
CHAPTER 8: TRANSACTION EXPOSURE**1. Definitions.**

- a) Define the term *foreign exchange exposure*. In its most general sense, foreign exchange exposure is the possibility of either beneficial or harmful effects on a company caused by a change in foreign exchange rates. The effect on the company may be on its profits, its cash flows, or its market value.
- b. Define the four types of foreign exchange exposure
 - 1) Transaction exposure is the potential for a gain or loss in contracted-for near term cash flows caused by a foreign exchange rate-induced change in the value of amounts due to the MNE or amounts that the MNE owes to other parties. As such, it is a change in the home currency value of cash flows that are already contracted for.
 - 2) As such, it is a change in expected long-term cash flows; i.e., future cash flows expected in the course of normal business but not yet contracted for.
 - 3) *Translation exposure* is the possibility of a change in the equity section (common stock, retained earnings, and equity reserves) of a MNE's consolidated balance sheet, caused by a change (expected or not expected) in foreign exchange rates. As such it is not a cash flow change, but is rather the result of consolidating into one parent company's financial statement the individual financial statements of related subsidiaries and affiliates.
 - 4) Tax exposure. The tax consequence of foreign exchange exposure varies by country. As a general rule, however, only *realized* foreign exchange losses are deductible for purposes of calculating income taxes. Similarly, only *realized* gains create taxable income. "Realized" means that the loss or gain involves cash flows.

2. Hedging and currency risk.

- a) Define the term *hedging*. *Hedging* is the taking of a position, either acquiring a cash flow, an asset, or a contract (including a forward contract) that will rise (fall) in value and offset a fall (rise) in the value of an existing position. Hedging therefore protects the owner of the existing asset from loss. However it also eliminates any gain from an increase in the value of the asset hedged against.
- b) Define the term *currency risk*. *Currency risk* can be roughly defined as the variance in expected cash flows arising from unexpected exchange rate changes.

3. Arguments against currency risk management. What are six arguments against a firm pursuing an active currency risk management program?

- Currency risk management does not increase the expected cash flows of the firm.
- Currency risk management normally consumes some of a firm's resources and so reduces cash flow. The impact on value is a combination of the reduction of cash flow (which by itself lowers value) and the reduction in variance (which by itself increases value).
- Management often conducts hedging activities that benefit management at the expense of the shareholders. The field of finance called *agency theory* frequently argues that management is generally more risk-averse than shareholders. If the firm's goal is to maximize shareholder wealth, then hedging activity is probably not

in the best interest of the shareholders.

- Managers cannot outguess the market. If and when markets are in equilibrium with respect to parity conditions, the expected net present value of hedging is zero.
- Management's motivation to reduce variability is sometimes driven by accounting reasons. Management may believe that it will be criticized more severely for incurring foreign exchange losses in its financial statements than for incurring similar or even higher cash costs in avoiding the foreign exchange loss. Foreign exchange losses appear in the income statement as a highly visible separate line item or as a footnote, but the higher costs of protection are buried in operating or interest expenses.
- Efficient market theorists believe that investors can see through the "accounting veil" and therefore have already factored the foreign exchange effect into a firm's market valuation.

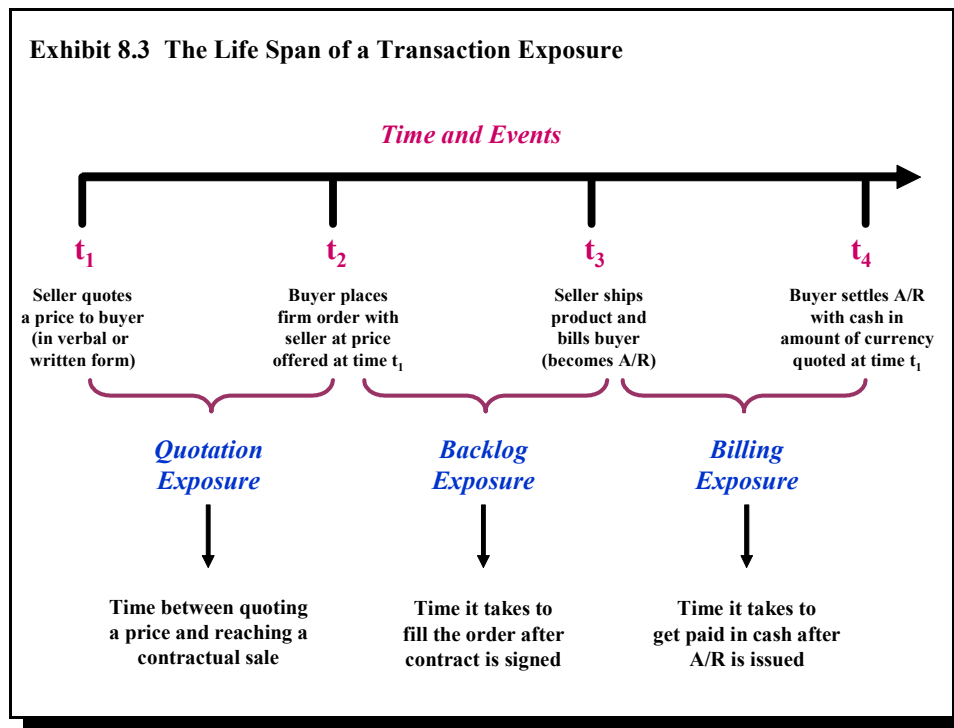
4. Arguments for currency risk management. What are four arguments in favor of a firm pursuing an active currency risk management program?

