Chapter 12

Managing Economic Exposure and Translation Exposure

Lecture Outline

Economic Exposure
  Use of Projected Cash Flows to Assess Economic Exposure
  How Restructuring Can Reduce Economic Exposure
  Issues Involved in the Restructuring Decision

A Case Study in Hedging Economic Exposure
  Savor Co.’s Dilemma
  Assessment of Economic Exposure
  Assessment of Each Unit’s Exposure
  Identifying the Source of the Unit’s Exposure
  Possible Strategies to Hedge Economic Exposure
  Savor’s Hedging Solution
  Limitations of Savor’s Optimal Hedging Strategy

Hedging Exposure to Fixed Assets

Managing Translation Exposure
  Using Forward Contracts to Hedge Translation Exposure
  Limitations of Hedging Translation Exposure
Chapter Theme

This chapter shows how an MNC can restructure its operations to reduce economic exposure. Such a strategy is related to the firm’s long-run operations, unlike transaction exposure.

This chapter also briefly describes how translation exposure can be reduced. Yet, the limitations of hedging translation exposure should receive as much attention as the hedging strategy itself.

Topics to Stimulate Class Discussion

1. Identify the economic exposure of a small business that you are aware of.

2. Even if you believe translation exposure is relevant, is it worthwhile to hedge it? Explain.

3. Compare the degree of translation exposure between a small firm whose foreign subsidiary generates 50% of its business versus a huge exporting company with no subsidiaries.

POINT/COUNTER-POINT:
Can an MNC Reduce the Impact of Translation Exposure by Communicating?

POINT: Yes. Investors commonly use earnings to derive an MNC’s expected future cash flows. Investors do not necessarily recognize how an MNC’s translation exposure could distort their estimates of the MNC’s future cash flows. Therefore, the MNC could clearly communicate in its annual report and elsewhere how the earnings were affected by translation gains and losses in any period. If investors have this information, they will not overreact to earnings changes that are primarily attributed to translation exposure.

COUNTER-POINT: No. Investors focus on the bottom line and should ignore any communication regarding the translation exposure. Moreover, they may believe that translation exposure should be accounted for anyway. If foreign earnings are reduced because of a weak currency, the earnings may continue to be weak if the currency remains weak.

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: Both points have some merit. Some investors may believe that the bottom line earnings are the key, which implies that there should not be an adjustment for translation exposure. This supports the counter-point. However, an MNC should provide investors with much detail about translation exposure, and let investors use the information as they wish. Some investors may adjust the cash flow estimates once they are aware of the translation exposure. Their valuation could be affected by information pertaining to the translation exposure, because they may want to remove any earnings effects due to translation exposure. MNCs can not dictate the valuation processes used by investors, but they can facilitate the processes by providing all the information about translation exposure that may be desired by some investors. Many MNCs do not provide much information, which forces investors to try to guess at the degree of translation exposure.
Answers to End of Chapter Questions

1. **Reducing Economic Exposure.** Baltimore, Inc., is a U.S.-based MNC that obtains 10 percent of its supplies from European manufacturers. Sixty percent of its revenues are due to exports to Europe, where its product is invoiced in euros. Explain how Baltimore can attempt to reduce its economic exposure to exchange rate fluctuations in the euro.

   ANSWER: Baltimore Inc. could reduce its economic exposure by shifting some of its U.S. expenses to Europe. This may involve shifting its sources of materials or even part of its production process to Europe. It could also reduce its European revenue but this is probably not desirable.

2. **Reducing Economic Exposure.** UVA Co. is a U.S.-based MNC that obtains 40 percent of its foreign supplies from Thailand. It also borrows Thailand’s currency (the baht) from Thai banks and converts the baht to dollars to support U.S. operations. It currently receives about 10 percent of its revenue from Thai customers. Its sales to Thai customers are denominated in baht. Explain how UVA Co. can reduce its economic exposure to exchange rate fluctuations.

   ANSWER: UVA Company has periodic outflow payments in Thai baht that are substantially more than its Thai baht inflow payments. UVA could reduce its economic exposure by attempting to increase sales in Thailand, which would generate additional Thai baht inflows.

