INTERNATIONAL FINANCE: AN INTRODUCTION

STRUCTURE

1.0 OBJECTIVES

After the completion of this chapter, you should be able to understand the following.

- Foreign Exchange Market in India
- India's Balance of Payments
- The Current Account
- Balance of Trade
- The Capital Account
- Balancing Items
- Raising foreign currency finance
- Recent trends

1.1 INTRODUCTION

The full convertibility of the rupee is a major step towards opening the doors of the Indian economy to the rest of the world. A number of steps have already been taken in this direction. The Foreign Exchange Regulations Act has been slashed, a number of foreign companies have been allowed to increase their stake in Indian Companies, and as a result, external trade opportunities for India have grown tremendously.

All this implies one thing that anyone who means to be in business cannot afford to be ignorant of International Finance. The fluctuating rupee has increased the risk that a Corporate Manager faces and even offers opportunities for him to make gains because of exchange fluctuations.

A number of companies have realized that Forex Management is crucial in the hanged circumstances. For instance, Essar Gujarat group reported an "Other Income" of about Rs. 57.02 crores up to November 1992 of which about Rs. 50 crores came from profitable Forex management. Many more companies are falling in line now. They have built in complex infrastructure such as Reuter screens, through which messages are flashed across the world

regarding the latest exchange rates for various currencies. They also employ people who are experienced in the field at unbelievable rates of remuneration. All this requires crores of rupees of investment, but this high cost is traded by the gains.

1.2 FOREIGN EXCHANGE MARKET IN INDIA

The Indian Foreign Exchange Market consists of a three-tier segment.

Tier I: The first tier consists of the merchant transactions between the individuals, companies and Authorized Dealers. Authorized Dealers refer to the Banks who are authorized by the Reserve Bank of India to deal in foreign exchange. There are also the Authorized Money changers.

RBI has granted limited licenses to some hotels, government shops and other organizations who come into contact with tourists and provide facilities for conversion of foreign currency notes, coins and travelers cheque. These establishments and organizations are called money changers. In addition to the authorized dealers and the moneychangers, financial institutions such as the IDBI, ICICI and the Exim Bank of India are also permitted to handle foreign currencies in a restricted way.

Tier II: The second Tier of the foreign exchange market consists of the Inter Bank transactions. Every bank, which deals in foreign exchange, is required by the RBI to square its position at the end of the day. This means if they purchase foreign exchange, they have to sell an equivalent amount of foreign exchange and vice versa. This gives rise to Inter Bank transactions. Besides dealing with the domestic market, the authorized dealers are also permitted to deal with overseas banks.

Transactions in the interbank market must be entered through an exchange broker. The market is active in Pound Sterling and US dollars while in other currencies the activity is restricted. Inter Bank transactions are on TT basis which means the selling bank must deliver the foreign exchange by 'Telegraphic Transfer" to the buying bank on the same day as on which the rupee funds are received.

Tier III: The foreign exchange dealings between authorized dealers and the RBI constitute the third and the apex segment of the three-tier structure of the Indian foreign exchange market. RBI is the custodian of the foreign exchange assets of the country.

1.3 INDIA'S BALANCE OF PAYMENTS

Speaking in layman's terms the Balance of Payments for a country can be compared with the annual financial statements comprising the Profit and Loss Account and the Balance Sheet of a company. At this macro level, each country takes the position of an individual company and the inter-country transactions are thereby recorded in the respective Balance of Payments Account.

A monetary transaction arises between two countries when either of them sells (exports) goods and/or services to the other, buys (imports) goods and/or services from the other, invests in or attracts investment from the other. And just as the annual statements differentiate between capital and revenue expenditure and income, so that revenue items are recorded in the Profit and Loss Account while capital items are recorded in the Balance Sheet, so the BOP is categorized into the capital and current account. Each category is described briefly in this section.

1.4 THE CURRENT ACCOUNT

The trade in goods between two countries is referred to as Merchandise Trade, For Example: Export and import of consumer and capital goods, commodities and the like. In addition to goods, a country also provides services to residents in foreign countries and avails itself of services offered by foreign residents by paying for it. Such services are referred to as invisibles and the trade in services is called trade in invisibles.

Such services include:

1. Air and Sea Transport Services: When people or goods have to journey from one country to another the modes of transport made use of are usually the airlines for passenger and light weight goods and ships for heavy cargo, Railways, Roadways and Inland waterways are also utilized for countries having a common border. The income for such services accrues to the country whose relevant services were utilized, for e.g. For carrying Indian cargo from Bombay to Middle east, German shipping lines may be offering the cheapest freight rates accompanied by reliable service from Bombay. The freight payments made therefore are the income for Germany and expense for India.
2. Financial and other services for e.g., Insurance, banking, consultancy and advisory services, courier, postal, telephones, telegraph, port dues, agency commissions, banker's commissions are included in this item.
3. Services provided for foreign tourists etc., hotels, travel agents, educational loans, scholarship and grants for students, expenses and income, business promotion bodies set up abroad to expand business are included in this category.
4. Payments made or income received in respect of securities sold to foreigners or foreign securities purchased represent another category of exports and imports of services.

Other than merchandise trade and trade in invisibles, the current account includes a somewhat different category of payments and receipts. Those are in the nature of unilateral transfers, in that no exchange of goods and services is made and yet funds are transferred into and out of the country. These take the form of gifts, remittances (like an employee abroad sending home part of his monthly income to his family), contributions by foreigners to institutions in India, and other such transfers are entered in the BOP under this category.

The sum of the value of transactions in all the above categories incurred between one country and all others comprise its current account figures and the difference between its inflows and outflows reflects its balance on current accounts.

1.5 BALANCE OF TRADE

Balance of Trade pertains to the excess value of exports over imports or vice versa in merchandise trade. If exports exceed imports in value, the country is said to be having a trade surplus. To the contrary, if imports exceed exports, the country is said to have a trade deficit. If country A s imports from country B exceed its exports to country B, then country A is said to be having a trade deficit with respect to country B. The difference between the export trade figures and import trade figures is referred to as the Trade Gap.

1.6 THE CAPITAL ACCOUNT

If a country could plan and manage its investments and future growth with the

resources available within its territorial boundaries, it will not find itself in search of foreign funds. Again, if it finds its inflows from abroad on the current account exceeding its outflows to other countries (i.e., a deficit on its current account), it will not require borrowing foreign capital for its regular activities in international trade. But often, a country will find itself in need of additional foreign funds to meet the following needs:

1. To finance its imports which are exceeding its exports in value terms.
2. To invest in foreign countries to benefit from the returns offered by them.
3. To repay loans taken previously for the above purpose.