- Reduction in risk in future cash flows improves the planning capability of the firm. If the firm can more accurately predict future cash flows, it may be able to undertake specific investments or activities that it might otherwise not consider.
- Reduction of risk in future cash flows reduces the likelihood that the firm's cash flows will fall below a necessary minimum. A firm must generate sufficient cash flows to make debt-service payments in order for it to continue to operate. This minimum cash flow point, often referred to as the point of *financial distress*, lies left of the center of the distribution of expected cash flows. Hedging reduces the likelihood of the firm's cash flows falling to this level.
- Management has a comparative advantage over the individual shareholder in knowing the actual currency risk of the firm. Regardless of the level of disclosure provided by the firm to the public, management always possesses an advantage in the depth and breadth of knowledge concerning the real risks and returns inherent in any firm's business.
- Markets are usually in disequilibrium because of structural and institutional imperfections, as well as unexpected external shocks (such as an oil crisis or war). Management is in a better position than shareholders to recognize disequilibrium conditions and to take advantage of one-time opportunities to enhance firm value through *selective hedging*. "Selective hedging" refers to the hedging of large, singular, exceptional exposures or the occasional use of hedging when management has a definite expectation of the direction of exchange rates.

5. Transaction exposure. What are the four main types of transactions from which transaction exposure arises?

- 1) Purchasing or selling on credit goods or services when prices are stated in foreign currencies,
- 2) Borrowing or lending funds when repayment is to be made in a foreign currency,
- 3) Being a party to an unperformed foreign exchange forward contract, and
- 4) Otherwise acquiring assets or incurring liabilities denominated in foreign currencies.

6. Life span of a transaction exposure. Diagram the life span of an exposure arising from selling a product on open account. On the diagram define and show *quotation*, *backlog*, and *billing* exposures.



7. **Borrowing exposure; Give an example of a transaction exposure that arises from borrowing in a foreign currency.**

A second example of transaction exposure arises when funds are borrowed or loaned, and the amount involved is denominated in a foreign currency. For example, PepsiCo’s largest bottler outside of the United States in 1994 was Grupo Embotellador de Mexico (Gemex). In mid-December, 1994, Gemex had U.S. dollar debt of \$264 million. At that time Mexico’s *new peso* (“Ps”) was traded at Ps3.45/US\$, a pegged rate that had been maintained with minor variations since January 1, 1993, when the new currency unit had been created. On December 22, 1994, the peso was allowed to float because of economic and political events within Mexico, and in one day it sank to Ps4.65/US\$. For most of the following January it traded in a range near Ps5.50/US\$.

| | <i>Debt</i> <u>In US\$</u> | <i>In Pesos</i> <u>(at Ps3.45/\$)</u> | <i>In Pesos</i> <u>(at Ps5.50/\$)</u> |
|-------------------------------|-------------------------------|--|--|
| Gemex dollar-denominated debt | \$264,000,000 | Ps910,800,000 | Ps1,452,000,000 |

The pesos needed to repay the dollar debt increased by Ps541,200,000 (Ps1,452,000,000 - Ps910,800,000), or 59%! In U.S. dollar terms the drop in the value of the pesos caused Gemex to need the peso-equivalent of an additional US\$98,400,000 (Ps541,200,000 ÷ Ps5.50/\$) to repay. This increase in debt was the result of transaction exposure.

8. **Cash balances. Explain why foreign currency cash balances do not cause transaction exposure.**

Foreign currency cash balances do not create transaction exposure, even though their home currency value changes immediately with a change in exchange rates. No legal obligation exists to move the cash from one country and currency to another. If such an obligation did exist, it would show on the books as a payable (e.g.,

dividends declared and payable) or receivable and then be counted as part of transaction exposure. Nevertheless, the foreign exchange value of cash balances does change when exchange rates change. Such a change is reflected in the consolidated statement of cash flows and the consolidated balance sheet.

9. Contractual hedges. What are the four main contractual instruments used to hedge transaction exposure?

Foreign exchange transaction exposure can be managed by *contractual*, *operating*, and *financial hedges*. The main contractual hedges employ the forward, money, futures, and options markets. Operating and financial hedges employ the use of risk-sharing agreements, leads and lags in payment terms, swaps, and other strategies to be discussed in later chapters.

