CHAPTER

14

Management of Foreign Exchange Exposure

Learning Objectives

After studying this chapter, you will be able to

* Appreciate the need for management of foreign exchange exposure
* Know the different techniques of foreign exchange exposure management
* Comprehend the techniques of natural hedges and contractual hedges used for managing transaction exposure
* Understand the techniques used for hedging the operating exposure
* Understand the techniques used for hedging the translation exposure

INTRODUCTION

Exchange rate volatility has been a major source of macroeconomic uncertainty affecting the value of the firms in the floating exchange rate regime. Firms with low liquidity at times find themselves being pushed to financial distress due to exchange rate volatility. Effective and efficient management of exchange rate exposure has therefore become imperative for the firms in order to maximize their value. Management of foreign exchange exposure refers to the process of elimination and/or minimization of the loss accruing to the firms due to the changes in the exchange rate. The process through which exchange rate exposure is managed is known as 'hedging'.

HEDGING TECHNIQUES

The various hedging techniques used for managing foreign exchange exposure may be clubbed into *three* categories, namely those used for managing the *transaction exposure*, those used for managing the *operating exposure*, and those used for managing the *translation exposure*. Whereas, the transaction exposure and the operating exposure together result in the economic exposure of the firm, the translation exposure is the accounting exposure by nature as has been discussed in Chapter 13.

The hedging techniques used for managing the transaction exposure are broadly divided into two categories—**natural hedges** and **contractual hedges**. Natural hedges are composed of *leads and lags*, *cross hedging*, *currency diversification*, *sharing of risk*, *pricing the transactions*, *back to back loans*, *currency swaps* and *'matching the cash flows'*. These techniques are internal to the firm and hence are often called the 'internal techniques' as they do not involve any contractual relationship with any parties outside the firm. The contractual hedges, on the other hand, are external in nature, hence called 'external techniques' at times as they result in creating contractual relationship with external agencies. Included under the contractual hedges are *forward market hedge*, *hedging through currency futures*, *hedging through currency options* and *money market hedge*.

Similarly, the techniques used for managing the operating exposure are in the form of **financial, marketing and production strategies.** Whereas, the financial strategy shall include *long-term transaction exposure hedging such as matching of cash flows*, *parallel loans* and *currency swaps*, and *matching of liabilities with assets*; marketing strategy shall comprise strategies like selection of the new market, product innovation/planning; and production strategy shall comprise of sourcing of product and product inputs, input mixing, fix plant location and productivity improvement.

The hedging techniques used for managing the translation exposure are the *balance sheet hedge* and a mixture of *balance sheet hedge with contractual and natural hedges*.

Figure 14.1 depicts the different hedging techniques as mentioned above.

HEDGING TECHNIQUES FOR TRANSACTION EXPOSURE

NATURAL HEDGES

Natural hedges, also known as internal techniques of hedging, include the following.

1. **Leads and lags**

   Leads and lags are the type of natural hedges which fall within the firm's internal financial management technique to manage its exposure to foreign exchange volatility. 'Lead' means advancing or accelerating the timing of receipt or of payment of foreign currency, 'Lag' means delaying or decelerating or postponing the timing of receipt a payment by modifying the credit terms. The purpose in both the cases is to reduce the burden of debt. For example, in the event of depreciation in the home currency, an importing firm can advance its payment to minimize the outflow of cash and the reverse in case of appreciation of home currency.