3. **Reducing Economic Exposure.** Albany Corp. is a U.S.-based MNC that has a large government contract with Australia. The contract will continue for several years and generate more than half of Albany’s total sales volume. The Australian government pays Albany in Australian dollars. About 10 percent of Albany’s operating expenses are in Australian dollars; all other expenses are in U.S. dollars. Explain how Albany Corp. can reduce its economic exposure to exchange rate fluctuations.

   ANSWER: Albany may ask the Australian government to provide payment in U.S. dollars. Alternatively, Albany could attempt to shift some of its expenses to Australia, by either purchasing Australian supplies or shifting part of the production process to Australia. These strategies will increase Australian dollar outflows, so that the Australian dollar inflows and outflows are more balanced.

4. **Tradeoffs When Reducing Economic Exposure.** When an MNC restructures its operations to reduce its economic exposure, it may sometimes forgo economies of scale. Explain.

   ANSWER: An MNC may attempt to use several production plants. The production could be increased in countries whose home currency is weak (since demand for products in those countries would be higher). However, to have such flexibility requires that production plants are scattered. Consequently, the firm forgoes the economies of scale that may be achieved by establishing one large production plant.

5. **Exchange Rate Effects on Earnings.** Explain how a U.S.-based MNC’s consolidated earnings are affected when foreign currencies depreciate.

   ANSWER: A U.S.-based MNC’s consolidated earnings are reduced by the translation effect when foreign currencies depreciate. Foreign earnings are translated at the average exchange rate over the fiscal year, so low values of foreign currencies result in a low level of consolidated earnings.
6. **Hedging Translation Exposure.** Explain how a firm can hedge its translation exposure.

**ANSWER:** A firm can hedge translation exposure by selling forward the currency of the firm’s foreign subsidiary. Thus, if the foreign currency depreciates, the translation loss will be somewhat offset by the gain on the short position created by the forward contract.

7. **Limitations of Hedging Translation Exposure.** Bartunek Co. is a U.S.-based MNC that has European subsidiaries and wants to hedge its translation exposure to fluctuations in the euro’s value. Explain some limitations when it hedges translation exposure.

**ANSWER:** The limitations are as follows. First, Bartunek Inc. needs to forecast its foreign subsidiary earnings and may forecast inaccurately. Thus, it will hedge against a level of foreign earnings that differs from actual foreign earnings.

Second, forward contracts are not available for all currencies, although Bartunek will not be affected by this limitation since forward contracts in euros are available.

Third, translation losses are not tax-deductible, while gains on forward contracts used to hedge translation exposure are taxed.

Fourth, transaction exposure may be increased as a result of hedging translation exposure.

8. **Effective Hedging of Translation Exposure.** Would a more established MNC or a less established MNC be better able to effectively hedge its given level of translation exposure? Why?

**ANSWER:** This question is intended to stimulate class discussion. There is no perfect answer. One opinion is that a more established MNC can better predict its level of foreign earnings, because its foreign business is stabilized. Therefore, it is more able to hedge the appropriate amount of foreign earnings.

9. **Comparing Degrees of Economic Exposure.** Carlton Co. and Palmer, Inc., are U.S.-based MNCs with subsidiaries in Mexico that distribute medical supplies (produced in the United States) to customers throughout Latin America. Both subsidiaries purchase the products at cost and sell the products at 90 percent markup. The other operating costs of the subsidiaries are very low. Carlton Co. has a research and development center in the United States that focuses on improving its medical technology. Palmer, Inc., has a similar center based in Mexico. The parent of each firm subsidizes its respective research and development center on an annual basis. Which firm is subject to a higher degree of economic exposure? Explain.

**ANSWER:** Carlton Company is subject to a higher degree of economic exposure because it does not have much offsetting cost in Mexico. Palmer Inc. incurs costs in Mexico for its research and development center.
10. **Comparing Degrees of Translation Exposure.** Nelson Co. is a U.S. firm with annual export sales to Singapore of about S$800 million. Its main competitor is Mez Co., also based in the United States, with a subsidiary in Singapore that generates about S$800 million in annual sales. Any earnings generated by the subsidiary are reinvested to support its operations. Based on the information provided, which firm is subject to a higher degree of translation exposure? Explain.

