13.0%
British pound	1.70	12.5
Canadian dollar	.86	11.0
Japanese yen	.006	8.0
Mexican peso	.17	11.5
New Zealand dollar	.60	7.0
Singapore dollar	.50	6.0
South African rand	.16	9.0
U.S. dollar	1.00	9.0
Venezuelan bolivar	.0008	12.0

Your forecasting department has provided you with the following forecasts of the spot rates 1 year from now:

CURRENCY	STRONG $ SCENARIO	STABLE $ SCENARIO	WEAK $ SCENARIO
Australian dollar	$ .66	$ .76	$ .85
British pound	1.58	1.73	1.83
Canadian dollar	.85	.85	.91
Japanese yen	.0055	.0062	.0072
Mexican peso	.14	.173	.18
New Zealand dollar	.53	.59	.63
Singapore dollar	.45	.48	.52
South African rand	.15	.155	.17
U.S. dollar	1.00	1.00	1.00
Venezuelan bolivar	.00073	.00079	.00086

The probability of the strong-dollar scenario is 30 percent, the probability of the stable-dollar scenario is 40 percent, and the probability of the weak-dollar scenario is 30 percent. Based on the information provided, prescribe the composition of the portfolio that would achieve the minimum expected effective financing rate based on each of the following risk preferences.

- *Risk neutral.* Focus on minimizing the expected value of your effective financing rate without any constraints.
- *Balanced.* Borrow no more than 25 percent of the funds in any foreign currency.
- *Conservative.* Borrow at least 60 percent U.S. dollars and no more than 10 percent of the funds from any individual foreign currency.
- *Ultraconservative.* Do not create any exposure to exchange rate risk.

Fill out the following table:

	PORTFOLIO'S EFFECTIVE FINANCING RATE BASED ON			
RISK PREFERENCE	STRONG $ SCENARIO	STABLE $ SCENARIO	WEAK $ SCENARIO	EXPECTED VALUE OF EFFECTIVE FINANCING RATE
Risk-neutral portfolio				
Balanced portfolio				
Conservative portfolio				
Ultraconservative portfolio				

Which portfolio would you prescribe for your firm? Why?

CHAPTER 21 ISLANDER CORPORATION
Composing the Optimal Currency Portfolio for Investing

As treasurer for the Islander Corporation, you must develop a strategy for investing the excess cash that will be available for the next year. The firm, based in the United States, currently has no transaction exposure to foreign currency movements. Assume the following data as of today:

CURRENCY	SPOT EXCHANGE RATE	ANNUALIZED INTEREST RATE
Australian dollar	.75	13.00
British pound	1.70	12.5
Canadian dollar	.86	11.0
Japanese yen	.006	8.0
U.S. dollar	1.00	9.0

Your forecasting department has provided you with the following forecasts of the spot rates 1 year from now:

CURRENCY	STRONG $ SCENARIO	FAIRLY STABLE $ SCENARIO	WEAK $ SCENARIO
Australian dollar	$ .66	$ .76	$ .85
British pound	1.58	1.73	1.83
Canadian dollar	.85	.85	.91
Japanese yen	.0055	.0062	.0072
U.S. dollar	1.00	1.00	1.00

The probability of the strong-dollar scenario is 30 percent, the probability of the fairly stable-dollar scenario is 40 percent, and the probability of the weak-dollar scenario is 30 percent. Based on the information provided, prescribe the composition of the investment portfolio that would maximize the expected value of the effective yield for each of four possible risk preferences.

- *Risk neutral.* Focus on maximizing the expected value of your effective yield without any constraints.
- *Balanced.* Invest no more than 25 percent in any foreign currency.
- *Conservative.* Invest at least 50 percent of the funds in the U.S. dollar and no more than 10 percent of the funds in any individual foreign currency.
- *Ultraconservative.* Do not create any exposure to exchange rate risk.

Fill out the following table:

RISK PREFERENCE	FORECASTED EFFECTIVE YIELD FOR STRONG $ SCENARIO	FAIRLY STABLE $ SCENARIO	WEAK $ SCENARIO	EXPECTED VALUE OF EFFECTIVE YIELD
Risk-neutral portfolio				
Balanced portfolio				
Conservative portfolio				
Ultraconservative portfolio				

Which portfolio would you prescribe for your firm? Why? (You may find it helpful to draw bar charts that show the probability distribution of effective yields for each of the portfolios, placing one bar chart above another.)

	FORECASTED EFFECTIVE YIELD FOR			
RISK PREFERENCE	STRONG $ SCENARIO	FAIRLY STABLE $ SCENARIO	WEAK $ SCENARIO	EXPECTED VALUE OF EFFECTIVE YIELD
First row here ...				

APPENDIX C

Using Excel to Conduct Analysis

Computing with Excel

Excel spreadsheets are useful for organizing numerical data. In addition, they can execute computations for you. Excel not only allows you to compute general statistics such as average and standard deviation of cells but also can be used to conduct regression analysis. This appendix starts by describing how Excel can be used to compute general statistics. This is followed by a background of regression analysis and then the application of Excel to run a regression analysis.

General Statistics

Some of the more popular computations are discussed here.

Creating a COMPUTE Statement If you want to determine the percentage change in a value from one period to the next, type the COMPUTE statement in a cell where you want to see the result. For example, assume that you have months listed in column A and the corresponding exchange rate of the euro (with respect to the dollar) at the beginning of that month in column B. Assume you want to insert the monthly percentage change in the exchange rate for each month in column C. In cell C2 (the second row of column C), you want to determine the percentage change in the exchange rate as of the month in cell B2 from the previous month B1. Thus, you would type the COMPUTE statement in C2 that reflects the computation you want. A COMPUTE statement begins with an = sign. The proper COMPUTE statement to compute a percentage change for cell C2 is = (B2−B1)/B1 in this case. If you want cell C3 to report the percentage change in the exchange rate as of the month in cell B3 from the previous month B2, then type the COMPUTE statement = (B3−B2)/B2 in cell C3.

Using the COPY Command If you need to repeat a particular COMPUTE statement for several different cells, you can use the COPY command as follows.

- Place the cursor in the cell with the COMPUTE statement that you want to copy to other cells.
- Click the Home Tab on the menu.
- Click Copy.
- Highlight the cells where you want that COMPUTE statement copied.
- Hit the Enter key.

For example, suppose that you have 30 monthly exchange rates of the euro in column B and you already calculated the percentage change in the exchange rate in cell C2 as explained previously. (You did not have a percentage change in cell C1 because you needed two dates, cells B1 and B2, to derive your first percentage change.) You could then place the cursor on cell C2, click the Home Tab on the menu, click Copy, highlight cells C3 to C30, and then hit the Enter key.

Computing an Average You can compute the average of a set of cells in the following way. Suppose you want to determine the average exchange rate of the 30 monthly exchange rates of the euro that you have listed from cell B1 to cell B30. In cell B31 (or in any blank cell where you want to see the result), type the COMPUTE statement = AVERAGE(B1:B30). Likewise, if you want to determine the average of the monthly percentage changes in the euro then go to column C (where you have monthly percentage changes in the euro from cells C2 through C30). In cell C31, say, type the COMPUTE statement = AVERAGE(C2:C30).

Computing a Standard Deviation You can compute the standard deviation of a set of cells as follows. Assume that you wanted to determine the standard deviation of the 30 monthly exchange rates of the euro that you have listed from cell B1 to cell B30. In cell B31 (or in any blank cell where you want to see the result), type the COMPUTE statement = STDEV(B1:B30). Similarly, to determine the standard deviation of the monthly percentage changes in the euro, go to column C (where you have monthly percentage changes in the euro from cells C2 through C30). In cell C31 (or in any other blank cell), type the COMPUTE statement = STDEV(C2:C30).

Fundamentals of Regression Analysis

Businesses often use **regression analysis** to measure relationships between variables when establishing policies. For example, a firm may measure the historical relationship between its sales and its accounts receivable. Using the relationship detected, it can then forecast the future level of accounts receivable based on a forecast of sales. Alternatively, it may measure the sensitivity of its sales to economic growth and interest rates so that it can assess how susceptible its sales are to future changes in these economic variables. In international financial management, regression analysis can be used to measure the sensitivity of a firm's performance (as proxied by sales, earnings, or stock price) to currency movements or the economic growth of various countries.