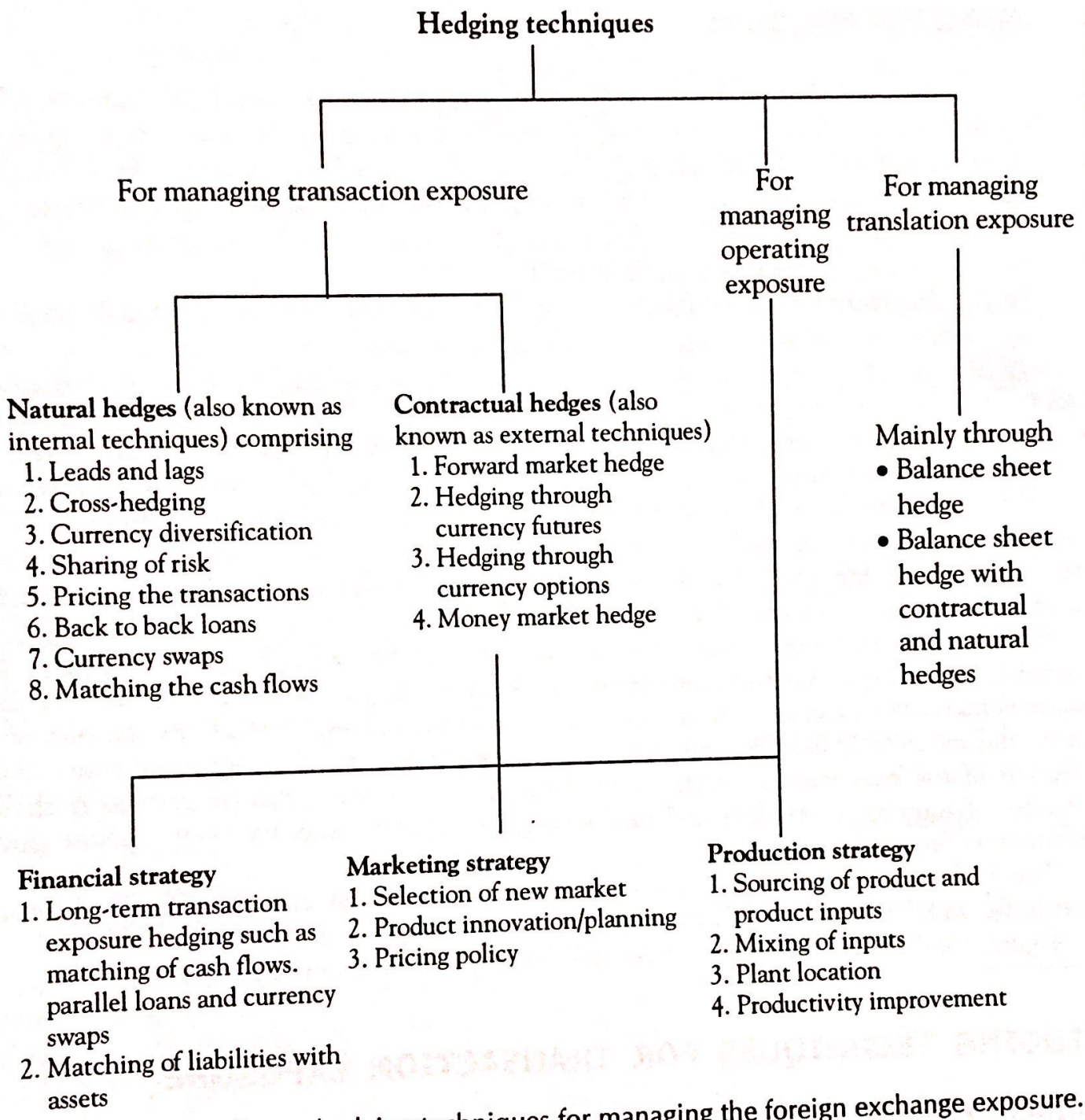

Figure 14.1 Different hedging techniques for managing the foreign exchange exposure.

2. **Cross-hedging**
'Cross-hedging' as a technique for managing the transaction exposure is adopted when a particular currency desired to be hedged can't be hedged in a forward market and as an alternative, a substitute currency whose volatility is highly correlated with the desired currency is identified and hedged.

3. **Currency diversification**
Currency diversification refers to a situation where the firm undertakes transactions involving a large number of foreign currencies rather than a relatively smaller number so that when there is depreciation in one or a few currency(ies), there may

be appreciation in some other currency(ies) which will compensate the loss and the overall loss gets minimized. This may not be possible if the firm trades with a relatively small number of currencies involved in.

4. **Sharing of risk**
   Sharing of risk is a contractual agreement wherein the buyer and the seller agree to share the foreign currency exposure. The arrangement is made in such a way that if the exchange rate falls below or goes above the agreed rate which is usually the spot rate plus or minus a certain percentage, the difference gets passed to either party. Consequently, the burden of loss does not fall on any single party and the loss ultimately gets reduced.

