
UNIT 7 CURRENCY RISK MANAGEMENT

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7.0 OBJECTIVES

After studying this unit you should be able to:

- explain the meaning of currency risk and exposure
- highlight need for currency risk management
- discuss methods of currency risk management
- describe and illustrate instruments of currency risk management, namely, forwards, futures, options and swaps
- discuss derivatives market in India.

7.1 INTRODUCTION

In unit 6, you noted that exchange rates change, and change frequently. And you were also explained the reasons for the fluctuations in exchange rates and the methods of exchange rate forecasting. In this unit you will study the nature of various products available to the risk manager for management of risk arising out of exchange fluctuations. However, it is necessary for such a manager to take a view on the direction in which the exchange rates are likely to move at the time of payment/receipt of foreign currency. For this he requires to know reasons for exchange rate movements, which were discussed in unit 6. In this unit you will learn about the meaning of currency risk and exposure and types of currency risks faced by business. You will also learn about how is currency risk managed with derivatives, different types of derivative instruments and derivatives market in India.

7.2 MEANING OF CURRENCY RISK AND EXPOSURE

Risk, in common parlance, is the other name of possibility of loss. This in finance literature is called downside risk. In finance, risk means the variability from the most likely happening. Statistically, standard deviation is taken as the measure of risk. You

know that standard deviation is nothing but dispersion or variability, both, upside and downside from mean; and mean is the most representative or most likely observation. Standard deviation is thus a measure of total risk, including upside and downside risk.

In practice, a business will find that at the time of payments or receipts in cross border deals viz imports, exports, borrowing, lending, investments, the exchange rates are not necessarily as predicted, despite the use of the best and/or all of the methods for forecasting of exchange rates. Businesses therefore, always have an uncertainty, arising out of exchange rate fluctuations, as to the quantum of cash inflows and outflows in a given period. This uncertainty is called the currency risk. Another risk to which cross border deals (i.e. foreign trade) are exposed is country/political risk. This arises out of the possible imposition of restriction on the movement of currencies by the government of the country in which the counterpart is located or even that of the business's own country. This can result in the payment or receipt of funds being affected, as well as, at a later date, if restrictions on them are removed. Therefore, business or even a country may wish to fix the quantum of inflow or outflow of funds in order to increase its chances of a gain or in other words restrict its chances of a loss for overall profitability. Besides currency and political risks there are other more common risks such as the interest rate risk that is the bane of any business enterprise. Interest rate risk is embedded in any foreign currency borrowing, lending and investment transactions. It may be noted that country and interest rate risks are broader terms than used in the context of currency risk; nevertheless they do belong to currency risk.

In the context of foreign currency dealings, risk arises out of exchange rate fluctuations i.e. unanticipated changes in the value of the currency itself (e.g. in January 1998 the exchange rate was 1 USD = 42.50 INR and in June 1998 1 USD = 43.10 INR). The anticipated changes get reflected in the exchange rate as in the case of the forward rates, which are anticipated spot rates of the future. As against currency risk which is system wide or say that would affect all the businesses in an industry / country, currency exposure means the degree of variability of profits or cash flow, arising out of exchange rate fluctuations, faced by an individual firm. As you can imagine, the currency exposure of a firm will depend on specific revenue and / or cash flow characteristics of individual firm ; and would differ from each other. So while the currency risk is broad and common to all, currency exposure is specific to an individual firm. In common parlance, the terms 'currency risk' and 'currency exposure' are interchangeably used. We will , in this block, use these terms interchangeably; though the difference should be well recognised from the real world point of view.

7.3 TYPES OF CURRENCY RISKS

Management of currency risks involves dealing with diverse risks, namely, translation risk, transaction risk, economic risk, political risk, interest rate risk. Measurement and management of transaction, translation and economic risks will be discussed at length in Units 8 and 9. We may briefly introduce them here.