Thus, transactions like the purchase of property, securities, equity investment through financial collaborations abroad. For Example: joint ventures held by Indians abroad, loans given by Indian government/agencies to foreign governments, institutions, companies or residents and gold purchased abroad and brought into the country as also similar long term capital assets are outflows of foreign exchange capital nature hence are recorded in the capital account. On the inflows side the above activities conducted by foreigners' in/from India constitute capital inflows.

1.7 BALANCING ITEMS

The third category of the BOP is the balancing items. These items include official holdings of gold, foreign exchange reserves and SDRs. A surplus increases inflow whereas a deficit is coped with by an outflow of reserves.

1.8 RAISING FOREIGN CURRENCY FINANCE

The major sources available to an Indian firm for raising foreign finances are:**Eurocurrency Loans**

Most international firms can raise funds from the Eurocurrency markets. Eurocurrency is any freely convertible currency deposited in banks outside the country of its origin. Depositor put their savings in bank for short periods. Thus, they hold short-term claims on the banks. Banks to make Eurocurrency loans to company for long period of time use these deposits. Thus, the short-term deposits are transferred into long-term claim on borrowers. Banks act as intermediates between the depositors and borrowers. Usually, the size of the Eurocurrency loans is very large, and therefore, these loans are syndicated by more than one bank. These loans are made mostly on the basis of floating interest rates. Interest is fixed as LIBOR (London interbank offering rate) plus margin.

Eurobonds and Foreign Bonds

A company can also raise funds by issuing Eurobonds and foreign bonds to investors in other countries. Eurobonds are bonds sold outside the country in whose currency they are denominated. They are issued directly by borrowers to the investors. Eurobond market is a free market without regulation. It is a self- regulated market. The borrowers' issue both fixed- rate and floating-rate Eurobonds. A foreign bond is different from a Eurobond. A company in a domestic capital market of a foreign country issues a foreign bond. It is dominated in the currency of the country where it is issued, and is subject to the laws and regulations of that country.

Depository Receipts

It is difficult for companies from developing countries to raise equity capital from developed capital markets. The country risk of these companies is high and the listing and disclosure requirements in developed capital market like the US markets are very stringent. An indirect method of raising equity capital from developed market is to issue depository receipts. For example, an Indian company can issue depository receipts (ADRs) in US and raise capital there. The Indian firm can also issue Global Depository Receipts (GDRs) in many other countries. How are depository receipts issued? A company issues its shares to depository, which will be a reputed international financial institution. The depository bundles a specified number of shares as a

depository receipts and issues them to investors in foreign country. The depository receives dividends from the issuing firm and then pays it to the depository receipt holders. Depository can be listed on the international stock exchanges.

Cost and Risk of Financing

An international firm will be governed by relative cost and risk in raising funds from various sources in the international capital markets. The firm will strive to minimize the cost of funds, keeping risk at the lowest level. It should try to raise below the market rate. In a competitive international capital market, it is not possible to raise fund at a cost lower than the market rate. A firm may be capable of raising below market rate funds due to government subsidies, tax asymmetries and government regulations.

Borrowing in local currency to finance a foreign investment can expose a company to foreign exchange risks. A Taiwanese company may invest in Thailand by borrowing Taiwanese dollars in the domestic market and may convert them into Baht. Later on, Baht may depreciate or appreciate against the Taiwanese dollar. The Thai operations will earn less Taiwanese dollars if bath depreciates, and servicing the Taiwanese dollar loan will become difficult. The company will have more Taiwanese dollars and will be comfortable in servicing the Taiwanese dollar if bath appreciate. The Taiwanese firm has two alternatives to avoid the risk of change in the exchange rate. It may borrow in Taiwanese dollars and simultaneously, sell baht forward. Alternatively, it can borrow in that. Since its Thailand operations have assets in bath, creating a liability in that will provide an automatic or natural hedging. If the Taiwanese company uses its Thai operations to manufacture goods whose prices are fixed in Taiwanese dollars, then there is no foreign exchange risk.

Exchange Rates

Since there is a three-tier market for foreign exchange in India, on any given day the exchange rates are available for

- Purchase and sale of select foreign currencies by RBI valid for transactions between RBI and the authorized dealers
- Interbank market rates for foreign currencies valid for transactions among the authorized dealers and
- Merchant business exchange rates valid for transactions between authorized dealers and customers.

Exchange Quotations

Exchange Rates may be quoted as 'Direct Quotes' or Indirect Quotes'. A quote, which is expressed as Rupees per unit of a foreign currency, is known as a direct Quote and a Quote, which is expressed, as foreign currency per unit of Rupee or per Rs.100 is known as an indirect quote.

The relationship between the two quotes of RBI is, Direct quote = 100/Indirect quote. For example, if we say that the rate is £ 2.1309/Rs. 100 it is an Indirect Quote, but if we say Rs.46.93 per £ it is a Direct Quote. In India, as per RBI directives, authorized dealers for sale and purchase of foreign currency notes and coins and travelers' cheques use direct quotes. For all other transactions with the customers and in the inter-bank market only indirect quotes are used.

Buying and Selling Rates

In any foreign currency transaction while using the exchange rates, the important points to keep in mind are: The buying rate is also known as the 'bid rate' and the selling rate as the 'offer rate'. The difference between the bid and offer rates for a currency at any time signifies the spread

or profit for the banker.

Cash and Spot Transactions

Let us assume that in the interbank market; Indian Bank agrees to buy $1,00,000 from ANZ Grindlays Bank. The actual delivery of foreign exchange under the contract may take place.

a. On the same day or
b. Two days later or
c. Some days later - say, after two months.

The date on which the foreign currency actually exchanges hands is known as the 'value date'. The transaction in which the value date is the same as the date on which the transaction is entered into known as a cash transaction. The transaction in which the value date falls two days after the transaction date is known as a spot transaction. In a spot transaction if the value date is a holiday, the delivery will take place on the next working day. For instance, if a spot transaction is entered into on a Friday, the value date is Tuesday following provided it is not a holiday. The transaction in which the value date falls, say, after two months is known as a forward contract.

In the Indian foreign exchange markets, the above definition of cash, spot and forward transactions hold good only for inter-bank transactions. The transactions in the merchant business can be only spot or forward.