5. **Pricing the transactions**
   Foreign currency exposure can be managed through a variation in the pricing of the transactions. There are two ways to cause a variation in the pricing. They are price variation and currency invoicing. Price variation is effected by making up or down in the transaction price (sale price) to neutralize the adverse impact of any exchange rate changes. The exporter, upon the terms of agreement, may increase the selling price in terms of foreign currency when the home currency appreciates so that the ultimate earnings remain the same. Under the currency of invoicing, the exporting firm will invoice the bills in home currency or any other currency that will help him recover his costs.

6. **Back to back loans**
   Back to back a loan, also known as parallel loans or credit swap is yet another technique of the exposure management. It operates in such a way that the risk of exposure involving two parties belonging to two different countries gets offset. An Indian parent company, for example, has to lend to its UK subsidiary £10,000 and at the same time the UK parent company has to lend an equal amount (£10,000) to its Indian subsidiary. Now instead of the money really moving out of the respective country on remittances, the Indian parent company lends in India to the Indian subsidiary of the UK and the UK parent company lends to the Indian subsidiary in the UK money equivalent to £10,000 to avoid any loss due to currency fluctuations.

7. **Currency swaps**
   Currency swaps are foreign exchange agreements between the two parties to exchange the principal and/or interest payments of a loan in one currency for an equivalent amount of principal and/or interest payments of a loan in another currency. Currency swaps are over the counter derivatives, and operate in the line of interest rate swaps, except for the fact that unlike the interest rate swaps, the currency swaps may involve exchange of the principal. Under the currency swap arrangements, the borrowers exchange the currency of borrowings with each other through a swap dealer. Currency swaps are motivated by the comparative advantage to the parties to the agreement.

8. **Matching the cash flows**
   Under the concept of 'matching the cash flows', firms try to match the foreign currency inflows and outflows, both in terms of magnitude and timing, to minimize the risk of exchange rate fluctuations.

CONTRACTUAL HEDGES

As depicted in Figure 14.1 the contractual hedges include the forward market hedge, hedging through currency futures and currency options, and money market hedge.

Forward Market Hedge

The foreign exchange risk in terms of loss (or gain) to the trader (exporter or importer) may be managed (i.e. reduced, in case of loss) through forward market hedging where currencies are bought and sold forward. The forward buying and/or selling will depend on whether the trader, called the hedger, is taking the long or short position. An exporter is said to have taken long position if the exports are billed in foreign currency. Similarly, an importer takes short position when imports are billed in foreign currency.

Now in order to minimize the foreign currency exposure, exporter taking long position sales, i.e. agrees to sell under forward contract, a fixed sum of foreign currency at an agreed rate and on an agreed date. An importer, on the contrary, taking the short position, buys or agrees to buy under forward contract a certain amount of foreign currency at an agreed price and date.

Example of Long Position (by the exporter)

ABC Ltd., an Indian exporter sells goods to XYZ of Japan for 25,000 ¥ receivable three months hence. ABC Ltd. anticipates that the ¥ which is currently trading at ₹40/¥,(i.e., the spot rate is ₹40/¥) with the same (₹40/¥) as the forward rate, will depreciate (fall) by 10% after three months, i.e., the ¥ will be (₹40 – ₹4 or) 36/¥. Assuming that this anticipation holds good, the export earnings of ABC Ltd. will get reduced by ₹1,00,000, (i.e. 25,000¥ × ₹4). To avoid this, ABC Ltd. would enter into a forward contract for three months to sell 25,000¥ at ₹40/¥. By this arrangement, ABC Ltd. will earn ₹1,00,000 which will equally offset the loss due to a fall in the exchange rate.