7.3.1 Translation Risk

Translation risk arises when the functional currency used in various transactions, e.g. US Dollar (USD) or Great Britain Pound (GBP) or Japanese Yen (JPY), is different from the reporting currency, which in the Indian context is the Indian rupee (INR). Each currency may move in different directions vis-a-vis the reporting currency (the one in which the company's balance sheet is prepared). The former may appreciate or depreciate against the reporting currency. Thus, the reported profit or loss and statement of assets and liabilities may be affected by currency movements.

7.3.2 Transaction Risk

The other aspect of currency risk is the transaction risk. The associated risk depends on the nature of the transaction e.g. whether the company is primarily an importer or an exporter or both. If the transaction currency is an appreciating one as against the reporting currency, an importer will find his input costs rising. On the other hand an

exporter would receive a higher income without having to raise prices. Such exposure also affects a company's financial results by virtue of its effect on its foreign currency investment and borrowing transactions.

7.3.3 Economic Risk

Another aspect of currency risk is the impact of exchange rates on future cash flows of the company. It is based on the extent to which the value of the firm as measured by the present value of its expected future cash flow will change when exchange rates fluctuate unexpectedly. Such risk is said to arise out of the company's business transactions vis-a-vis competitors. In an open economy, competitors would include both domestic and international competitors.

7.3.4 Political Risk

Besides transaction, translation and economic risks as described above, companies also face political risk, also referred to as country risk. A company transacting in a foreign country may find its assets in that country frozen or even confiscated or it may find that the country has prohibited its currency from being convertible. Such an eventuality will prohibit the asset from being taken out of that country. Similarly a country could increase the taxes that businesses are required to pay, thereby reducing the amount repatriable to home country. Another aspect of country risk is the legal jurisdiction to which business transactions are subjected.

7.3.5 Interest Rate Risk

Although interest rate risk affects all businesses, including dealing solely in the home currency, foreign currency borrowers and lenders are exposed to the effects of changes in interest rates on foreign currencies which in turn add to currency risk as the amount of interest payable / receivable in foreign currency fluctuates with currency movements.

7.4 WHY MANAGE CURRENCY RISK?

Any uncertainty, especially one where the likelihood of an adverse outcome looms high is generally required to be controlled and managed to reduce or altogether nullify its impact. At times the impact may threaten the very viability of a company. A return on investment is only meaningful if one knows the probability of achieving it. Risk requires to be managed for reducing the fear of an adverse price, for locking in costs and revenues and also to be able to forecast cash flows better.

Businesses adopt various systems and procedures to minimise risk. The market offers various products and services to reduce losses likely to arise out of currency and interest rate risks. Although risk may be due to reasons other than monetary viz risk of fire, generally its management translates into financial compensation packages e.g. possibility of loss/damage to goods is addressed by the purchase of an insurance policy that provides monetary compensation as against replacement of goods. There are therefore, whole systems and organization that are in the business of trading in risk. Whenever a risk is perceived there is always a financial entrepreneur who will work out a product such that both the financial entrepreneur and those who are affected adversely, by the risk stand to gain. They have on offer various products, priced differently. Purchase of these products entails a cost as opposed to a financial loss. Steps taken to purchase such products is called hedging and the product i.e. the contract itself constitutes a hedging instrument and it has the features of a contract. The consideration, analysis and endeavor to reduce risk constitute risk management..

The favourable outcome of managing risk can be (1) reduced cost of borrowing, (2) planning of a better business strategy, (3) better forecast of cash flows and reduction in its volatility.

7.5 MANAGING CURRENCY RISK WITH DERIVATIVES

Currency risk is managed by the use of financial derivatives. Derivative is a general term and is nothing but the derivation of one variable from another. The term originates from mathematics. Derivatives are used to manage systemic or market risk. Financial derivatives are financial instruments whose prices are derived from the prices of other financial instruments. They are traded in almost any market where trading takes place. Derivative trading is linked to the underlying cash or spot market. In this unit we shall confine ourselves to the currency markets.

