

## Ch. 10 Transaction Exposure



### Topics

- Foreign Exchange Exposure
- Transaction Exposure
  - Techniques to Eliminate Transaction Exposure
  - Limitations of Hedging

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## FX Exposure



- Foreign Exchange Exposure: Measure of the potential for a firm's profitability, net cash flow, and market value to change because of a change in exchange rates.
  - These three components are the key financial elements of how we view a firm's success, thus a financial manager must know how to limit the firm's exposure to changes in exchange rates.
  - Although exchange rates cannot be forecasted with perfect accuracy, firms can at least measure their exposure to exchange rate fluctuations.

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## FX Exposure



- Types of foreign exchange exposure
  - Transaction Exposure: The degree to which the value of future cash transactions can be affected by exchange rate fluctuations.
  - Translation Exposure/Accounting Exposure: The exposure of the MNE's consolidated financial statements to exchange rate fluctuations because of the need to "translate" financial statements of foreign subsidiaries into a single reporting currency for consolidated financial statements.
  - Operating Exposure/Economic Exposure: The degree to which a firm's present value of future cash flows can be influenced by exchange rate fluctuations.
  - Tax Exposure: The tax consequence of foreign exchange exposure varies by country, however, as a general rule, only realized foreign losses are deductible for purposes of calculating income taxes.

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### Why Hedge?



- Hedging protects the owner of an asset (future stream of cash flows) from loss.
- However, it also eliminates any gain from an increase in the value of the asset hedged against.
- Since the value of a firm is the net present value of all *expected* future cash flows, it is important to realize that variances in these future cash flows will affect the value of the firm and that at least some components of risk (currency risk) can be hedged against.

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### Why Hedge - the Pros & Cons



- Opponents of hedging give the following reasons:
  - If stockholders do not wish to accept the currency risk of any specific firm, they can diversify their portfolios to manage that risk.
  - Currency risk management does not increase the expected cash flows of a firm; currency risk management normally consumes resources thus reducing cash flow.
  - Management often conducts hedging activities that benefit management at the expense of shareholders.
  - Managers cannot outguess the market; if and when markets are in equilibrium with respect to parity conditions, the expected NPV 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 statements than for incurring similar or even higher cash cost in avoiding the foreign exchange loss.
  - 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.

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### Why Hedge - the Pros & Cons



- Proponents of hedging give the following reasons:
  - Reduction in risk in future cash flows improves the planning capability of the firm.
  - Reduction of risk in future cash flows reduces the likelihood that the firm's cash flows will fall below a necessary minimum.
  - Management has a comparative advantage over the individual investor in knowing the actual currency risk of the firm.
  - Markets are usually in disequilibrium because of structural and institutional imperfections.

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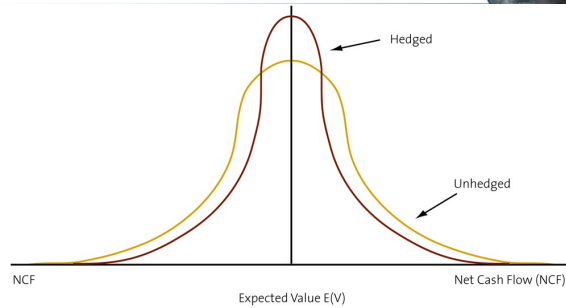
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### Impact of Hedging on the Expected Cash Flows of the Firm



Hedging reduces the variability of expected cash flows about the mean of the distribution. This reduction of distribution variance is a reduction of risk.

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### Transaction Exposure



- Transaction exposure exists when the future cash transactions of a firm are affected by exchange rate fluctuations.
- When transaction exposure exists, the firm faces three major tasks:
  1. Identify its degree of transaction exposure.
  2. Decide whether to hedge its exposure.
  3. Choose among the available hedging techniques if it decides on hedging.

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### Purchasing or Selling on Open Account



- Suppose Trident Corporation sells merchandise on open account to a Belgian buyer for €1,800,000 payable in 60 days.
- Further assume that the spot rate is \$1.2000/€ and Trident expects to exchange the euros for €1,800,000 x \$1.2000/€ = \$2,160,000 when payment is received.
  - Transaction exposure arises because of the risk that Trident will something other than \$2,160,000 expected.
  - If the euro weakens to \$1.1000/€, then Trident will receive \$1,980,000.
  - If the euro strengthens to \$1.3000/€, then Trident will receive \$2,340,000.

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### Purchasing or Selling on Open Account



- Trident might have avoided transaction exposure by invoicing the Belgian buyer in US dollars, but this might have lead to Trident not being able to book the sale.
- Even if the Belgian buyer agrees to pay in dollars, however, Trident has not eliminated transaction exposure, instead it has transferred it to the Belgian buyer whose dollar account payable has an unknown euro value in 60 days.

