Chapter 21

International Cash Management

Lecture Outline

Multinational Management of Working Capital
  Subsidiary Expenses
  Subsidiary Revenue
  Subsidiary Dividend Payments
  Subsidiary Liquidity Management

Centralized Cash Management

Techniques to Optimize Cash Flows
  Accelerating Cash Inflows
  Minimizing Currency Conversion Costs
  Managing Blocked Funds
  Managing Intersubsidiary Cash Transfers

Complications in Optimizing Cash Flow
  Company-Related Characteristics
  Government Restrictions
  Characteristics of Banking Systems

Investing Excess Cash
  How to Invest Excess Cash
  Centralized Cash Management
  Determining the Effective Yield
  Implications of Interest Rate Parity
  Use of the Forward Rate as a Forecast
  Use of Exchange Rate Forecasts
  Diversifying Cash Across Currencies
  Dynamic Hedging
Chapter Theme

This chapter emphasizes the decisions involved in the management of cash by an MNC. The additional opportunities and risks of cash management for an MNC versus a domestic firm should be stressed. There are actually three key components of the chapter. The first is distinguishing between subsidiary control over excess cash versus centralized control. An argument is made in favor of centralized control. The second component is optimizing cash flow. Several techniques are recommended to optimize cash flow. Finally, the decision of where to invest excess cash should be discussed with consideration of all factors that need to be incorporated for this decision.

Topics to Stimulate Class Discussion

1. Should international cash management be conducted at the subsidiary level or at the centralized level? Elaborate.

2. What is the use of netting to an MNC?

3. How can a firm deal with blocked funds?

4. Assume that as a treasurer of a U.S. corporation, you believe that the British pound’s forward rate is an accurate forecast of the pound’s future spot rate. What does this imply about your decision of whether to invest cash in the U.S. or in the U.K.?

POINT/COUNTER-POINT: Should Interest Rate Parity Prevent MNCs From Investing in Foreign Currencies?

POINT: Yes. Currencies with high interest rates have large forward discounts according to interest rate parity. To the extent that the forward rate is a reasonable forecast of the future spot rate, investing in a foreign country is not feasible.

COUNTER-POINT: No. Even if interest rate parity holds, MNCs should still consider investing in a foreign currency. The key is their expectations of the future spot rate. If their expectations of the future spot rate are higher than the forward rate, the MNC would benefit from investing in a foreign currency.

WHO IS CORRECT? Use the Internet to learn more about this issue. Which argument do you support? Offer your own opinion on this issue.

ANSWER: The key is whether the MNC can more accurately predict the future spot rate better than what is implied by the forward rate. If it has confidence that the future spot rate will be higher than today’s forward rate, it may be willing to invest in a foreign currency.
Answers to End of Chapter Questions

1. **International Cash Management.** Discuss the general functions involved in international cash management. Explain how the MNC’s optimization of cash flow can distort the profits of each subsidiary.

**ANSWER:** The general functions of international cash management are optimizing cash flows and investing excess cash. These functions combined will lead to efficient usage of funds.

When subsidiaries adjust their cash transactions between each other to reduce taxes or financing costs, their individual performances are distorted. For example, a subsidiary that makes a late payment to another subsidiary (due to its shortage of funds) benefits in that it avoided a short-term loan by delaying payment. The recipient subsidiary was hampered due to not receiving funds earlier (since the present value of the late payment is lower).

2. **Netting.** Explain the benefits of netting. How can a centralized cash management system be beneficial to the MNC?

**ANSWER:** Netting is a centralized compilation of inter-subsidiary cash flows. It is designed to reduce currency conversion costs and processing costs associated with payments between subsidiaries. By specifying a single net payment to be made instead of all individual payments owed between subsidiaries, transactions costs are reduced and cash flows may be forecasted more accurately.

A centralized cash management system is beneficial in that it allows for netting, which can reduce transactions costs and improve cash budgeting. In addition, it can increase yields on short-term investments by pooling excess cash of various subsidiaries.

3. **Leading and Lagging.** How can an MNC implement leading and lagging techniques to help subsidiaries in need of funds?

**ANSWER:** A subsidiary in need of funds would receive cash inflows from another subsidiary sooner than is required. This early payment provides the necessary funds. If the subsidiary in need of funds is making payment, it may be allowed by the MNC parent or recipient subsidiary to delay on its payment.

4. **International Fisher Effect.** If a U.S. firm believes that the international Fisher effect holds, what are the implications regarding a strategy of continually attempting to generate high returns from investing in currencies with high interest rates?

**ANSWER:** High interest rate currencies will typically depreciate to offset their interest rate advantage (on average) according to the IFE. Therefore, this strategy will on average provide similar returns as a domestic investment, and the strategy is not worthwhile.

5. **Investing Strategy.** Tallahassee Co. has $2 million in excess cash that it has invested in Mexico at an annual interest rate of 60 percent. The U.S. interest rate is 9 percent. By how much would the Mexican peso have to depreciate to cause such a strategy to backfire?

\[
\frac{1 + 9\%}{1 + 60\%} - 1 = -31.875\%
\]
ANSWER: If the peso depreciates by more than 31.875 percent, the effective yield on the Mexican deposit will be less than the domestic yield.

6. **Investing Strategy.** Why would a U.S. firm consider investing short-term funds in euros even when it does not have any future cash outflows in euros?

ANSWER: The interest rate on the euro may be higher, or the euro may have a high probability of appreciating. Also the firm may invest in euros today to hedge a future payment in euros.

7. **Covered Interest Arbitrage.** Evansville, Inc., has $2 million in cash available for 90 days. It is considering the use of covered interest arbitrage, since the euro’s 90-day interest rate is higher than the U.S. interest rate. What will determine whether this strategy is feasible?

ANSWER: If interest rate parity exists, then the forward rate of the euro contains a discount that sufficiently offsets the higher interest rate on euros. Consequently, the act of covered interest arbitrage would not be feasible.

8. **Effective Yield.** Fort Collins, Inc., has $1 million in cash available for 30 days. It can earn 1% on a 30-day investment in the U.S. Alternatively, if it converts the dollars to Mexican pesos, it can earn 1 1/2% on a Mexican deposit. The spot rate of the Mexican peso is $.12. The spot rate 30 days from now is expected to be $.10. Should Ft. Collins invest its cash in the U.S. or in Mexico? Substantiate your answer.

ANSWER: If Fort Collins Inc. invests in a Mexican deposit, it will convert $1 million to 8,333,333 pesos, which will accumulate to 8,458,333 pesos after one month (due to the 1 1/2% interest rate). If the spot rate of the peso is $.10 after one month, the pesos will be converted to $845,833, which is less than the amount of dollars the firm started with. Thus, the Fort Collins Inc. should invest its cash in the U.S.

9. **Effective Yield.** Rollins, Inc., has $3 million in cash available for 180 days. It can earn 7% on a U.S. Treasury bill or 9% on a British Treasury bill. The British investment does require conversion of dollars to British pounds. Assume that interest rate parity holds and that Rollins believes the 180-day forward rate is a reliable predictor of the spot rate to be realized 180 days from now. Would the British investment provide an effective yield that is below, above, or equal to the yield on the U.S. investment? Explain your answer.

ANSWER: If the forward rate is an accurate forecast of the future spot rate, then the return on a foreign investment without covering the currency exposure will be the same as if it was covered. The uncovered foreign investment, like the act of covered interest arbitrage, will generate a return similar to the domestic return (given that interest rate parity exists).