The action of managing risk is called hedging. Hedging is the technique by which an exposure to risk is covered or dealt with in a manner so as to remove and reduce uncertainties or even to look upon the uncertainty as an opportunity for gain as opposed to the occurrence of a possible loss.

It is like being in the state of defence preparedness in the event of an enemy attack or an insurance against future loss or limiting future loss.

Here it is important to observe the distinction between hedging and speculation. The average person looks upon speculation as a distasteful activity. Yet without speculators there can only be limited scope for hedging and hedgers. Some persons and companies are in the business of taking risks and making money, for which they use their own capital or those of their clients. Speculation involves the acceptance of certain risks in order to receive high returns and does not involve the existence of an underlying transaction. Whereas in hedging there is an underlying transaction with a certain risk attached which is being covered through hedging.

Major instruments of currency risk management are forward contracts and forward rate agreements, currency futures, currency options and currency swaps and interest rate swaps. Lets explain them in the following.

Check Your Progress A

1. Distinguish with example currency risk and exposure.

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2. Why are derivatives called derivatives?

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3. What is country risk?

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7.6 DERIVATIVE INSTRUMENTS

7.6.1 Forward Contracts and Forward Rate Agreements

The forward contract is an instrument wherein the price of the forward currency is the future spot rate for that maturity as expected by the market. Forward contract may be an outright contract. An outright forward contract is an agreement to exchange currencies at a future date at an agreed price.

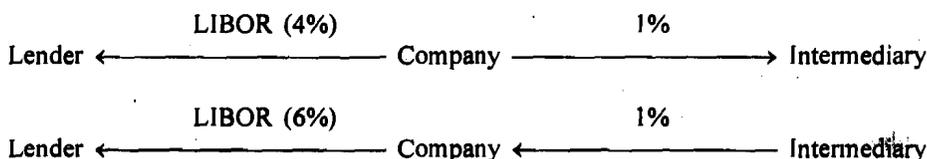
The forward exchange market is an unregulated market and contract specifications largely depend on convention and may be changed by mutual consent of the parties to the contract. Although theoretically it is possible to enter into a forward contract for any maturity of 3 days and beyond, in practice it is difficult for maturities of over one year. In India it is difficult to obtain it for maturities beyond 6 months although the market is now developing for longer maturities.

A forward rate agreement (FRA) is a contract in which an amount of currency is borrowed notionally at a certain fixed rate of interest as against a floating rate of interest or vice versa over a specific, single period of time. It is an over-the-counter transaction in which financial institutions, such as banks act as intermediaries. So whereas a forward contract is a hedge against exchange rate fluctuations, the FRA is a hedge against interest rate fluctuations.

The underlying transaction for a FRA would be an investment or debt involving receipt or payment of interest. However, in the FRA, which is a separate transaction, there is no exchange of any principal amount. The rate of interest considered is generally the LIBOR (London Inter bank offered Rate). There is no payment of fee, other than transaction costs. The payer of the fixed rate is the buyer of the hedge. The receiver of the fixed rate is the seller of the hedge and the bank or financial institution that arranges the transaction is the intermediary.

To take an example, assume that the buyer of the hedge, a company, has decided on day 'A' to borrow a certain sum 'X' at LIBOR for a one-month period beginning from future date 'B'. The one-month LIBOR on day 'B' is an unknown quantity today i.e. 'A'; giving rise to buy an FRA at a fixed rate for settlement on day 'B'.