Example of Short Position (by the importer)

An importer who fears appreciation in the value of a foreign currency, say ¥, against the home currency, say Indian rupees, will enter into a forward contract to sell specified sum of ¥ at a predetermined rate and date. The following example illustrates the concept:

Basic Industries Ltd., an Indian importer buys goods from Fundamentals Ltd. of Japan for 50,000 ¥ payable three months hence. Basic Ltd. fears that ¥ which is currently trading at ₹40/¥ in the spot and forward markets, will appreciate by 10% after three months, to become 44/¥. If the Yen really appreciates as anticipated, the import bill of Basic Ltd. will increase by ₹2,00,000 and its earnings will be down by ₹2,00,000 (i.e. 50,000¥ × ₹4). To

counter this, Basic Ltd. will enter into a forward contract for three months to buy 50,000¥ at ₹40/¥. By doing so, it will save ₹2, 00,000 which will equally offset the loss due to a rise in the exchange rate.

Hedging through Currency Futures

Under the currency futures, currencies are bought and sold like any other commodities, at a specified 'rate' of exchange and on a fixed maturity date, with the involvement of a clearing house and brokers with consideration of brokerage. Whereas, the mode of operation of currency futures is like that of forward contract, the basic difference between the two lies with the fact that in a forward contract, there is no clearing house, no *fixed date of maturity*, no brokerage, and no fixed amount. In the currency futures, however, only a limited number of currencies and for a relatively smaller amount are traded.

Under the currency futures arrangement, an importer buys currency futures, whereas an exporter sells currency futures. The importer protects itself from the loss due to currency appreciation, and the exporter protects itself from the loss due to currency depreciation.

For example, an exporter selling goods for 5,000 USD at the prevailing rate of ₹46/USD on a three months term may agree to sell currency futures at ₹46 or 47/USD on fear for depreciation in the USD that the USD will become ₹44/USD. Similarly, an importer will enter into a contract to buy currency futures on anticipation of a currency appreciation like ₹46/$ now to ₹51/$ later.

Hedging through Currency Options

Currency options are used for hedging risk and for making speculative profits. Like the future market, the currency option is a derivative market wherein a large volume of currencies are bought and sold. Under the mechanism of currency options, the buyer has the option *but not the obligation* to the contract. The buyer exercises the option if the price is favourable to him after the expiry of the option terms/period. In order to have the privilege of exercising the option, the buyer pays a premium to the option seller, in addition to the option price, i.e. an additional amount is paid to the option seller, in case the option price goes in favour of the buyer. The buyer may terminate the option by not performing the obligation, thus allowing it to expire. *The importer buys a call option and the exporter buys a put option.* Hedging through currency option is preferred to forward contract in case of a strong and highly volatile exchange market.

Working of Currency Option

The working of currency option can be illustrated through the following examples of call option and put option.

Call Option for the Importer

An importer who anticipates appreciation in the foreign currency will buy a put option for selling the foreign currency. For example, ABC India Ltd. imports goods worth £50,000 payable two months hence. The company expects an appreciation in £ and decides to

purchase call option at ₹70/£ with ₹0.5/£ as premium. If the spot rate on maturity is 71.5/£, the company will go for exercising the call option as it will help the company gain by ₹50,000 or (₹50,000/₹71.5) calculated as follows:

The Company pays

$$(50,000 \times ₹70) + 50,000 \times ₹0.5$$
$$= ₹35,00,000 + ₹25,000$$
$$= ₹35,25,000$$

In the absence of (call) option, the company would have paid 50,000 × ₹71.5 = ₹35,75,000. Therefore, the company saves ₹35,75,000 – ₹35,25,000 = ₹50,000. Hence, ABC India Ltd. will exercise the call option.

Put Option for the Exporter

An exporter who fears depreciation in the foreign currency will buy a put option for selling the foreign currency. For example, Super Sales Ltd. has exported goods worth $50,000 to Privilege Inc. of the USA on a three months term. Super Sales Ltd. expects that USD will depreciate over the period and therefore would go for a put option hedging by buying put option to sell USD on maturity at ₹49.5, with a commission of ₹0.5/USD. If the spot rate on maturity comes to ₹48.5/USD, Super Sales will receive 50,000 × ₹48.5 = ₹24,25,000.

When it goes for put option, it will receive (50,000 × ₹49.5) – (50,000 × ₹0.5) = ₹24,75,000 – ₹25,000 = ₹24,50,000. Under the put option, Super Sales Ltd. gains by ₹25,000.