10. **Effective Yield.** Repeat question 9, but this time assume that Rollins, Inc., expects the 180-day forward rate of the pound to substantially overestimate the spot rate to be realized in 180 days.
ANSWER: In this case, the future spot rate will be less than the forward rate. If it was equal to the forward rate, the foreign return would have been similar to the domestic return for Rollins Inc. (as explained in the answer to question 9). If the future spot rate is lower than the forward rate, the U.S. firm will receive less when converting the pounds back to dollars. Thus, the foreign return is expected to be less than the domestic return.

11. Effective Yield. Repeat question 9, but this time assume that Rollins, Inc., expects the 180-day forward rate of the pound to substantially underestimate the spot rate to be realized in 180 days.

ANSWER: In this case, Rollins Inc. will receive more when converting the pounds back to dollars than the amount necessary to match the domestic return. Thus, the foreign return is expected to be greater than the domestic return.

12. Effective Yield. Assume that the one-year U.S. interest rate is 10% and the one-year Canadian interest rate is 13%. If a U.S. firm invests its funds in Canada, by what percentage will the Canadian dollar have to depreciate to make its effective yield the same as the U.S. interest rate from the U.S. firm’s perspective?

ANSWER:

\[
\frac{(1 + 10\%) - 1}{(1 + 13\%)} = \text{about } -2.65\%
\]

13. Investing in a Currency Portfolio. Why would a firm consider investing in a portfolio of foreign currencies instead of just a single foreign currency?

ANSWER: A portfolio of currencies reduces the probability of the foreign investment backfiring due to depreciation in the currencies denominating the investment. If all funds are in an investment denominated in a single foreign currency, risk of that currency substantially depreciating is relatively high (compared to an entire portfolio of currencies substantially depreciating).

14. Interest Rate Parity. Dallas Co. has determined that the interest rate on euros is 16 percent while the U.S. interest rate is 11 percent for one-year Treasury bills. The one-year forward rate of the euro has a discount of 7 percent. Does interest rate parity exist? Can Dallas achieve a higher effective yield by using covered interest arbitrage than by investing in U.S. Treasury bills? Explain.

ANSWER: If interest rate parity (IRP) existed, the forward rate of the euro should have a discount reflecting the interest rate differential:

\[
\text{Forward discount} = \frac{(1 + 11\%) - 1}{(1 + 16\%)} = -4.31\% \text{ (discount)}
\]

Since the euro’s actual discount exceeds that percentage, IRP does not exist. However, Dallas Company would achieve a lower effective yield if attempting covered interest arbitrage than if it invests in U.S. Treasury bills, because the euro’s forward discount more than offsets the interest rate differential.
15. **Diversified Investments.** Hofstra, Inc., has no European business and has cash invested in six European countries, each of which uses the euro as its local currency. Are Hofstra’s short-term investments well diversified and subject to a low degree of exchange rate risk? Explain.

**ANSWER:** The short-term investments are not well diversified, because the entire portfolio of investments is denominated in euros. If the euro weakens against the dollar, the return on all short-term securities denominated in euros will decline from the perspective of the U.S. firm.

16. **Investing Strategy.** Should McNeese Co. consider investing funds in Latin America countries where it may expand facilities? The interest rates are high and the proceeds from the investment could be used to help support the investment. When would this strategy backfire?

**ANSWER:** McNeese could benefit from investing at a high interest rate. However, this strategy could backfire if the currency weakens over time, because McNeese Co. could have converted dollars later (at the time of expansion) at a more favorable exchange rate. The tradeoff is a higher interest rate if it invests funds now, versus a more favorable exchange rate if it invests funds later.

17. **Impact of September 11.** Palos Co. commonly invests some of its excess dollars in foreign government short-term securities in order to earn a higher short-term interest rate on its cash. Describe how the potential return and risk of this strategy may have changed after the September 11, 2001 terrorist attack on the U.S.

**ANSWER:** The attack on the U.S. caused short-term interest rates in the U.S. to decline, which made foreign securities more attractive. Furthermore, the decline in U.S. interest rates and the weak stock prices in the U.S. caused a decline in capital flows to the U.S. and could possibly cause a decline in the dollar. If the dollar weakens, the return from investing in the foreign securities is higher.

**Advanced Questions**

18. **Investing in a Portfolio.** Pittsburgh Co. plans to invest its excess cash in Mexican pesos for one year. The one-year Mexican interest rate is 19%. The probability of the peso’s percentage change in value during the next year is shown below:

<table>
<thead>
<tr>
<th>Possible Rate of Change in the Mexican Peso Over the Life of the Investment</th>
<th>Probability of Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>−15%</td>
<td>20%</td>
</tr>
<tr>
<td>−4%</td>
<td>50%</td>
</tr>
<tr>
<td>0%</td>
<td>30%</td>
</tr>
</tbody>
</table>

What is the expected value of the effective yield based on this information? Given that the U.S. interest rate for one year is 7%, what is the probability that a one-year investment in pesos will generate a lower effective yield than could be generated if Pittsburgh Co. simply invested domestically?
ANSWER:

<table>
<thead>
<tr>
<th>Possible Rate of Change in Peso</th>
<th>Probability</th>
<th>Effective Yield if this Rate of Change in the Peso Does Occur</th>
</tr>
</thead>
<tbody>
<tr>
<td>–15%</td>
<td>20%</td>
<td>(1.19) [1 + (–15%)] – 1 = 1.15%</td>
</tr>
<tr>
<td>–4%</td>
<td>50%</td>
<td>(1.19) [1 + (–4%)] – 1 = 14.24%</td>
</tr>
<tr>
<td>0%</td>
<td>30%</td>
<td>(1.19) [1 + (0%)] – 1 = 19.00%</td>
</tr>
</tbody>
</table>

\[E(r) = 0.20 \times 1.15\% + 0.50 \times 14.24\% + 0.30 \times 19.00\%\]
\[E(r) = 0.23\% + 7.12\% + 5.70\%\]
\[E(r) = 13.05\%\]

There is a 20% probability that the peso’s effective yield will be less than the domestic yield.

19. **Effective Yield of Portfolio.** Ithaca Co. considers placing 30% of its excess funds in a one-year Singapore dollar deposit and the remaining 70% of its funds in a one-year Canadian dollar deposit. The Singapore one-year interest rate is 15%, while the Canadian one-year interest rate is 13%. The possible percentage changes in the two currencies for the next year are forecasted as follows:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Possible % Change in the Spot Rate Over the Investment Horizon</th>
<th>Probability of that Change in the Spot Rate Occurring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore dollar</td>
<td>–2%</td>
<td>20%</td>
</tr>
<tr>
<td>Singapore dollar</td>
<td>1%</td>
<td>60%</td>
</tr>
<tr>
<td>Singapore dollar</td>
<td>3%</td>
<td>20%</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>1%</td>
<td>50%</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>4%</td>
<td>40%</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>6%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Given this information, determine the possible effective yields of the portfolio and the probability associated with each possible portfolio yield. Given a one-year U.S. interest rate of 8%, what is the probability that the portfolio’s effective yield will be lower than the yield achieved from investing in the U.S.? (See Appendix 21.)