As per the mechanics of a FRA, on day 'B' the company has to notionally pay the fixed rate of interest on sum 'X' for one-month to the intermediary. So also the intermediary has to pay the company one-month LIBOR on the same sum 'X' on day 'B' when the one-month LIBOR becomes known. In effect, neither the sum 'X' exchanges hands nor the interest amount due on the sum; but the net of the two interest amounts is payable by the party, which has to pay the higher of the two interest rates, to the party which has to pay the lower of the two interest rates. e.g. if the fixed rate is 5% and the one-month LIBOR on day 'B' is 4%, the company will pay 1% to the intermediary. On the other hand if the fixed rate is agreed as 6% the intermediary will pay 1% to the company. The transactions can be represented as below:



The cash flows will be such that on Day 'B' the company receives LIBOR and pays it to lender on Day C i.e. the date of maturity. Thus the company in effect has paid the net fixed rate of interest on the sum 'X'. In this manner it converts its floating interest rate exposure to a fixed rate.

The intermediary on the other hand converts its LIBOR exposure on Day 'B' to a fixed rate one by selling an FRA to another company, which wishes to buy an FRA to hedge against its own fixed rate exposure. Such a company will pay, on Day 'B', the applicable LIBOR to the intermediary and receive a fixed rate interest.

7.6.2 Future Contracts

Most derivatives are futures or options. Some have both features.

Futures are contracts conveying

- a) an agreement, b) to buy or sell, c) a specific amount, d) of a financial instrument, e) at a particular price, f) on a stipulated future date.

a futures contract

- Standardises the quantity of the underlying asset to be delivered per contract.
- has an underlying financial instrument or index
- is regulated by exchange concerned
- has the minimum price movement for the contract
- has the period of the contract
- is an exchange traded instrument
- transaction is not directly between counter parties but through the intermediation of the exchange
- does not consider creditworthiness of the opposite party very relevant.

whereas a forward contract

- has a designated quantity of the underlying asset to be delivered per contract.
- has an underlying financial exposure
- is self regulating
- has a mutually agreed upon price for the contract.
- has a designated future date for delivery
- is not an exchange traded instrument
- is a transaction directly between counter parties
- must consider creditworthiness of the counter party.

From the above it is clear that a currency future is a contract that trades in a futures exchange where long positions (orders to buy) are matched with short positions (orders to sell) by brokers and members. The exchange guarantees both sides of the contract. Currency futures were first traded in 1972 in the International Money Market of the Chicago Mercantile Exchange. One of the biggest futures exchanges is the London International Financial Futures Exchange (LIFFE).

Futures prices are generally quoted in USD equivalents of one unit of another currency; however in the case of Japanese Yen (JPY) the price are quoted as USD equivalent of JPY100. Contract sizes for some currencies are JPY 12.5 million, GBP 62,500; SFr 125,000;

Members are required to maintain a margin with the exchange. The margin requirement would generally be directly proportionate to the volatility of the market. When margin requirement is low, cost of capital required for trading is reduced. But low margins increase default risk of the exchange-clearing house. Exchanges generally permit trading over an eight-hour period. Although this is a restrictive practice, exchanges enter into mutual offset agreements which permit opening of positions on one exchange and closing on the other. They may also permit expanded trading hours.

7.6.3 Currency Options

Options are different from forwards and futures contracts which gives one the option to deliver or not, on the designated date. In the forward contract both parties are obliged to deliver the designated currencies regardless of the actual exchange rate on the date of delivery. In the options contract one may compare the actual exchange rate on the designated date with the contracted rate and opt to deliver or otherwise the designated currency. As the seller of the option, also called a writer of the option such as a bank, is exposed to the unlimited risk of non-delivery, the seller is entitled to receive compensation at the time of the sale or contract upfront. This compensation is called the premium.

Depending on whether the option buyer has contracted to buy the asset or sell it, the option is called 'call' or 'put' respectively. A currency option is the right to exchange two currencies, which means it is a simultaneous right to buy and sell a certain currency. The price at which it is agreed to purchase or sell the asset is called the strike price.

In an European option, the option can be exercised only on the date of expiry whereas in an American option it can be exercised any day prior to or on the date of expiry. Options are traded at the exchange as also over-the-counter.