Forward Premium or Discount

The forward rate may be at premium or at discount. Forward rate premium or discount may be shown as annualized percentage deviation from the spot rate. Suppose that US$-INR spot exchange rate is US$0.025063/INR. You can purchase US dollars at this exchange for immediate delivery (within two business days). Instead of buying US dollars immediately, you can enter an agreement with a bank to deliver US dollars to you after six months. The bank has quoted a 6-month forward rate of US$0.024390/INR. Is the 6-month forward rate of US dollar at a premium or at discount? You may observe that the forward rate of dollar is lower than the spot rate. If you purchased US dollars for 6- month delivery, you will get fewer dollars for your rupees than in a spot purchase. Since forward dollars are more expensive than spot dollars, the dollar is said to be trading at a premium relative to the Indian rupee. For indirect quote, the annualized forward discount or premium can be calculated as follows:

Forward Premium or Discount = [Spot rate - Forward/Forward rate] * 360/ days

For direct quote, the forward premium or discount can be calculated as follows:

Forward Premium or Discount = [Forward Rate - Spot Rate/ Spot Rate] * 360/Days **Cross Rates**

Given the exchange rates of two currencies, we can find the exchange rate of the third currency. For example, the US dollar-Thai baht exchange rate is: US$0.02339/ baht, and the US dollar-Indian rupee exchange rate is: US $0.02538/INR. Suppose that INR is not quoted against Thai baht. What is the INR/Baht exchange rate? One Indian rupee costs US$0.02538 While one-baht costsUS$0.02339. Thus, one INR should cost: 0.02539/ 0.02339 = Baht 1.085.

A cross rate is an exchange rate between the currencies of two countries that are not quoted against each other, but are quoted against one common currency.

Spot Rates for Merchant Business

The basis for merchant rates is either the inter-bank rates or the RBI rates. Further, FEDAI (Foreign Exchange Dealers' Association of India) prescribes the range of exchange margin that could be added on to the base rate by a banker. In the case of bill purchasing facilities the rates quoted are different.

The merchant rates for TT could be TT buying rate or a TT selling rate. The TT buying rate

is quoted when the transaction does not involve any delay in the realization of the foreign exchange by the banks.

Examples of transactions where TT rate is applied are:

(i) Payment of Demand Drafts, mail transfers, telegraphic transfers etc., drawn on the bank where the bank's account in the foreign country is already credited with the foreign exchange equivalent; and

(ii) Collection of foreign bills. TT rate is calculated by adding the exchange margin to the interbank buying rate or the RBI buying rate. The TT buying rate is always an indirect quote. TT selling rate is quoted for all transactions, which do not involve handling of documents by the bank, and for which -no special rates are prescribed. TT selling rates are quoted for issue of DDs and Mail Transfers. It is based on the more favorable of the two rates - RBI rate and interbank rate.

The Exchange rates for purchase and sale of foreign currency notes and travelers' cheque are quoted under direct method as per the formula stipulated by RBI. The forward rates are quoted as a premium or discount on the spot rates as indirect quotes. In a market in which exchange and interest rates are governed by demand and supply, the forward margins (Le., difference between spot and forward foreign exchange rates) are governed by what is known as interest parity principle. In effect in an efficient market, the forward margin on an exchange rate will be equal to the interest differential between the two currencies. But in reality, a lot of distortions occur.

Impact of Rupee Convertibility

When foreign currency is convertible in Rupee terms and vice versa at market rates, the major consideration for a country like India would be the exchange rate instability. For the corporate entities, this means that they face greater risk in terms of their foreign exchange transactions and unless they take steps to protect themselves against these risks their profits would be eroded.

Exchange Risks

Whenever a company has any transactions in foreign exchange, then it is said to be having an exposure to foreign exchange. For e.g., an Indian Company exports/imports goods to the United States. If its invoices are in Dollar terms then it is said to have a foreign exchange exposure. But then if it has foreign exchange outflows on account of one

transaction and inflows on account of another, and if these flows are matched in terms of amount as well as timing, then there would be no risk. But such a situation is rare. A firm, which has exposure, always finds that there are outstanding outflows or inflows at any particular time. This gives rise to a currency risk, which arises due to fluctuations in the exchange rate. There are three types of exchange risks: Economic risk, Transactional risk, and Translation risk.

Economic Risk

Economic risk arises from the fluctuations in real exchange rates. Real rates represent the rates adjusted for inflation. Consider a simple example. An Indian exporter exports to the United States and his main competitor is from, say, Sri Lanka. Let us assume that the inflation rate in India is 6% and the inflation rate in Sri Lanka is 11 %. Now if the Indian rupee appreciates, that is, its value goes up as against the Sri Lankan rupee by 10%, which is more than the differential in the inflation rates of the two countries, then, for the US importer, the value of goods imported from India goes up. Therefore, in order not to lose the market, the Indian firm will have to quote a lower rupee figure. This naturally means lower profit margins. We can therefore say that economic risk has indirect financial effects and is not directly reflected in the financial statements of the company.

Transactional Risk or Trading Risk

When a company has transactions, which are denominated in a currency other than its own, then it faces transactional risk due to exchange fluctuations. A transaction risk occurs

	'Appreciates	'Depreciates
Exports	Exporter gains	Exporter suffers a loss
Imports	Importer loses	Importer gains

because there is an appreciation or depreciation in the currency in which the purchases or sales is made. Let us say an Indian exporter exports goods worth $ 80,000 to the United States. If the US dollar appreciates or depreciates, his sales value in rupee terms will be affected.

Let us examine the effect of exchange fluctuation on exports and imports denominated in foreign currency. If the Foreign Currency

When a foreign currency appreciates, you have to give more of your, home currency per unit of that foreign currency. When it depreciates, you would give less of your currency for one unit of foreign currency.

Example: An Indian firm export to Germany. The value of the exports on invoice date is 20,000 DM. The spot rate for the DM on the invoice date is RS.18.55/DM. This means that the value of export would be RS.3,71,000. If the DM appreciates, and the value of the Rupee/DM becomes RS. 19.00 on the date of payment, the export value would be Rs.3,80,000 and the exporter gains Rs.9000. If the DM depreciates and the exchange becomes Rs.17.50/ DM, then the export value would be RS.3,50,000 and the exporter loses Rs.21,000. Take the case of an Importer who imports from the UK. The import value is placed at £10,000 on invoice date. Let us say, on this date, the exchange rate is Rs.46.88/£. The value of the import is Rs.4,68,800. On the payment date, the value of the pound appreciates. The exchange rate is now Rs.49/£. The value of import is Rs.4,90,000. The importer has to pay RS.21,200 extra for the same imports and hence he loses. On the payment date the value of

the pound depreciates. The exchange rate is now Rs.4S/£. The importer has now to pay only Rs.4,50,000 and hence he gains.

Thus, as the dates on which the purchase and sale transactions are entered into and the dates on which payments towards these are made are different, exchange rate fluctuations during this period affect the value of payments which are to be received or paid.