**ANSWER:** Since Nelson Company does not have any subsidiaries, its exposure to exchange rate fluctuations would not be classified as translation exposure. Conversely, Mez Company is subject to translation exposure.

**Advanced Questions**

11. **Managing Economic Exposure.** St. Paul Co. does business in the United States and New Zealand. In attempting to assess its economic exposure, it compiled the following information.

   a. St. Paul’s U.S. sales are somewhat affected by the value of the New Zealand dollar (NZ$), because it faces competition from New Zealand exporters. It forecasts the U.S. sales based on the following three exchange rate scenarios:

<table>
<thead>
<tr>
<th>Exchange Rate of NZ$</th>
<th>Revenue from U.S. Business (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ$ = $0.48</td>
<td>$100</td>
</tr>
<tr>
<td>NZ$ = 0.50</td>
<td>105</td>
</tr>
<tr>
<td>NZ$ = 0.54</td>
<td>110</td>
</tr>
</tbody>
</table>

   b. Its New Zealand dollar revenues on sales to New Zealand invoiced in New Zealand dollars are expected to be NZ$600 million.

   c. Its anticipated cost of materials is estimated at $200 million from the purchase of U.S. materials and NZ$100 million from the purchase of New Zealand materials.

   d. Fixed operating expenses are estimated at $30 million.

   e. Variable operating expenses are estimated at 20 percent of total sales (after including New Zealand sales, translated to a dollar amount).

   f. Interest expense is estimated at $20 million on existing U.S. loans, and the company has no existing New Zealand loans.

Forecast net cash flows for St. Paul Co. under each of the three exchange rate scenarios. Explain how St. Paul’s projected net cash flows are affected by possible exchange rate movements. Explain how it can restructure its operations to reduce the sensitivity of its net cash flows to exchange rate movements without reducing its volume of business in New Zealand.
### Forecasted Net Cash Flows for St. Paul Company
(Figures are in millions)

<table>
<thead>
<tr>
<th></th>
<th>NZ$ = $.48</th>
<th>NZ$ = $.50</th>
<th>NZ$ = $.54</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.</td>
<td>$100</td>
<td>$105</td>
<td>$110</td>
</tr>
<tr>
<td>New Zealand</td>
<td>NZ$600 = 288</td>
<td>NZ$600 = 300</td>
<td>NZ$600 = 324</td>
</tr>
<tr>
<td>Total</td>
<td>$388</td>
<td>$405</td>
<td>$434</td>
</tr>
<tr>
<td><strong>Cost of materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.</td>
<td>$200</td>
<td>$200</td>
<td>$200</td>
</tr>
<tr>
<td>New Zealand</td>
<td>NZ$100 = 48</td>
<td>NZ$100 = 50</td>
<td>NZ$100 = 54</td>
</tr>
<tr>
<td>Total</td>
<td>$248</td>
<td>$250</td>
<td>$254</td>
</tr>
<tr>
<td><strong>Operating expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.: Fixed</td>
<td>$30</td>
<td>$30</td>
<td>$30</td>
</tr>
<tr>
<td>U.S.: Variable (20% of total sales)</td>
<td>78</td>
<td>81</td>
<td>87</td>
</tr>
<tr>
<td>Total</td>
<td>$108</td>
<td>$111</td>
<td>$117</td>
</tr>
<tr>
<td><strong>Interest expense</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.</td>
<td>$20</td>
<td>$20</td>
<td>$20</td>
</tr>
<tr>
<td>New Zealand</td>
<td>NZ$0 = 0</td>
<td>NZ$0 = 0</td>
<td>NZ$0 = 0</td>
</tr>
<tr>
<td>Total</td>
<td>$20</td>
<td>$20</td>
<td>$20</td>
</tr>
<tr>
<td><strong>Net Cash Flows</strong></td>
<td>$12</td>
<td>$24</td>
<td>$43</td>
</tr>
</tbody>
</table>

The forecasted income statements show that St. Paul Company is favorably affected by a strong New Zealand dollar (since its NZ$ inflow payments exceed its NZ$ outflow payments). St. Paul Company could reduce its economic exposure without reducing its New Zealand revenues by shifting expenses from the U.S. to New Zealand. In this way, its NZ$ outflow payments would be more similar to its NZ$ inflow payments.