A 3-month USD 1million call/INR put European option contract having a strike price 44.25 and premium 2.5% will be executed by the payment of 2.5% by the option purchaser to the seller on the date of the contract. At the end of the 3- month period the buyer will see the spot rate on that day and decide whether to utilise the option or not. If the spot rate is higher than INR. 44.25 the option buyer will exercise the option and take delivery of the option contract at INR 44.25 two days after the expiry date. In this situation, the option is said to be in the money. If the spot rate on the date of expiry is lower than the strike price the option is said to be out-of-the money and the buyer will not utilise the contract, as it would be cheaper for the buyer to buy spot in the market. The buyer of any currency is considered to have assumed a long position in that currency and the seller to assume a short position.

The simple call or put option as described above is referred to as plain vanilla or standard derivative. The non- standard option is said to be 'exotic'. Actually it would be a mix of options with other contracts , for example with swaps, called swaption.

7.6.4 Currency Swaps

A swap is an agreement to buy and sell a currency at agreed rates of exchange and where the buy and sell transactions are at different times. A swap is therefore really a combination of the outright contracts, one of which is a spot transaction and the other an opposite and forward transaction. However, both legs of the swap can be forward in which case it is known as a forward-forward swap. When both legs of the swap are separated by one day, it is known as a rollover swap.

A swap-in INR is a spot purchase of INR against another currency with a forward sale of INR against the same currency. On the other hand, a swap-out INR is a spot sale of INR against a certain currency with a forward purchase of INR against the same currency.

A currency swap is undertaken when a party has a liability into another currency, in order to take advantage of favorable interest rate or interest rate movement, whereas a counter party has a liability in the latter currency, which it wishes to convert into liability in the former currency. The party and counter party can be in two different countries and need not know each other. A bank or financial institution can act as intermediary.

Thus it involves exchanging principal and fixed rate interest payments on a loan in one currency for a principal and fixed rate interest payment on an equivalent loan in another currency. For example, assume company 'A' may have to pay USD at 5 % whereas Company 'B' may be in a position to borrow GBP at 8.0%. Similarly, Company 'A' may be in a position to borrow GBP at 9 % whereas Company B may be able to do so in USD at 6 %. To make a swap, at the beginning the principal amounts are exchanged notionally in the original currencies. Thereafter each year the two companies pay interest on the currencies received by them to the intermediary and the intermediary in turn pays them interest on their original currencies. In the process all there entities gain. Let us take an example:

Company 'A' can borrow USD at 5 %
Company B can borrow GBP at 8 %

Intermediary receives 5.5 % from B and pays 5 % to A in USD and gains .5 %; also it receives 8.5% from A and pays 8 % to B in GBP and gains .5 % , making a net gain of 1 %.

Thus, Company 'A' has a net gain of 0.5% [9 % - 8.5%], Company B has a gain of 0.5% [6% - 5.5%] and the intermediary makes a gain of 1%.

At the end of the swap the two companies would notionally return the currency received at the beginning of the swap and notionally receive their original principal amounts.

7.6.5 Interest Rate Swaps

An interest rate swap on the other hand is useful to parties, which have interest liabilities. Consider for example a situation in which Company 'A' has a fixed rate liability e.g. a three-year bond issue at 8% p.a., which it wants to convert into a floating rate liability, based on LIBOR, which it expects will go down in the near future. Assume, this company is able to borrow at LIBOR+0.5%. On the other hand Company 'B' may have borrowed the same amount of currency as the bond issue size of Company 'A' and for the same period at a floating interest rate of LIBOR +1% payable every six months. Company 'B' may wish to lock into a fixed interest rate of say 9% p.a. as its treasurer finds it is a nightmare managing the net of interest cash flows of the Company.

Companies 'A' and 'B' can enter into an interest rate swap through the intermediation of a financial institution in the following manner.