Regression analysis can be applied to measure the sensitivity of exports to various economic variables. This example will be used to explain the fundamentals of regression analysis. The main steps involved in regression analysis are

1. specifying the regression model,
2. compiling the data,
3. estimating the regression coefficients, and
4. interpreting the regression results.

Specifying the Regression Model

Assume that your main goal is to determine the relationship between percentage changes in U.S. exports to Australia (denoted CEXP) and percentage changes in the value of the Australian dollar (CAUS). The percentage change in the exports to Australia is the **dependent variable** because it is hypothesized to be influenced by another variable.

Although you are most concerned with how CAUS affects CEXP, the regression model should include any other factors (the so-called **independent variables**) that could also affect CEXP. Assume that the percentage change in the Australian GDP (denoted CGDP) is also hypothesized to influence CEXP. This factor should also be included in the regression model. To simplify the example, assume that CAUS and CGDP are the only factors expected to influence CEXP. Also assume that there is a lagged impact of 1 quarter. In this case, the regression model can be specified as

$$CEXP_t = b_0 + b_1(CAUS_{t-1}) + b_2(CGDP_{t-1}) + \mu_t$$

where

b_0 = a constant
b_1 = regression coefficient that measures the sensitivity of $CEXP_t$ to $CAUS_{t-1}$
b_2 = regression coefficient that measures the sensitivity of $CEXP_t$ to $CGDP_{t-1}$
μ_t = an error term

The t subscript represents the time period. Some models, such as this one, specify a lagged impact of an independent variable on the dependent variable and therefore use a $t - 1$ subscript.

Compiling the Data

Now that the model has been specified, data on the variables must be compiled. The data are normally input onto a spreadsheet as follows:

PERIOD (t)	CEXP	CAUS	CGDP
1	.03	−.01	.04
2	−.01	.02	−.01
3	−.04	.03	−.02
4	.00	.02	−.01
5	.01	−.02	.02
...	...	...	...
...	...	...	...
...	...	...	...

The column specifying the period is not necessary to run the regression model, but it is normally included in the data set for convenience.

The difference between the number of observations (periods) and the regression coefficients (including the constant) represents the degrees of freedom (often denoted *df*). For our example, assume that the data covered 40 quarterly periods. The degrees of freedom for this example are $40 - 3 = 37$. As a general rule, analysts usually try to have at least 30 degrees of freedom when using regression analysis.

Some regression models involve only a single period. For example, if you desired to determine whether there was a relationship between a firm's degree of international sales (as a percentage of total sales) and earnings per share of MNCs then last year's data on these two variables could be gathered for many MNCs, after which regression analysis

could be applied. This would be an example of **cross-sectional analysis**, whereas our original treatment is an example of **time-series analysis**.

Estimating the Regression Coefficients

Once the data have been input into a data file, a regression program can be applied to the data to estimate the **regression coefficients**. There are various packages such as Excel that contain a regression analysis application.

The actual steps conducted to estimate regression coefficients are rather complex. For more details on how regression coefficients are estimated, see any econometrics textbook.

Interpreting the Regression Results

Most regression programs provide estimates of the regression coefficients along with additional statistics. For our example, suppose that the following information was provided by the regression program:

	ESTIMATED REGRESSION COEFFICIENT	STANDARD ERROR OF REGRESSION COEFFICIENT	*t*-STATISTIC
Constant	.002		
$CAUS_{t-1}$	.80	.32	2.50
$CGDP_{t-1}$	.36	.50	.72
Coefficient of determination (R^2) =	.33		

The independent variable $CAUS_{t-1}$ has an estimated regression coefficient of .80, which indicates that a 1 percent increase in CAUS is associated with an .8 percent increase in the dependent variable CEXP in the following period. This implies a positive relationship between $CAUS_{t-1}$ and $CEXP_t$. The independent variable $CGDP_{t-1}$ has an estimated coefficient of .36, which suggests that a 1 percent increase in the Australian GDP is associated with a .36 percent increase in CEXP one period later.

Many analysts attempt to determine whether a coefficient is statistically different from zero. Regression coefficients may be different from zero simply because of a coincidental relationship between the independent variable of concern and the dependent variable. One can have more confidence that a negative or positive relationship actually exists by testing the coefficient for significance. A *t*-test is commonly used for this purpose, as described next.

Test to determine whether $CAUS_{t-1}$ affects $CEXP_t$

$$\text{Caculated } t\text{-statistic} = \frac{\text{Estimated regression coefficient for } CAUS_{t-1}}{\text{Standard error of the regression coefficient}} = \frac{.80}{.32} = 2.50$$

Test to determine whether $CGDP_{t-1}$ affects $CEXP_t$

$$\text{Caculated } t\text{-statistic} = \frac{\text{Estimated regression coefficient for } CGDP_{t-1}}{\text{Standard error of the regression coefficient}} = \frac{.36}{.50} = .72$$

The calculated *t*-statistic is sometimes provided along with the regression results. It can be compared to the critical *t*-statistic to determine whether the coefficient is significant. The value of the *critical t-statistic* depends on the degrees of freedom and confidence level chosen. For our example, assume that there are 37 degrees of freedom and that a 95 confidence level is desired. The critical *t*-statistic would then be 2.02, which can be verified by using a *t*-table from any statistics book. Based on the regression results, the coefficient for $CAUS_{t-1}$ is significantly different from zero whereas the coefficient for $CGDP_{t-1}$ is not. This implies that one can be confident of a positive relationship between $CAUS_{t-1}$ and $CEXP_t$, but the positive relationship between $CGDP_{t-1}$ and $CEXP_t$ may have arisen simply by chance.

In some particular cases, one may be interested in determining whether the regression coefficient differs significantly from some value other than zero. In these cases, the *t*-statistic reported in the regression results would not be appropriate. See an econometrics text for more information on this subject.

The regression results indicate the **coefficient of determination** (denoted R^2 and often called "R-squared") of a regression model, which measures the percentage of variation in the dependent variable that can be explained by the regression model. The R^2 value can range from 0 to 100 percent. It is unusual for regression models to generate an R^2 of close to 100 percent, since the movement in any dependent variable is partially random and not associated with movements in independent variables. In our example the R^2 is 33 percent, which suggests that one-third of the variation in CEXP can be explained by movements in $CAUS_{t-1}$ and $CGDP_{t-1}$.

Some analysts use regression analysis as a forecasting tool. In this case, the regression results could be used (along with data for CAUS and CGDP) to forecast CEXP. Assume that, in the most recent period, CAUS was 5 percent and CGDP was −1 percent. The forecast of CEXP in the following period is derived by inserting this information into the regression model as follows:

$$\begin{aligned} CEXP_t &= b_0 + b_1(CAUS_{t-1}) + b_2(CGDP_{t-1}) \\ &= .002 + (.80)(.05) + (.36)(-.01) \\ &= .002 + .0400 - .0036 \\ &= .0420 - .0036 \\ &= .0384 \end{aligned}$$

Thus, the CEXP is forecast to be 3.84 percent in the following period. Some analysts might prefer to omit $CGDP_{t-1}$ from the model because its regression coefficient was not significantly different from zero. This would alter the forecasted value of CEXP.

When there is not a lagged relationship between independent variables and the dependent variable, the independent variables must be forecast in order to derive a forecast of the dependent variable. In this case, an analyst might derive a poor forecast of the dependent variable, even when the regression model is properly specified, if the forecasts of the independent variables are inaccurate.

As with most statistical techniques, there are some limitations that should be recognized when using regression analysis. These limitations are described in most statistics and econometrics textbooks.

Using Excel to Conduct Regression Analysis

Various software packages are available to run regression analysis. The following example is run on Excel to illustrate the ease with which regression analysis can be run.