Alaska Inc. plans to create and finance a subsidiary in Mexico that produces computer components at a low cost and exports them to other countries. It has no other international business. The subsidiary will produce computers and export them to Caribbean islands and will invoice the products in U.S. dollars. The values of the currencies in the islands are expected to remain very stable against the dollar. The subsidiary will pay wages, rent, and other operating costs in Mexican pesos. The subsidiary will remit earnings monthly to the parent.

a. Would Alaska’s cash flows be favorably or unfavorably affected if the Mexican peso depreciates over time?

**ANSWER:** Alaska’s cash flows would be favorably affected, because it has only cash outflows in pesos, and can periodically convert dollars to cover its expenses in pesos.

b. Assume that Alaska considers partial financing of this subsidiary with peso loans from Mexican banks instead of providing all the financing with its own funds. Would this
alternative form of financing increase, decrease, or have no effect on the degree to which Alaska is exposed to exchange rate movements of the peso?

ANSWER: Alaska’s subsidiary already has cash outflows in pesos with no cash inflows in pesos. The partial financing with pesos would increase the cash outflows in pesos, which results in a greater exposure to the possible appreciation of the peso.

13. Hedging Continual Exposure. Consider this common real-world dilemma by many firms that rely on exporting. Clearlake Inc. produces its products in its factory in Texas, and exports most of the products to Mexico each month. The exports are denominated in pesos. Clearlake Inc. recognizes that hedging on a monthly basis does not really protect against long-term movements in exchange rates. It also recognizes that it could eliminate its transaction exposure by denominating the exports in pesos, but that it still would have economic exposure (because Mexican consumers would reduce demand if the peso weakened). Clearlake Inc. does not know how many pesos it will receive in the future, so it would have difficulty even if a long-term hedging method was available. How can Clearlake realistically deal with this dilemma and reduce its exposure over the long-term? [There is no perfect solution, but in the real world, there rarely are perfect solutions.]

ANSWER: Clearlake Inc. could consider producing its products within Mexico and selling them locally. It may be able to reduce its costs, and now would have some expenses denominated in pesos that offset a portion of the revenue in pesos. Thus, its exposure would be reduced. A limitation of this strategy is that it may have to close its factory in Texas, and lay off its employees, if it creates a plant in Mexico.

An alternative strategy is that it obtain loans denominated in pesos that it can use to finance its existing operations. Its interest expenses in pesos would offset a portion of the peso revenue it receives, and would therefore reduce exchange rate risk. However, it may have to pay a higher interest rate in Mexico than what it pays in the U.S. because interest rates are typically higher in Mexico.

14. Sources of Supplies and Exposure to Exchange Rate Risk. Laguna Co. (a U.S. firm) will be receiving 4 million British pounds in one year. It will need to make a payment of 3 million Polish zloty in one year. It has no other exchange rate risk at this time. However, it needs to buy supplies and can purchase them from Switzerland, Hong Kong, Canada, or Ecuador. Another alternative is that it could also purchase one-fourth of the supplies from each of the 4 countries mentioned in the previous sentence. The supplies will be invoiced in the currency of the country where they are imported from. Laguna Co. believes that none of the sources of the imports would provide a clear cost advantage. As of today, the dollar cost of these supplies would be about $6 million regardless of the source that will provide the supplies.

The spot rates today are as follows:

British pound = $1.80
Swiss franc = $.60
Polish zloty = $.30
Hong Kong dollar = $.14
Canadian dollar = $.60
The movements of the pound and the Swiss franc and the Polish zloty against the dollar are highly correlated. The Hong Kong dollar is tied to the U.S. dollar and you expect that it will continue to be tied to the dollar. The movements in the value of Canadian dollar against the U.S. dollar are not correlated with the movements of other currencies. Ecuador uses the U.S. dollar as its local currency.

Which alternative should Laguna Co. select in order to minimize its overall exchange rate risk?