Money Market Hedge

Under the money market hedging mechanism, an importer, in order to cover the foreign currency 'payables' will borrow local currency; convert the local currency so borrowed to desired foreign currency payables; and invest the converted amount of foreign currency for the payment period in such a way that the principal together with interest will be equal to the cost of the import.

For example, an importer has to make a payment of 50,000 USD four months hence. If the rate of interest is 12% per annum, the foreign currency to be invested initially for four months shall be $\frac{50,000 \text{ USD}}{1.04}$ = 48,077 USD which will earn 50,000 USD on maturity.

Going by the sequence of events therefore the importer has to borrow local currency (say, Indian Rupee) of 48,077 USD × ₹40 or ₹19,23,080 which will be converted to ₹19,23,080/ ₹40 = USD 48,077 and invested at 12% for 4 months to earn an interest of 1,923 USD, and to generate 50,000 USD; with the principal amount of 48,077 USD and interest of 1923 USD taken together.

The exporter, in order to cover future receivables will first borrow foreign currency (48,077 USD), convert it to Indian currency (say 48,077 × ₹40/USD = ₹19,23,080) and invest ₹19,23,080 at 12% p.a. for 4 months to earn interest of ₹76,923 which, together with the principal amount of ₹19,23,080, will be equal to ₹20,00,003 or 50,000 USD.

HEDGING TECHNIQUES FOR OPERATING EXPOSURE

As stated before and depicted in Figure 14.1, the techniques used for managing the operating exposure are in the form of **financial, marketing and production strategy.** 'Planning for operating exposure is a total management responsibility because it depends on the interaction of strategies in finance, marketing, purchasing and production'[1].

Financial strategy shall include the *long-term transaction exposure hedging such as matching of cash flows, parallel loans* and *currency swaps*, and *matching of liabilities with assets*. Restructuring of assets and liabilities shall be undertaken in a way that any decline in the firm's earnings must also have a corresponding decline in the liabilities to be served.

Marketing strategy shall comprise strategies like selection of new market, production planning and product pricing; and production strategy shall consist of alternative sourcing of product inputs, input mixing, and plant location.

MARKETING STRATEGY

The Selection of New Markets

The selection of new markets is a part of marketing strategy firms adopt to manage the operating exposure. A firm, for example, exporting goods will not find exports competitive if the domestic currency of the firm appreciates (or the importing currency depreciates). Say, ABC Co. exports goods worth 10,000 USD on a 2 months term when the prevalent exchange rate is ₹48/USD. The export becomes uncompetitive if the exchange rate after two months becomes ₹44/USD. In such case, it would be ideal for ABC Co. to explore the new market and withdraw from the present market, i.e. to stop exporting to the country against which the home currency is appreciating.

Product Innovation/Planning

If due to appreciation of home currency, the export of firms becomes uncompetitive leading to a fall in export sales, firms can make up the decrease in sales by offering the new and innovative products to their customers.

'Companies often respond to exchange risk by altering their product strategy, which deals with such areas as new product introduction, product line decisions, and product innovation. One way to cope with exchange rate fluctuations is to change the timing of the introduction of new products'[2].

Pricing Policy

The firm exporting the products may change its catalogue/listed price up or down depending upon whether the home currency appreciates or depreciates against a particular foreign currency in order to maintain the level of profit. For example, XYZ Co. with a break up of cost and profit of ₹39 and ₹6 against the selling price of ₹45 per unit, exports 1,000

units when the exchange rate is ₹45/USD, that is, the selling price is 1 USD per unit. Now, if Rupee appreciates against dollar at the time of settlement, for example, it becomes ₹40/USD; to maintain the same profit the selling price per unit has to be increased to 1.125 USD from 1 USD, so that the firm generates the same amount of sales, i.e. ₹45,000 at the new exchange rate of ₹40/USD which will bring ₹45,000/₹40 or 1,125 USD for 1,000 units or 1.125 USD/unit.

PRODUCTION STRATEGY

The production strategy that may be used by the MNCs for managing their foreign exchange exposure ranges from alternative sourcing of product and product inputs, mixing of inputs, plant location and productivity.

Sourcing of product and product inputs—Firms who import products and/or inputs from other countries will find it useful a strategy to look for alternative sources of supply in the event the exporting country's currency appreciates. In other words, when the currency of the country supplying product or inputs appreciates, the input buying firms have to find alternative sources of supply from other countries that may be cheaper.

