

EXCHANGE RATE RISK MANAGEMENT : SOME SELECT TECHNIQUES

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It has become incumbent on multinational enterprises nowadays to understand the exchange rate risk and develop mechanisms to manage it. This paper explains different categories of exchange risk and elaborates some internal as also external techniques that are available to manage them.

INTRODUCTION

The rapid growth of international trade and international investment is creating interdependence among financial markets of different countries. This, in turn, has caused an increase in exchange rate risk. As a matter of fact, exchange rate risk has risen even more than the amount of foreign trade and overseas investment as exchange rates have become increasingly volatile (Levi, 1996, p.14). The volatility of different currencies makes headlines everyday in the press. At times, exchange rates have jumped and dropped by startling amounts. Billions are made and lost in a day as a result of these currency swings. In view of these facts, it has become very important for the stock-holders to understand the nature of exchange rate risk and how to manage it now than ever before in the present environment of increased trend towards globalisation around the world.

TYPES OF EXCHANGE RATE RISK

A multinational enterprise is normally subject to three types of exchange risk/exposures,¹ namely, transaction exposure, translation exposure and economic exposure.

Transaction exposure arises where there is a commitment to pay currency or a possibility

to receive foreign currency at a future date. Any movement in the exchange rate in the interim period will affect the domestic value of the transaction. Following situations give rise to transaction exposure : (i) trade transactions like exports and imports, for which billing is done in foreign currencies and (ii) banking and financial transactions executed in foreign currencies like lending and borrowing or equity participation , etc. For example, the appreciation of US dollar in 1985 was beneficial for those enterprises that exported to USA and billed in US dollars. Conversely the American companies exporting outside and billing in other currencies suffered losses. Similarly, the depreciation of US dollar in 1995 caused losses to the non-US companies whose exports were billed in US dollars and proved profitable for the US companies exporting and billing in non-US dollar currencies.

Translation exposure results from foreign direct investment. When balance sheets are consolidated, the value of assets expressed in national currency varies as a function of the variation of the currency of the country where investment was made. If at the time of consolidation, the exchange rate is different from what it was at the time of the investment, there would be a

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difference of consolidation. The real impact of translation exposure is felt only when an asset or firm is liquidated. Otherwise, it is not as significant from the standpoint of hedging as transaction exposure.

Economic exposure refers to the change in expected cashflows as a result of an unexpected change in exchange rates. In an open and globalised economy, the strength of currencies of competitors varies due to relative costs and prices in each country which, in turn, have a bearing on exchange rate; likewise, the structure of business itself gives rise to economic exposure which may put companies at a competitive disadvantage. For example, an American exporter who operates in Indian market can increase his market share merely by reducing the Indian prices of his products, if Indian rupee gains against US dollar. Conversely, if Indian rupee weakens against dollar, the Indian company which is a potential competitor to the American company can profit indirectly from currency losses of the American company. Thus, it is seen that though the Indian company is not directly exporting, yet business competition can be generated on account of the strength of the currency of competitors. However, economic exposure is difficult to quantify and therefore difficult to hedge.

MANAGEMENT OF EXCHANGE RISK

A corporate treasury manager has to continually anticipate the movement of the rates of currencies in which the company has exposures. In order to effectively manage the exchange risk, a proper, firm-specific information system is required to be put in place. The information system (Bhalla, 1997, p.1032) so created should have atleast the following elements : (i) the information should be anticipatory; (ii) the information should flow directly to the

company, with an adequate reporting frequency; and (iii) the quantum of information required should be subsidiary specific. A combination of internal and external techniques can be used for better results.

Internal Techniques of Hedging

There are several techniques which can be used in this category to reduce exchange risk : Choosing a particular currency for invoice ; Leads and lags; Indexation clauses in contracts; Netting; Centre of re-invoicing; and Swaps.

Choice of Currency of Invoicing

In order to avoid the exchange rate risk, many companies prefer/have a policy to invoice their exports in the national currency on the one hand and to pay their suppliers in the national currency on the other. This way an exporter knows exactly how much he is going to receive and how much he is going to pay, as an importer. This method is noble one. However, an enterprise suffers under this method if the national currency appreciates.

Companies may also have recourse to invoicing in a currency whose fluctuations are less erratic than that of the national currency. For example, in the countries of the European Union, the use of European Currency Unit (ECU) is gaining popularity.