Translation Risk

Translation risk arises in the case of companies, which have branches in foreign countries. The accounts of the foreign branch at the end of the financial period should be consolidated with that of the head office. But then the transactions of the branch and its assets and liabilities are all denominated in the foreign currency. Therefore, the accounts of the branch should be translated into the head office's currency.

For example, an Indian company has a UK branch. The UK branch's accounts, which are all denominated in Pound Sterling, should be translated into rupees for preparing consolidated accounts. If the rates at which they are translated fluctuate between the date of opening the Balance Sheet and closing the balance sheet, then the values of the assets and liabilities will be affected leading to a gain or loss. This is known as translation exposure.

Managing the Currency Risk

As said earlier, with the convertibility of the rupee the exchange rate fluctuations have increased and hence greater risks are being faced by Corporate Managers. A number of avenues are open to them to enable them to protect themselves against these risks. These are known as hedging techniques.

One technique for example is forward contracts. A forward contract is one where the exporter or importer can get into an agreement with, say, a bank, to buy or sell foreign currency at a pre-determined price at a specified future date. For example, the exporter can get into a contract to buy US$ 3 months hence. The rates for these known as forward rates are also quoted.

Let us consider an example. An Indian exporter exports goods worth $10,000 on 1.6.93. The payment is to be received 60 days later. The exchange rate on 1.6.93 is, say Rs.31.31. The value of the export is; Rs.3,13,100.

Situation 1: The exchange rate on 1.8.93 is RS.29. The value of the export is Rs.2,90,000. The exporter loses RS.3, 13,1 00 - 2,90,000 = Rs.23,100

Situation 2: Exchange rate on 1.8.93 is Rs.33

Export Value = Rs.3,30,000

Exporter gains Rs.3,30,000 - Rs.3,13,100 = Rs.16,900

Now, if the exporter expects on the date of invoice that the rupee value will fall 60 days hence, he can enter into a forward contract to sell $10,000 at a forward rate of say Rs.30.50.

In this case, the export value would be Rs.3,05,000. Hence his loss under situation (1) is reduced to 3,13,100 - 3,05,000 = Rs. 8,100 instead of Rs.23100. Of course, if the exchange rate had moved in such a way that the value of the rupee become higher, as in situation 2, there would be a notional loss. But however, this can be avoided now because companies are allowed to cancel forward contracts. There are other methods of hedging such as swaps, foreign options, and foreign currency swaps etc. The awareness regarding the importance of international Finance in the wake of globalization and liberalization of the economy is increasing in India and knowledge of the subject is a must if one is to survive in the competitive world of corporate finance.

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1.9 RECENT TRENDS

To many observers the sudden turnaround in world economic prospects has come as a surprise in view of the strength and persistence of economic growth and stability since the early years of the decade. From 2002 until the end of 2007 world economic growth averaged at 4.5 per cent per annum compared to 3 per cent in the 1990s. Growth has been particularly strong and broad-based in the developing world, reaching some 7.5 per cent, twice the rate of the 1990s. Real commodity prices rose to levels not seen since the 1970s and developing countries as a whole started to run trade surpluses with developed countries thanks to the strong export performance of China and trade surpluses of fuel exporters. After a short interruption in the early years of the millennium, private capital flows to developing countries recovered strongly and spreads on emerging market debt fell to historical lows. Price stability in the developing world has been unprecedented for many decades with single digit inflation rates being the rule rather than the exception. There has been no major exchange rate and financial turmoil in the developing world, including in emerging markets with large and widening current account deficits.

Current economic difficulties and vulnerabilities, however, are not unrelated to forces driving this expansion. As a result of continued deregulation of financial markets and further opening of national borders to international capital flows, economic activity in both developed and developing countries has come to be increasingly shaped by financial factors. The pro-cyclical behavior of financial markets tends to reinforce expansionary and contractionary forces, amplifying the swings in investment, output and employment. Risks are often underestimated at times of expansion, giving rise to a rapid credit growth, asset price inflation, over indebtedness and excessive spending, and adding to growth momentum. However, these also produce financial fragility which is exposed with a cyclical downturn in economic activity and/or increased cost of borrowing when incomes can no longer service the debt incurred, giving rise to defaults, credit crunch, asset price deflation and economic contraction? the kind of difficulties that the United States economy is now facing.

From the early years of the decade the world economy went through a period of easy money as policy interest rates in major industrial countries, notably the United States and Japan, were brought down to historically low levels and international liquidity expanded rapidly. These, together with stagnant equity prices in most mature markets, led to a search- for-yield by creditors and investors. In the United States ample liquidity and low interest rates, together with regulatory shortcomings, resulted in a rapid growth of speculative lending and a bubble in the property markets, providing a major stimulus to growth, but also sowing the seeds of current difficulties.

Low interest rates in some other developed countries, notably in Japan, resulted in large cross-currency flows towards countries with higher interest rates, including in the form of highly leveraged carry trades. The very same factors have played a major role in the strong recovery of capital flows to emerging markets, contributing to currency appreciations, asset bubbles and credit expansion, and stimulating spending and growth in the recipient countries. The credit crunch unleashed by the bursting of the sub-prime bubble and its global spillovers now threatens to reverse this process and produce a sharp slowdown in global growth.

- **Self-Check Questions (One word):**

1) Name any two major sources available to an Indian firm for raising foreign finances.
2) How many segments are included in Indian Foreign Exchange Market?
3) Which rate is known as the exchange rate between the currencies of two countries that are not quoted against each other, but are quoted against one common currency?
4) Which risk arises from the fluctuations in real exchange rate?

1.10 SUMMARY

This lesson focuses on varied dimensions of international finance. Deregulation of government controls and internationalization of firms have created, among other things, a vigorous global market in foreign exchange. These currency markets are the first contact most managers and investors have when ventured outside their own country. Other major financial markets, such as the money markets (short-term instruments) and capital markets (debt and equity securities) maintain important domestic features, but are in fact dominated by multinational players trading global products.

1.11 GLOSSARY

- **Foreign Bond**: The bond sold outside the borrower's country denominated in the currency of the country of issue.
- **Eurodollar**: Dollar deposited in a bank outside its country of origin.
- **Euro Market**: Transactions in Eurodollar, Euro yens etc.,

1.12 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. Discuss the basics of cash management in a Multinational Corporation.
2. What are the major short- term borrowings and Investments for a Multinational Corporation?
3. Differentiate between Centralized versus Decentralized Cash Management

- **SHORT QUESTION ANSWERS**

1. Differentiate between the current and capital account.
2. Write a short note on transactional risk.
3. What do you mean by depository receipts?