Mixing of inputs—Firms experiencing unfavourable fluctuations in the exchange rates on import of inputs may, in order to contain cost, go for limited imports, while sourcing the rest of the requirements from indigenous sources. The exercise thus results in using a mix of imported and locally arranged inputs.

Plant location—Locating plants and production units in other countries whose currencies are either stable or are depreciating in comparison to home currency is yet another means of managing the adverse effect of foreign exchange risk. The option is particularly useful when the home currency appreciates and the foreign currency depreciates, as an appreciated home currency increases the product costs and decreases the export earnings. 'Third country plant locations are also a viable alternative in many cases, depending especially on the labour intensity of production or the projections for further monetary realignments. Many Japanese firms, for example, have shifted production offshore—to Taiwan, South Korea, Singapore and other developing nations, as well as to the United States—in order to cope with the high yen'[3].

Productivity improvement—Productivity improvement, by adopting retrenchment strategy such as closing down of inefficient plants; resorting to large-scale automation; cost reduction and quality improvements, has also been seen as benefiting the MNCs in their efforts to managing the foreign exposure.

HEDGING TECHNIQUES FOR TRANSLATION EXPOSURE

Translation exposure or accounting exposure as it is also called is associated with the translation of financial statements of foreign subsidiaries into the parent's reporting currency for the purpose of consolidation of the financial performance of parent and the subsidiaries taken together. 'Translation exposure is the potential for an increase or decrease in the

parent's net worth and reported net income caused by a change in exchange rates since the last transaction.'[4] The techniques used for managing the translation exposure are mainly the *balance sheet hedge* and *balance sheet hedge with contractual and natural hedges.*

BALANCE SHEET HEDGE

Balance sheet hedge is done by either reducing the 'exposed' assets without reducing the exposed liabilities or increasing the exposed liabilities without reducing the exposed assets. To illustrate the concept, the following balance sheet of Simplex & Co of Canada, an Indian subsidiary before translation may be taken into consideration:

Balance sheet of Simplex & Co. of Canada as on 31.03.2011 (before translation)

Liabilities	*Canadian $*	*Assets*	*Canadian $*
Equity and reserves	10,000	Land and building	6,000
Bonds and debentures	12,000	Plant and equipment	8,000
Accounts payable	10,000	Long-term investments	12,000
Outstanding	8,000	Inventories (at market value)	8,000
		Accounts receivable	4,000
		Cash	2,000
Total	40,000	Total	40,000

When the above balance sheet is translated into the home currency, i.e. the Indian rupee, under the *'current and non current methods'*, all the current assets and the current liabilities will be multiplied by the current rate, and the non-current assets and the non-current liabilities *except owner's equity* will be multiplied by the historical rate. The difference in the balance sheet representing gain or loss will be directly attributed to the owner's equity which could have been a different value under the 'monetary/non-monetary' or 'temporal' methods of translation as discussed in Chapter 2. This gain or loss is thus due to translation.

A gain will increase the net worth of the firm and hence the management may not be concerned about such exposure, but a loss will decrease the net worth and hence will be a cause of concern for the management needing the management's attention to manage such exposure, either to eliminate or to reduce the loss on translation.

Now before going into the management part, let us find out the amount of loss or gain that is associated with translation of Simplex & Co's balance sheet under the *current and non-current methods of* translation taking the current rate at ₹41 and the historical rate at ₹39 per Canadian dollar (C$).

Balance sheet of Simplex & Co. after translation

Liabilities	C$	*Rate* ₹	*Translated amount* ₹	*Assets*	C$	*Rate* ₹	*Translated amount* ₹
Equity and reserves	10,000		3,82,000*	Land and building	6,000	39	2,34,000
Bonds and debentures	12,000	39	4,68,000	Plant and equipment	8,000	39	3,12,000
Accounts payable	10,000	41	4,10,000	Long-term investments	12,000	39	4,68,000
Outstanding	8,000	41	3,28,000	Inventories (at market value)	8,000	41	3,28,000
				Accounts receivable	4,000	41	1,64,000
				Cash	2,000	41	82,000
Total	40,000		15,88,000	Total	40,000		15,88,000

***Note:** The value of equity and reserves would have been ₹3,90,000 if multiplied by the historical rate of ₹39, against ₹3,82,000 which is the balancing figure on translation. The loss in the net worth therefore is ₹8,000 which has been directly attributed to owner's equity. This loss may even go up or down under the two other methods of translation, namely monetary/method monetary and temporal methods.