ANSWER:

<table>
<thead>
<tr>
<th>Possible % Change in the Singapore Dollar</th>
<th>Effective Yield Based on the % Change in the Singapore Dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>–2%</td>
<td>(1.15) [1 + (–2%)] – 1 = 12.7%</td>
</tr>
<tr>
<td>1%</td>
<td>(1.15) [1 + (1%)] – 1 = 16.15%</td>
</tr>
<tr>
<td>3%</td>
<td>(1.15) [1 + (3%)] – 1 = 18.45%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possible % Change in the Canadian Dollar</th>
<th>Effective Yield Based on the % Change in the Canadian Dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1%</td>
<td>(1.13) [1 + (1%)] – 1 = 14.13%</td>
</tr>
<tr>
<td>4%</td>
<td>(1.13) [1 + (4%)] – 1 = 17.52%</td>
</tr>
<tr>
<td>6%</td>
<td>(1.13) [1 + (6%)] – 1 = 19.78%</td>
</tr>
</tbody>
</table>
### Possible Joint Effective Yield

<table>
<thead>
<tr>
<th>SS</th>
<th>CS</th>
<th>Joint Probability</th>
<th>Computation of Effective Yield of Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.7%</td>
<td>14.13%</td>
<td>(20%)(50%) = 10%</td>
<td>.3(12.7%) + .7(14.13%) = 3.701%</td>
</tr>
<tr>
<td>12.7</td>
<td>17.52</td>
<td>(20%)(40%) = 8%</td>
<td>.3(12.7%) + .7(17.52%) = 16.074%</td>
</tr>
<tr>
<td>12.7</td>
<td>19.78</td>
<td>(20%)(10%) = 2%</td>
<td>.3(12.7%) + .7(19.78%) = 17.656%</td>
</tr>
<tr>
<td>16.15</td>
<td>14.13</td>
<td>(60%)(50%) = 30%</td>
<td>.3(16.15%) + .7(14.13%) = 14.736%</td>
</tr>
<tr>
<td>16.15</td>
<td>17.52</td>
<td>(60%)(40%) = 24%</td>
<td>.3(16.15%) + .7(17.52%) = 17.109%</td>
</tr>
<tr>
<td>16.15</td>
<td>19.78</td>
<td>(60%)(10%) = 6%</td>
<td>.3(16.15%) + .7(19.78%) = 18.691%</td>
</tr>
<tr>
<td>18.45</td>
<td>14.13</td>
<td>(20%)(50%) = 10%</td>
<td>.3(18.45%) + .7(14.13%) = 15.426%</td>
</tr>
<tr>
<td>18.45</td>
<td>17.52</td>
<td>(20%)(40%) = 8%</td>
<td>.3(18.45%) + .7(17.52%) = 17.799%</td>
</tr>
<tr>
<td>18.45</td>
<td>19.78</td>
<td>(20%)(10%) = 2%</td>
<td>.3(18.45%) + .7(19.78%) = 19.381%</td>
</tr>
</tbody>
</table>

There is a 0% chance that the portfolio will generate a lower return than a U.S. investment (determined by the table above).

### Solution to Continuing Case Problem: Blades, Inc.

1. There is a tradeoff between the higher interest rates in Thailand and the delayed conversion of baht into dollars. Explain what this means.

   **ANSWER:** If the net baht-denominated cash flows are converted into dollars today, Blades is not subject to the expected depreciation of the baht, which would result in the conversion of the baht into fewer dollars. However, if the baht are converted into dollars today, they would be invested in the United States at an interest rate of only 8 percent versus the 15 percent interest rate available in Thailand.

2. If the net baht received from the Thailand subsidiary are invested in Thailand, how will U.S. operations be affected?

   **ANSWER:** If the cash flows generated in Thailand are invested in Thailand, then Blades will have to borrow additional funds in the U.S. at an interest rate of 10 percent in order to support its U.S. operations. Furthermore, Blades will not be able to invest some of the remitted funds in the U.S. at an interest rate of 8 percent. If the baht will depreciate by 5 percent over the next year as is currently anticipated, then the Thai investment will render a yield of roughly 9.25 percent ([1.15 × 0.95] – 1).

3. Construct a spreadsheet that compares the cash flows resulting from two plans. Under the first plan, net baht-denominated cash flows (received today) will be invested in Thailand at 15 percent for a one-year period, after which the baht will be converted to dollars. Under the second plan, net baht-denominated cash flows are converted to dollars immediately and 60 percent of the funds will be used to support U.S. operations, while 40 percent are invested in the U.S. for one year at 8 percent. Which plan is superior given the expectation of the baht’s value in one year?
ANSWER: (See spreadsheet attached.) The cash flow generated in one year if the funds are invested in Thailand exceed the cash flows generated if the funds are remitted back to the U.S. today and invested for one year at 8 percent by $1,742. Thus, it appears that Blades should invest the funds in Thailand for one year and borrow the amount necessary to support its U.S. operations in the U.S. at an interest rate of 10 percent.

Plan 1—Invest Funds in Thailand

Calculation of baht-denominated revenues:
Price per pair of “Speedos” THB 5,000
× Pairs of “Speedos” 120,000
= Baht-denominated revenues THB 600,000,000

Repayment of baht-denominated loan:
Principal THB 420,000,000
+ Interest (420,000,000 × .06) THB 25,200,000
= Baht-denominated outflow THB 445,200,000

Calculation of interest on U.S. dollar loan needed to support U.S. operations:
Dollar receipts if baht were remitted now:
Net baht-denominated cash flows available (600,000,000 – 445,200,000) THB 154,800,000
Spot rate of baht $ 0.0225
Amount of dollars received if baht were converted today $ 3,483,000
Amount of dollar to be borrowed because funds are not converted today $ 2,089,800
($3,483,000 × 60%)
Interest paid on U.S. dollar loan ($2,089,800 × 10%) $ 208,980

Calculation of dollar receipts due to conversion of baht into dollars in one year:
Net baht-denominated cash flows available (600,000,000 – 445,200,000) THB 154,800,000
Interest earned on baht over a one-year period (15%) THB 23,220,000
Baht to be converted in one year THB 178,020,000
× Expected spot rate of baht in one year ($0.0225 × 0.95) $ 0.021375
= Expected dollar receipts in one year $ 3,805,178
Less: Interest paid on U.S. dollar loan $ 208,980
= Net dollar receipts in one year $ 3,596,198

Plan 2—Convert Funds Immediately

Calculation of baht-denominated revenues:
Price per pair of “Speedos” THB 5,000
× Pairs of “Speedos” 120,000
= Baht-denominated revenues THB 600,000,000

Repayment of baht-denominated loan:
Principal THB 420,000,000
+ Interest (420,000,000 × .06) THB 25,200,000
= Baht-denominated outflow THB 445,200,000
Calculation of dollar receipts due to conversion of baht into dollars:

Net baht-denominated cash flows available \((600,000,000 - 445,200,000)\)  THB 154,800,000

\(\times\) Spot rate of baht now  $ 0.0225

= Dollar receipts now  $ 3,483,000

Amount of dollars invested in the U.S. \((3,483,000 \times 40\%)\)  $ 1,393,200

Interest earned on dollar investment in the U.S. \((1,393,200 \times 8\%)\)  $ 111,456

= Dollar receipts in one year  $ 3,594,456

Calculation of dollar difference between the two plans:

Plan 1  $ 3,596,198

Plan 2  $ 3,594,456

Dollar difference  $ 1,742

Solution to Supplemental Case: Islander Corporation

a. By using a spreadsheet format, the percentage changes in exchange rates can be easily computed for each scenario. Using these percentage changes along with the interest rates, the effective yield can be computed for each currency under each scenario. The effective yields are provided below for each scenario, along with the expected value of the effective yield (using the probabilities assigned to each scenario):

<table>
<thead>
<tr>
<th>Currency</th>
<th>Strong $ Scenario</th>
<th>Somewhat Stable $ Scenario</th>
<th>Weak $ Scenario</th>
<th>Expected Value of Effective Financing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian dollar</td>
<td>–0.56%</td>
<td>14.51%</td>
<td>28.07%</td>
<td>14.05%</td>
</tr>
<tr>
<td>British pound</td>
<td>4.56</td>
<td>14.48</td>
<td>21.10</td>
<td>13.49</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>9.71</td>
<td>9.71</td>
<td>17.45</td>
<td>12.03</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>–1.00</td>
<td>11.60</td>
<td>29.60</td>
<td>13.22</td>
</tr>
<tr>
<td>U.S. dollar</td>
<td>9.00</td>
<td>9.00</td>
<td>9.00</td>
<td>9.00</td>
</tr>
</tbody>
</table>

Based on the expected values of effective yields for the currencies, the optimal composition of each portfolio is disclosed in the following table:

<table>
<thead>
<tr>
<th>Type of Portfolio</th>
<th>Percentage of Funds Invested in:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A$</td>
</tr>
<tr>
<td>Risk neutral</td>
<td>100</td>
</tr>
<tr>
<td>Balanced</td>
<td>25</td>
</tr>
<tr>
<td>Conservative</td>
<td>10</td>
</tr>
<tr>
<td>Ultra-conservative</td>
<td>0</td>
</tr>
</tbody>
</table>

The effective yields for each portfolio can be determined on the spreadsheet by creating a compute statement that sums weighted effective yields based on the weights assigned above. These yields are disclosed as follows:
<table>
<thead>
<tr>
<th>Portfolio</th>
<th>Strong $ Scenario</th>
<th>Stable $ Scenario</th>
<th>Weak $ Scenario</th>
<th>Expected Value of Effective Financing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk neutral</td>
<td>−0.56%</td>
<td>14.15%</td>
<td>28.07%</td>
<td>14.05%</td>
</tr>
<tr>
<td>Balanced</td>
<td>3.18</td>
<td>12.58</td>
<td>24.06</td>
<td>13.20</td>
</tr>
<tr>
<td>Conservative</td>
<td>6.67</td>
<td>10.43</td>
<td>15.02</td>
<td>10.68</td>
</tr>
<tr>
<td>Ultra-conservative</td>
<td>9.00</td>
<td>9.00</td>
<td>9.00</td>
<td>9.00</td>
</tr>
</tbody>
</table>

**Small Business Dilemma**

**Cash Management at the Sports Exports Company**

1. If Jim invests the excess cash in U.S. Treasury bills, would this reduce the firm’s exposure to exchange rate risk?

   **ANSWER:** No. At the present time, the Sports Exports Company receives more pounds than it uses. If it converts the pounds into dollars to buy U.S. Treasury bills, it remains highly exposed to the exchange rate risk (because it is not offsetting the pound inflows with pound outflows).

2. Jim decided to use the excess cash to pay off the British loan. However, a friend advised him to invest the cash in British Treasury bills, stating that “the loan provides an offset to the pound receivables, so you would be better off investing in British Treasury bills than paying off the loan.” Is Jim’s friend correct? What should Jim do?

   **ANSWER:** Jim’s friend is incorrect. By investing in British Treasury bills, Jim would not be any less exposed to the future value of the British pound than if he pays off part of the British loan. Furthermore he would be earning the British Treasury bill rate on the cash, while paying 3 percentage points higher on the British loan. He would be better off paying off part of the loan.

**Part 5—Integrative Problem**

**Short-Term Asset and Liability Management**

Kent Company is a large U.S. firm with no international business. It has two branches within the U.S., an eastern branch and a western branch. Each branch presently makes investing or financing decisions independently, as if it was a separate entity. The East branch has excess cash of $15 million to invest for the next year. It can invest its funds in Treasury bills denominated in dollars or any of four foreign currencies. The only restriction enforced by the parent is that a maximum of $5 million can be invested or financed in any single foreign currency.

The western branch needs to borrow $15 million over one year to support its U.S. operations. It can borrow funds in any of these same currencies (although any foreign funds borrowed need to be converted to dollars to finance the U.S. operations). The only restriction enforced by the parent is that a maximum equivalent of $5 million can be borrowed in any single currency.
A large bank serving the international money market has offered Kent Company the following terms:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Annual Interest Rate on Deposits</th>
<th>Annual Interest Rate Charged on Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. dollar</td>
<td>6%</td>
<td>9%</td>
</tr>
<tr>
<td>Australian dollar</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>New Zealand dollar</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>8</td>
<td>11</td>
</tr>
</tbody>
</table>

The parent of Kent Company has created one-year forecasts of each currency (shown below) that can be used by the branches in making their investing or financing decisions:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Spot Exchange Rate</th>
<th>Forecasted Annual Percentage Change in Exchange Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian dollar</td>
<td>$.70</td>
<td>–4%</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>.80</td>
<td>–2</td>
</tr>
<tr>
<td>New Zealand dollar</td>
<td>.60</td>
<td>+3</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>.008</td>
<td>0</td>
</tr>
</tbody>
</table>

1. Determine the investment portfolio composition for Kent’s eastern branch that would maximize the expected effective yield, while satisfying the restriction imposed by the parent.

When accounting for the interest rate and forecasted exchange rates, the expected effective yields are listed below:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Expected Effective Yield on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. dollar</td>
<td>6.00%</td>
</tr>
<tr>
<td>Australian dollar</td>
<td>6.56</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>4.86</td>
</tr>
<tr>
<td>New Zealand dollar</td>
<td>12.27</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>8.00</td>
</tr>
</tbody>
</table>

ANSWER:

Given these expected effective yields, the investment should be allocated as follows:

$5 million invested in New Zealand dollars
$5 million invested in Japanese yen
$5 million invested in Australian dollars

2. What is the expected effective yield of the investment portfolio?

ANSWER: Based on 33.3% allocated to each of three currencies (NZ$, JY, A$), the portfolio’s expected effective yield is:
(33.3% × 12.27%) + (33.3% × 8.00%) + (33.3% × 6.56%)
= 4.086% + 2.554% + 2.18%
= 8.93%

3. Based on the expected effective yield for the portfolio and the initial investment amount of $15 million, determine the annual interest to be earned on the portfolio.

ANSWER: The expected interest earned is the portfolio’s expected effective yield times the initial investment, or:

8.93% × $15,000,000 = $1,339,500

4. Determine the financing portfolio composition for Kent’s western branch that would minimize the expected effective financing rate, while satisfying the restriction imposed by the parent.

When accounting for the interest rate and forecasted exchange rate, the expected effective financing rates are listed below:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Expected Effective Financing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. dollar</td>
<td>9.00%</td>
</tr>
<tr>
<td>Australian dollar</td>
<td>9.44</td>
</tr>
<tr>
<td>Canadian dollar</td>
<td>7.80</td>
</tr>
<tr>
<td>New Zealand dollar</td>
<td>15.36</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>11.00</td>
</tr>
</tbody>
</table>

ANSWER:

Given these expected financing rates, the financing should be allocated as follows:

The equivalent of $5 million borrowed in Canadian dollars.
The equivalent of $5 million borrowed in U.S. dollars.
The equivalent of $5 million borrowed in Australian dollars.