Suppose that a firm wants to assess the influence of changes in the value of the Australian dollar on changes in its exports to Australia based on the following data:

PERIOD	VALUE (IN THOUSANDS OF DOLLARS) OF EXPORTS TO AUSTRALIA	AVERAGE EXCHANGE RATE OF AUSTRALIAN DOLLAR OVER THAT PERIOD
1	110	$0.50
2	125	.54
3	130	.57
4	142	.60
5	129	.55
6	113	.49
7	108	.46
8	103	.42
9	109	.43
10	118	.48
11	125	.49
12	130	.50
13	134	.52
14	138	.50
15	144	.53
16	149	.55
17	156	.58
18	160	.62
19	165	.66
20	170	.67
21	160	.62
22	158	.62
23	155	.61
24	167	.66

Assume that the firm applies the following regression model to the data:

$$CEXP = b_0 + b_1 CAUS + \mu$$

where

CEXP = percentage change in the firm's export value from one period to the next
CAUS = percentage change in the average exchange rate from one period to the next
μ = error term

The first step is to input the data for the two variables in two columns on a file using Excel. Then, the data can be converted into percentage changes. This can be easily performed with a COMPUTE statement in the third column (column C) to derive CEXP and another COMPUTE statement in the fourth column (column D) to derive CAUS.

These two columns will have a blank first row because the percentage change cannot be computed without the previous period's data.

Once you have derived CEXP and CAUS from the raw data, you can perform regression analysis as follows. First, click the Data Tab and see if you have the Data Analysis option. If not, you must install the free Analysis ToolPak add-in within Excel. Next, click Data Analysis; this leads to a new menu, in which you should click on Regression. Next to the Input Y Range, identify the range C2 to C24 for the dependent variable as C2:C24. Next to the Input X Range, identify the range D2 to D24 for the independent variable as D2:D24. The Output Range specifies the location on the screen where the output of the regression analysis should be displayed. In our example, F1 would be an appropriate location as it represents the upper left section of the output. Then click on OK and, within a few seconds, the regression analysis will be complete. For our example, the output is listed below:

SUMMARY OUTPUT

REGRESSION STATISTICS	
Multiple R	0.8852
R-square	0.7836
Adjusted R-square	0.7733
Standard error	2.9115
Observations	23.0000

ANOVA

	df	SS	MS	*F*	SIGNIFICANCE *F*
Regression	1.0000	644.6262	644.6262	76.0461	0.0000
Residual	21.0000	178.0125	8.4768		
Total	22.0000	822.6387			

	COEFFICIENTS	STANDARD ERROR	*t*-STAT	*p*-VALUE
Intercept	0.7951	0.6229	1.2763	0.2158
X variable 1	0.8678	0.0995	8.7204	0.0000

	LOWER 95%	UPPER 95%	LOWER 95.0%	UPPER 95.0%
Intercept	−0.5004	2.0905	−0.5004	2.0905
X variable 1	0.6608	1.0747	0.6608	1.0747

The estimate of the so-called slope coefficient is about .8678, which indicates that every 1 percent change in the Australian dollar's exchange rate is associated with a .8678 percent change (in the same direction) in the firm's exports to Australia. The *t*-statistic is also estimated to determine whether the slope coefficient is significantly different than zero. Since the standard error of the slope coefficient is about .0995, the *t*-statistic is .8678/.0995 = 8.72. This value suggests a significant relationship between CAUS and CEXP. The R-square statistic suggests that about 78 percent of the variation

in CEXP is explained by CAUS. The correlation between CEXP and CAUS can also be measured by the correlation coefficient, which is the square root of the R-square statistic.

If you have more than one independent variable (multiple regression), place the independent variables next to each other in the file. Then, for the X-RANGE, identify this block of data. The output for the regression model will display the coefficient, standard error, and *t*-statistic for each of the independent variables. For multiple regression, the R-square statistic is interpreted as the percentage of variation in the dependent variable explained by the model as a whole.

APPENDIX D
International Investing Project

Note to the Professor: *You may want to assign this as a project to be completed by the end of the semester. This project helps students to understand the factors that influence the performance of MNCs and foreign stocks. This project can also be done with teams of students and may be used for class presentations near the end of the semester. If you allow students to share their results in class, the students will learn that relationships cannot necessarily be generalized, as some MNCs are more exposed than others to economic conditions and exchange rate movements. The focus in grading this project will be on the explanations provided by the students, not on the movements in the stock prices or exchange rates.*

This project allows you to learn more about international investing and about firms that compete in the global arena. You will be asked to create a stock portfolio of at least two U.S.-based multinational corporations (MNCs) and two foreign stocks. You will monitor the performance of your portfolio over the school term and ultimately will attempt to explain why your portfolio performed well or poorly relative to the portfolios created by other students in your class. The explanations will offer insight into what is driving the valuations of the U.S.-based MNCs and the foreign stocks over time.

Select two stocks of U.S.-based MNCs that you want to include in your portfolio. If you want to review a list of possible stocks or do not know the ticker symbol of the stocks you want to invest in, go to the Web site biz.yahoo.com/i (which lists stocks alphabetically) or to biz.yahoo.com/p (which lists stocks by sectors or industries). Make sure that your firms conduct a substantial amount of international business.

Next, select two foreign stocks that are traded on U.S. stock exchanges and are not from the same foreign country. Many foreign stocks are traded on U.S. stock exchanges as American depository receipts (ADRs), which are certificates that represent ownership of foreign stock. The ADRs are denominated in dollars but reflect the value of a foreign stock, so an increase in the value of the foreign currency can have a favorable effect on the ADR's value. To review a list of ADRs in which you may invest, go to www.adr.com and click on "DR Search"; then select any industry in the menu to see a list of foreign companies within that industry that offer ADRs and the country where each foreign company is based. You should select ADRs of firms that are based in any of the countries shown on the Web site finance.yahoo.com/intlindices. Click on any company listed to review background information, including a description of its business and its stock

price trend over the last year. It is assumed that you will invest $10,000 in each stock that you purchase.

List your portfolio in the following format:

U.S.-BASED MNCs			
NAME OF FIRM	TICKER SYMBOL	AMOUNT OF YOUR INVESTMENT	PRICE PER SHARE AT WHICH YOU PURCHASED THE STOCK
		$10,000	
		$10,000	

FOREIGN STOCKS (ADRs)				
NAME OF FIRM	TICKER SYMBOL	COUNTRY WHERE FIRM IS BASED	AMOUNT OF YOUR INVESTMENT	PRICE PER SHARE OF ADR AT WHICH YOU PURCHASED THE STOCK
			$10,000	
			$10,000	

You can easily monitor your portfolio using various Internet tools. If you do not already use a specific Web site for this purpose, go to finance.yahoo.com/?u and register for free. Follow the instructions, and in a few minutes you can create your own portfolio tracking system. This system not only updates the values of your stocks but also provides charts, recent news, and other information on the stocks in your portfolio.

Evaluation

At the end of each month during the school term (or a date specified by your professor), you should evaluate the performance and behavior of your stocks.

1. a. Determine the percentage increase or decrease in each of your stocks over the period of your investment and report that percentage in a table like the one below. In addition, offer the primary reason for this change in the stock price based on news about that stock or your own intuition. To review the recent news about each of your stocks, click on finance.yahoo.com/?u and insert the ticker symbol for each firm. Recent news is provided at the bottom of the screen.

NAME OF FIRM	PERCENTAGE CHANGE IN STOCK PRICE	PRIMARY REASON
1.		
2.		
3.		
4.		
Portfolio (average)		

b. How does your portfolio's performance compare to the portfolios of some other students? (Your professor may survey class members on their performances so that you can see how your performance differs from those of others.) Why do you think your performance was relatively high or low compared to other students' performances? Was it

because of the markets where your firms do their business or because of firm-specific conditions?

2. Determine whether the performance of each of your U.S.-based MNCs is driven by the U.S. market. Go to the site finance.yahoo.com/?u and insert the symbol for your stock. Once the quote is provided, click on Chart. Click on the box marked S&P (which represents the S&P 500 Index). Then, click on Compare and assess the relationship between the U.S. market index movements and the stock's price movements. Explain whether the stock's price movements appear to be driven by U.S. market conditions. Repeat this task for each U.S.-based MNC in which you invested.

