

## OUTLINE FOR CHAPTER 13

- Understand Translation Exposure
  - How does translation exposure arise?
  - Definition
  - How do the Current and Temporal Methods work?
  - What are the U.S. rules?
  - Calculation of exchange gains/losses

1

---

---

---

---

---

---

---

---

## Chapter 13 - Translation Exposure

- Arises because financial statements of foreign affiliates which are typically stated in foreign currencies need to be restated (translated) in terms of the currency of the parent
- Main purpose of translation - preparation of consolidated financial statements

2

---

---

---

---

---

---

---

---

## Translation Exposure

- Definition - Potential for an increase or decrease on the parent's net worth and reported net income caused by a change in the exchange rate
- Operating exposure is more important (for financial managers) but in the real world translation exposure is quite important

3

---

---

---

---

---

---

---

---

## Translation Methods

- Methods we will discuss in class:  
Current Rate - most prevalent in the world  
Temporal Method

4

---

---

---

---

---

---

---

---

## Current Rate Method

- Assets and liabilities use current rate
- Income statement - use actual exchange rate for the day when revenues, expenses, etc. were incurred or use an appropriate weighted average exchange rate
- Dividends - use exchange rate in effect on date of payment

5

---

---

---

---

---

---

---

---

## Current Rate Method - Continued

- Equity - common stock and paid-in capital accounts use an appropriate historical rate
- In the U.S., translation gains / losses are put in a special account (Cumulative Translation Adjustment - CTA). When foreign affiliate is sold or liquidated gains or losses become realized

6

---

---

---

---

---

---

---

---

### Temporal Method (similar to the Monetary/Nonmonetary Method)

- Monetary assets (cash, marketable securities, accounts receivable, etc.) and monetary liabilities (current liabilities and long-term debt) use current exchange rate
- Nonmonetary assets (inventory, fixed assets, etc.) use appropriate historical rate
- Dividends - use exchange rate in effect on date of payment

7

---

---

---

---

---

---

---

---

### Temporal Method - Continued

- Income statement - In general use average exchange rate for period. For depreciation and cost of goods sold use appropriate historical rate
- Common stock and paid-in capital accounts use appropriate historical rate
- Gains / losses from translation go to current consolidated income

8

---

---

---

---

---

---

---

---

### U.S. Rules

- For each affiliate must figure out the functional currency
- Functional currency - currency of the primary economic environment in which the affiliate operates and generates cash flows
- See page 338 for more information in deciding what is the functional currency of the subsidiary.

9

---

---

---

---

---

---

---

---

### U.S. Rules - Continued

- From page 340 of Multinational Business Finance
- If the financial statements of the foreign affiliate are in U.S. dollars no translation is required
- If the financial statements of the foreign affiliate are in the local currency and the local currency is the functional currency use the current rate method

10

---

---

---

---

---

---

---

---

### U.S. Rules - Continued

- If the financial statements of the foreign affiliate are in the local currency and the dollar is the functional currency use (remeasured by) temporal method
- If the financial statements of the foreign affiliate are in the local currency and neither the local currency nor the dollar is the functional currency, then financial statements are first remeasured into the functional currency by the temporal method and then translated by the current rate method

11

---

---

---

---

---

---

---

---

### U.S. Rules - Continued

- If a country has cumulative inflation of approximately 100 % over a 3 year period must use the temporal method

12

---

---

---

---

---

---

---

---

## Examples of Translation Methods

- Exchange rates:
  - Plant and equipment, common stock, long-term debt, and inventory were acquired when the exchange rate was \$ .06 / peso
  - Right before devaluation the exchange rate was \$ .05 / peso (at end of period)
  - At start of the new period the rate is \$ .04 / peso

13

---

---

---

---

---

---

---

---

---

---

## Current Rate Method Example

Accounts	Pesos	Value Before in \$ (rate)	Value After in \$ (rate)
Cash	6000	300 (.05)	240 (.04)
Accounts Receivable	12000	600 (.05)	480 (.04)
Inventory	12000	600 (.05)	480 (.04)
Net Plant	24000	1200 (.05)	960 (.04)
Total	54000	2700	2160