Leads and Lags

This technique consists of accelerating or delaying receipt or payment in foreign exchange as warranted by the position/expected position of exchange rate. The principle involved is fairly simple. If depreciation of national currency is apprehended, importing enterprise likes to hurry up to clear its dues in foreign

currencies; exporting enterprises prefer to delay the receipt from their debtors abroad. These actions, however, if generalised all over the country, may weaken the national currency. Therefore, certain countries regulate the credits accorded to foreign buyers to avoid market disequilibrium (Peyrard, 1995, p.103).

The converse will hold true if an appreciation of national currency is anticipated; importing enterprises delay their payments to foreigners while the exporting ones will attempt to get paid at the earliest. These actions may have an effect of the national currency appreciating further.

Indexation Clauses in Contracts

For protecting against exchange rate risk, sometimes, several clauses of indexation are included by exporters or importers.

A contract may contain a clause whereby prices are adjusted in such a manner that fluctuation of exchange rate is absorbed without any visible impact. If the currency of exporting country appreciates, the price of exports is increased to the same extent or vice-versa. Therefore, the exporter receives almost the same amount in local currency. Thus, exchange rate risk is borne by the foreign buyer.

Another variant of indexation may be that the contract incorporates a clause saying that an appreciation or a depreciation is taken into account only beyond a certain level, say higher than 4 or 5 per cent.

There is another possibility that the contracting parties decide to share the risk. They may stipulate that part of exchange rate variation, intervening between the date of contract and payment, will be shared by the two in a certain proportion, say, half, one-third, two-third, etc.

Sometimes, multi-currency clause is used. This clause permits the invoicing to be done in several currencies and only at maturity the parties decide on the currency of settlement. For example, a French exporter may like to settle in US dollars if the rate is FFr. 6/US \$. But he may choose to settle in Pound Sterling if dollar rate is FFr. 5.80/US \$.

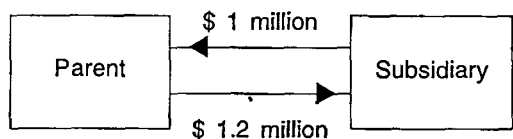
Netting

An enterprise may reduce its exchange risk by making and receiving payments in the same currency. Exposure position in that case is simply on the net balance. For the purpose, an enterprise should try to limit the number of invoicing currencies. The choice of currency alone is not sufficient. Equally important is that the dates of settlement should match. Netting may be bilateral or multilateral.

Bilateral : It is bilateral when two companies have trade relations and are engaged in buying and selling operations on reciprocal basis. For example, a parent company sells semi-finished products to its foreign subsidiary and repurchases finished product from the latter.

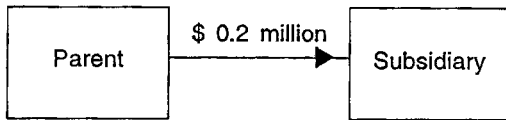
Without netting, movements of funds to be done will be on the pattern as shown in Figure 1.

Figure 1 : Funds Movement without Netting



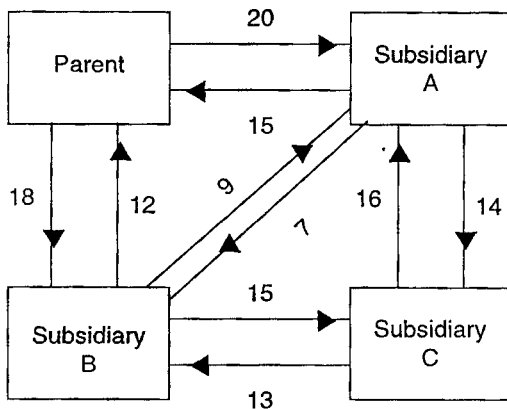
On the other hand, if the two companies take recourse to netting, fund movement will be as shown in Figure 2.

Figure 2 : Funds Movement with Netting



Multilateral : Netting can equally be multilateral. This is taken recourse to when internal transactions are numerous. Volume of transactions will be reduced because each company of the group will pay or be paid only net amount of its debt or credit. Without multilateral netting, for instance, movements of funds between the parent and its three subsidiaries could be represented as given in Figure 3.

Figure 3 : Funds Movement without Netting (Amount in \$ '000)



Multilateral netting simplifies the fund flows because only net amount is transferred. The simplified flow is shown in Figures 4 and 5.