**ANSWER:** After one year, assuming that today’s spot rates hold as the spot rates one year from now, 4 million British pounds converts to an addition of $7,200,000 US dollars and the 3 million Polish zloty converts to a subtraction of $900,000. The net amount is $6,300,000. The best alternative is to purchase all the supplies from Switzerland as Switzerland’s currency is highly correlated with the US dollar. When currencies are highly correlated and the net inflow is about the same as the net outflow, this creates the lowest exposure to exchange rate risk. If the dollar weakens, it will be favorably affected in inflow of British pounds but this will be offset by the outflow of Swiss francs. If the dollar strengthens, it will have the opposite effect.

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

1. How will Blades be negatively affected by the high level of inflation in Thailand if the Thai customer renews its commitment for another three years?

   **ANSWER:** If the Thai customer renews its commitment for another three years, the price Blades receives in baht would continue to be fixed. Conversely, Blades’ cost of goods sold incurred in Thailand would be subject to the high level of inflation in Thailand. In addition, the high inflation may cause the baht to depreciate, which would reduce the dollars received from baht-denominated sales to Thailand.

2. Holt believes that the Thai importer will renew its commitment in two years. Do you think his assessment is correct? Why or why not? Also, assume that the Thai economy returns to the high growth level that existed prior to the recent unfavorable economic events. Under this assumption, how likely is it that the Thai importer will renew its commitment in two years?

   **ANSWER:** Before renewing its commitment to purchase a fixed number of products at a fixed price from Blades, the Thai importer would have to assess the advantages and disadvantages of such an arrangement. If the Thai level of inflation continues to be high, the retailer has the advantage of incurring costs denominated in baht that are not subject to the high level of inflation. However, if consumers in Thailand continue to reduce their spending on leisure products, the Thai firm may not be able to sell all of the products it has purchased from Blades.

   If the Thai economy returns to a high growth level, the Thai customer will probably renew its commitment. This is because it can be reasonably certain that it will sell all of the products it has committed itself to purchase from Blades. Furthermore, the costs it incurs are still not subject to the high level of inflation prevailing in Thailand.
3. For each of the three possible values of the Thai baht and the British pound, use a spreadsheet to estimate cash flows for the next year. Briefly comment on the level of Blades’ economic exposure. Ignore possible tax effects.

ANSWER: (See spreadsheet attached.) Blades, Inc. does not appear to be subject to a high level of economic exposure based on the analysis. Nevertheless, a depreciation of the Thai baht by 10 percent to an average level of $0.0198 over the year would decrease its earnings before taxes by approximately 5 percent. Thus, Blades, Inc. is subject to some economic exposure.

<table>
<thead>
<tr>
<th>THB = $0.0220</th>
<th>THB = $0.0209</th>
<th>THB = $0.0198</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP = $1.530</td>
<td>BP = $1.485</td>
<td>BP = $1.500</td>
</tr>
</tbody>
</table>

Sales:
(1) U.S. (520,000 units × $120/pair) $ 62,400,000 $ 62,400,000 $ 62,400,000
(2) Thai (180,000 units × THB4,594 × Exchange Rate) $ 18,192,240 $ 17,282,628 $ 16,373,016
(3) British (200,000 units × 80 pounds × Exchange Rate) $ 24,480,000 $ 23,760,000 $ 24,000,000
(4) Total $ 105,072,240 $ 103,442,628 $ 102,773,016

Cost of materials:
(5) U.S. ([900,000 – 80,000] units × $70) $ 57,400,000 $ 57,400,000 $ 57,400,000
(6) Thai (80,000 units × THB3,000 × Exchange Rate) $ 5,280,000 $ 5,016,000 $ 4,752,000
(7) Total $ 62,680,000 $ 62,416,000 $ 62,152,000

Operating Expenses:
(8) U.S.: Fixed $ 2,000,000 $ 2,000,000 $ 2,000,000
(9) U.S.: Variable (11% of U.S. sales) $ 6,864,000 $ 6,864,000 $ 6,864,000
(10) Total $ 8,864,000 $ 8,864,000 $ 8,864,000
(11) Net cash flow $ 33,528,240 $ 32,162,628 $ 31,757,016

4. Now repeat your analysis in question 3 but assume that the British pound and the Thai baht are perfectly correlated. For example, if the baht depreciates by 5 percent, the pound will also depreciate by 5 percent. Under this assumption, is Blades subject to a greater degree of economic exposure? Why or why not?