5. What is the expected effective financing rate of the total amount of funds borrowed?

ANSWER: Based on 33.3% financed with each of three currencies (C$, U.S.$, A$), the expected financing rate for the entire portfolio of funds borrowed is:

(33.3% × 7.80%) + (33.3% × 9.00%) + (33.3% × 9.44%)
= 2.60% + 3.00% + 3.14%
= 8.74%

6. Based on the expected effective financing rate for the portfolio and the total amount of $15 million borrowed, determine the expected loan repayment amount beyond the principal borrowed.

ANSWER: The expected loan repayment amount beyond the principal borrowed is the portfolio’s expected effective financing rate times the amount borrowed, or:

8.74% × $15,000,000 = $1,311,000
7. When the expected interest received by the eastern branch and paid by the western branch of Kent Company is consolidated, what is the net amount of interest received?

**ANSWER:**

\[
\text{Net} = \text{Interest received by East branch} - \text{Interest paid by West branch} \\
= 1,339,500 - 1,311,000 \\
= 28,500
\]

8. If the eastern branch and western branch worked together, the eastern branch could loan its $15 million to the western branch. Nevertheless, one could argue that the branches could not have taken advantage of interest rate differentials or expected exchange rate effects among currencies. Given the data provided in this example, would you have recommended that the two branches make their short-term investment or financing decisions independently, or should the eastern branch lend its excess cash to the western branch? Explain.

**ANSWER:** If one branch lends to another, the interest received by one branch will be exactly equal to the interest paid by the other. Yet, the expected interest received is $28,500 above the expected interest to be paid when each branch acts independently.

However, there is much exchange rate risk involved in the investing and financing in foreign currencies, especially when considering that $15 million was to be invested by one branch and another $15 million was to be borrowed by the other branch. Most firms would prefer that one branch lend to the other branch, even if the expected return is slightly lower. This strategy would avoid a substantial amount of exchange rate risk, especially because the firm did not have any international business that could offset foreign investment or financing positions.

**Discussion in the Board Room**

This exercise is intended to apply many of the key concepts 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 chapter. Instead, it focuses on broad financial issues to facilitate class discussion and simulate a board room discussion. It serves as a running case in which broad concepts from every chapter are applied to the same business throughout the school term. The exercise not only enables you to apply concepts to the real world, but also develops your intuitive and communication skills.

There are several alternative ways in which this exercise is used in a course.

1. Apply it on a chapter-by-chapter basis to ensure that the broad chapter concepts are understood before moving to the next chapter.
2. Use it to encourage online discussion for courses taught online.
3. Use it as a review just 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 that were 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, the 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 about concepts covered in the earlier chapters interact with decisions to be made in later chapters.

BACKGROUND

One of the best methods of learning broad concepts in this text is to put yourself in the place of an MNC manager or board member, and apply the concepts to make financial decisions. Board members do not normally make the decisions that are discussed here, but must have the conceptual skills to monitor the policies that are implemented by the MNC’s managers. Thus, they must frequently ask themselves what they would do if they were making the managerial decisions or setting corporate policies.

Consider the following business that you could easily create: a business that teaches individuals in a non-U.S. country to speak English. While this business is very basic, it still requires the same type of decisions faced by large MNCs. Assume that you initially establish this business in Mexico.

Details of Your Business. You live in the U.S. You invested $60,000 to establish a business of a language school called EE (Escuela de Engles) in Mexico City, Mexico. You hire local individuals in Mexico who can speak English and train others how to speak English. You have a small subsidiary in Mexico, which has an office and an attached classroom that you lease. Clients can come to your subsidiary for a 1-month structured course in English, taught by your employees. You advertise in the local newspapers to promote the teaching services offered by your business.

You also serve some individuals from Mexico who have taken English classes and want to come to the U.S. for a one-week intense course in which they can improve and practice their English and practice it. All revenue and expenses associated with your business are denominated in Mexican pesos. Most of the profits from the business in Mexico are sent to you by your subsidiary at the end of each month. While your expenses are somewhat stable, your revenue varies with the number of clients who sign up for the English-speaking courses in Mexico.

You only need to know this background so that you can answer the related questions that are asked about your business throughout the term. Answer each question as if you were serving on the board of your business or as a manager of the business. The questions in the early chapters force you to assess the firm’s opportunities and exposure, while the later chapters force you to offer your input on potential strategies that your business may 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 that limits the potential agency problems?
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d. Assume that you have been approached by a competitor in Mexico to engage in a joint venture. The competitor would offer the classroom facilities (so that you would not need to rent classroom facilities), while your employees would provide the teaching. You would split the profits with this business. 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.

ANSWER:

a. Agency problems could exist, because the employees of your business in Mexico may not make an effort to achieve growth in the business, or to perform their jobs properly. It may be difficult for you to monitor the business from a U.S. location.

b. You could require that the employees of the business in Mexico provide online reporting of revenue and expenses on a daily or weekly basis to you by email.

c. You could compensate your employees according to the annual profits generated there. In this way, the employees may have an incentive to increase profits.

d. Your cost is reduced. Your potential return is reduced because you are sharing your profits. Your risk is reduced because you would have a smaller amount of foreign currency cash flows that would be converted into dollars.

e. If the peso weakens, the profits remitted to the U.S. parent would convert to a smaller amount of dollars.

f. If any political situation causes friction between Mexico and the U.S., the demand for the service offered by your business would possibly decline.

Chapter 2

Your business provides CDs for free to customers who pay for the English courses that you offer in Mexico. You consider the idea of mass production of the CDs in the U.S., 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 not as effective without the teaching, but can 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. If you believe the Mexican government would 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 that would avoid the tariff.
ANSWER:

a. The demand may be affected by local inflation in Mexico. If local inflation is high, any CDs on learning English that are produced by local competitors may be subject to increased prices. This could encourage Mexico consumers to purchase your CDs. The national income level of Mexico may be relevant since it affects the ability of Mexican consumers to spend money. An increase in national income (adjusted for inflation) would possibly result in a higher demand. Government restrictions or taxes on imports from the U.S. could affect the demand for the CDs.

The value of the Mexican peso may influence the demand for CDs. If the peso strengthens against the dollar, it would likely result in a higher demand for your CDs, since the CDs are priced in dollars. If the peso weakens against the dollar, it would likely result in a lower demand for your CDs.

The exchange rate movements would likely have the largest effect. However, a large change in any of the other factors could also have a large impact. While exchange rates may adjust in a manner to partially offset a large change in the other factors (as will be explained throughout the text), the exchange rate may not immediately adjust to changes in these factors.

Beyond the factors listed in Chapter 2 of the text, another key factor is the general demand by Mexico consumers to learn the basics of the English language. In addition, the degree of competition is important. There are other local firms that have created their own CDs on learning the English language.

b. If you expect that the Mexican government will impose a significant tariff on the CDs, you could still execute the business idea by setting up a licensing agreement with a firm in Mexico. That is, you could provide the original CD and specifications on the copies to be made, and have the firm in Mexico produce and establish the CDs for you. Alternatively, your existing subsidiary in Mexico may be able to produce and distribute the CDs in Mexico. Under these conditions, you would probably price the CDs in pesos, which means that you would have more profits in pesos that would be remitted to the U.S. parent and would be exposed to exchange rate risk. Yet, even if the CDs were priced in dollars, you are exposed to risk because the demand for the CDs would likely decline if the peso declined against the dollar.

