**Chapter 10**

**3. Factors That Affect a Firm’s Transaction Exposure.** What factors affect a firm’s degree of transaction expo­sure in a particular currency?  For each factor, explain the desirable characteristics that would reduce transaction exposure.

**4. Currency Correlations.** Kopetsky Co. has net receivables in several currencies that are highly correlated with each other. What does this imply about the firm’s overall degree of transaction exposure? Are currency correlations perfectly stable over time?  What does your answer imply about Kopetsky Co. or any other firm using past data on correlations as an indicator for the future?

**5. Currency Effects on Cash Flows.** How should appreciation of a firm’s home currency generally affect its cash inflows?  How should depreciation of a firm’s home currency generally affect its cash outflows?

**6. Transaction Exposure.** Fischer Inc., exports products from Florida to Europe. It obtains supplies and borrows funds locally.  How would appreciation of the euro likely affect its net cash flows?  Why?

**7. Exposure of Domestic Firms.** Why are the cash flows of a purely domestic firm exposed to exchange rate fluctuations?

**8. Measuring Economic Exposure.** Memphis Co. hires you as a consultant to assess its degree of economic exposure to exchange rate fluctuations.  How would you handle this task?  Be specific.

**9. Factors That Affect a Firm’s Translation Exposure.** What factors affect a firm’s degree of translation exposure?  Explain how each factor influences translation exposure.

**10. Translation Exposure.** Consider a period in which the U.S. dollar weakens against the euro.  How will this affect the reported earnings of a U.S.‑based MNC with European subsidiaries? Consider a period in which the U.S. dollar strengthens against most foreign currencies.  How will this affect the reported earnings of a U.S.-based MNC with subsidiaries all over the world?

**12. Economic Exposure.** Longhorn Co. produces hospital equipment.  Most of its revenues are in the United States.  About half of its expenses require outflows in Philippine pesos (to pay for Philippine materials).  Most of Longhorn’s competition is from U.S. firms that have no international business at all.  How will Longhorn Co. be affected if the peso strengthens?

**13. Economic Exposure.** Lubbock, Inc., produces furniture and has no international business.  Its major competitors import most of their furniture from Brazil and then sell it out of retail stores in the United States.  How will Lubbock, Inc., be affected if Brazil’s currency (the real) strengthens over time?

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**15. PPP and Economic Exposure.** Boulder, Inc., exports chairs to Europe (invoiced in U.S. dollars) and competes against local European companies.  If purchasing power parity exists, why would Boulder not benefit from a stronger euro?

**17. Impact of Exchange Rates on Earnings.** Cieplak, Inc., is a U.S.-based MNC that has expanded into Asia. Its U.S. parent exports to some Asian countries, with its exports denominated in the Asian currencies. It also has a large subsidiary in Malaysia that serves that market. Offer at least two reasons related to exposure to exchange rates why Cieplak's earnings were reduced during the Asian crisis.

###### *Advanced Questions*

**18. Speculating Based on Exposure.** During the Asian crisis in 1998, there were rumors that China would weaken its currency (the yuan) against the U.S. dollar and many European currencies. This caused investors to sell stocks in Asian countries such as Japan, Taiwan, and Singapore. Offer an intuitive explanation for such an effect. What types of Asian firms would have been affected the most?

**19. Comparing Transaction and Economic Exposure.** Erie Co. has most of its business in the U.S.,

except that it exports to Belgium. Its exports were invoiced in euros (Belgium’s currency) last year. It has no other economic exposure to exchange rate risk. Its main competition when selling to Belgium’s customers is a company in Belgium that sells similar products, denominated in euros. Starting today, Erie Co. plans to adjust its pricing strategy to invoice its exports in U.S. dollars instead of euros. Based on the new strategy, will Erie Co. be subject to economic exposure to exchange rate risk in the future? Briefly explain.

**20. Using Regression Analysis to Measure Exposure.**

a. How can a U.S. company use regression analysis to assess its economic exposure to fluctuations in the British pound?

b. In using regression analysis to assess the sensitivity of cash flows to exchange rate movements, what is the purpose of breaking the database into sub periods?

c. Assume the regression coefficient based on assessing economic exposure was much higher in the second sub period than in the first sub period.  What does this tell you about the firm’s degree of economic exposure over time?  Why might such results occur?

**21. Transaction Exposure.** Vegas Corp. is a U.S. firm that exports most of its products to Canada. It historically invoiced its products in Canadian dollars to accommodate the importers. However, it was adversely affected when the Canadian dollar weakened against the U.S. dollar. Since Vegas did not hedge, its Canadian dollar receivables were converted into a relatively small amount of U.S. dollars. After a few more years of continual concern about possible exchange rate movements, Vegas called its customers and requested that they pay for future orders with U.S. dollars instead of Canadian dollars. At this time, the Canadian dollar was valued at $.81. The customers decided to oblige, since the number of Canadian dollars to be converted into U.S. dollars when importing the goods from Vegas was still slightly smaller than the number of Canadian dollars that would be needed to buy the product from a Canadian manufacturer. Based on this situation, has transaction exposure changed for Vegas Corp.? Has economic exposure changed? Explain.