ANSWER: (See spreadsheet attached.) If the British pound and the Thai baht are perfectly correlated, Blades’ level of economic exposure increases. This is because Blades generates inflows in both pounds and baht. Under this scenario, a depreciation of the pound and the baht by 10 percent would reduce Blades’ net cash flows by approximately 11 percent.
Sales:
(1) U.S. (520,000 units × $120/pair) $62,400,000 $62,400,000 $62,400,000
(2) Thai (180,000 units × THB4,594 × Exchange Rate) $18,192,240 $17,282,628 $16,373,016
(3) British (200,000 units × 80 pounds × Exchange Rate) $24,000,000 $22,800,000 $21,600,000
(4) Total $104,592,240 $102,482,628 $100,373,016

Cost of materials:
(5) U.S. ([900,000 – 80,000] units × $70) $57,400,000 $57,400,000 $57,400,000
(6) Thai (80,000 units × THB3,000 × Exchange Rate) $5,280,000 $5,016,000 $4,752,000
(7) Total $62,680,000 $62,416,000 $62,152,000

Operating Expenses:
(8) U.S.: Fixed $2,000,000 $2,000,000 $2,000,000
(9) U.S.: Variable (11% of U.S. sales) $6,864,000 $6,864,000 $6,864,000
(10) Total $8,864,000 $8,864,000 $8,864,000
(11) Net cash flows $33,048,240 $31,202,628 $29,357,016

5. Based on your answers to the previous three questions, what actions could Blades take to reduce its level of economic exposure to Thailand?

ANSWER: There are several actions Blades could take. The analysis above illustrates that economic exposure can be reduced by conducting its international business in countries whose currencies are not highly correlated. Thus, Blades could be exporting to or importing from other countries besides Thailand and the United Kingdom. Another action Blades could take is to borrow in baht, which would reduce the number of baht that would have to be converted to dollars, as the baht receivables could be used to repay to baht-denominated loans. The borrowed funds could then be converted to dollars to pay for U.S. supplies. However, the high level of interest rates may not make this a feasible alternative. To further reduce its economic exposure, Blades could also buy more supplies from Thailand instead of the U.S. in order to create more cash outflows in baht. This would further reduce the level of economic exposure, as more baht revenues could be used to buy Thai supplies. However, the success of this approach depends on the impact of the high level of inflation in Thailand on market prices for the imported components.

Solution to Supplemental Case: Madison Co.

a. While economic exposure adversely affected the firm’s performance in a recent period, it should favorably affect the firm’s performance in the future. A weak Canadian dollar (which has been forecasted) would favorably affect Madison, Inc. under the prevailing operational structure. If the structure is revised, Madison will be less exposed to the Canadian dollar’s exchange rate movements. Therefore, it will not benefit as much from the weaker Canadian dollar. Economic
exposure can be beneficial when currencies move in a particular direction. The shareholders would be better off if the firm remains exposed while the Canadian dollar is expected to weaken.

One may argue that the Vice-president should also be better off if Madison remains exposed, based on the forecast of the Canadian dollar. However, a counter argument is that the Vice-president may be better off if economic exposure is reduced. If by chance the Canadian dollar unexpectedly continued to appreciate, Madison’s earnings would be adversely affected, and the Vice-president could lose his job. This issue usually generates much classroom discussion. Students should attempt to put themselves in the place of the Vice-president. If the Vice-president does not receive a bonus tied to earnings, he may prefer a strategy that is least risky in order to preserve his job (even if this strategy conflicts with satisfying shareholders).

b. The prevailing operational structure allows the firm to benefit from a weaker Canadian dollar. Yet, if the Canadian dollar appreciates, the Vice-president could be fired. Thus, the Vice-president may choose a structure that reduces economic exposure, even though the expected earnings are reduced. Shareholders would have preferred that Madison remained exposed, since the expected return is higher, and do not suffer the same severe consequences as the Vice-president if the Canadian dollar appreciates.