The translation loss in the instant case of ₹8,000 needs to be managed in order to get eliminated or minimized. Now, going by the balance sheet hedge, if the 'exposed' assets, namely, long term investments of the subsidiary company is reduced by 4,000 C$ from the present 12,000 C$ to say 8,000 C$ and the inventories increased by 4,000 C$ from 8,000 C$ to 12,000 C$, all other things remaining unchanged, the new balance sheet and the corresponding revised translated balance sheet would be as under:

Revised Balance sheet of Simplex & Co. of Canada as on 31.03.2011(before translation)

Liabilities	*Canadian $*	*Assets*	*Canadian $*
Equity and reserves	10,000	Land and building	6,000
Bonds and debentures	12,000	Plant and equipment	8,000
Accounts payable	10,000	Long-term investments	8,000
Outstanding	8,000	Inventories (at market value)	12,000
		Accounts receivable	4,000
		Cash	2,000
Total	40,000	Total	40,000

Revised Balance sheet of Simplex & Co. after translation

Liabilities	C$	*Rate* ₹	*Translated amount* ₹	*Assets*	C$	*Rate* ₹	*Translated amount* ₹
Equity and reserves	10,000		3,90,000*	Land and building	6,000	39	2,34,000
Bonds and debentures	12,000	39	4,68,000	Plant and equipment	8,000	39	3,12,000
Accounts payable	10,000	41	4,10,000	Long-term investments	8,000	39	3,12,000
Outstanding	8,000	41	3,28,000	Inventories (at market value)	12,000	41	4,92,000
				Accounts receivable	4,000	41	1,64,000
				Cash	2,000	41	82,000
Total	40,000		15,96,000	Total	40,000		15,96,000

The revised translated balance sheet shows that the equity and reserves has become ₹3,90,000 which is just equal to the value that would have obtained by multiplying 10,000 C$ by ₹39 per C$ the historical rate without a loss in the net worth. This exercise amounts to balance sheet hedge wherein the 'exposed' assets, i.e. long-term investments was reduced and inventories increased without reducing the exposed liabilities, with the translation loss being 'nil'. A similar exercise may be undertaken to manage the translation loss by increasing the exposed liabilities without reducing the exposed assets.

BALANCE SHEET HEDGE WITH CONTRACTUAL AND NATURAL HEDGES

A combination of balance sheet hedge and contractual and natural hedge techniques may be applied by the MNCs to manage their translation loss. Whereas, the balance sheet hedge technique may be the one as discussed above and the techniques of natural and contractual hedges may include leads and lags and forward contracts along with a host of other techniques as has been discussed before.

NEED FOR HEDGING

The need for hedging has been subject to some debate with one school of thought holding the opinion that there is *no need* to go for hedging (the hedging irrelevant approach) and the other school of thought holding the opinion that there is a need for hedging (the hedging relevant approach) and firms must go for it. The hedging 'irrelevant' approach has its foundation on several grounds. *First*, the purchasing power parity (PPP) operates and therefore any movement in the exchange rate will be equally matched by the movement in the price as a result of which the financial performance of the firm will not be affected. PPP states that 'the home currency price of a commodity in different countries, when converted into a common currency at the spot rate, is the same across countries'. *Second*, changes in the exchange rate cause both loss and gains to the firms involved in foreign

transactions which in the long run tend to average out or offset each other as a consequence of which the firms' performance remains unaffected in the long run. *Third*, shareholders are competent and rationale enough to minimize the currency risk by portfolio diversifications, hence no need for hedging by the firm itself. *Fourth*, hedging does not add to the value of the firm and instead uses up its scarce resources because hedging involves costs and hence the firm's value gets reduced. *Fifth*, in case of market equilibrium in parity condition, the expected NPV of hedging is zero, and hence going for hedging will not be beneficial to the firm.