The diagram is reduced in such a manner that a company is either paying or receiving a net sum, or its receipts and payments have netted out to zero as is the case of the Subsidiary C.

Figure 4 : Funds Movement with Partial Netting

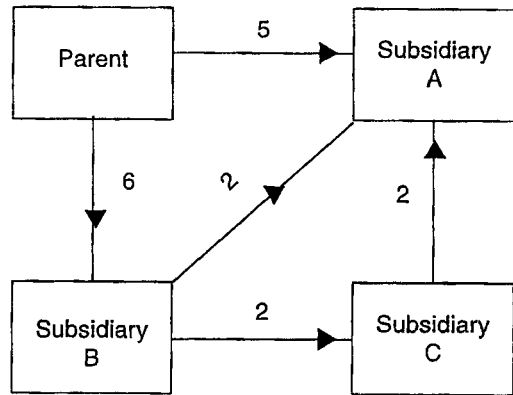
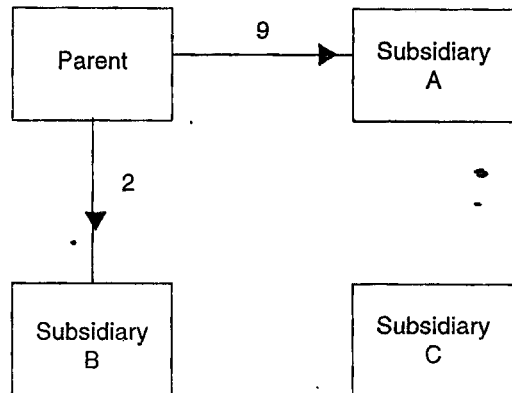


Figure 5 : Funds Movement with Netting



Reinvoicing Centre

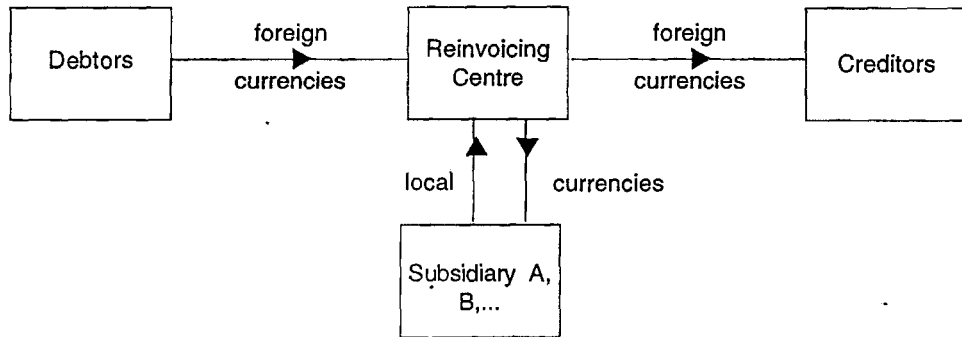
A reinvoicing centre of a multinational group does billing in respective national currencies of subsidiary companies and receives the invoices made in foreign currency from each of them. It would be preferable, if possible, that the reinvoicing centre be located in a country where regulations are least constraining.

The Centre itself is a subsidiary of the parent company. The principle is simple :

the invoices in foreign currencies are made in the name of the reinvoicing centre by the subsidiaries. And, the Centre, in turn, will send out equivalent sum in national currency. Likewise, payments in foreign currencies to

suppliers are made by the Centre and it receives equivalent sum in the national currencies from the subsidiaries concerned. Figure 6 indicates how the flow of currencies takes place :

Figure 6 : Receipt and Payments through Re invoicing Centre



The management of exchange risk is thus centralised at a single place. This helps in reducing the volumes of foreign currency transfers and hedging costs. However, often one encounters the problem that dates of maturity do not match. Besides, the exchange regulations in some countries may not permit reinvoicing.

Swaps in Foreign Currencies

Swap is an agreement reached between two parties which exchange a predetermined sum of foreign currencies with a condition to surrender that sum on a predecided date.