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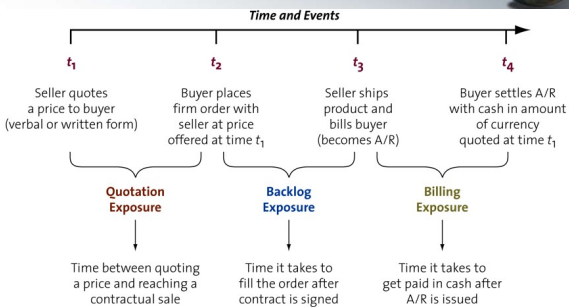
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### Life Span of a Transaction Exposure



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### Borrowing and Lending



- A second example of transaction exposure arises when funds are loaned or borrowed.
- Example: PepsiCo's largest bottler outside the US is located in Mexico, Grupo Embotellador de Mexico (Gemex).
  - On 12/94, Gemex had US dollar denominated debt of \$264 million.
  - The Mexican peso (Ps) was pegged at Ps\$3.45/US\$.
  - On 12/22/94, the government allowed the peso to float due to internal pressures and it sank to Ps\$4.65/US\$.

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## Borrowing and Lending



- Gemex's peso obligation now looked like this:
  - Dollar debt mid-December, 1994:  
 $\text{US\$}264,000,000 \times \text{Ps\$}3.45/\text{US\$} = \text{Ps\$}910,800,000$
  - Dollar debt in mid-January, 1995:  
 $\text{US\$}264,000,000 \times \text{Ps\$}5.50/\text{US\$} = \text{Ps\$}1,452,000,000$
  - Dollar debt increase measured in Ps:  
 $\text{Ps\$}541,200,000$
- Gemex's dollar obligation increased by 59% due to transaction exposure.

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## Hedging Techniques



1. Futures hedge
  2. Forward hedge
  3. Money market hedge
  4. Currency option hedge
- A comparison of hedging techniques should focus on minimizing payables, or maximizing receivables  
→ Uncertainty is a key issue.
  - In general, hedging policies vary with the MNE management's degree of risk aversion and exchange rate forecasts.
  - The hedging policy of an MNE may be to hedge most of its exposure, none of its exposure, or to selectively hedge its exposure.

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## Hedging Techniques



- **Futures Hedge:** Futures contracts are used to lock in the future exchange rate at which the firm will buy or sell a currency.
  - **Payables:** Firm may purchase a currency futures contract for the currency that it will be needing.
  - **Receivables:** Firm may sell a currency futures contract for the currency that it will be receiving.
- **Forward hedge:** Forward contracts are used to lock in the future exchange rate at which the firm will buy or sell a currency.
- Forward contracts are common for large transactions, while the standardized futures contracts involve smaller amounts.

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### Hedging Techniques



- An exposure to exchange rate movements need not necessarily be hedged, despite the ease of futures and forward hedging.
- Based on the firm's degree of risk aversion, the hedge-versus-no-hedge decision can be made by comparing the known result of hedging to the possible results of remaining unhedged.

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### Hedging Techniques



- **Money market hedge:** Take one or more money market position to cover a transaction exposure.
- Often, two positions are required.
  - Payables: ① Borrow in the home currency, and ② invest in the foreign currency.
  - Receivables: ① Borrow in the foreign currency, and ② invest in the home currency.
- Note that taking just one money market position may be sufficient.
  - A firm that has excess cash need not borrow in the home currency when hedging payables.
  - Similarly, a firm that is in need of cash need not invest in the home currency money market when hedging receivables.

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### Hedging Techniques



- The known results of money market hedging can be compared with the known results of forward or futures hedging to determine which the type of hedging that is preferable.
- If interest rate parity (IRP) holds, and transaction costs do not exist, a money market hedge will yield the same result as a forward hedge.
- This is so because the forward premium on a forward rate reflects the interest rate differential between the two currencies.

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## Hedging Techniques



- **Currency option hedge:** Use currency call or put options to hedge transaction exposure.
- Since options need not be exercised, firms will be insulated from adverse exchange rate movements, and may still benefit from favorable movements.
- However, the firm must assess whether the premium paid is worthwhile.

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## Hedging Techniques



	Hedging Payables	Hedging Receivables
<b>Futures hedge</b>	Purchase currency futures contract(s).	Sell currency futures contract(s).
<b>Forward hedge</b>	Negotiate forward contract to buy foreign currency.	Negotiate forward contract to sell foreign currency.
<b>Money market hedge</b>	Borrow local currency. Convert to and then invest in foreign currency.	Borrow foreign currency. Convert to and then invest in local currency.
<b>Currency option</b>	Purchase currency call option(s).	Purchase currency put option(s).

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## Limitations of Hedging



- Some international transactions involve an uncertain amount of foreign currency, such that overhedging may result.
- In the long run, the continual hedging of repeated transactions may have limited effectiveness due to its short-term nature.

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