The arguments in support of hedging, on the other hand are, *first*, PPP does not hold good in the short run; *second*, hedging helps maintain cash flows; third, NPV of hedging is often positive and fourth, management can hedge the risk better than individual shareholders, hence hedging is essential to maximize the value for the firm.

The benefits of hedging have been always higher than the limitations and hence in practice firms go for hedging by adopting all the aforesaid techniques of hedging.

SUMMARY

The exchange rate volatility has been a major source of macroeconomic uncertainty affecting the value of the firms in the floating exchange rate regime. Firms with low liquidity at times find themselves being pushed to financial distress due to the exchange rate volatility. Effective and efficient management of exchange rate exposure has therefore become imperative for the firms in order to maximize their value. Management of foreign exchange exposure refers to the process of elimination and/or minimization of the loss accruing to the firms due to changes in the exchange rate. The process through which the exchange rate exposure is managed is known as 'hedging'.

The techniques used for managing the foreign exchange exposure broadly falls into *three* categories, those used for managing the *transaction exposure*, those used for managing the *operating exposure*, and those used for managing the *translation exposure*.

The hedging techniques used for managing the transaction exposure are broadly divided into two categories—natural hedges and contractual hedges. The natural hedges are composed of *leads and lags*, *cross hedging*, *currency diversification*, *sharing of risk*, *pricing the transactions*, *back to back loans*, *currency swaps* and '*matching the cash flows*'. These techniques are internal to the firm and hence are called the 'internal techniques'. They do not involve any contractual relationship with any external parties outside the firm. On the other hand, the contractual hedges are external in nature, hence known as 'external techniques'. They result in creating contractual relationship with external agencies. Techniques such as *forward market hedge*, *hedging through currency futures*, *hedging through currency options* and *money market hedges* fall under the contractual hedges.

The techniques used for managing the operating exposure are in the form of financial, marketing and production strategies. Financial strategy includes *long-term transaction exposure hedging such as the matching of cash flows*, *parallel loans* and *currency swaps*, and *matching of liabilities with assets*; marketing strategy includes strategies such as selection of new market,

product innovation/planning; and production strategy shall comprise sourcing of product and product inputs, input mixing, plant location and productivity improvement.

The hedging techniques used for managing the translation exposure are the *balance sheet hedge* and a mixture of *balance sheet hedge with contractual and natural hedges.*

There are arguments for and against the use of 'hedging' as a tool for managing the foreign exchange exposure. However, as the benefits of hedging outplay the limitations, firms particularly the ones who are exposed to foreign currency volatility resort to hedging to minimize the effects of such volatility on their value.

KEY TERMS

Balance sheet hedge is the hedging technique used for managing the translation exposure.

Contractual hedges are techniques other than natural hedges used for managing the transaction exposure. Included under the contractual hedges are forward market hedge, hedging through currency futures, hedging through currency options and money market hedge.

Credit swap, also known as back to back loans, or parallel loans is a technique of exposure management that operates in such a way that the risk of exposure involving two parties belonging to two different countries gets offset.

Cross-hedging is a transaction exposure management technique which is adopted when a particular currency desired to be hedged can't be hedged in a forward market and as an alternative, a substitute currency whose volatility is highly correlated with the desired currency is identified and hedged.

Currency future is a technique wherein currencies are bought and sold like any other commodities, at a specified 'rate' of exchange and on a fixed maturity date, with the involvement of a clearing house and brokers with consideration of brokerage.

Currency swaps are foreign exchange agreements between the two parties to exchange the principal and/or interest payments of a loan in one currency for an equivalent amount of principal and/or interest payments of a loan in another currency.

Hedging refers to the process through which exchange rate exposure is managed.

Natural hedges are a set of hedging techniques used for managing the transaction exposure. They include techniques such as leads and lags, cross hedging, currency diversification, sharing of risk, pricing the transactions, back to back loans, currency swaps and 'matching the cash flows'.

Translation exposure or accounting exposure as it is also called is associated with the translation of financial statements of foreign subsidiaries into the parent's reporting currency for the purpose of consolidation of the financial performance of parent and the subsidiaries taken together.