14

---

---

---

---

---

---

---

---

---

---

## Example Continued

Accounts	Pesos	Value Before in \$ (rate)	Value After in \$ (rate)
Current L.	3000	150 (.05)	120 (.04)
L.T. Debt	9000	450 (.05)	360 (.04)
Capital St.	6000	360 (.06)	360 (.06)
Ret. Earn	36000	1980	1980
CTA		(240)	(660)
Total	54000	2700	2160

15

---

---

---

---

---

---

---

---

---

---

### Notes to Previous Example

- Dollar retained earnings are the sum of additions to retained earnings each year
- Assume a prior CTA account of (240)
- The additional loss of \$ 420 = cash (-\$ 60) + a.r. (-\$ 120) + inv (-\$ 120) + net plant (-\$ 240) + c. liab. (+\$ 30) + l.t. debt (+\$ 90)

16

---

---

---

---

---

---

---

---

### Exchange Gain or Loss

- Formula for exchange gain or loss:
- $(\$ \text{ exposed assets} - \$ \text{ exposed liabilities}) \times (\text{percentage change in the exchange rate})$
- $(\$ 2700 - \$ 600) (-.2) = - \$ 420$
- where exposed means that the \$ value changes when the exchange rate changes

17

---

---

---

---

---

---

---

---

### Temporal Method Example

Accounts	Pesos	Value Before in \$ (rate)	Value After in \$ (rate)
Cash	6000	300 (.05)	240 (.04)
Accounts Receivable	12000	600 (.05)	480 (.04)
Inventory	12000	720 (.06)	720 (.06)
Net Plant	24000	1440 (.06)	1440 (.06)
Total	54000	3060	2880

18

---

---

---

---

---

---

---

---

### Example - Continued

Accounts	Pesos	Value Before in \$ (rate)	Value After in \$ (rate)
Current L.	3000	150 (.05)	120 (.04)
L.T. Debt	9000	450 (.05)	360 (.04)
Capital St.	6000	360 (.06)	360 (.06)
Ret. Earn.	36000	2100	2100
Translation gain / loss			(60)
Total	54000	3060	2880

19

---

---

---

---

---

---

---

---

### Notes to the Example

- The translation gain or loss would not be shown as a separate item. Retained earnings would be \$ 2040.
- Translation loss = ( \$ 900 - \$ 600) (-.2) = - \$ 60

20

---

---

---

---

---

---

---

---

### Comparison of Temporal and Current Rate Methods

- Note in this example the two methods give very different magnitudes of losses
- Can also have the situation where there are accounting losses (gains) but operating gains (losses)

21

---

---

---

---

---

---

---

---

## Managing Translation Exposure

- Balance Sheet Hedge - make \$ exposed assets = \$ exposed liabilities ( no matter what the exchange rate does there will be no accounting losses or gains)
- Creating a balance sheet hedge may and probably will reduce operating efficiency (may for example have too much inventory)

22

---

---

---

---

---

---

---

---

## Managing - Continued

- Under the temporal method in this example could borrow 6000 pesos and convert to dollars or buy inventory or plant and equipment
- Under the current rate method could borrow 42000 pesos and convert to dollars

23

---

---

---

---

---

---

---

---

## Rules in Other Countries

- Many countries make a distinction between an integrated foreign entity (foreign affiliate is an extension of the parent and cash flows of affiliate are highly related to cash flows of parent) and a self-sustaining foreign entity (basically cash flows of local affiliate are “independent” of those of the parent)

24

---

---

---

---

---

---

---

---



### Rules - Continued

- In many countries integrated foreign entities use the temporal method and self-sustaining entities use current rate method

25

---

---

---

---

---

---

---

---

### Homework - Chapter 13

- # 8 (do both the current rate method and the temporal method)

26

---

---

---

---

---

---

---

---

### OUTLINE FOR CHAPTER 9

- Understand Interest Rate Exposure
  - How does the problem arise?
  - Techniques to minimize the problem (forward rate agreements, interest rate futures, interest rate swaps, and currency swaps)

27

---

---

---

---

---

---

---

---

## Chapter 9 - Interest Rate Exposure

- This has become a more important topic in recent years due to :
  - (1) increased volatility of interest rates
  - (2) increased use of short-term debt
  - (3) increased pressure to earn “competitive” yields on marketable securities

28

---

---

---

---

---

---

---

---

## Interest Rate Exposure - Continued

- The problem for many non-financial firms is that they have relatively few interest rate sensitive assets but many interest rate sensitive liabilities so firms can get hurt when interest rates go up