10. Decision criteria. Ultimately a treasurer must choose among alternative strategies to manage transaction exposure. Explain the two main decision criteria that must be used.

The two main decision criteria are: 1) is treasury a cost center or a profit center?, and 2) what is the tolerance for risk?

11. Proportional hedge. Many MNEs have established transaction exposure risk management policies that mandate proportional hedging. Explain and give an example of how proportional hedging can be implemented.

Many MNEs have established rather rigid transaction exposure risk management policies which mandate proportional hedging. These policies generally require the use of forward contract hedges on a percentage (e.g., 50, 60, or 70%) of existing transaction exposures. As the maturity of the exposures lengthens, the percentage forward-cover required decreases. The remaining portion of the exposure is then selectively hedged on the basis of the firm's risk tolerance, view of exchange rate movements, and confidence level.

In addition to having required minimum forward-cover percentages, many firms also require full forward-cover when forward rates "pay them the points." The *points on the forward rate* is the forward rate's premium or discount.

For example, using the same situation and financial assumptions as in the Dayton case, the forward rate of \$1.7540/£ could be the result of the following 90-day Eurocurrency interest rates on U.S. dollars (6.80% per annum) and British pounds (9.12% per annum):

$$\text{Forward}_{90} = \$1.7640/\text{£} \times \left[\frac{1 + \left(.0680 \times \frac{90}{360} \right)}{1 + \left(.0912 \text{ times } \frac{90}{360} \right)} \right] = \$1.7540/\text{£}.$$

Because British pound interest rates are higher than U.S. dollar interest rates, the pound is selling forward at a discount. A firm purchasing a forward contract to sell pounds forward would itself be *paying the points*.

If U.S. dollar interest rates (6.80% per annum) were higher than British pound interest rates (6.00% per annum), the pound would be selling forward at a premium:

$$\text{Forward}_{90} = \$1.7640/\text{£} \times \left[\frac{1 + \left(.0680 \times \frac{90}{360} \right)}{1 + \left(.0600 \text{ times } \frac{90}{360} \right)} \right] = \$1.7675/\text{£}.$$

A forward rate of \$1.7675/£ would allow Dayton to lock-in an exchange rate for 90 days in the future which is better than the exchange rate which would be realized even if Dayton received the British pounds today.

Many firms require that when the firm earns the forward points (as shown in this example) that full forward-cover be put in place. Not only is the exchange rate in the firm's favor, it also allows the firm to earn a U.S. dollar effective rate which meets its budget exchange rate, and a hedge choice which is independent of the firm's exchange rate view. Although the favorable forward rate is a result only of interest rate differences, many firms view this as riskless profit.

MINI-CASE: LUFTHANSA'S PURCHASE OF BOEING 737S**1. Do you think Heinz Ruhnau's hedging strategy made sense?**

Although Ruhnau was correct in his assessment that the dollar was too high ("overvalued"), the position he constructed to manage the position was not really effective. By hedging half the DM 7.6 million exposure, he basically divided the exposure in half, hedging half and leaving half uncovered. The resulting positions will move opposite in their valuation as the exchange rate moves (in either direction).

2. To what degree did he limit the upside and downside exposure of the transaction by hedging one-half of it? Do you agree with his critics that he was *speculating*?

Ruhnau did not effectively manage his exchange rate risk. A completely uncovered position would have no upper or lower limit to its exposure. A position which is one-half covered would still have no limit to its upside or downside, only half the slope or rate of movement as the totally uncovered position. A call option on dollars (or put option on marks) would have placed an absolute upper limit on how much Ruhnau and Lufthansa would have to pay to settle the Boeing purchase.

It is difficult to truly agree with the argument that he was speculating. Ruhnau was indeed trying to manage or hedge the exposure, but his strategy was definitely flawed. To accuse him of speculating on the component which was covered with the forward contract is to not understand the concept of transaction exposure and how a short position in a foreign currency could potentially cause severe monetary losses or excessive expenses in the event the foreign currency appreciated significantly before cash settlement.

3. Is it fair to judge transaction exposure management effectiveness with 20-20 hindsight?

Although most would agree it is not "fair" to judge exposure management effectiveness with perfect hindsight, it is a common practice in industry. Managerial behavior and results must always be interpreted on the basis of both decision-making at specific points in time – recognizing the risks and uncertainties of decisions made about the future – and the eventual results and outcomes of those decisions. Outcomes cannot be ignored, but management decision-making to protect the firm, its shareholders and creditors against adverse impacts of exchange rate movements, is a necessary part of risk management.

A more effective and fair measure of performance is probably to measure outcomes as hedged against corporate benchmarks which are agreed upon prior to the hedging. Common benchmarks are a full forward cover outcome, or an average of the full forward and completely uncovered position (which is indeed what Ruhnau did!).