3. a. Determine whether the performance of each of your foreign stocks is driven by the corresponding market where the firm is based. First, go to the site finance.yahoo.com/intlindices?u and look up the symbol for the country index of concern. For example, Brazil's index is ^BVSP. Next, go to finance.yahoo.com/?u and insert the symbol for your stock. Click on Chart; at the bottom of the chart, insert the corresponding market index symbol (make sure you include the "^" if it is part of the index symbol) in the box. Then, click on Compare and assess the relationship between the market index movements and the stock's price movements. Explain whether the stock's price movements appear to be driven by local market conditions. Repeat this exercise for each foreign stock in which you invested.

b. Determine whether your foreign stock prices are highly correlated. Repeat the process just described, except insert the symbol representing one of the foreign stocks you own in the box below the chart.

c. Determine whether your foreign stock's performance is driven by the U.S. market (using the S&P 500 as a market proxy). Erase the symbol you typed into the box below the chart, and click on S&P just to the right.

4. a. Review annual reports and news about each of your U.S.-based MNCs to determine where it does most of its business and the foreign currency to which it is most exposed. Determine whether your U.S.-based MNC's stock performance is influenced by the exchange rate movements of the foreign currency (against the U.S. dollar) to which it is most exposed. Go to www.oanda.com and click on Historical Exchange Rates. You can convert the foreign currency to which the MNC is most exposed into U.S. dollars and determine the exchange rate movements over the period in which you invested in the stock. Provide your assessment of the relationship between the currency's exchange rate movements and the performance of the stock over the investment period. Attempt to explain the relationship that you just found.

b. Repeat the steps in 4a for each U.S.-based MNC in which you invested.

5. a. Determine whether the stock performance of each of your foreign firms is influenced by the exchange rate movements of the firm's local currency against the U.S. dollar (you can obtain this information from www.oanda.com). You can convert the foreign currency of concern to U.S. dollars and determine the exchange rate movements over the period in which you invested in the stock. Provide your assessment of the relationship between the currency's exchange rate movements and the performance of the stock over the investment period. Attempt to explain the relationship that you just found.

b. Repeat the steps in 5a for each of the foreign stocks in which you invested.

APPENDIX E
Discussion in the Boardroom

This exercise is intended to apply many of the key concepts presented in the text to broad issues that are discussed by managers who make financial decisions. It does not replace the more detailed questions and problems at the end of the chapters. Instead, it focuses on broad financial issues to facilitate class discussion and simulate a boardroom discussion. It serves as a running case in which concepts from every chapter are applied to the same business throughout the school term. The exercise not only enables students to apply concepts to the real world but also develops their intuitive and communication skills.

This exercise can be used in a course in several ways.

1. Apply it on a chapter-by-chapter basis to ensure that the broad chapter concepts are understood before moving on to the next chapter.
2. Use it to encourage online discussion for courses taught online.
3. Use it as a review before each exam, covering all chapters assigned for that exam.
4. Use it as a comprehensive case discussion, near the end of the semester, as a means of reviewing the key concepts that were described throughout the course.
5. Use it for presentations in which individuals or teams present their views on the questions assigned to them.

This exercise has been placed on the course Web site so that students can download it and insert their answers after the questions. By the end of the course, students will have applied all the major concepts of the text to a single firm. The focus on a single firm will allow students to recognize how some of their decisions in the earlier chapters interact with decisions to be made in later chapters.

Background

One of the best ways to learn the broad concepts presented in this text is to put yourself in the position of an MNC manager or board member and apply the concepts to financial decisions. Although board members normally do not make the decisions discussed here, they must have the conceptual skills to monitor the policies that are implemented by the MNC's managers. Thus, they must frequently consider what they would do if they were making the managerial decisions or setting corporate policies.

This exercise is based on a business that you could easily create: a business that teaches individuals in a non-U.S. country to speak English. Although this business is very basic, it still requires the same types of decisions faced by large MNCs.

Assume that you live in the United States and invest $60,000 to establish a language school called Escuela de Inglés in Mexico City, Mexico. You set up a small subsidiary in Mexico with an office and an attached classroom that you lease. You hire local individuals in Mexico who can speak English and teach it to others. Your school offers two types of courses: a 1-month structured course in English and a 1-week intensive course for individuals who already know English but want to improve their skills before visiting the United States. You advertise both types of teaching services in local newspapers.

All revenue and expenses associated with your business are denominated in Mexican pesos. Your subsidiary sends most of the profits from the business in Mexico to you at the end of each month. Although your expenses are fairly stable, your revenue varies with the number of clients who sign up for the courses in Mexico.

This background is sufficient to enable you to answer the questions that are asked about your business throughout the term. Answer each question as if you were serving on the board or as a manager of the business. The questions in the early chapters force you to assess the firm's opportunities and exposure, and those in later chapters force you to consider potential strategies that your business might pursue.

Chapter 1

a. Discuss the corporate control of your business. Explain why your business in Mexico is exposed to agency problems.
b. How would you attempt to monitor the ongoing operations of the business?
c. Explain how you might be able to use a compensation plan to limit potential agency problems.
d. Assume that you have been approached by a competitor in Mexico to engage in a joint venture. The competitor would provide the classroom facilities (so you would not need to rent classroom space) while your employees would teach the classes. You and the competitor would split the profits. Discuss how your potential return and your risk would change if you pursue the joint venture.
e. Explain the conditions that would cause your business to be adversely affected by exchange rate movements.
f. Explain how your business could be adversely affected by political risk.

Chapter 2

Your business provides CDs for free to customers who pay for the English courses that you offer in Mexico. You are considering mass-producing the CDs in the United States so that you can sell (export) them to distributors or to retail stores throughout Mexico. You would price the CDs in dollars when exporting them. The CDs are less effective without the teaching, but they can still be useful to individuals who want to learn the basics of the English language.

a. If you pursue this idea, explain how the factors that affect international trade flows (identified in Chapter 2) could affect the Mexican demand for your CDs. Which of these factors would likely have the largest impact on the Mexican demand for your CDs? What other factors would affect the Mexican demand for the CDs?
b. Suppose that you believe the Mexican government will impose a tariff on the CDs exported to Mexico. How could you still execute this business idea at a relatively low cost while avoiding the tariff? Describe any disadvantages of this idea to avoid the tariff.

Chapter 3

Assume that the business in Mexico grows. Explain how financial markets could help to finance the growth of the business.

Chapter 4

Given the factors that affect the value of a foreign currency, describe the type of economic or other conditions in Mexico that could cause the Mexican peso to weaken and thereby adversely affect your business.

Chapter 5

Explain how currency futures could be used to hedge your business in Mexico. Explain how currency options could be used to hedge your business in Mexico.

Chapter 6

a. Explain how your business will likely be affected (at least in the short run) if the central bank of Mexico intervenes in the foreign exchange market by exchanging Mexican pesos for dollars.
b. Explain how your business will likely be affected if the central bank of Mexico uses indirect intervention by lowering Mexican interest rates (assume that inflationary expectations have not changed).

Chapter 7

Mexican interest rates are normally substantially higher than U.S. interest rates.

a. What does this imply about the forward premium or discount of the Mexican peso?
b. What does this imply about your business using forward or futures contracts to hedge your periodic profits in pesos that must be converted into dollars?
c. Would you frequently hedge your exposure to Mexican pesos? Explain your answer.

Chapter 8

Mexican interest rates are normally substantially higher than U.S. interest rates.

a. What does this imply about the inflation differential (Mexican inflation minus U.S. inflation), assuming that the real interest rate is the same in both countries? Does this imply that the Mexican peso will appreciate or depreciate? Explain.
b. It might be argued that the high Mexican interest rates should entice U.S. investors to invest in Mexican money market securities, which could cause the peso to appreciate. Reconcile this theory with your answer in part a. If you believe that the high Mexican interest rates will not entice U.S. investors, explain your reasoning.
c. Assume that the difference between Mexican and U.S. interest rates is typically attributed to a difference in expected inflation in the two countries. Also assume that purchasing power parity holds. Do you think that your business cash flows will be adversely affected? In reality, purchasing power parity does not always hold. Assume that the inflation differential (Mexican inflation minus U.S. inflation) is not fully offset by the exchange rate movement of the peso. Will this benefit or hurt your business?