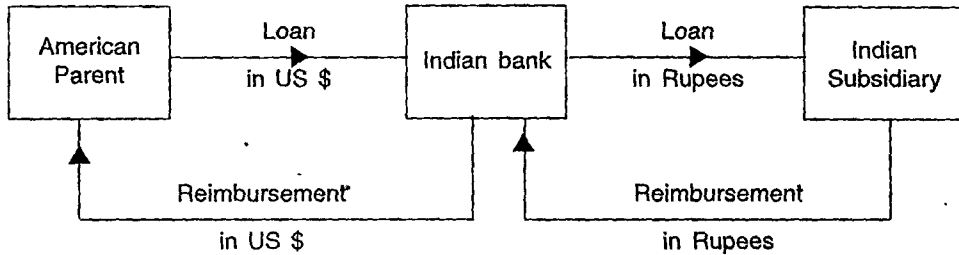
It involves always two simultaneous operations : one on spot and the other on a future date.

There are various types of swaps such as cross-credit swaps, back-to-back credit swaps, export swaps, etc.

Cross-Credit Swaps : In this kind of swap, there is an exchange of foreign currencies

between a parent company and, say a bank in foreign country. Let us say an American parent company wishing to finance its subsidiary in India may enter into an agreement with an Indian bank. American parent will deposit a sum in US dollars with the Indian bank, equivalent to the sum that it wants to lend in Indian rupees to the subsidiary, for a fixed period. Suppose this sum is US\$1 million at a 10 per cent rate of interest. The Indian bank will lend to the subsidiary a sum of Indian Rs. 37 million (assuming the exchange rate is Indian Rs. 37=US\$1), say, at 12 per cent p.a. rate of interest. If the period of the swap is one year, then at the end of the swap period, American parent will receive from the Indian bank a sum of US\$1.1 million (= 1 + 1 X 0.1) while the bank will receive from the subsidiary a sum of Indian Rs. 41.44 million [=37 X(1 + 0.12)]. This swap operation is shown in Figure 7.

Figure 7 : Cross-Credit Swap

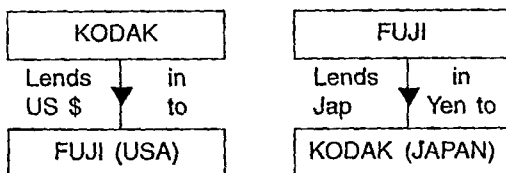


Suppose, in the meantime, the exchange rate has evolved to Indian Rs. 38/US\$1, then the loss to the bank would be \$0.009 million $(=41.44/38 - 1.1)$. Thus the exchange management risk gets shifted to the bank while both the American parent and the Indian subsidiary are dealing in their respective currencies, without any uncertainty about the sums to be received or paid.

The bank could have made a gain in case the exchange rate had evolved in the opposite direction.

Back-to-Back Credit Swaps : In a back-to-back credit swap, two companies located in two different countries, may agree to exchange loans in their respective currencies for a determined period. For example, KODAK (an American multinational) lends in US dollars to USA based subsidiary of FUJI while the latter (a Japanese multinational) lends in Japanese Yen to the Japan-based subsidiary of KODAK. Figure 8 depicts the swap operation.

Figure 8 : Back-to-Back Credit Swap



The cost of swaps will depend on the rate of interest and exchange rate chosen by the two parties.

External Techniques

The major techniques in this category are : Recourse to forward market; Recourse to money market; Recourse to financial futures market; Recourse to options market; and Recourse to currency swaps.

Covering in Forward Market

In order to cover himself against an exchange rate risk, arising from an eventual depreciation of the currency in which he has invoiced his exports, an exporter will sell his foreign exchange in forward market. Conversely, an importer wanting to cover himself against the eventual appreciation of foreign currency, will buy foreign exchange forward. For example, a German exporter HARTMANN has sold some machinery to an American company, for which he would receive payment of US\$1 million in 3 months time. The exchange rates are as follows :

Spot	3-months forward
DM1.4810/US \$	DM1.4700/US\$

The exporter sells his receivables 3-month forward. Thus, he would receive DM 1,470,000 at the end of 3 months. If the

spot rate at the end of three months had remained as it is today, he would have received DM 1,481,000. Thus, for him, cost of covering in forward market against probable depreciation of US dollar is DM 11,000 (=1,481,000 - 1,470,000).

Let us say depreciation of US \$ did take place and the rate on the date of payment (i.e. after 3 months) is established at DM 1.4069/US \$. In that case, without covering, the loss to the exporter would have been substantial. He would have received only DM1,406,900 and so loss would have been DM74.100 (= 1,481,000 - 1,406,900). Therefore, by covering himself in the forward market, he has reduced his risk by becoming certain of his receiving DM1,470,000 irrespective of the degree of depreciation of US dollar.