1.13 SUGGESTED READINGS

1. Jain, P. K., *International Financial Management,* Macmillan India Limited, 2007.
2. Madura, Jeff, *International Financial Management,* Cengage Learning India (Pvt.) Ltd., New Delhi, 2008.
3. Shapiro, Alan, C., *Multinational Financial Management,* 8th Edition, John Wiley 85 Sons, New York, 2006.

1.14 SELF- CHECK QUESTIONS (ANSWER KEY)

1.81) Depository receipts & Eurocurrency loans 2) three- tier segment
3) Cross rate 4) Economic risk

MULTINATIONAL FINANCIAL MANAGEMENT

Lesson No. 2

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THE FOREIGN EXCHANGE MARKET

STRUCTURE

2.0 OBJECTIVES

After reading this chapter, the students should be able to:

- understand meaning of foreign exchange and foreign exchange market,
- working of foreign exchange market-Operations, Transactions and Functions, and
- quotations in foreign exchange market.

2.1 INTRODUCTION

The past few decades have witnessed a tremendous growth in the arena of international trade and investments. This has led to emergence of number of mechanisms where the different currencies have to be dealt with. In case of international trade, at least one-party deals in foreign currency. However, in some cases both the parties to the international deal, that is, exporter and importer, who might be dealing in the currency of a third country. For example, if Indian exporter has entered into contract with an importer of US to export the goods, the bill will be denominated in Euro. However, the settlement in this case is quite cumbersome as unlike commodities, it is not easy to find the buyers and sellers of currencies in the market easily. This fact has led to the emergence of a new segment of market that deals specifically in currencies, referred to as foreign exchange market. This market is just like an over-the-counter market as no physical marketplace is there. A foreign exchange market, is a place where currencies are bought and sold for various financial needs.

2.2 MEANING OF FOREIGN EXCHANGE

Foreign exchanges, vide section 2(h) of the amended Foreign Exchange Regulation Act, 1973, is foreign currency and includes:

(a) All deposits, credits and balances payable in any foreign currency, and any drafts,

travelers' cheque, letters of credit and bills of exchange, expressed or drawn in Indian currency but payable in any foreign currency.

(b) Any instrument payable, at the option of the drawee or holder thereof or any other party thereto, either in Indian currency or in foreign currency or in foreign currency or partly in one and partly in the other.

Foreign exchange trading refers to trading one country's money for that of another country. The need for such trade arises because of tourism, the buying and selling of goods internationally, or investment occurring across international boundaries. The kind of money specifically traded takes the form of bank deposits or bank transfers of deposit denominated in foreign currency. The foreign exchange market, as we usually think of it, refers to large commercial banks in financial centers, such as New York or London, that trade foreign-currency-denominated deposits with each other. Actual bank notes like dollar bills are relatively unimportant insofar as they rarely physically cross international borders. In general, only tourism or illegal activities would lead to the international movement of bank notes.

2.3 FOREIGN EXCHANGE MARKET

The foreign exchange market is the market for buying and selling foreign currencies. In India, there is no particular place, like a Stock Exchange, for transactions in foreign exchange. The exchange market may be said to be composed of two principal operators, namely the dealers and the brokers. The operations, i.e., buying and selling of foreign exchange, are done over the telephone or by personal contact between the brokers and the dealers. The brokers are the intermediaries acting on commission between the dealers, while the dealers, i.e., the exchange banks, the State Bank of India and its subsidiaries, the nationalized banks, etc., authorized to deal in foreign exchange, act as principals buying and selling on their own account. The customers as well as the foreign banks with whom the banks in India enter into forward contracts for purchase or sale of foreign exchange may also be treated as components of the foreign exchange market. The Reserve Bank, which sells and buys foreign exchange to and from banks at rates fixed by it, is at the apex, controlling the exchange market in India.

As the bankers' bank, the Reserve Bank is interested in developing the foreign exchange business of the banks in India as much as in developing an orderly, competitive and active inter-bank market in foreign currencies in order that banks may quote as fine rates as possible to their customers in the metropolitan as well as other centers in the country.

And in discharge of its function to maintain the external value of the rupee it has directed the banks in India

(i) To maintain a square or near-square 'position' in each foreign currency at the close of business on each day.

(ii) To secure a reasonable matching of the maturities of various transactions entering the 'position'.

(iii) To maintain cash balances with their overseas branches/correspondents at levels commensurate with the normal needs of business and to repatriate surpluses to India.

(iv) To restrict their cover operations as far as practicable to the Indian inter-bank exchange market, and only when unavoidable, to have recourse to London and other international exchange markets.

(v) To keep surveillance over the rupee balances maintained in their non-resident rupee accounts, particularly over the funding and repatriation operations, with a view to checking hot money flows and speculative transactions.

For the same purpose the Reserve Bank has advised the Banks not to quote preferential rates for their rupee transactions with overseas branches/correspondents so that the exchange

value of the rupee might not be depressed to levels not warranted by its external value as determined by the multi-currency basket. It has also imposed restrictions on the banks' granting or obtaining loans or advances to or from their overseas branches/ correspondents beyond certain limits or for purposes other than meeting the normal needs of business.

As for buying or selling foreign currencies from or to the banks, the Reserve Bank purchases the major foreign currencies, e.g., pound sterling, U.S. dollars, Deutsche marks and yen, both spot and forward, in which exports are generally invoiced. Forward purchases of pound sterling are made by the Reserve Bank rates determined by it from time to time. The Reserve Bank's spot buying rates for U.S. dollar, deutsche mark and yen are normally based on the corresponding cross rates quoted in the international markets Bank's coupled with its buying rate for sterling, and the Bank's forward buying rates for these currencies are based on the corresponding cross rates and the premium/discount for the currencies quoted in the international markets coupled with its buying rates for pound sterling for corresponding months. The Reserve Bank sells these currencies only on spot basis.

2.4 GLOBAL FOREX MARKET

The international foreign exchange market is over-the-counter market and operates round the clock. It can be broadly classified into the wholesale and the retail market where big players like banks and currency brokerage firms deal with each other and with large corporations. Normally the financial market represents the wholesale market. The main participants in the wholesale market are the commercial banks, described as the market makers, they buy and sell currency for their clients and sometimes on their own account and carry inventories of currencies. The other players are the brokers who work as middlemen between the bank and other retail clients and book the commission. Corporations use foreign exchange to meet their export and import requirements, hedging receivable and payable loan repayments. Sometimes they also invest their surplus fund in order to book profits. In addition, the central bank also buys and sells foreign exchange in order to control the market movement. The deals sire entered through a wide network involving various banks, brokers and dealers all over the world. All the players deal in various currencies.