If the Vice-president’s compensation was somewhat tied to earnings, there would be less chance of a conflict of interests. The Vice-president would be more encouraged to preserve the exposure because he would directly realize some of the benefits resulting from higher performance. In addition, the firm should have an implicit policy that does not place all the blame on the Vice-president if the policy of maintaining the prevailing structure backfires. If the Canadian dollar appreciates and earnings are adversely affected, is the poor performance the fault of the Vice-president? Is it the fault of the employees that developed the forecasts of the Canadian dollar? These issues generate interesting discussions. It should be emphasized that employees should not be fired any time they incorrectly forecast a currency to move in a particular direction. And the Vice-president should not be fired when his decision was based on input from others that he thought was reliable.

**Small Business Dilemma**

**Hedging the Sports Exports Company’s Economic Exposure to Exchange Rate Risk**

1. How could Jim adjust his operations to reduce his economic exposure? What is a possible disadvantage of such an adjustment?

   **ANSWER:** Jim could determine whether the material could be purchased from a British manufacturer, so that he would have some payables in pounds to offset some of the receivables in pounds. However, this solution does not completely eliminate the exposure because the amount of receivables denominated in pounds would still exceed the amount of payables denominated in pounds. Furthermore, the costs of ordering material from the United Kingdom may be more costly and possibly subject to delays because of the long distance. Jim would not necessarily be able to ensure that the material would arrive on time when dealing with a supplier that is located in the United Kingdom.

2. Offer another solution to hedging the economic exposure in the long run as Jim’s business grows. What are disadvantages of this solution?
ANSWER: Jim may attempt to hire a person in the United Kingdom to do the production there. Material could be purchased in the United Kingdom and then used by that person to produce the footballs, and the footballs would then be sold locally. The only exposure to exchange rate risk would be on the earnings that are sent back to Jim in the U.S.

One disadvantage is that Jim is no longer producing the footballs himself, and may have difficulty monitoring the production quality of footballs produced and sold in the United Kingdom. Also, any people he hires may consider stealing the idea and starting their own sporting goods business rather than working as employees for Jim.

**Part 3—Integrative Problem**

**Exchange Rate Risk Management**

Vogl Company is a U.S. firm conducting a financial plan for the next year. It has no foreign subsidiaries, but more than half of its sales are from exports. Its foreign cash inflows to be received from exporting and cash outflows to be paid for imported supplies over the next year are shown in the following table:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Total Inflow</th>
<th>Total Outflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian dollars (C$)</td>
<td>C$32,000,000</td>
<td>C$2,000,000</td>
</tr>
<tr>
<td>New Zealand dollars (NZ$)</td>
<td>NZ$5,000,000</td>
<td>NZ$1,000,000</td>
</tr>
<tr>
<td>Mexican pesos (MXP)</td>
<td>MXP11,000,000</td>
<td>MXP10,000,000</td>
</tr>
<tr>
<td>Singapore dollars (S$)</td>
<td>S$4,000,000</td>
<td>S$8,000,000</td>
</tr>
</tbody>
</table>

The spot rates and one-year forward rates as of today are:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Spot Rate</th>
<th>One-Year Forward Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>C$</td>
<td>$.90</td>
<td>$.93</td>
</tr>
<tr>
<td>NZ$</td>
<td>.60</td>
<td>.59</td>
</tr>
<tr>
<td>MXP</td>
<td>.18</td>
<td>.15</td>
</tr>
<tr>
<td>S$</td>
<td>.65</td>
<td>.64</td>
</tr>
</tbody>
</table>

1. Based on the information provided, determine the net exposure of each foreign currency in dollars.

   **ANSWER:**

<table>
<thead>
<tr>
<th>Currency</th>
<th>Net Inflow or Outflow</th>
<th>Spot Exchange Rate</th>
<th>Net Inflow or Outflow Measured in Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian dollars (C$)</td>
<td>C$30,000,000 Inflow</td>
<td>$.90</td>
<td>$27,000,000 Inflow</td>
</tr>
<tr>
<td>New Zealand dollars (NZ$)</td>
<td>NZ$4,000,000 Inflow</td>
<td>.60</td>
<td>2,400,000 Inflow</td>
</tr>
<tr>
<td>Mexican pesos (MXP)</td>
<td>MXP1,000,000 Inflow</td>
<td>.18</td>
<td>180,000 Inflow</td>
</tr>
<tr>
<td>Singapore dollars (S$)</td>
<td>S$4,000,000 Outflow</td>
<td>.65</td>
<td>2,600,000 Outflow</td>
</tr>
</tbody>
</table>

2. Assume that today’s spot rate is used as a forecast of the future spot rate one year from now. The New Zealand dollar, Mexican peso, and Singapore dollar are expected to move in tandem against the U.S. dollar over the next year. The Canadian dollar’s movements are expected to be unrelated
to movements of the other currencies. Since exchange rates are difficult to predict, the forecasted net dollar cash flows per currency may be inaccurate. Do you anticipate any offsetting exchange rate effects from whatever exchange rate movements do occur? Explain.