29

---

---

---

---

---

---

---

---

## Management of Interest Rate Risk

- Techniques that we will discuss:
  - (1) Forward Rate Agreement
  - (4) Interest Rate Futures
  - (3) Interest Rate Swaps
  - (4) Currency Swaps

30

---

---

---

---

---

---

---

---

## Forward Rate Agreements

- The buyer of a forward rate agreement obtains the right to lock in an interest rate (say 6%) that will begin in the future
- The seller (buyer) of the agreement will pay the buyer (seller) the difference in interest expense if interest rates rise (fall) above the 6% in our example

31

---

---

---

---

---

---

---

---

## Forward Rate Agreements - Continued

- Maturities available typically 1, 3, 6, 9, and 12 months

32

---

---

---

---

---

---

---

---

## Interest Rate Futures

- Suppose a manager wants to hedge a floating rate interest rate payment that will begin in three months (she will borrow in three months at a rate that will be determined in three months) and she worries that the interest rates will increase in 90 days
- Can hedge by selling short a futures (sell a futures that you don't own and must buy  $f_{3,3}$  before you "deliver" it)

---

---

---

---

---

---

---

---

### Interest Rate Futures - Continued

- If interest rates rise, the value of the futures contract will fall and she will make money on the contract thus offsetting the rise in interest rates that she will pay to borrow
- If interest rates fall, borrowing costs will be less but she will lose money because the futures contract will lose money
- In essence, she can guarantee her future borrowing costs 34

---

---

---

---

---

---

---

---

### Interest Rate Futures - Continued

- In theory, if a manager is going to earn interest on a future date (investment in the future) she can hedge by buying a futures contract.
- If interest rates go up (down) this is good (bad) for the investment and money will be lost (gained) on the futures

35

---

---

---

---

---

---

---

---

### Interest Rate and Currency Swaps

- Swaps are agreements to exchange or swap debt service obligations
- Interest Rate Swap - exchange fixed interest rate payments for floating rate payments
- Currency Swaps - exchange debt service obligations in one currency for those of another currency

36

---

---

---

---

---

---

---

---

### Interest Rate Swap Example

- Example : Company A can borrow at 10 % or prime + .25%. It prefers to borrow floating. Company B can borrow at 12 % or prime + .75%. It prefers fixed.
- Note A has a relative advantage in fixed (borrow 2 % less than B) and B has a relative advantage in floating (only .5% more than A)

37

---

---

---

---

---

---

---

---

### Interest Rate Swap Example - Continued

- Note A has an absolute advantage over B in borrowing both fixed and floating
- Both firms can gain if they borrow (it must work out this way) the way they have a relative advantage and then swap for the preferred payment
- Typically an intermediary will help in the process and get a cut.

38

---

---

---

---

---

---

---

---

### Example - Continued

- A borrows fixed at 10% and arranges with the intermediary to pay prime and the intermediary will service A's debt (or gives A the money to pay off the original debt). At the same time, B borrows at prime + .75% and arranges with intermediary to pay fixed at 11% and the intermediary "services" B's debt. Intermediary gets .25%

39

---

---

---

---

---

---

---

---

### Example - Continued

- In this example, A arranges with the intermediary to receive fixed pay floating while B receive floating pay fixed

40

---

---

---

---

---

---

---

---

### Example - Continued

- Note A saves .25%, B saves 1% and the intermediary keeps .25%
- Assuming equal principal, the cost before the swap was 10% (A) + prime + .75% (B) = prime + 10.75%. After the swap, the cost is prime (A) + 11% (B) = prime + 10.75% + .25% (intermediary)
- Note the savings could have been divided up differently

41

---

---

---

---

---

---

---

---

### Currency Swap

- Discussed in Chapter 8 (exchange debt service obligations in one currency for those of another currency)
- A firm might do this because it was not able originally to borrow in its preferred currency
- A firm often would like to service debt in the currency where it was getting a lot of its cash flow

42

---

---

---

---

---

---

---

---

### Interest Rate Swaps and Currency Swaps Combined

- A firm for example can arrange to swap fixed \$ payments for floating rate Euro payments

43

---

---

---

---

---

---

---

---

### Homework - Chapter 9

- 9.7 (assume no intermediary and that benefits are shared equally between the two companies)

44

---

---

---

---

---

---

---

---