**23. Changes in Economic Exposure.** Walt Disney World built an amusement park in France that opened in 1992.  How do you think this project has affected Disney’s economic exposure to exchange rate movements?  Think carefully before you give your final answer. There is more than one way in which Disney’s cash flows may be affected. Explain.

**24. Lagged Effects of Exchange Rate Movements.** Cornhusker Co. is an exporter of products to Singapore.  It wants to know how its stock price is affected by changes in the Singapore dollar’s exchange rate.  It believes that the impact may occur with a lag of one to three quarters.  How could regres­sion analysis be used to assess the impact?

**27. Exposure to Cash Flows.** Raton Co. is a U.S. company that has net inflows of 100 million Swiss francs and net outflows of 100 million British pounds.  The present exchange rate of the Swiss franc is about $.70 while the present exchange rate of the pound is $1.90.  Raton Co. has not hedged these positions.  The Swiss franc and British pound are highly correlated in their movements against the dollar.  Explain whether Raton will be favorably or adversely affected if the dollar weakens against foreign currencies over time.

**28. Assessing Exchange Rate Risk.** Washington Co. and Vermont Co. have no domestic business.

They have a similar dollar equivalent amount of international exporting business. Washington Co. exports all of its products to Canada. Vermont Co. exports its products to Poland and Mexico, with about half of its business in each of these 2 countries. Each firm receives the currency of the country where it sends its exports. You obtain the end-of-month spot exchange rates of the currencies mentioned above during the end of each of the last 6 months.

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| --- | --- | --- | --- | --- | --- | --- |
| **End of Month** | **Canadian Dollar** | | **Mexican Peso** | | **Polish Zloty** | |
| 1 | $0.8142 | $.09334 | | $.29914 | |
| 2 | 0.8176 | .09437 | | .29829 | |
| 3 | 0.8395 | .09241 | | .30187 | |
| 4 | 0.8542 | .09263 | | .3088 | |
| 5 | 0.8501 | .09251 | | .30274 | |
| 6 | 0.8556 | .09448 | | .30312 | |

You want to assess the data in a logical manner to determine which firm has a higher degree of exchange rate risk. Show your work and write your conclusion. [HINT: The percentage change in the portfolio of currencies is a weighted average of the percentage change in each currency in the portfolio.

**29. Exposure to Pegged Currency System.** Assume that the Mexican peso and the Brazilian

currency (called the “real”) have depreciated against the dollar recently, due to the high inflation rates in those countries. Assume that inflation in these two countries is expected to continue and that it will have a major effect on these currencies if they are still allowed to float. Assume that the government of Brazil decides to peg its currency to the dollar and will definitely maintain the peg for the next year. Milez Co. is based in Mexico. Its main business is to export supplies from Mexico to Brazil. It invoices its supplies in Mexican pesos. Its main competition is from firms in Brazil that produce similar supplies and sell them locally. How will the sales volume of Milez Co.be affected (if at all) by the Brazilian government’s actions? Explain.

**33. Applying the Value-at-Risk Method.** You use today’s spot rate of the Brazilian real to forecast

the spot rate of the real for one month ahead. Today’s spot rate is $.4558. Use the value-at-risk method to determine the maximum percentage loss of the Brazilian real over the next month based on a 95 percent confidence level. Use the spot exchange rates at the end of each of the last 6 months as shown below to conduct your analysis. Forecast the exchange rate that would exist under these conditions.

**35. Cross-Currency Relationships.**  The Hong Kong dollar (HK$) is presently pegged to the U.S.

dollar and is expected to remain pegged. Some Hong Kong firms export products to Australia that are denominated in Australian dollars and have no other business in Australia. The exports are not hedged. The Australian dollar is presently worth 0.50 U.S. dollars but you expect that it will be worth 0.45 U.S. dollars by the end of the year. Based on your expectations, will the Hong Kong exporters be affected favorably or unfavorably? Briefly explain.

**37. Assessing Translation Exposure.** Assume the euro’s spot rate is presently equal to $1.00. All of

the following firms are based in New York and are the same size. While these firms concentrate on business in the U.S., their entire foreign operations for this quarter are provided here.

Company A expects its exports to cause cash inflows of 9 million euros and imports to cause cash outflows equal to 3 million euros.

Company B has a subsidiary in Portugal that expects revenue of 5 million euros and has expenses of 1 million euros.

Company C expects exports to cause cash inflows of 9 million euros and imports to cause cash outflows of 3 million euros, and will repay the balance of an existing loan equal to 2 million euros.

Company D expects zero exports and imports to cause cash outflows of 11 million euros.

Company E will repay the balance of an existing loan equal to 9 million euros.

Which of the five companies described here has the highest degree of translation exposure?