Now assume that the inflation differential is more than offset by the peso's exchange rate movement. Will this benefit or hurt your business?
d. Assume that the nominal interest rate in Mexico is currently much higher than the U.S. interest rate and that this difference is due to a high rate of expected inflation in Mexico. You are considering hiring a local firm to promote your business, but you would have to borrow funds to finance this marketing campaign. A consultant advises you to delay the marketing campaign for a year so that you can capitalize on the high nominal interest rate in Mexico. He suggests that you retain the profits that you would normally have remitted to the United States and deposit them in a Mexican bank. The Mexican peso cash flows that your business deposits will grow at a high rate of interest over the year. Should you follow the advice of the consultant?

Chapter 9

a. Mexican interest rates are normally substantially higher than U.S. interest rates. What does this imply about the forward rate as a forecast of the future spot rate?
b. Does the forward rate reflect a forecast of appreciation or depreciation of the Mexican peso? Explain how the degree of the expected change implied by the forward rate forecast is tied to the interest rate differential.
c. Which do you think provides a better forecast of the Peso future spot rate, today's forward rate or today's spot rate?

Chapter 10

Recall that your Mexican business invoices in Mexican pesos.
a. You are already aware that a decline in the value of the peso could reduce your dollar cash flows. Yet according to purchasing power parity, a weak peso should occur only in response to a high level of Mexican inflation, and such high inflation should increase your profits. If this theory holds precisely, then your cash flows would not really be exposed. Should you be concerned about your exposure, or not? Explain.
b. If you change your policy and invoice only in dollars, how will your transaction exposure be affected?
c. Why might the demand for your business change if you change your invoice policy? What are the implications for your economic exposure?

Chapter 11

Mexican interest rates are normally substantially higher than U.S. interest rates.
a. Assuming that interest rate parity holds, do you think hedging with a forward rate will be beneficial if the spot rate of the Mexican peso is expected to decline slightly over time?
b. Will hedging with a money market hedge be beneficial if the spot rate of the Mexican peso is expected to decline slightly over time? Explain your answer. (Assume zero transaction costs.)
c. What are some limitations on using currency futures or options that may make it difficult for you to perfectly hedge against exchange rate risk over the next year or so?
d. In general, not many long-term currency futures and options on the Mexican peso are available. A consultant suggests that this is not a problem because you can hedge your position one quarter at a time. In other words, the profits that you remit at any future time can be hedged by taking a currency futures or options position 3 months or so

before that time. Thus, although the consultant recognizes that the peso could weaken substantially in the long term, she sees no reason why you should worry about its decline as long as you continually create a short-term hedge. Do you agree?

CHAPTER 12

a. Explain how your business is subject to translation exposure.
b. How could you hedge against this translation exposure?
c. Is it worthwhile for your business to hedge the translation exposure?

CHAPTER 13

Assume that you want to expand your English-teaching business to other non-U.S. countries where some individuals may want to learn to speak English.

a. Explain why you might be able to stabilize the profits of your total business in this manner. Review the motives for direct foreign investment that are identified in this chapter. Which of these motives are most important?
b. Why would a city such as Montreal be a less desirable site for your business than a city such as Mexico City?
c. Describe the conditions in which your total business would experience weak effects even if the business were spread across three or four countries.
d. What factors affect the probability that the conditions you identified in part c might occur? (In other words, explain why the conditions could occur in one set of countries but not another set of countries.)
e. What data would you review to assess the probability that these conditions will occur?
f. Assume that your business has already created some pamphlets and CDs that translate common Spanish terms into English to supplement your primary service of teaching individuals in Mexico to speak English. How could you expand your business in a manner that might allow you to benefit from economies of scale (and perhaps even benefit from your existing business reputation)? When you attempt to benefit from economies of scale, do you forgo diversification benefits? Explain.
g. How would you come to a decision on whether to pursue business expansion that capitalizes on economies of scale even though it would mean forgoing diversification benefits? Do you think economies of scale would be more or less important than diversification for your business?
h. Is there any way to achieve both economies of scale and diversification benefits?

CHAPTER 14

a. Review the different items that are used in the multinational capital budgeting example for Spartan, Inc. Describe the items that you would include on a spreadsheet if you conducted a multinational capital budgeting analysis of investing dollars to expand your existing language business in a different location.
b. Assume that you recognize the limitations of predicting the future exchange rate of the invoice currency for your expanded business. You think that there are several possible exchange rate scenarios, each with equal probability of occurrence. Explain how you could use this information to estimate the future net present value (NPV) and make a decision about whether to accept or reject the project.
c. Now assume that there is also much uncertainty about individuals' demand for your service in the new location. Explain how you can incorporate this uncertainty, along with

the uncertainty of exchange rate movements, when making a decision about whether to accept or reject the project.

d. Explain how you would derive a required rate of return for your capital budgeting analysis. What type of information would you use to derive the required rate of return?

Chapter 15

You have an opportunity to purchase a private competitor called Fernand in Mexico. If you decide to purchase the company, you will use only your own funds.

a. When you attempt to determine the value of this company, how will you derive your required rate of return? Specifically, should you use the U.S. or the Mexican risk-free rate as a base when deriving your required rate of return? Why?

b. Another Mexican firm, called Vascon, is also considering acquiring this firm. Explain why Vascon's required rate of return may be higher than your required rate of return. Is there any reason why Vascon's required rate of return may be lower than your required rate of return?

c. Assume that you and Vascon have the same expectations regarding the Mexican cash flows that will be generated by Fernand. Fernand's owner is willing to sell the company for 2 million Mexican pesos. You and Vascon use a similar process to determine the feasibility of acquiring the target. You both compare the present value of the target's cash flows to the purchase price. Based on your analysis, Fernand would generate a positive net present value for your firm. Based on Vascon's analysis, Fernand would generate a negative NPV for Vascon. How could you determine that the acquisition of Fernand is feasible even though Vascon has determined that the acquisition is not feasible?

d. Repeat part c but reverse the assumptions. That is, you determine that Fernand would generate a negative NPV for your firm whereas Vascon determines that Fernand would generate a positive NPV. How could you determine that the acquisition of Fernand is not feasible when Vascon determines that the acquisition of Fernand is feasible?

Chapter 16

a. Review the political risk factors and identify those that could affect your business. Explain how your cash flows could be affected.

b. Explain why threats of terrorism due to friction between two countries could possibly affect your business, even though the terrorism has no effect on the relations between the United States and Mexico.

c. Assume that an upcoming election in Mexico may result in a complete change in government. Explain why the election could have significant effects on your cash flows.

Chapter 17

a. Assume that your business is considering expanding in Mexico. You plan to invest a small amount of U.S. dollar equity into this project and to finance the remainder with debt. You can obtain debt financing for the expansion in Mexico, but Mexican interest rates are higher than U.S. rates. Yet if you use mostly U.S. debt financing, you will be more exposed to exchange rate risk. Explain why.

b. You want to assess the feasibility of the new project in Mexico if you use mostly U.S. debt financing versus mostly Mexican debt financing. You also want to capture possible exchange rate effects on your cash flows over time. How can you use capital budgeting to conduct your comparison?

c. You prefer to avoid using Mexican debt to finance your expansion in Mexico because the interest rates are high. A consultant suggests that you seek one or more investors in Mexico who would be willing to take an equity position in your business. You would provide them with periodic dividends, and they would be partial owners of your company. The consultant suggests that this strategy would circumvent the high cost of capital in Mexico because it uses equity financing instead of debt financing. Is the consultant correct?

Chapter 18

Recall from the previous chapter that your business is considering expansion within Mexico; you plan to invest a small amount of U.S. dollar equity into this project and finance the remainder with debt. You can obtain debt financing for the expansion in Mexico, but Mexican interest rates are higher than U.S. rates. Today, you receive credit offers from different banks. You can obtain a fixed rate loan in the United States at 8 percent for the life of this project or a floating rate loan (where the rate changes each year in response to market interest rates) in Mexico at 10 percent. Explain how you could estimate the net present value of the project for each alternative financing method. Include an explanation of how you would account for the uncertainty of future movements of Mexican interest rates.

Chapter 19

Recall that your business provides CDs that complement the teaching provided by your employees in Mexico. Assume that you decide to capitalize on these CDs by selling them to a large retail store based in Mexico. The CDs are less effective without the teaching but are still useful to individuals who want to learn the English language basics. You do not want to take the risk of sending a case of CDs to the retail store unless you can be sure of receiving payment. Explain how you can ensure payment for the CDs.