Chapter 3

Assuming that the business in Mexico grows, explain how financial markets could help to finance the growth of the business.

ANSWER:

The financial markets could provide short-term loans to cover short-term financing needs. They could provide medium-term loans to cover medium-term needs. The bond and stock markets are not likely to be available since they are used primarily by very large businesses.
**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 therefore to adversely affect your business.

**ANSWER:**

Any factors that could cause the Mexican peso to weaken would cause concern, given that your business periodically converts pesos into dollars. For example, higher Mexican inflation, or lower Mexican interest rates might cause you to worry. In addition, speculative flows out of Mexico may result in depreciation of the peso.

**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.

**ANSWER:**

You could sell Mexican peso futures to hedge the expected monthly profits in Mexican pesos that would have to be converted into dollars.

You could purchase Mexican peso put options to hedge the expected monthly profits in Mexican pesos that would have to be converted into dollars.

**Chapter 6**

a. Explain how your business would likely be affected (at least in the short run) if the central bank of Mexico intervened in the foreign exchange market by exchanging Mexican pesos for dollars in the foreign exchange market.

b. Explain how your business would likely be affected if the central bank of Mexico used indirect intervention by lowering Mexican interest rates (assume inflationary expectations have not changed).

**ANSWER:**

a. This form of direct intervention places downward pressure on the peso, which would adversely affect your business.

b. Lower interest rates would cause a reduced demand for interest-bearing securities denominated in pesos, place downward pressure on the peso and would adversely affect your business.
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 the forward or futures contracts to hedge your periodic profits in pesos that must be converted into dollars?

c. Do you think you would frequently hedge your exposure to Mexican pesos? Explain your answer.

ANSWER:

a. The forward rate will contain a discount, which means that the futures or forward contract will generate an amount of dollars that is less than today’s spot rate.

b. When hedging with the forward rate, you are locking in an exchange rate that may be substantially below today’s spot rate. Yet, you may still hedge if you are concerned that the future spot rate at the time you convert the peso into dollars will be less than the prevailing forward rate today.

c. Whether you think you would hedge frequently or not, you should recognize the tradeoff involved. You either have to accept a large discount when hedging with a forward contract or you have to remain exposed to exchange rate risk. You might also consider using put options to hedge, but this will be even more costly than a forward contract to lock in the same exchange rate (although you have flexibility to let the contract expire without exercising it) because you have to pay a premium to purchase the put option.

Chapter 8

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

a. What does this imply about the inflation differential (Mexico inflation minus U.S. inflation), assuming that the peso interest rate is the same in both countries? Does this imply that the Mexican peso will appreciate or depreciate? Explain.

b. It may be argued that the high Mexican interest rate 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 (a). If you believe that the high Mexican interest rate does not entice U.S. investors, explain why.

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 would be adversely affected? In reality, purchasing power parity does not hold consistently. Assume that the inflation differential (Mexico inflation minus U.S. inflation) is not fully offset by the exchange rate movement of the peso. Would this benefit or hurt your business? Now assume that the
inflation differential is more than offset by the exchange rate movement of the peso. Would this benefit or hurt your business?

d. Assume that the nominal interest rate in Mexico is presently much higher than the interest rate in the U.S., which is due to a high rate of expected inflation in Mexico. You consider implementing a marketing campaign in which you would hire a local firm to promote your business, but you would have to borrow funds to finance this 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 U.S., 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?

ANSWER:

a. A higher nominal interest rate in Mexico implies a higher level of expected inflation. According to purchasing power parity, the Mexican peso will depreciate.

b. The differential should be a positive number, meaning higher Mexican inflation. Based on PPP, the higher Mexican inflation should result in the depreciation of the Mexican peso. Your business cash flows should not be affected if PPP holds. The higher inflation should boost your revenue and expenses by the same amount, and therefore increase your profits in pesos. This increase in profits due to inflation is offset by a reduction in the value of the peso.

If the inflation differential is not fully offset, the benefit to your cash flows from inflation is not fully offset by the depreciation of the peso. If the inflation differential is more than offset, the benefit to your cash flows from inflation is more than fully offset by the depreciation of the peso.

c. U.S. investors would only attempt to capitalize on the high Mexican interest rates if they believed that they would earn a higher return than U.S. interest rates after accounting for the exchange rate movement. If the exchange rate of the Mexican peso declines substantially over the investment period, the investment in the Mexican securities will generate low yields to U.S. investors. If U.S. investors sense high inflation in Mexico, they will be concerned about the possible depreciation of the peso, and will not invest in Mexican money market securities. Therefore, the high nominal interest rate in Mexico may cause the peso to weaken (through the signal about expected inflation) rather than strengthen.

d. The consultant is ignoring the fact that the high nominal interest rate reflects a high rate of expected inflation. Thus, while your funds accumulate interest, the prices in Mexico are rising rapidly. The price that you would need to pay for the marketing campaign may rise by a higher rate than the rate of interest earned on your funds. Delaying the campaign should not be motivated by a high nominal interest rate in Mexico.
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. Do you think that today’s forward rate or today’s spot rate of the peso would be a better forecast of the future spot rate of the peso?

ANSWER:

a. The forward rate contains a discount. Thus, if the forward rate is used to forecast the peso in the future, it implies a lower spot rate in the future than the prevailing spot rate today (depreciation of the Mexican peso).

b. The larger the interest rate differential, the larger is the forward rate discount, and the larger is the expected degree of depreciation in the Mexican peso that is implied when using the forward rate to forecast the future spot rate.

c. The forward rate should be a better forecast because it captures the potential adverse effects of the high inflation in Mexico. Conversely, the spot rate as a forecast suggests no expected change in the value of the peso.

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 only occur in response to a high level of Mexican inflation, and such high inflation should increase your profits. If this theory holds precisely, your cash flows would not really be exposed. Should you be concerned about your exposure, or not? Explain.

b. If you shift your invoicing policy to be only in dollars, how will your transaction exposure be affected?

c. Why might the demand for your business change if you shift your invoice policy? What are the implications for economic exposure?

ANSWER:

a. You should be concerned about your exposure, because you can not assume that the inflation rate in Mexico would perfectly offset the depreciation of the Mexican peso. In addition, even if the inflation rate in Mexico perfectly offsets the depreciation of the peso, that does not guarantee that your business will achieve inflated profits that match the country’s rate of inflation. For example, inflation in Mexico could be 30 percent this year, and your rent and
labor cost may move in line with inflation. But it is possible that you can not increase the price of your English course because of new competitors that are pricing their course very low.

b. You are still subject to transaction exposure, but of a different type. Your business will now be affected by exchange rate movements in the opposite direction. You would still have some cash outflows (expenses for rent and labor costs) in Mexican pesos, but zero revenue in pesos. Your business would be adversely affected by appreciation of the peso.

c. The demand for your business would likely be affected if you shift the invoice policy. If the peso weakens, your clients would have to pay more pesos to obtain the dollars needed for your service. Therefore, they may reduce their demand for your services when the peso weakens. The point is that shifting the invoice policy does not necessarily insulate your business against exchange rate risk. There is still economic exposure even if you eliminated the transaction exposure.