2.5 OPERATIONS AND TRANSACTIONS IN FOREIGN EXCHANGE MARKET

The foreign exchange market has three-tier dealings:

(i) Dealings between banks and customers;
(ii) Dealings between local banks including the Reserve Bank; and
(iii) Dealings between domestic banks and banks abroad.

2.5.1 CONTRACTS

Transactions in the foreign exchange market are made through contracts between the dealer and the banker, known as the "broker contracts." The contracts may be: -

(i) Cash or Ready, under which the delivery is to be made immediately
(ii) Forward, under which the delivery is to take place at a future date and the option

to take delivery lies with the purchasing bank or customer. All contracts should be understood to read, "to be delivered or paid for at the bank". Ready contracts between banks will be deliverable within two business days after the date of contract, while those between banks and their customers will be deliverable on the same day.

Spot Contract

The buying and selling of foreign currencies for spot or ready delivery against domestic currency collectively represent the spot market,

Forward Contract

The buying and the selling of foreign currencies under forward contracts is for delivery at a future date at rate fixed now representing the forward market. The difference between spot and forward rate is expressed in terms of swap points. As the settlement varies in spot and forward markets, there can be existence of either premium or discount to settle the deal.

- **Discount:** A currency is said to be at discount if it is cheaper in the forward market than in the spot market. It means the forward rate will be lower than the spot rate.
- **Premium:** A currency is said to be at premium when it is more expensive in the forward market than in the spot market.

Let us assume that Rs/$ quotes as:

Rs/$: 45.54/59
2-m Rs/$: 46.34/84

In this case, the bank is ready to give Rs 45.54 in exchange for dollar while it is ready to give Rs 46.34 after 2 months. Similarly, the bank is charging Rs45.59 for selling a dollar while it will charge Rs 46.84 after 2 months. Thus, dollar is expected to be more expensive in future and is at premium. But rupee is expected to be cheaper and is at discount.

However, in case of forward market, whether the currency is at discount or premium, the spread increases. This is due to the fact that with the increase in maturity time of the contract, the liquidity in the market decreases. This poses difficulty for the banks to offset the positions. Also, this can be attributed to the fact that the longer maturity period reduces the trading volume and hence, results in chances of loss in case the exchange rates move in unfavorable direction.

Another variation of forward contract is Broken-date Forward contract, which is for a maturity that is not whole month or for which the quote is not readily available. Like, if the quotes are available for 3-months and 6-months but the customer wants the quote for 5-months, it will be a broken date forward contract.

Option Forwards, another type of contract is generally used when the maturity date is not fixed but it is only an expected time. In this case, the customer has the option to settle the contract anytime during the particular period. However, in this case, giving quotes is not easy as the exact date is not known to the parties. In this case, a bank while buying a currency will add minimum premium and will deduct maximum discount to avoid loss. The opposite will hold true in case bank is selling the currency.

Short-Date Contracts

The transactions that have to be settled before the spot settlement day are termed as short date contracts.

2.5.2 SETTLEMENT OF CONTRACT

Also referred to as value date, it is the date on which the transaction of foreign exchange is settled. In case of spot contract, the settlement date is usually the second business day from the date of transaction. Business day implies that the days between transaction day and the settlement date should not be a holiday. The settlement locations are the countries whose currencies are involved and the dealing locations are the countries in which the banks involved in the transactions are located. The same procedure is applicable in case of forward contract with a difference that first the settlement date for the spot transaction is calculated and then the

number of days is added that are in the forward contract. In case of any public day, it will be the succeeding day but where the month has no succeeding day then it will be the last day of the month. If the last day of the month is a holiday, then it will be the preceding day but in no way, the deal will exceed the time period.

2.6 FUNCTIONS OF FOREIGN EXCHANGE MARKET

By the very nature of its operations, the foreign exchange market is international and performs three functions, namely:

(i) Effecting transfer of purchasing power through a clearing process from one country to another.

(ii) Providing credit for foreign trade.

(iii) Furnishing facilities for hedging foreign exchange risks.

- **International Clearing:** When goods are exported from one country, say India, to another country; say the USA, the exporter in India acquires a claim upon the importer in the USA, and the importer in the USA has payment to make to the exporter in India. Now, even if the goods and the relative credit instruments., i.e., bills of exchange, etc., move across the border, the payment is made by the importer and received by the exporter in their respective domestic currencies, viz., dollar and rupee. The linking of the receiving and the making of payment is done by banks; and in the U.K., and the USA, this is also done through the bill market, which is a constituent of foreign exchange market. In India, there is no bill market as such.
- **Providing Credit for Foreign Trade:** Credit for foreign trade may be required by an exporter during the period of manufacture of the goods and /or for the period of transit of the goods from one country to another. Credit for imports may be needed by the importer for the period between the payment for the goods and his receipt of payment after selling them in their original form or in a processed form. In the former case, credit is provided by a bank by allowing packing credit to exporter and/or by negotiating/purchasing/discounting his export bills, and in the latter case, by opening letters of credit on his behalf and advancing money to him against import bills if and when he fails to honor such bills on presentation.
- **Provision of Hedging Facility:** Hedging means covering exchange risks, i.e., the risks of fluctuations in the exchange rates which may adversely affect the home currency realizations of exports and the home currency cost of imports invoiced in a foreign currency. Such risks are inherent in forward transactions, since there is always a likelihood of an adverse movement in the rate of exchange. The exchange risks involved in a forward purchase transaction by a forward sale. In other words, the risks are covered by taking a speculative risk in order to offset a bigger

speculative risk in the opposite sense. An importer, having to pay foreign currency abroad in the future, runs the risk that the price of the currency may rise between the time the obligation arises and the time it must be discharged. To cover himself against this risk, that is, to hedge the risk, he can buy forward foreign exchange. Similarly, an exporter with funds falling due in foreign exchange may fall between the time he makes the contract and the payment date. For cover, he can borrow abroad and use the proceeds of his exports, when received, to pay off the debt, or he can sell his expected foreign currency forward.

Hedging is done through banks. It may be done through the spot market if the trader has sufficient cash or credit facilities; but it is usually done through a forward contract.

2.7 PARTICIPANTS IN THE FOREX MARKET

From ladder of transactions the participants can be identified in foreign exchange markets. At the base, or at the first level, are traditional users (such as tourist, importers, exporters and investors, who exchange domestic currency for foreign currencies and vice versa) as well as traders and speculators (individuals, investment managers, and corporate treasurers who trade currencies seeking short-term profits by betting on the direction of changes in their relative price). At the next or second level are the commercial banks, which act as clearing house between users and earners of foreign exchange. At third level are foreign exchange brokers, through whom the nation's commercial banks even out their foreign exchange inflow and outflows among themselves (the so-called interbank or wholesale market). Finally, at the top is the nation's central bank, which act as a seller or buyer of last resort when the nation's total foreign exchange earnings and expenditures are required. When the market rate of the currency reaches the upper lines ("upper intervention point") of the band, the central bank of that country must increase sales of its currency in exchange for other currencies. Similarly, the central bank must sell foreign exchange and buy its own currency when the market rate reaches the "lower intervention point".