Chapter 20

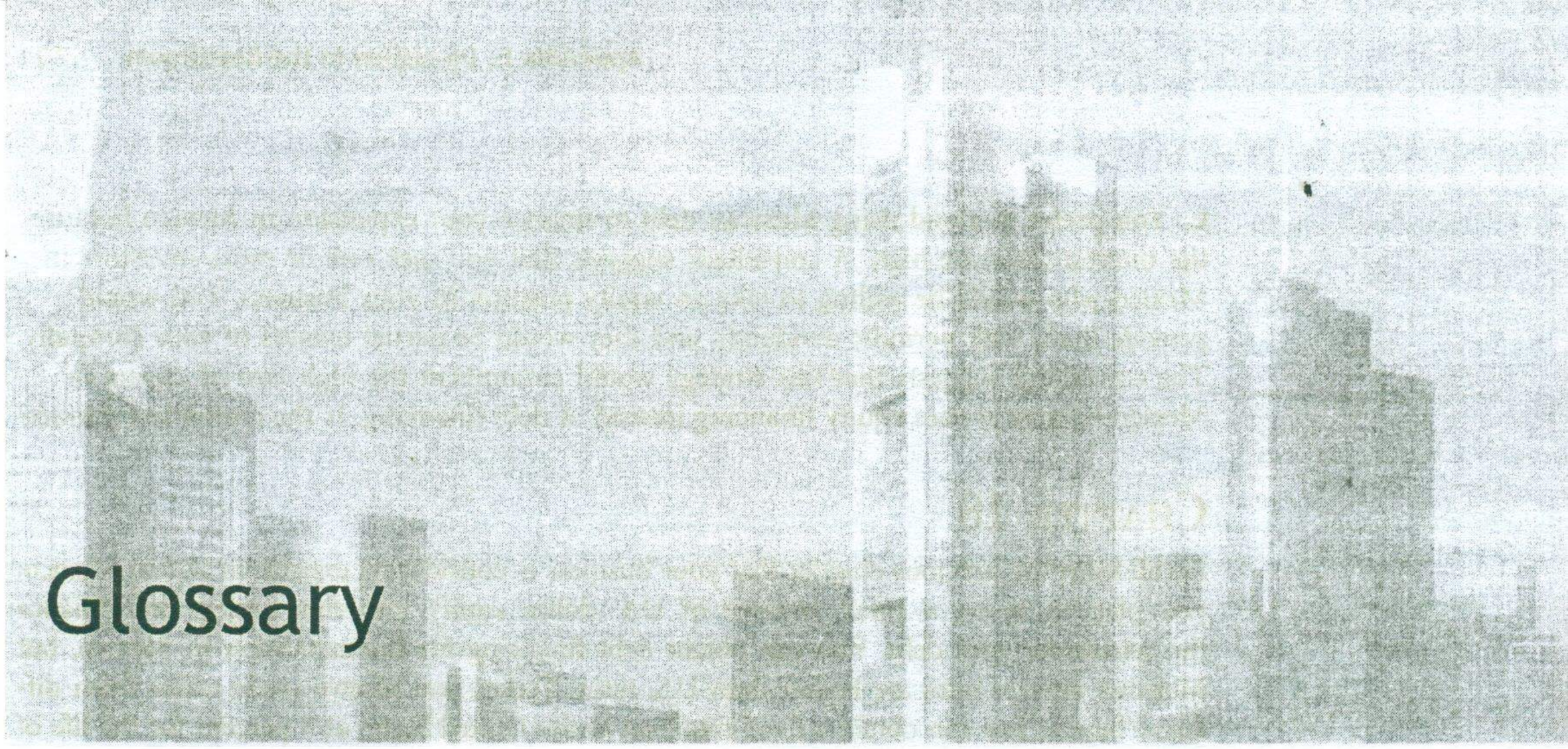
You are considering a major marketing campaign in Mexico. If you implement it, you will incur high expenses in Mexican pesos and will need to finance the cost. To cover the cost, you can either borrow Mexican pesos or borrow dollars at a low interest rate and convert them to Mexican pesos. You expect to pay off the loan on a monthly basis over the next year by using a portion of the revenue you generate from your business in Mexico.

a. Will your business be more exposed to exchange rate risk if you borrow dollars or Mexican pesos?

b. Explain how you would make the decision to borrow dollars versus Mexican pesos. What is the key factor (other than the interest rate of each currency) that will determine which currency you will borrow?

Chapter 21

Assume that this year you decide *not* to implement the marketing campaign that you considered in the previous chapter. Instead, you will invest some of this year's profits in money market investments and then use this money to cover the campaign next year. You can retain the profits earned this year by investing them in a Mexican bank where interest rates are high, or you could invest the profits in a dollar-denominated bank account. That is, you could convert your Mexican peso profits to dollars periodically and accumulate the dollars over the year. At the end of the year, you could convert the dollars back to Mexican pesos to pay for the marketing campaign. Explain how you would decide between these two alternatives.



Glossary

A

absolute form of purchasing power parity theory that explains how inflation differentials affect exchange rates. It suggests that prices of two products of different countries should be equal when measured by a common currency.

accounts receivable financing indirect financing provided by an exporter for an importer by exporting goods and allowing for payment to be made at a later date.

advising bank corresponding bank in the beneficiary's country to which the issuing bank sends the letter of credit.

agency problem conflict of goals between a firm's shareholders and its managers.

airway bill receipt for a shipment by air, which includes freight charges and title to the merchandise.

all-in rate rate used in charging customers for accepting banker's acceptances, consisting of the discount interest rate plus the commission.

American depository receipts (ADRs) certificates representing ownership of foreign stocks, which are traded on stock exchanges in the United States.

appreciation increase in the value of a currency.

arbitrage action to capitalize on a discrepancy in quoted prices; in many cases, there is no investment of funds tied up for any length of time.

Asian dollar market market in Asia in which banks collect deposits and make loans denominated in U.S. dollars.

ask price price at which a trader of foreign exchange (typically a bank) is willing to sell a particular currency.

assignment of proceeds arrangement that allows the original beneficiary of a letter of credit to pledge or assign proceeds to an end supplier.

B

balance of payments is a summary of transactions between domestic and foreign residents for a specific country over a specified period of time.

balance of trade difference between the value of merchandise exports and merchandise imports.

Bank for International Settlements (BIS) institution that facilitates cooperation among countries involved in international transactions and provides assistance to countries experiencing international payment problems.

Bank Letter of Credit Policy policy that enables banks to confirm letters of credit by foreign banks supporting the purchase of U.S. exports.

banker's acceptance bill of exchange drawn on and accepted by a banking institution; it is commonly used to guarantee exporters that they will receive payment on goods delivered to importers.

barter exchange of goods between two parties without the use of any currency as a medium of exchange.

Basel Accord agreement among country representatives in 1988 to establish standardized risk-based capital requirements for banks across countries.

bid price price that a trader of foreign exchange (typically a bank) is willing to pay for a particular currency.

bid/ask spread difference between the price at which a bank is willing to buy a currency and the price at which it will sell that currency.

bilateral netting system netting method used for transactions between two units.

bill of exchange (draft) promise drawn by one party (usually an exporter) to pay a specified amount to another party at a specified future date, or upon presentation of the draft.

bill of lading (B/L) document serving as a receipt for shipment and a summary of freight charges and conveying title to the merchandise.

Bretton Woods Agreement conference held in Bretton Woods, New Hampshire, in 1944, resulting in an agreement to maintain exchange rates of currencies within very narrow boundaries; this agreement lasted until 1971.