Chapter 11

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

a. Assuming that interest rate parity exists, do you think hedging with a forward rate would be beneficial if the spot rate of the Mexican peso was expected to decline slightly over time?

b. Would hedging with a money market hedge be beneficial if the spot rate of the Mexican peso was expected to decline slightly over time (assume zero transaction costs)? Explain.

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, there is a lack of long-term currency futures and options on the Mexican pesos. A consultant suggests that this is no problem because you can hedge your position a quarter at a time. In other words, the profits that you remit at any point in the future can be hedged by taking a currency futures or options position three months or so before that time. Thus, while the consultant recognizes that the peso could weaken substantially in the long-term, he sees no reason why you should worry about it as long as you continually create a short-term hedge. Do you agree?

ANSWER:

a. Based on interest rate parity, the forward rate of the peso should have a large discount. Therefore, hedging would not be beneficial if the peso is expected to depreciate slightly because the future spot rate would be valued higher than the prevailing forward rate today.

b. Hedging with a money market hedge would involve borrowing pesos and converting the pesos into dollars. The borrowing rate of the peso would be much higher than the investment rate in dollars because Mexican interest rates are higher than U.S. interest rates. Hedging would not be beneficial. If you do not hedge, the peso is expected to just depreciate slightly. If you hedge, you have to borrow at a much higher rate than the rate earned on your money market investment, so this cost to you makes the hedge undesirable.
c. Currency futures or options may not be available in the size that fits the profit that you wish to remit periodically. In addition, your future profit is not certain in any period, so even if there were futures or options contracts that could fit any size, you would not know the exact size to select.

d. The consultant is wrong. If the peso depreciates substantially over time, the amount of dollars that you will receive from continuous short-term hedging will decline over time. If the peso declines consistently over time, then the spot rate at the beginning of each quarter will be lower. Assume that the interest rate differential between Mexico and the U.S. stays about the same over time. Then the forward rate will decline at the beginning of each quarter in line with the decline in the spot rate. Even if the forward discount changed over time, the forward rate is still highly influenced by the prevailing spot rate at any point in time. Thus, if the spot rate continually declines, the forward rate will as well, which means that a given profit denominated in the pesos will convert into less dollars in each period.

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?

ANSWER:

a. The profits earned by your business in Mexico must be translated into dollars for reporting purposes. If the peso depreciates over a period, the profits earned by your business in pesos will be translated into a smaller amount of dollar profits.

b. You could hedge this translation exposure by selling forward or futures contracts on pesos. If the pesos depreciates, you would realize a gain on your forward or futures contracts, which could offset the adverse effect on your income statement.

c. Since you have a small business, and do not have to worry about satisfying shareholders, you would probably not even consider hedging your translation exposure.

Chapter 13

Assume that you wanted to expand your Learning English business to other non-U.S. countries where some individuals may want 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 was spread across 3 or 4 countries.

d. What factors affect the probability of these conditions occurring? (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 of these conditions occurring?

f. Consider that the prevailing service you offer is teaching individuals in Mexico to speak English, and your business has already created some supplemental pamphlets and CDs that translate common Spanish terms into English. How could you expand your business in a manner that may 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 if it would forgo diversification benefits? Do you think economies of scale would be more important or less important than diversification for your business?

h. Is there any way to achieve economies of scale and yet still achieve diversification benefits?

**ANSWER:**

a. First, you must be capable of training the individuals, so it would be easier if you already knew the language. Regarding the motives mentioned in the text, a key factor is that there must be a demand for your service. In addition, you want to be in a country where you may have some monopoly power, or at least believe that you can provide a better service than your competitors. For example, it might be difficult to compete in a country it its government offered a subsidized program for its citizens to learn English. Another important factor is the diversification benefits you can achieve, which will vary per country.

b. Many people in Montreal speak English already, so there may not be sufficient demand for the service. You would achieve diversification, so that if for any reason the business in Mexico declined due to weak economic conditions (in which individuals can no longer afford to demand your services), or political conditions, the business may still be strong in other non-U.S. countries.

c. Your total business would be weak if all the countries in which you did business experienced weak economic conditions simultaneously.

d. The probability that all countries where you do business experiencing weak economic conditions simultaneously is affected by the correlation of their economies over time.

e. Historical data on the growth in gross domestic product over time could be used to assess the correlation of economies over time.

f. You could capitalize on economies of scale by expanding your business within Mexico. You may even benefit from your existing reputation in Mexico, as it should be easier to attract customers who feel sure that your business has already been successful. In a new country, your business would not have any name recognition.
g. You would have the weigh the costs and benefits. It would likely be much easier for you to expand your business in Mexico, and you may be willing to give up diversification benefits so that you can more easily expand. Also, it should be easier for you to train new employees. You already have a system that works in Mexico and you have a reputation, which are beneficial.

h. You may be able to still achieve diversification benefits by expanding to a different city in Mexico. Your existing business is influenced by the income of individuals in one Mexico City, while your new business would be influenced by the income of individuals in another city. The income levels of the two cities do not always change in the same manner, although there is probably some degree of correlation.

Chapter 14

a. Review the different items that are used in the multinational capital budgeting example (Spartan Inc.). Describe the items that would be included on a spreadsheet if you were to conduct a multinational capital budgeting analysis of investing dollars to expand your existing language business in a different location.

b. Assume that you recognize your limitations in 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 NPV and make a decision about whether to accept or reject the project.

c. Now assume that there is also much uncertainty about the demand for your service by individuals. Explain how you can attempt to incorporate this uncertainty along with the uncertainty of exchange rate movements so that you can make 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?

ANSWER:

a. Demand and price would be used to estimate total revenue. There may be a variable cost per unit if you provide a CD, pamphlets, and other supplemental materials. There would likely be an annual lease expense from leasing a classroom. The depreciation expense would exist if you purchase office equipment or a building. The host government tax will likely exist, and is needed to derive the after-tax earnings and net cash flows to the subsidiary. A withholding tax may apply. A salvage value can be included, assuming that someday the business could be sold. The business has established a system and a reputation for teaching English and therefore should have some salvage value. The initial investment should also be included to derive the net present value.

b. You can use sensitivity analysis by deriving a net present value for each exchange rate scenario. Then you can assess the distribution of NPVs. This distribution can indicate the potential that the project will generate a positive NPV.
c. You can apply sensitivity analysis by allowing for possible outcomes for the demand as well as the exchange rate movements. Then you can assess the distribution of NPVs. This distribution can indicate the potential that the project will generate a positive NPV.

d. Your required rate of return should represent the return that you require to invest in the project. Thus, the first step is to determine what rate you would earn if you could invest the funds in a dollar-denominated risk-free asset over the same time period. Then, you need to add a risk premium on to the risk-free rate. The premium should reflect the extra return you would need to pursue this project. You have some idea of the risk that is involved in the project based on the degree of uncertainty surrounding the demand for your service and the exchange rate.

Chapter 15

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

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 Mexico risk-free rate as a base when deriving your required rate of return? Why?

b. Another Mexican firm called Vascon also considers the purchase of 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 a target. You both compare the present value of the target’s cash flows to the purchase price of the target. 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 net present value for Vascon. How could you determine that the acquisition of Fernand is feasible, while Vascon determines that the acquisition of Fernand is not feasible?

d. Repeat Question c, except reverse the assumptions. Based on your analysis, Fernand would generate a negative net present value for your firm. Based on Vascon’s analysis, Fernand would generate a positive net present value for Vascon. How could you determine that the acquisition of Fernand is not feasible, while Vascon determines that the acquisition of Fernand is feasible?