**38. Exchange Rates and Market Share.** Minnesota Co. is a U.S. firm that exports computer parts to

Japan. Its main competition is from firms that are based in Japan, which invoice their products in yen. Minnesota’s exports are invoiced in U.S. dollars. The prices charged by Minnesota and its competitors will not change during the next year. Will Minnesota’s revenue increase, decrease, or be unaffected if the spot rate of the yen appreciates over the next year? Briefly explain.

**39. Exchange Rates and Market Share.** Harz Co. (a U.S. firm) has an arrangement with a Chinese

company in which it purchases the products from them every week at the prevailing spot rate, and then sells the products in the U.S. invoiced in dollars. All of its competition is from U.S. firms that have no international business. The prices charged by Harz and its competitors will not change over the next year. Will the net cash flows generated by Harz increase, decrease, or be unaffected if the Chinese yuan depreciates over the next year? Briefly explain.

**41. PPP and Exposure.** Layton Co. (a U.S. firm) attempts to determine its economic exposure to

movements in the Japanese yen, by applying regression analysis to data over the last 36 quarters:

SP = b0 + b1e + u

where SP represents the percentage change in Layton’s stock price per quarter, e represents the percentage change in the yen value per quarter, and u is an error term. Based on the analysis, the b0 coefficient is zero and the b1 coefficient is 0.4 and is statistically significant. Layton believes that the inflation differential has a major effect on the value of the yen (based on purchasing power parity). The inflation in Japan is expected to rise substantially while the U.S. inflation will remain at a low level. Would you expect that Layton’s value will be favorably affected, unfavorably affected, or not affected by its economic exposure over the next quarter? Explain.

**42. Exposure to Cash Flows.** Lance Co. is a U.S. company that has exposure to the Swiss francs (SF)

and Danish kroner (DK). It has net inflows of SF100 million and net outflows of DK500 million.  The present exchange rate of the SF is about $.80 while the present exchange rate of the DK is $.10.  Lance Co. has not hedged these positions.  The SF and DK are highly correlated in their movements against the dollar.  Explain whether Lance will be favorably or adversely affected if the dollar strengthens against foreign currencies over time.

**43. Assessing Transaction Exposure.** Zebra Co. is a U.S. firm that obtains products from a U.S.

supplier and then exports them to Canadian firms. Its exports are denominated in U.S. dollars. Its main competitor is a local company in Canada that sells similar products denominated in Canadian dollars. Is Zebra subject to transaction exposure? Briefly explain.

ANSWER: No, because Zebra’s cash flows are denominated in home currency. They will not be affected by exchange rate fluctuations.

**44. Assessing Translation Exposure.** Quartz Co. has its entire operations in Miami, Florida, and is

an exporter of products to Eurozone countries. All of its earnings are derived from its exports. The exports are denominated in euros. Reed Co. (of the U.S.) is about the same size as Quartz Co. and generates about the same amount of earnings in a typical year. It has a subsidiary in Germany that typically generates about 40 percent of its total earnings. All earnings are reinvested in Germany and therefore not remitted. The rest of Reed’s business is in the U.S. Which company has a higher degree of translation exposure? Briefly explain.

ANSWER: Reed Co. has a higher degree of translation exposure because its foreign subsidiary’s financial statements (including earnings) must be translated into U.S. dollars. Quartz does not have translation exposure.

**45. Estimating Value at Risk.** Yazoo Inc. is a U.S. firm that has substantial international business in

Japan and has cash inflows in Japanese yen. The spot rate of the yen today is $.01. The yen exchange rate was $.008 three months ago, $.0085 two months ago, and $.009 one month ago. Yazoo uses today’s spot rate of the yen as its forecast of the spot rate in one month. However, it wants to determine the maximum expected percentage decline in the value of the Japanese yen in one month based on the value at risk (VaR) method and a 95 percent probability. Use the exchange rate information provided to derive the maximum expected decline in the yen over the next month.

ANSWER: Applying an electronic spreadsheet, the standard deviation of the yen movements is about .029185.

Maximum expected percentage decline in yen is:

= Forecasted % change – (1.65 x Standard Deviation of yen movements)

= 0 – (1.65 x .029185) = -.048155

**46. Assessing Exposure to Net Cash Flows.** Reese Co. will pay 1 million British pounds for materials imported from the U.K. in one month. Reese Co. sells some goods to Poland, and will receive 3 million zloty (the Polish currency) for those goods in one month. The spot rate of the pound is $1.50, while the spot rate of the zloty is about $.30. Assume that the pound and zloty are both expected to depreciate substantially against the dollar over the next month and by the same degree (percentage). Will this have a favorable effect, unfavorable effect or no effect on Reese Co. over the next year? Explain.

ANSWER: The dollar value of the outflow exposure to pounds is greater than the inflow exposure to zloty. If both currencies depreciate, Reese Co. will benefit because the favorable effect on the outflows should exceed the unfavorable effect on the inflows.