C

call option on real assets a proposed project that contains an option of pursuing an additional venture.

capital account represents a summary of the flow of funds between one specified country and all other countries due to purchases of goods and services or to the cash flows generated by income-producing financial assets.

cash management optimization of cash flows and investment of excess cash.

centralized cash flow management policy that consolidates cash management decisions for all MNC units, usually at the parent's location.

coefficient of determination measure of the percentage variation in the dependent variable that can be explained by the independent variables when using regression analysis.

cofinancing agreements arrangement in which the World Bank participates along with other agencies or lenders in providing funds to developing countries.

commercial invoice exporter's description of merchandise being sold to the buyer.

commercial letters of credit Trade-related letters of credit.

comparative advantage theory suggesting that specialization by countries can increase worldwide production.

compensation arrangement in which the delivery of goods to a party is compensated for by buying back a certain amount of the product from that same party.

compensatory financing facility (CFF) facility that attempts to reduce the impact of export instability on country economies.

consignment arrangement in which the exporter ships goods to the importer while still retaining title to the merchandise.

contingency graph graph showing the net profit to a speculator in currency options under various exchange rate scenarios.

counterpurchase exchange of goods between two parties under two distinct contracts expressed in monetary terms.

countertrade sale of goods to one country that is linked to the purchase or exchange of goods from that same country.

country risk characteristics of the host country, including political and financial conditions, that can affect an MNC's cash flows.

covered interest arbitrage investment in a foreign money market security with a simultaneous forward sale of the currency denominating that security.

cross exchange rate exchange rate between currency A and currency B, given the values of currencies A and B with respect to a third currency.

cross-hedging hedging an open position in one currency with a hedge on another currency that is highly correlated with the first currency. This occurs when for some reason the common hedging techniques cannot be applied to the first currency. A cross-hedge is not a perfect hedge, but can substantially reduce the exposure.

cross-sectional analysis analysis of relationships among a cross section of firms, countries, or some other variable at a given point in time.

currency board system for maintaining the value of the local currency with respect to some other specified currency.

currency call option contract that grants the right to purchase a specific currency at a specific price (exchange rate) within a specific period of time.

currency diversification process of using more than one currency as an investing or financing strategy. Exposure to a diversified currency portfolio typically results in less exchange rate risk than if all of the exposure was in a single foreign currency.

currency futures contract contract specifying a standard volume of a particular currency to be exchanged on a specific settlement date.

currency option combination the use of simultaneous call and put option positions to construct a unique position to suit the hedger's or speculator's needs. Two of the most popular currency option combinations are straddles and strangles.

currency put option contract granting the right to sell a particular currency at a specified price (exchange rate) within a specified period of time.

currency swap agreement to exchange one currency for another at a specified exchange rate and date. Banks commonly serve as intermediaries between two parties who wish to engage in a currency swap.

current account broad measure of a country's international trade in goods and services.

D

Delphi technique collection of independent opinions without group discussion by the assessors who provide the opinions; used for various types of assessments (such as country risk assessment).

depreciation decrease in the value of a currency.

devaluation a downward adjustment of the exchange rate by a central bank.

devalue to reduce the value of a currency against the value of other currencies.

direct foreign investment (DFI) any method of increasing international business that requires a direct investment in foreign operations.

Direct Loan Program program in which the Ex-Im Bank offers fixed rate loans directly to the foreign buyer to purchase U.S. capital equipment and services.

direct quotations quotations that report the value of a foreign currency in dollars (number of dollars per unit of other currency).

discount as related to forward rates, represents the percentage amount by which the forward rate is less than the spot rate.

documentary collections trade transactions handled on a draft basis.

documents against acceptance situation in which the buyer's bank does not release shipping documents to the buyer until the buyer has accepted (signed) the draft.

documents against payment shipping documents that are released to the buyer once the buyer has paid for the draft.

dollarization replacement of a foreign currency with U.S. dollars.

draft (bill of exchange) unconditional promise drawn by one party (usually the exporter) instructing the buyer to pay the face amount of the draft upon presentation.

dumping the exporting of products that were produced with the help of government subsidies.

dynamic hedging applying a hedge when the currencies held are expected to depreciate and removing any hedge when the currencies held are expected to appreciate.

E

economic exposure the sensitivity of the firm's cash flows to exchange rate movements; sometimes referred to as operational exposure.

economies of scale lower average cost per unit resulting from increased production.

equilibrium exchange rate exchange rate at which demand for a currency is equal to the supply of the currency for sale.

Eurobonds bonds that are sold in countries other than the country whose currency is used to denominate the bonds.

Euro-commercial paper debt securities issued by MNCs for short-term financing.

Eurocredit loans loans of one year or longer that are extended by banks to MNCs or government agencies in Europe.

Eurocredit market collection of banks that accepts deposits and provides loans in large denominations and in a variety of currencies. The banks that comprise this market are the same banks that comprise the Eurocurrency market; the difference is that the Eurocredit loans are longer term than so-called Eurocurrency loans.

Eurodollars dollar deposits in banks in Europe (and on other continents).

Euronotes unsecured debt securities issued by MNCs for short-term financing.

European Central Bank (ECB) central bank responsible for setting monetary policy for European countries participating in the single European currency, the euro.

exchange rate mechanism (ERM) method of linking European currency values with the European Currency Unit (ECU).

exercise price (strike price) price (exchange rate) at which the owner of a currency call option is allowed to buy a specified currency; or the price (exchange rate) at which the owner of a currency put option is allowed to sell a specified currency.

Export-Import Bank (Ex-Im Bank) banks that finance and facilitate the export of American goods and services and maintain the competitiveness of American companies in overseas markets.

F

factor firm specializing in collection on accounts receivable; exporters sometimes sell their accounts receivable to a factor at a discount.

factor income income (interest and dividend payments) received by investors on foreign investments in financial assets (securities).

factoring purchase of receivables of an exporter by a factor without recourse to the exporter.

Financial Institution Buyer Credit Policy policy that provides insurance coverage for loans by banks to foreign buyers of exports on a short-term basis.

fixed exchange rate system an exchange rate system in which exchange rates are either held constant or allowed to fluctuate only within very narrow boundaries.

floating rate notes (FRNs) a variable rate provision in some Eurobonds that adjusts the coupon rate over time according to prevailing market rates.

foreign bond bond issued by a borrower foreign to the country where the bond is placed.

foreign exchange dealers dealers who serve as intermediaries in the foreign exchange market by exchanging currencies desired by MNCs or individuals.

foreign exchange market market composed primarily of banks, serving firms and consumers who wish to buy or sell various currencies.

foreign investment risk matrix (FIRM) matrix that displays the financial (or economic) and political risk by intervals (ranging across the matrix from "poor" to "good") so that each country can be positioned in its appropriate location on the matrix based on its political rating and financial rating.

forfeiting refers to the purchase of financial obligations, such as bills of exchange or promissory notes, without recourse to the original holder (usually, the exporter).

I

imperfect market the condition where, due to the costs to transfer labor and other resources used for production, firms may attempt to use foreign factors of production when they are less costly than local factors.

import/export letters of credit trade-related letters of credit.

independent variable term used in regression analysis to represent the variable that is expected to influence another (the "dependent") variable.

indirect quotations exchange rate quotations representing the value measured by number of units per dollar.

intracompany trade the process that companies adopt to purchase products that are produced by their subsidiaries.

J

J-curve effect effect of a weaker dollar on the U.S. trade balance in which the trade balance initially deteriorates; it only improves once U.S. and non-U.S. importers respond to the change in purchasing power that is caused by the weaker dollar.

joint venture a venture that is jointly owned and operated by two or more firms.

L

lagging strategy used by a firm to stall payments, normally in response to exchange rate projections.

leading strategy used by a firm to accelerate payments, normally in response to exchange rate expectations.

letter of credit (L/C) an instrument issued by a bank on behalf of the importer (buyer) promising to pay the exporter (beneficiary) upon presentation of shipping documents in compliance with the terms stipulated therein.

licensing an arrangement whereby one firm provides its technology (copyrights, patents, trademarks, or trade names) in exchange for fees or other considerations.

locational arbitrage the process of buying a currency at a location where it is priced cheap and then immediately selling it at some other location where it is priced higher.

lockbox post office boxes to which customers are instructed to send payment.

London Interbank Offer Rate (LIBOR) the rate most often charged for very short-term loans (such as for one day) between banks.

M

macro-assessment a country's overall risk assessment involving consideration of all variables that affect country risk except those that are unique to a particular firm or industry.

mail float mailing time involved in sending payments by mail.

managed float exchange rate system in which governments may intervene to prevent their currencies from moving too far in a certain direction.

market-based forecasting use of a market-determined exchange rate (such as the spot rate or forward rate) to forecast the spot rate in the future.