Taking another example, say, a French importer is to pay 10,000 US dollars in three months time. The exchange rates are being quoted as follows:

Spot	3-months forward
FFr.5.60/US \$	FFr.5.80/US \$

The importer covers himself by buying US dollars in the forward market. He will be paying FFr.58,000 (=5.8 X 10,000). If on the maturity date, the rate was as on the date of contract, he would have had to pay, in that case, only FFr.56.000 (=5.6 X 10,000). So, by covering in the forward market, he suffered a 'loss' of FFr.2,000. But, this loss (or the cost of covering) is certain.

But if the rate had appreciated to, say, FFr.6.00/US \$, he would have had to pay FFr.60,000 (=6.00 X 10,000). Therefore, by covering in a forward market, he in a way has gained as he would have otherwise required to pay FFr. 60,000.

The cost of covering in the forward market is equal to the cost of premium or discount.

$$\text{Premium} = [(5.8 - 5.6)/5.6] \times (12/3) \times 100 = 14.28\%$$

$$\text{And, cost of covering} = (2,000/56,000) \times (12/3) \times 100 = 14.28\%$$

Covering in Money Market

Let us take the above example of the German exporter HARTMANN, who wants to cover himself against a probable depreciation of US dollar. He can do the following : borrow US dollars for 3 months; convert these dollars into Deutsche marks on the spot; place the marks in German money market; and reimburse the loan taken in dollars with interest after 3 months.

Suppose the 3-month rates of interest are:

Germany : 5% p.a. USA : 6% p.a.

Spot rate : DM1.481 = \$1

Borrowing D dollars should be such that

$$D [1 + (0.06 \times 3/12)] = \$1,000,000$$

$$\text{Or, } D = \$985,222$$

Conversion of dollars in Deutsche marks at the spot rate gives

$$985,222 \times 1.481 = 1,459,114 \text{ Deutsche marks}$$

The sum obtained by placing marks in 3-month money market is

$$1,459,114 \times [(1 + (0.05 \times 3/12))] = 1,477,353 \text{ marks}$$

The sum received from the client in dollars at the end of 3 months : \$1 million. This is used to refund the loan taken in dollars.

Thus, the cost of covering the money market is

$$= 1,000,000 \times 1.481 - 1,477,353 = 3,647 \text{ marks}$$

Now, taking the above example of the French importer who is to pay \$10,000 and fears an appreciation of dollar he should have a quantity of dollars, say S, that would become \$10,000 on the due date.

30-days interest rates are :

US\$ 6% and, FFr.:8%.

Spot rate: FFr.5.6 = \$1

Steps involved are :

Buy S dollars and place them in the money market so as to obtain \$10,000 after one month:

$$S(1 + 0.06 \times 1/12) = 10,000$$

$$\text{Or, } S = \$9,950 (10,000 / 1.005)$$

To buy these dollars, borrow from the spot market a sum of French francs equal to 55,720 (9,950 x 5.6).

Refund the loan in French francs after 30 days by paying

$$55,720 \times [(1 + (0.08 \times 1/12))] = 56,092 \text{ francs.}$$

Pay to the seller the sum of US \$10,000.

So, the cost of covering in the money market is FFr.92 (=56,092-56,000). It may be noted that this cost is equal to the interest differential:

$$= 56,000 \times (0.08 - 0.06) \times (1/12)$$

$$= .93 \text{ francs.}$$

Note that if the markets are in equilibrium or are efficient, the cost of covering either in forward market or in money market will be the same as in an efficient market, and differential in interest rate is equal to premium or discount. Since the markets

are rarely in equilibrium, one should actually carry out calculations to know where the cost of covering is less; and emphasis should be also on the ease of covering.

Covering in Futures Contract Market

Initially, futures markets were engaged in merchandise business only, e.g. eggs, butter, cereals, raw material and so on. The currency futures were launched, for the first time, in 1972 on the International Money Market (IMM) of Chicago (presently a division of the Chicago Mercantile Exchange).

Currency futures markets are now functioning at Chicago, New York, London, Singapore, Tokyo, Sydney, etc. The most important of them is IMM of Chicago.

