Chapter Twelve

Management of Economic Exposure

12

Chapter Objectives:

This chapter provides a way to measure economic exposure, discusses its determinants, and presents methods for managing and hedging economic exposure.

Chapter Outline

- Three Types of Exposure
- How to Measure Economic Exposure
- Operating Exposure: Definition
- An Illustration of Operating Exposure
- Determinants of Operating Exposure
- Managing Operating Exposure

Three Types of Exposure

- Economic Exposure
  - Exchange rate risk as applied to the firm's competitive position.
- Transaction Exposure
  - Exchange rate risk as applied to the firm's home currency cash flows. The subject of Chapter 13.
- Translation Exposure
  - Exchange rate risk as applied to the firm's consolidated financial statements. The subject of Chapter 14

How to Measure Economic Exposure

- Economic exposure is the sensitivity of the future home currency value of the firm's assets and liabilities and the firm's operating cash flow to random changes in exchange rates.
- There exist statistical measurements of sensitivity.

How to Measure Economic Exposure

- If a U.S. MNC were to run a regression on the dollar value (P) of its British assets on the dollar pound exchange rate, S(\$/£), the regression would be of the form:

$$P = a + b \times S + e$$

Where a is the regression constant and e is the random error term with mean zero. The regression coefficient b measures the sensitivity of the dollar value of the assets (P) to the exchange rate, S.

How to Measure Economic Exposure

The exposure coefficient, *b*, is defined as follows:

$$b = \frac{\mathrm{Cov}(P, S)}{\mathrm{Var}(S)}$$

Where Cov(*P*,*S*) is the covariance between the dollar value of the asset and the exchange rate, and Var(*S*) is the variance of the exchange rate.

How to Measure Economic Exposure

The exposure coefficient shows that there are two sources of economic exposure: the the variance of the exchange rate and the covariance between the dollar value of the asset and exchange rate.

$$b = \frac{\mathrm{Cov}(P, S)}{\mathrm{Var}(S)}$$

Operating Exposure: Definition

- The effect of random changes in exchange rates on the firm's competitive position, which is not readily measurable.
- A good definition of operating exposure is *the extent to which the firm's operating cash flows are affected by the exchange rate*.

An Illustration of Operating Exposure

- Recently, there was an enormous shortage in the shipping market from Asia, due to the Asian currency crisis.
- This affected not only the shipping companies, which enjoyed "boom times".
- But also retailers, who experienced increased costs and delays.

An Illustration of Operating Exposure

- Note that the exposure for the retailers has two components:
  - The Competitive Effect
    - Difficulties and increased costs of shipping.
  - The Conversion Effect
    - Lower dollar prices of imports due to foreign currency exchange rate depreciation.

Determinants of Operating Exposure

- Recall that operating exposure cannot be readily determined from the firm's accounting statements as can transaction exposure.
- The firm's operating exposure is determined by:
  - The *market structure* of inputs and products: how competitive or how monopolistic the markets facing the firm are.
  - The firm's ability to adjust its markets, product mix, and sourcing in response to exchange rate changes.

Managing Operating Exposure

- Selecting Low Cost Production Sites
- Flexible Sourcing Policy
- Diversification of the Market
- R&D and Product Differentiation
- Financial Hedging

Selecting Low Cost Production Sites

- A firm may wish to diversify the location of their production sites to mitigate the effect of exchange rate movements.
  - *e.g.* Honda built North American factories in response to a strong yen, but later found itself importing more cars from Japan due to a weak yen.

Flexible Sourcing Policy

- Sourcing does not apply only to components, but also to "guest workers".
  - *e.g.* Japan Air Lines hired foreign crews to remain competitive in international routes in the face of a strong yen, but later contemplated a reverse strategy in the face of a weak yen and rising domestic unemployment.

Diversification of the Market

- Selling in multiple markets to take advantage of economies of scale and diversification of exchange rate risk.

R&D and Product Differentiation

- Successful R&D that allows for
  - cost cutting
  - enhanced productivity
  - product differentiation.
- Successful product differentiation gives the firm less elastic demand—which may translate into less exchange rate risk.

Financial Hedging

- The goal is to stabilize the firm's cash flows in the near term.
- Financial Hedging is distinct from operational hedging.
- Financial Hedging involves use of derivative securities such as currency swaps, futures, forwards, currency options, among others.

End Chapter Twelve