1. Importers and Exporters

Anyone who either imports or exports goods, or services will need to exchange currencies to make the transactions. This includes tourists who travel abroad.

2. International Investors, Banks, Arbitrageurs etc.

Most of the daily currencies' transactions are made by investors. These investors, be the investment companies, insurance companies, banks or others, are making currency transactions as a means to a return on their investments or holdings. Many of these companies are charged to manage the savings of other. Pension plans and mutual funds buy and sell billions of dollars' worth of assets daily. Banks, in the temporary possession of the deposits of others do the same. Insurance companies manage large portfolios which act as their capital to be used to pay off claims on accidents, casualties and deaths. More and more these companies look internationally to make the most of their investments.

2.8 EXCHANGE RATE QUOTATIONS

It refers to price of one currency stated in terms of another just like in case of any commodity. However, in case of a commodity, there is only one uniform way of price that is, number of units of money needed to buy one unit of commodity. But in case of exchange rate quotation, since on both sides monetary unit is involved that is currency, thus, number

of ways is there to express the price of currency or exchange rate. These are discussed as follows:

1. Direct v/s Indirect Quote: In case of direct quote, exchange rate is expressed as number of units of domestic currency per unit of foreign currency, i.e., Rs/$. In case of indirect quote, exchange rate is expressed in terms of number of foreign currency units in terms of domestic currency, i.e., $/Rs.

American v/s European Quote: An exchange quote can be classified in this category if one of the currencies is dollar. An American quote is number of dollars expressed per unit of any other currency, for e.g., $ 1.5/£, while a European quote is number of units of any other currency expressed per dollar, for e.g.,£ **,**8o**/$.**

Interbank v/s Merchant Quote: A quote given by one bank to another bank is termed as interbank quote while a quote given by a bank to its retail customer is termed as merchant quote.

Bid and Ask Rate or Spread: In practical life, there exist two exchange rates in the market for settling the buy and sell deal. The rate at which a bank will be ready to sell the foreign currency will be different from the rate at which it stands ready to buy. The rate at which a bank is ready to buy currency is termed as bid rate and the rate at which the bank is ready to sell is termed as ask rate. The difference between these two rates is termed as spread and represents the cost incurred by a bank in settling the transaction. Generally, the bid rate always precedes the ask rate,

i. e. in the quote Rs/$: 45.55/45.59, where 45.55 is the bid rate and 45.59 is the ask rate. Also bid rate is always lower than ask rate because the bank will be ready to pay less for a unit of currency than it receives. This quote of bid/ask is always from the view of banker, that is, the banker's buy rate re [presents the rate at which the customer can sell a currency and vice-versa in case of ask rate. Also,thebid/ ask rates of different banks may not be same but the difference has to be within some limits to avoid the chances of arbitrage, that is, no one should be allowed to earn extra profits from the price differential by buying in low price market and selling in high price market.

Inverse Quotes: While quoting the exchange rates of two currencies in terms of Rs/$, there exists an inverse quote as well, i.e. $/Rs. It is calculated as the reciprocal of the first quote, i.e., 1/(Rs/$) both for bid and ask.

Cross Rate: It is the rate that is calculated by using some third currency. For e.g.: to calculate FF/Can$, first FF/$ will be calculate followed by $/Can$. It is generally adopted by the arbitrageurs to earn the profit. The cross rates are calculated for bid and ask rate.

Forward Quotes: The procedure and rules for forward quotes are same as that for spot rates mentioned above.

2.9 INVESTMENT CONCERNS IN FOREX MARKET - INTERNATIONAL OR DOMESTIC

1. Rate of return

The percentage change in the value of an asset over some time. Investors purchase assets as a way of saving for the future. Anytime an asset is purchased the purchaser is forgoing current consumption for future consumption. In order to make such a transaction worthwhile the investors' hope (sometimes expects) to have more money for future consumption than the amount they give up in the present. Thus, investors would like to have

as high a rate of return on their investments as possible.

2. Risk

The second primary concern of an investor is the riskiness of the assets. Generally, the greater the expected rate of return, the greater the risk. Invest in an oil wildcat endeavor and you might get a 1000% return on your investment ... if you strike oil. The chances of doing so are likely to be very low however. Thus, a key concern of investors is how to manage the tradeoff between risk and return.

3. Liquidity

Liquidity essentially means the speed with which assets can be converted to cash. Insurance companies need to have assets which are fairly liquid in the event that they need to pay out a large number of claims. Banks have to stand ready to make payout to depositors etc.

- **SELF- CHECK QUESTIONS (MCQs)**

1) **In the long run, _____ affects the exchange rate.**

a) Relative price levels b) tariffs and quotas c) productivity d) all of the above

2) **A spot transaction in the foreign exchange market involves the**

a) Exchange of exports and imports at a specified future date.

b) Exchange of bank deposits at a specified future date.

c) Immediate (within two days) exchange of exports and imports

d) Immediate (within two days) exchange of bank deposits.

3) **Forward exchange rates**

a) Involve the immediate exchange of bank deposits

b) Involve the exchange of bank deposits at some specified future date.

c) Involve the immediate exchange of imports and exports.

d) None of the above

4) **When the exchange rate changes from the 1.0 euros to the dollar to 1.2 euros to the dollar, the euro has _____ and the dollar has _____.**

a) Appreciated; Appreciated

b) Depreciated; Appreciated

c) Appreciated; Depreciated

d) Depreciated; Depreciated

2.10 SOME IMPORTANT TERMS IN FOREX MARKET

Exchange Rate

The exchange rate represents the number of units of one currency that exchanges for a unit of another. There are two ways to express an exchange rate between two currencies (e.g., the $ and £ [pound]). One can either write $/£ or £/$. These are reciprocals of each other. Thus, if e is the $/£ exchange rate and v is the £/$ exchange rate then e = 1/v.

Currency Appreciation

A currency appreciates with respect to another when its value rises in terms of the other. The dollar appreciates with respect to the yen if the ¥/$ exchange rate rises.

Currency Depreciation

A currency depreciates with respect to another when its value falls in terms of the other.

The dollar depreciates with respect to the yen if the ¥/$ exchange rate falls.