ANSWER:

a. You should use a U.S. risk-free rate as a base since you are using U.S. funds to make the investment.

b. Vascon should use the Mexican risk-free rate as a base since it would use Mexican pesos to make the investment. Its required rate of return may be higher because the risk-free rate in Mexico is higher. Vascon’s required rate of return could be lower if the risk-free rate in Mexico is lower (this is unlikely). It could also be lower if the risk-free rate was not much
higher than the U.S. risk-free rate, but if your risk assessment of the target was higher because of the exchange rate risk (Vascon is not subject to exchange rate risk since its home base is Mexico).

c. Fernand may be more feasible to you than to Vascon if your required rate of return is lower than Vascon’s, or if the dollar cash flows to you are expected to be favorably affected by appreciation of the Mexican peso over time. The expected cash flows of Fernand would not be converted by Vascon into dollars.

d. Fernand may be less feasible to you than to Vascon if your required rate of return is higher than Vascon’s, or if the dollar cash flows to you are expected to be adversely affected by depreciation of the Mexican peso over time. The expected cash flows of Fernand would not be converted by Vascon into dollars.

Chapter 16

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

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

c. Assume there is an upcoming election in Mexico that may result in a complete change in government.

d. Explain why such an election can have significant effects on your cash flows.

ANSWER:

a. If the attitude of consumers in Mexico toward the U.S. or other English-speaking countries deteriorates, there may be less travel by Mexico’s people to these countries. Thus, there may be less interest in learning the English language.

b. If the relations between the U.S. and Mexico deteriorate, the host government may impose higher taxes on profits earned by U.S. businesses in Mexico, or may impose fund blockages.

c. Terrorism can reduce travel between all countries, and therefore reduce the interest in learning another language.

d. A change in government can affect the cash flows of your business in the following ways. First, it may change the tax laws as applied to U.S. businesses in Mexico. Second, it may change the laws on fund blockages. Third, it may change its relations with the U.S., which could affect the demand by the local people for courses in English.
Chapter 17

a. Assume 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 the interest rates in Mexico are higher than in the U.S. Yet, if you used mostly U.S. debt financing, you are more exposed to exchange rate risk. Explain why.

b. If you pursue a new project in Mexico, you want to assess the feasibility of the project if you use mostly U.S. debt financing, versus mostly Mexican debt financing. Yet, 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 would 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 circumvents the high cost of capital in Mexico because it uses equity financing instead of debt financing. Is the consultant correct?

ANSWER:

a. All of your revenue is denominated in Mexican pesos, while your debt costs would be denominated in dollars. This results in a larger amount of Mexican peso cash flows that have to be converted and are subject to possible depreciation of the pesos.

b. You can use capital budgeting in which you assess the return on your equity investment. The financing expenses can be counted as cash outflows. In either case, you pay your labor cost and rent cost in Mexican pesos in each month (or whatever) before you convert the Mexican peso cash flows into dollars. However, the difference is the debt payment. If you use Mexican peso financing, you will have paid your interest on debt financing before you convert Mexican peso cash flows to dollars. Conversely, if you use dollar debt financing, you will convert Mexico peso cash flows into dollars before making your debt payments. The capital budgeting method captures the difference in the cash flows that are exposed to exchange rate movements. Thus, you can derive a net present value for each alternative financing method, and select the method that provides the highest NPV. You could consider various exchange rate scenarios that might occur, and conduct the comparison of NPVs based on various scenarios.

c. The consultant is wrong. The cost of equity in Mexico is affected by the risk-free interest rate in Mexico. Mexican investors will only invest in a risky project if the project pays what they could earn risk-free plus a risk premium. Thus, if you attempt to attract equity financing in Mexico when interest rates there are high, you will incur a high cost of equity on the funds obtained. This means that you will have to sell a portion of your business at a relatively low price to entice Mexican investors to purchase your business.
Chapter 18

a. Recall from the previous chapter that your business is considering expansion within Mexico. Recall that 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 the interest rates in Mexico are higher than in the U.S. Today, you receive credit offers from different banks. You can either obtain a fixed-rate loan in the U.S. at 8 percent for the life of this project, or a floating-rate loan (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 in your explanation how you would account for the uncertainty of future interest rate movements of the Mexican debt.

ANSWER:

a. You can use capital budgeting in which you assess the return on your equity investment. The financing expenses can be counted as cash outflows. In either case, you pay your labor cost and rent cost in Mexican pesos in each month (or whatever) before you convert the Mexican peso cash flows into dollars. However, the difference is the debt payment. If you use Mexican peso financing, you will have paid your interest on debt financing before you convert Mexican peso cash flows to dollars. Conversely, if you use dollar debt financing, you will convert Mexican peso cash flows into dollars before making your debt payments. The capital budgeting method captures the difference in the cash flows that are exposed to exchange rate movements. The capital budgeting method also allows you to insert estimates for whatever you think the interest rate will be in Mexico in each year. That is, if you think the rate will increase by one percentage point each year, you can incorporate that in your estimate of the debt payment. That payment will be included within your estimate of Mexican peso cash outflows. If you want to allow for various interest rate scenarios, you can apply sensitivity analysis in which you derive a different net present value for each interest rate scenario assumed for the Mexican debt financing.

Chapter 19

Your business provides CDs on learning English that compliment the teaching that is provided by your employees based 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 not as effective without the teaching, but can be useful to individuals who want to learn the basics of the English language. 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.

ANSWER:

You can ask a bank to issue a letter of credit, which agrees to pay you when the retail store receives the CDs. In this way, the payment is guaranteed as long as the bank is capable of making the payment.

Chapter 20

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

a. Would 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 whether you should borrow dollars or Mexican pesos?

ANSWER:

a. You are more exposed to exchange rate risk if you borrow dollars, because you would need to remit more Mexican pesos cash flows to the U.S., which have to be converted to dollars.

b. You can determine whether your present value of dollar cash flows after making the financing payments will be higher if you use dollar financing or Mexican peso financing. The key factor is the expected movement in the value of the Mexican peso. If the peso remains somewhat stable, your cost of financing with dollars would be cheaper. However, if the peso depreciates substantially over this year, your cost of financing with dollars would be more expensive.

Chapter 21

Assume that decide not to implement the marketing campaign that you considered in the previous chapter. You may pursue it next year instead and will attempt to invest some of your profits this year in money market investments, and then use this money to cover the campaign next year. You can retain your profits earned this year by investing them in a Mexican bank where interest rates are high. Alternatively, 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, so that you can pay for the marketing campaign. Explain how you could decide between these two alternatives.

ANSWER:

To measure the funds that accumulate in the Mexican peso account: Estimate the amount of profits that you would invest in the Mexican peso account, and determine the amount by which the funds would accumulate based on the interest rate.

To measure the funds that accumulate in the Mexican peso account: Estimate the amount of dollars that you would invest in the U.S. account, which requires conversion of the Mexican peso profits into dollars. Then estimate the amount by which the funds would accumulate based on the dollar interest rate. Then, estimate the conversion of these funds into Mexican pesos at the end of the year in order to pay for the marketing campaign. There is more uncertainty surrounding this alternative because of the uncertainty about future exchange rate movements.