Company 'A' is required to pay LIBOR + 0.5% to company B at the end of six month. LIBOR prevailing at the beginning of the 6-month period in question is taken into account. Company 'B' will pay 9% to Company 'A' at the end of the same 6-month period. Company 'A' then pays 8% to its bondholders and Company 'B' pays LIBOR +1% to its lenders. Company 'A' at the end of 6 months thus receives 9% and pays $(8\% + \text{LIBOR} + 0.5\%)$ i.e. it has a net position $(9\% - 8\% - \text{LIBOR} - 0.5\%) = \text{LIBOR} + 0.5\%$. Company 'B' at the end of 6 months receives LIBOR + 0.5% and pays $(\text{LIBOR} + 1\%) + 9\%$ i.e. has a net position $(\text{LIBOR} + 0.5\%) - \{9\% - (\text{LIBOR} + 1\%)\} = 9.5\%$.

Here again neither the principal amount nor the interest are exchanged but the net amount of the interest is exchanged through the intermediary, which earns a profit by adding its margin to the interest rates payable by both companies. The intermediary enters into separate contracts with both companies who may not know each other.

7.7 DERIVATIVES MARKET IN INDIA

Currency markets, spot and forward, are very active markets in India. The forward and spot currency markets are relatively well developed in India as opposed to the futures and options markets.

The Reserve Bank of India is nudging banks to deal with derivatives but unless currency markets are fully developed with large volumes (the minimum units for currency futures in international markets are - Deutsche Marks (DEM) and Swiss Francs (SFr): 125,000; for GBP: 62,500 and for JPY: 12,500,000) and unless for hedging in international futures markets, rupee becomes fully convertible, the futures markets will not be available to Indian corporates to cover all types of risks.

The discussion in this unit has therefore limitations in that examples provided are of overseas futures markets, which may not appear altogether realistic in Indian conditions.

In the US and European countries, banks act as intermediaries and advice corporate about futures and options and undertake the hedging/futures transactions to cover the currency risks. In India, unless Indian banks are themselves able to obtain cover for futures, Indian banks may not negotiate to undertake the business.

In India, the futures and options currency markets are yet to catch on. The Reserve Bank of India has permitted it in a limited way at a time when neither bankers nor customers fully understand the usefulness and mechanism of the instruments. In this state of general ignorance, news of the losses of Proctor and Gamble Inc. and Orange County in the U.S.A. only compounds the fear and the parties hesitate to tread into this area. Nevertheless, it is hoped to pick up very fast with opening up of the economy.

Check Your Progress B

1. What is a currency call option?

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2. What is a currency put option?

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3. What is currency swaps?

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7.8 LET US SUM UP

Risk is the variability from the most likely happening. One of the most common risk faced by international business firms is called currency risk.

Currency risk arises from the currency fluctuations. The major types of currency risks are namely transaction risk, translation risk and economic risk. Besides these risks there are interest rate risk and country risk. Risk should be managed for reducing profit and cash flow variability. A firm can use various financial instruments like currency options, currency futures, currency swaps to hedge currency risk. The derivative market in India is not fully developed. It is hoped to pick up fast with opening up of economy.

7.9 KEY WORDS

Risk : Variability from the most likely happening.

Currency Risk : The risk arising from currency fluctuations.

Currency Swap : A transaction to exchange a liability in one currency for liability in another.

Currency Option : Buyer has the right but not the obligation to take delivery of the designated currency.

Call Option : An option to buy a stated number of units of a foreign currency at a specific price per unit during a specific period of time.

Put Option : An option to sell a stated number of units of a foreign currency at a specified price per unit during a specified period of time.

Option Premium : The price of an option paid by the option buyer to the option seller at the beginning when they first enter into option contract.

7.10 TERMINAL QUESTIONS/EXERCISES

1. What are the different types of currency risks?
2. What are the basic differences between forward and future contracts?
3. Distinguish, with examples, between currency swaps and interest rate swaps.
4. What is an option? How is it different from other derivative?
5. Write a brief note on currency derivatives market in India.