A currency futures contract is a commitment to buy or to sell a specified quantity of a currency on a future date, at a pre-determined/decided price existing on the date of the contract. These contracts have the following characteristics: (a) Transactions are traded in standard lots. For illustration purpose, Table 1 contains the values of major currency futures contracts, traded on IMM Chicago; (b) Quotations are made in terms of US \$ per unit of another currency; (c) Fluctuations differ according to currencies. The smallest variation (also called 'tick') is 0.01 per cent. So if the contract is of the value DM125,000, the value of minimal fluctuation is 125,000 x 0.01/100 = DM 12.50; (d) Maturity periods are also standardised, say, March, June, September and December; and (e) A guarantee deposit is required to be made for selling or buying of a contract. This deposit is of the order of US \$1,000 and is made with the Clearing House.

Table 1 : Transaction Lots of Major Currencies on Futures Contract at IMM

Currency	Amount
Australian dollar	10,000
Canadian dollar	100,000
Pound Sterling	62,500
French franc	500,000
Deutsche mark	125,000
Japanese Yen	12,500,000
Swiss franc	125,000

Futures rates differ from spot rates for the same reasons applying to forward rates. They are very close to forward rates of the same currency for the same maturity date.

In fact, if forward rates were much different from futures rates of the same maturity, it would be easy to buy in forward market if the currency was cheaper and sell futures contracts in the same currency at the same time. Thus, there would be a profit to the operator without risk, assuming there were no transaction costs.

Operating Procedure in Futures Market

First of all, the interested enterprise is required to make a guarantee deposit with a broker who is a mediator between the enterprise (or the player in the market) and the Clearing House. The broker will deposit his sum with the Clearing House. For instance, an enterprise A buys a currency futures contract through a broker X from another enterprise B associated with/related to broker Y. Once the engagement has been made, both enterprises deal directly with the Clearing House.

Every day, the Clearing House calculates the situation of each operator. As the rate of the contract evolves, it proceeds to call for maintenance margins from the operator who has registered a loss and conversely, credits the account of the other party who has registered a gain.

If the enterprise A wants to sell its contract, the same is executed by him through his broker who finds another buyer. The enterprise A will have made a gain or loss depending on the evolution of the rate of futures. Most of the contracts (98 per cent) on the futures market are not delivered. They are closed by reverse operations : the buyers resell them and the sellers repurchase.

Principle of Covering Risk

The principle is to compensate a loss of opportunity on the spot market by a gain of almost the same amount on the futures market. In other words, one should take a reverse position on the futures market vis-a-vis the position that one has on the spot market.

Purchase of a currency future protects against an appreciation of the currency of contract. Similarly, sale of currency future contract protects against a depreciation of the currency of contract.

A company that has exported and is to receive its dues in Pound Sterling will sell future contracts in Pound Sterling corresponding to the value of exports.

A company that has imported and is to pay in Deutsche marks will buy DM future contracts to protect an appreciation of Deutsche mark.

For example, an American company has exported in January of the current year to a German client. The payments of DM 1

million are due in March. The American company wants to cover itself against the risk of depreciation of DM. The DM March future contracts are quoted at US \$ 0.587 per DM. The spot rate in January is US \$ 0.588 per DM.

In January the American company deposits the guarantee with the Clearing House and sells 8 future contracts, each of DM 125,000. The total amount covered is DM 1 million (=8x125,000)

During all this period upto the maturity date, the American company will pay maintenance margins if DM rises and conversely will have its account credited if DM slips. In March, this company repurchases (or closes) the contract at a rate of 0.559 dollar per DM. It makes a gain of 28,000 dollars [= (0.587-0.559) x 8x125,000]. This gain is equal to the loss of opportunity on the spot market, that is 28,000 dollars [= (0.588-0.560) x 1,000,000]. The spot rate on the date of closure or repurchase of the contract is 0.56 dollar per DM.

Note that in order to simplify the calculations, the rates have been so chosen as to compensate the loss of opportunity in totality. In reality, there may be some uncovered loss and also there are costs of transactions which have been ignored here. Also, the amount to be covered may not always be in exact multiples of standard futures contract lots. Thus, the amount covered may be less or more than the sum involved in a transaction. For instance, if the sum to be covered was DM 1.1 million, then, number of futures contracts should be either 8 or 9. In case it is 9, we would be covering DM 1.125 million rather than DM 1.1 million. And, in the case of 8 contracts, we would be covering DM 1 million.

Covering in Foreign Exchange Options Market

An option gives its holder a right (but not an obligation) to buy or sell an asset in future at a price that is agreed upon today. Nowadays, interested investors/enterprises can deal in options to buy or sell common equity, bonds, commodities, currencies, etc.