ANSWER: The New Zealand dollar, Mexican peso, and Singapore dollar are expected to move in tandem. The dollar value of exposure on net inflows is about equal to the dollar value of exposure on net outflows for these currencies. Thus, the exchange rate effects of the 2 inflow currencies (NZ$ and MXP) should be offset by the effects of the one outflow currency (S$).

3. Given the forecast of the Canadian dollar along with the forward rate of the Canadian dollar, what is the expected increase or decrease in dollar cash flows that would result from hedging the net cash flows in Canadian dollars? Would you hedge the Canadian dollar position?

ANSWER: The expected dollar cash flows from hedging the net cash flows of C$30,000,000 (inflow) is C$30,000,000 \times $.93 = $27,900,000. This is $900,000 more than the dollars that would be received without hedging (assuming that the forecasted spot rate for one year ahead is accurate). It is reasonable to hedge the Canadian dollar position based on the information given. However, if the amount of C$ to be received may be less than what is expected, the firm may want to hedge only a portion of the C$30,000,000 in expected net inflows.

4. Assume that the Canadian dollar net inflows may range from C$20,000,000 to C$40,000,000 over the next year. Explain the risk of hedging C$30,000,000 in net inflows. How can Vogl Company avoid such a risk? Is there any tradeoff resulting from your strategy to avoid that risk?

ANSWER: If the C$ received are less than the amount to be sold by the firm as specified in the forward contract, the firm will have to purchase some C$ in the spot market. For example, if the firm receives only C$20,000,000 by the end of the year from exporting and has negotiated a forward sale of C$30,000,000, it will need to obtain an additional C$10,000,000 to fulfill its forward contract. If the Canadian dollar appreciated over the year, the firm will be adversely affected because it must purchase C$ in the spot market for a higher price than the exchange rate specified in the forward contract.

The firm can avoid this risk by only hedging the transaction amount that it knows will occur. However, this may prevent the firm from hedging the full transaction, which means it will not be completely covered. Using our example, if the firm hedges only C$20,000,000, it can be affected by depreciation in the C$ over the year if more than C$20,000,000 in net cash flows are received. This is a very common dilemma faced by firms. In many cases, firms attempt to only cover the minimum net cash flow amount expected (for reasons expressed above), which forces them to remain partially exposed to exchange rate risk.

5. Vogl Company recognizes that its year-to-year hedging strategy hedges the risk only over a given year, and does not insulate it from long-term trends in the Canadian dollar’s value. It has considered establishing a subsidiary in Canada. The goods would be sent from the U.S. to the Canadian subsidiary and distributed by the subsidiary. The proceeds received would be reinvested by the Canadian subsidiary in Canada. In this way, Vogl Company would not have to convert Canadian dollars to U.S. dollars each year. Has Vogl eliminated its exposure to exchange rate risk by using this strategy? Explain.

ANSWER: Vogl may avoid the year-to-year hedging decision with this strategy but is increasing its exposure to the C$ over time. It is essentially reinvesting the proceeds in the same currency,
thereby compounding the exposure over time. Someday, the parent may need these funds, and the C$ may be even weaker by the time the funds are sent to the parent. In essence, this strategy defers the transaction exposure while the C$ build up over time, but the exposure becomes much larger in the future when the C$ are converted to dollars. Furthermore, by establishing a Canadian subsidiary, Vogl will be subject to translation exposure. That is, the annual consolidated earnings will be affected by movements in the C$ value even though the parent’s dollar cash flows are insulated (at least temporarily) from these movements. Also, recognize that if the parent does not generate cash flows from its Canadian business, it must find other sources or funds to support the production and transportation costs incurred as a result of the Canadian business.