Master Agreement an agreement that provides participants in the private derivatives markets with the opportunity to establish the legal and credit terms between them for an ongoing business relationship.

micro-assessment of country risk the risk assessment of a country as related to the MNC's type of business.

mixed forecasting development of forecasts based on a mixture of forecasting techniques.

Multibuyer Policy policy administered by the Ex-Im Bank that provides credit risk insurance on export sales to many different buyers.

Multilateral Investment Guarantee Agency (MIGA) agency established by the World Bank that offers various forms of political risk insurance to corporations.

multilateral netting system complex interchange for netting between a parent and several subsidiaries.

multinational corporations (MNCs) firms that engage in some form of international business.

N

negotiable bill of lading when a bill of lading (B/L) is made out to order, however, it is said to be in negotiable form.

net operating loss carrybacks practice of applying losses to offset earnings in previous years.

net operating loss carryforwards practice of applying losses to offset earnings in future years.

netting optimizing cash flows by reducing the administrative and transaction costs that result from currency conversion.

non-deliverable forward contract (NDF) like a forward contract, represents an agreement regarding a position in a specified currency, a specified exchange rate, and a specified future settlement date, but does not result in delivery of currencies. Instead, a payment is made by one party in the agreement to the other party based on the exchange rate at the future date.

nonsterilized intervention intervention in the foreign exchange market without adjusting for the change in money supply.

notional value a valuation to which interest rates can be applied on a periodic basis to determine the net interest that will be paid by one party to another party.

O

ocean bill of lading the carrier issues this if the merchandise is to be shipped by boat.

open account transaction sale in which the exporter ships the merchandise and expects the buyer to remit payment according to agreed-upon terms.

outsourcing represents the process of subcontracting to a third party.

overhedging hedging an amount in a currency larger than the actual transaction amount.

P

parallel bonds bonds placed in different countries and denominated in the respective currencies of the countries where they are placed.

parallel loan loan involving an exchange of currencies between two parties, with a promise to re-exchange the currencies at a specified exchange rate and future date.

partial compensation an arrangement in which the delivery of goods to one party is partially compensated for by buying back a certain amount of product from the same party.

pegged exchange rate exchange rate whose value is pegged to another currency's value or to a unit of account.

perfect forecast line a 45-degree line on a graph that matches the forecast of an exchange rate with the actual exchange rate.

petrodollars deposits of dollars by countries that receive dollar revenues due to the sale of petroleum to other countries; the term commonly refers to OPEC deposits of dollars in the Eurocurrency market.

political risk political actions taken by the host government or the public that affect the MNC's cash flows.

preauthorized payment method of accelerating cash inflows by receiving authorization to charge a customer's bank account.

premium the buyer of a currency call option pays a premium, which reflects the price in order to own the option.

prepayment method that exporter uses to receive payment before shipping goods.

price-elastic sensitive to price changes.

privatization conversion of government-owned businesses to ownership by shareholders or individuals.

product cycle theory theory suggesting that a firm initially establishes itself locally and expands into foreign markets in response to foreign demand for its product; over time, the MNC will grow in foreign markets; after some point, its foreign business may decline unless it can differentiate its product from competitors.

Project Finance Loan Program program that allows banks, the Ex-Im Bank, or a combination of both to extend long-term financing for capital equipment and related services for major projects.

purchasing power parity (PPP) line diagonal line on a graph that reflects points at which the inflation differential between two countries is equal to the percentage change in the exchange rate between the two respective currencies.

purchasing power parity (PPP) theory theory suggesting that exchange rates will adjust over time to reflect the differential in inflation rates in the two countries; in this way, the purchasing power of consumers when purchasing domestic goods will be the same as that when they purchase foreign goods.

put option on real assets project that contains an option of divesting part or all of the project.

Q

quota maximum limit imposed by the government on goods allowed to be imported into a country.

R

real cost of hedging the additional cost of hedging when compared to not hedging (a negative real cost would imply that hedging was more favorable than not hedging).

real cost of hedging payables is equal to the cost of hedging payables less the cost of payables if not hedged.

real interest rate nominal (or quoted) interest rate minus the inflation rate.

real options implicit options on real assets.

regression analysis statistical technique used to measure the relationship between variables and the sensitivity of a variable to one or more other variables.

regression coefficient term measured by regression analysis to estimate the sensitivity of the dependent variable to a particular independent variable.

revaluation an upward adjustment of the exchange rate by a central bank.

revalue to increase the value of a currency against the value of other currencies.

revocable letter of credit letter of credit issued by a bank that can be canceled at any time without prior notification to the beneficiary.

S

semistrong-form efficient description of foreign exchange markets, implying that all relevant public information is already reflected in prevailing spot exchange rates.

sensitivity analysis technique for assessing uncertainty whereby various possibilities are input to determine possible outcomes.

simulation technique for assessing the degree of uncertainty. Probability distributions are developed for the input variables; simulation uses this information to generate possible outcomes.

Single European Act act intended to remove numerous barriers imposed on trade and capital flows between European countries.

Single-Buyer Policy policy administered by the Ex-Im Bank that allows the exporter to selectively insure certain transactions.

Small Business Policy policy providing enhanced coverage to new exporters and small businesses.

Smithsonian Agreement conference between nations in 1971 that resulted in a devaluation of the dollar against major currencies and a widening of boundaries (2 percent in either direction) around the newly established exchange rates.

snake arrangement established in 1972, whereby European currencies were tied to each other within specified limits.

special drawing rights (SDRs) represent a unit of account that are allocated to member countries to supplement currency reserves in IMF financing.

spot market market in which exchange transactions occur for immediate exchange.

spot rate current exchange rate of currency.

standby letter of credit document used to guarantee invoice payments to a supplier; it promises to pay the beneficiary if the buyer fails to pay.

sterilized intervention intervention by the Federal Reserve in the foreign exchange market, with simultaneous intervention in the Treasury securities markets to offset any effects on the dollar money supply; thus, the intervention in the foreign exchange market is achieved without affecting the existing dollar money supply.

straddle a combination of a call option and a put option with the same exercise price.

strangle a combination of a put option and a call option, whereby the exercise prices are not the same.

strike price see exercise price.

strong-form efficient description of foreign exchange markets, implying that all relevant public and private information is already reflected in prevailing spot exchange rates.

Structural Adjustment Loan (SAL) established in 1980 by the World Bank to enhance a country's long-term economic growth through financing projects.

supplier credit credit provided by the supplier to itself to fund its operations.

syndicate group of banks that participate in loans.

T

tariff tax imposed by a government on imported goods.

technical forecasting development of forecasts using historical prices or trends.

tenor time period of drafts.

time-series analysis analysis of relationships between two or more variables over periods of time.

trade acceptance draft that allows the buyer to obtain merchandise prior to paying for it.

transaction exposure the sensitivity of the firm's contractual transactions in foreign currencies to exchange rate movements.

transfer pricing policy for pricing goods sent by either the parent or a subsidiary to a subsidiary of an MNC.

transferable letter of credit document that allows the first beneficiary on a standby letter of credit to transfer all or part of the original letter of credit to a third party.

translation exposure degree to which a firm's consolidated financial statements are exposed to fluctuations in exchange rates.

triangular arbitrage action to capitalize on a discrepancy where the quoted cross exchange rate is not equal to the rate that should exist at equilibrium.

U

Umbrella Policy policy issued to a bank or trading company to insure exports of an exporter and handle all administrative requirements.

W

weak-form efficient description of foreign exchange markets, implying that all historical and current exchange rate information is already reflected in prevailing spot exchange rates.

Working Capital Guarantee Program program conducted by the Ex-Im Bank that encourages commercial banks to extend short-term export financing to eligible exporters; the Ex-Im Bank provides a guarantee of the loan's principal and interest.

World Bank bank established in 1944 to enhance economic development by providing loans to countries.

World Trade Organization (WTO) organization established to provide a forum for multilateral trade negotiations and to settle trade disputes related to the GATT accord.

writer seller of an option.

Y

Yankee stock offerings offerings of stock by non-U.S. firms in the U.S. markets.

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