The first organised market in options in currencies was opened in Philadelphia in 1982. Many other markets have since developed, for example at Amsterdam, London, Paris, Montreal, Vancouver, New York, Chicago, Singapore, etc.

It is an instrument that permits its holder (or buyer or owner) to take advantage of a favourable evolution of exchange rate. It is taken recourse to by companies to cover exchange rate risk.

There exist two types of options : call and put option. These are bought or sold at a premium, which is paid to the writer of the option, usually in local currency per unit of foreign currency.

Call Option : The holder of a call option acquires a right but not an obligation to buy a certain quantity of foreign currency at a predetermined price (also called exercise or strike price). A writer (or seller) of a call option has an obligation to sell a certain amount of foreign currency at a predetermined price.

Put Option : The holder of a put option acquires a right but not an obligation to sell a certain quantity of foreign currency at a predetermined strike price. The writer of a put option has an obligation to buy a certain amount of foreign currency at a predetermined price.

Thus, it is the holder (or buyer or owner) of an option who has a choice to use or abandon the exercise of the option, whereas, the seller of an option should be ready to sell (in case of call) or buy (in case of put) the amount agreed upon. The latter has no choice of his own.

It should be noted that unlike stock options, a call option on, say, US dollars is also simultaneously a put option on the other currency of transaction, say, Indian rupees. For, if the holder has a right to buy US dollar against Indian rupees at a predecided price, then he has also a right to sell Indian rupees at a specified dollar rate.

The option which a holder enjoys could be one where he can exercise his right any time during the life of the option. This type of option is referred to as American style. In contrast, where the holder could exercise his right only on expiration or on maturity date is referred to as European style.

Premium On Options

The premium is paid for buying a put or call option, which depends upon several factors and is comparable to an insurance premium; the major factors in this regard are : The difference between the exercise and spot price; The maturity periods; Volatility of price movements; Interest rates, etc.

In order to understand the use of options, let us take an example of a French exporter who is to receive US \$ 1 million in March in the current year, having sold his product in January. Fearing a depreciation of US dollar, he decides to cover through put option. The data are : Spot rate : FFr.5.60 /US \$; Premium : 3%; Date of maturity : March 1; and Exercise or strike price : FFr.5.55/US \$.

1st Possibility

US dollar has depreciated to FFr. 5.30/US \$. He exercises his put option and sells dollars at FFr.5.55/US \$. He, thus, receives,

$$5.55 \times 1 - 0.03 \times 5.60 \text{ French francs} \\ = 5.382 \text{ million French francs.}$$

If he had not covered through the put option, he would have received only 5.30 million French francs.

2nd Possibility

US dollar has actually appreciated to say FFr. 5.8/US \$. He abandons his put option and sells his dollars in open exchange market. He receives thus $5.8 - 0.03 \times 5.6$ million French francs or 5.632 million French francs.

3rd Possibility

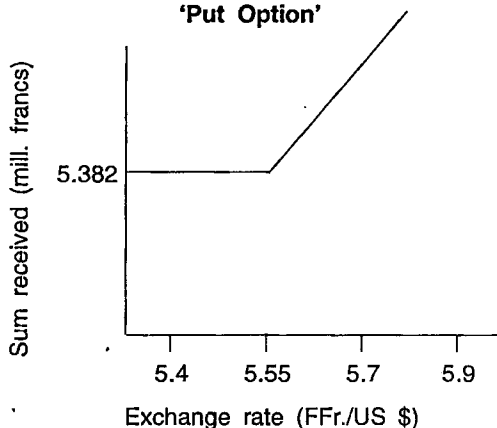
The rate on March 1 is FFr.5.55 FFr./US \$. He is then indifferent between making use of his option and selling in the open market. He will receive either way, a sum of

$$5.55 - 0.168 \text{ million French francs} \\ = 5.382 \text{ million French francs}$$

Thus irrespective of the degree of depreciation of US dollar, he is assured of getting at least FFr. 5,382 million.

Any price above the strike price of FFr. 5.55 brings a greater advantage for him but at less than FFr.5.55, his receipts do not fall below FFr.5.382 million. Its graphical representation is portrayed in Figure 9.

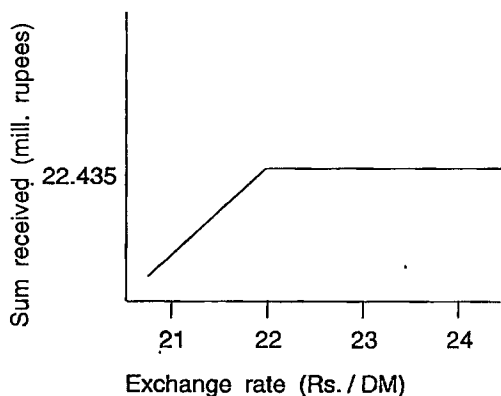
Figure 9 : Sum to be Received under 'Put Option'



Taking another example, say, an Indian importer is to pay DM1 million on September 1 in the current year. He wants to make sure that he does not pay too high in case Deutsche mark appreciates. He buys a call option by paying 2 per cent on the current price. The current rate is Rs. 21.75/DM. The strike price is decided to be Rs.22/DM.

In case of an appreciation of Deutsche mark, the net price to be paid by the importer is going to be Rs. 22.435/DM (=22.00 + 0.02 x 21.75). Conversely, if the German currency depreciates, the importer will abandon his call option. the operation

Figure 10 : Sum to be Paid under Call Option



is graphically represented in Figure 10.

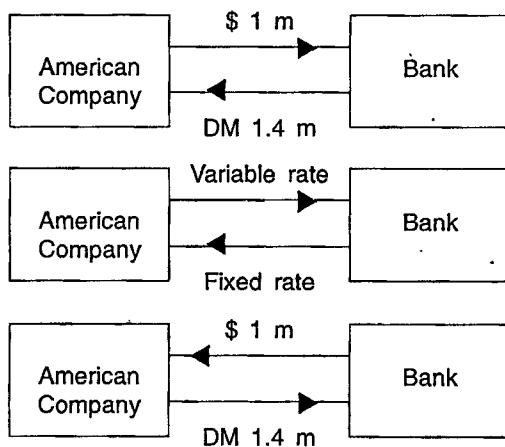
In view of the above, it is apparent that the enterprise/operator is to be more vigilant/watchful regarding trend in exchange rate while covering in the option market unlike covering in exchange market where everything is certain.

Covering with Currency Swaps

Swap is essentially an exchange of two transactions; it is an important instrument for hedging foreign exchange exposure in which two streams of payments are exchanged.

Suppose an American company wants to borrow Deutsche marks at variable rate. It is well placed on American market. It borrows US \$1 million on the American market at a fixed rate and enters into swap deal with its bank. On the date of the contract, there is an exchange of the principal: the American company pays to its bank 1 million dollars and receives 1.4 million Deutsche marks, the spot rate being DM 1.4/US \$. During the contract period, the company will pay variable rate on the

Figure 11 : Swap between a Company and a Bank



Deutsche marks while the bank will pay it fixed rate on dollars. There will also be a re-exchange of the principal on the maturity date. Figure 11 illustrates the swap.

Currency swaps are comparable to a forward exchange transaction with a difference that the differential of rates is calculated periodically instead of being settled just once at the end of the contract; this feature renders the swaps more efficient and more flexible than covering in forward market for long periods.

CONCLUSION

Multinational enterprises are subject to different categories of exchange risk. The transaction exposure concerns all those enterprises that have receivables or commitments to pay in foreign currencies. The translation exposure concerns those enterprises which have subsidiaries abroad, thus exposing their assets and liabilities. The economic exposure necessitates a long-term forecasting of the economic environment and future cashflows. It has become incumbent on enterprises nowadays to understand the exchange rate risk and develop mechanisms to manage it. In periods of fixed rate regime, special attention was paid to the possibility of a currency devaluation. In floating rate regime,

it becomes important to anticipate evolution of rates and adopt appropriate strategies for covering risks that result from volatility of rates. A number of techniques — internal as well as external — are available. Internal techniques are often used. These include (i) choosing the currency of invoice; (ii) taking recourse to leads and lags; (iii) incorporating indexation clauses in contracts; (iv) netting of payment streams; (v) re-invoicing through a separate centre; and (vi) using swaps. However, they alone do not suffice. So enterprises may use a combination of internal and external techniques. Some of the external techniques are : taking recourse to (i) forward market; (ii) money market; (iii) futures market; (iv) options market; and (v) currency swaps.

Note

1. The terms 'risk' and 'exposure' have been used in the same sense in this paper.

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