The rate of appreciation (or depreciation) is the percentage change in the value of a currency over some period of time.

Arbitrage

Arbitrage means buying a product when its price is low and then reselling it after its price rises in order to make a profit. Currency arbitrage means buying a currency in one market (say New York) at a low price and reselling, moments later, in another market at a higher price.

2.11 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. Discuss the reasons for emergence of foreign exchange market. Also discuss the working of Indian forex market.
2. Explain the various modes of entering into the deals in forex market along with its settlement procedure.
3. Mention in details various exchange rate quotes. Differentiate between bid and ask rate.

- **SHORT QUESTION ANSWERS**

1. Explain any two functions of foreign exchange market.
2. Discuss the various participants involved in the forex market.
3. Distinguish between spot contract and forward contract.

2.12 SUGGESTED READINGS

1. Sharan, V., *International Business,* 2nd Edition, Pearson Education, New Delhi, 2006.
2. Melvin, Michael, *International Money and Finance,* Addison Wesley Educational Publishers, 2000.
3. Cherunilam, F., *International Economics*, 4th edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2007.

2.13 SELF- CHECK QUESTIONS (ANSWER KEY)

2.9 1) d 2)d 3) b 4) b

Lesson No. 3

MULTINATIONAL FINANCIAL MANAGEMENT

AUTHOR: MS. SHAVETA GUPTA DR. RAJESH BAGGA

INTERNATIONAL PARITY CONDITIONS AND EXCHANGE RATE FORECASTING

STRUCTURE

3. OBJECTIVES

After reading this chapter, the students should be able to:

- understand the reasons and importance of exchange rates,
- know various factors affecting exchange rates,
- understand international parity conditions, and
- know different methods and techniques for forecasting exchange rates.

3.1 INTRODUCTION

The concept of exchange rate has always attracted a lot of debate from all over the world. May it be regarding the factors affecting exchange rate or its stabilization; it has always been in spotlight. The present exchange rate system is mostly of flexible kind in majority of developing nations and India is no exception. For the majority of developing countries, including those in the Asian region, which continue to depend on export performance, appropriate exchange rate determination is of great importance as volatility imposes significant real effects in terms of fluctuations in employment and output and the distribution of activity between tradable and non-tradable, fluctuations that are difficult to absorb in such economies. In the fiercely competitive trading environment where countries seek to expand market shares aggressively by fiercely compressing margins, volatility in the exchange rate can easily translate ex-ante profits into ex post losses along with the lethal collateral impact on employment and economic welfare. The determinants

• Financing Decisions: (a) Short term financing decisions (b) Long term financing decisions.

« Investment Decisions: (a) Short term investment decisions (b) Capital budgeting rates which may adversely affect the home currency realizations of exports and the home currency cost of imports invoiced in a' foreign currency. Hedging is required to be done for those payables and receivables, which are denominated in foreign currency, and the exchange rate is expected to affect the values of receipts and payments adversely. Suppose an exporter has a receivable to be received in a month and the currency in which this receivable is denominated depreciates, the receipts will be less than the expected value. Unless the exchange rate is projected for future dates (based on some information), one cannot think of protecting (hedging)

rate.

2. Financing Decisions

against the loss due to adverse movements in exchange

The financing decisions of MNCs crucially depend on the foreign exchange forecasts. The cost of capital is a crucial determinant of profitability. When the funds are mobilized from the foreign markets, the forecasts of exchange rates are needed because cost of capital depends on the currency movement in which the capital is mobilized. If the currency depreciates, the cost of capital is lowered. The financing decisions are of two types:

(a) Short-term financing decisions - When large corporations borrow, they have access to several different currencies. The borrowing should be done in a currency, which has low interest rate and is expected to depreciate. This is because interest payments will be low over time and smaller amounts of domestic currency will be needed to repay both interest and principal.

(b) Long-term financing decisions - The long-term financing decisions also depend

on future forecasts for longer period horizons. Corporations issue bonds to secure long-term funds. These MNCs may consider denominating the bonds in foreign currencies. The corporation would prefer denominating the bonds in currencies, which tend to weaken over time.

3. Investment Decisions

The investment decisions are also of two types:

(a) Short-term investment decisions - MNCs have substantial excess cash available for short-term investment. These corporations have deposits in several currencies. The ideal currency for deposits would be that which has high interest rate and has tendency to appreciate over the investment period. Thus, forecasting of exchange rates is required on spectrum of currencies to select currency of deposit (investment).

(b) Long-term investments (Capital budgeting decisions) - MNCs usually expand by establishing subsidiaries or by acquiring companies abroad. These corporations attempt to determine whether to establish a subsidiary or to acquire a company in a given country? For making this' decision, a capital budgeting analysis is done. The values of cash flows used within the capital budgeting exercise are dependent on the future values of currency of proposed subsidiary's country. Since the value of future cash inflow and outflows are dependent on future values of currencies and therefore for estimating these cash flows, forecasting of exchange rates is required. The accurate forecasts of currency values will improve the estimates of cash flows, which enhance the decision-making capabilities of MNCs.

4. Earning Decisions

All the MNCs have to report consolidated earnings of all its subsidiaries to its shareholders. The earnings of subsidiaries initially occur in terms of subsidiary's country's currency. These earnings denominated in foreign currency are translated into the currency of parent. Translation is done just to consolidate the subsidiary's balance sheet with the parent.

3.2 FACTORS AFFECTING EXCHANGE RATE

The determinants of exchange rate are:

- **Terms of Trade or Relative Prices of Tradable**

Terms of trade can be defined as the price of exports divided by price of imports, citrus paribus, an exogenous increase in the value of exports at each exchange rate, which shifts the demand curve for foreign currency to the right, results in the increase in the value of foreign currency. A country's terms of trade are said to improve when the price of its export s increases relative to the imports. Any change in terms of trade is going to affect the exchange rate because it shifts the demand curve for foreign currency.

- **Relative Inflation Rates**

Relative purchasing power parity relates the exchange rate movements to inflation rate differentials. The exchange rates are influenced by inflation because it affects the competitiveness of a country's products versus same or similar products from another country.

- **Relative Interest Rates**

The covered interest rate parity theorem asserts a relationship between interest rate differentials and forward premium and discount. The open interest rate parity equation establishes the relationship between exchange rate movements and the interest rate differentials. If domestic interest rate is more than the foreign interest rate, the domestic currency is expected to depreciate.

- **Relative Growth Rates**

There are two schools of thoughts about the direction of impact of growth rate on exchange rate movement. First school of thought says that whenever the growth rate of a country shoots up, imports tend to rise because of two reasons:

1. Due to increase in per capita income thecitizen tend to demand more of imports, and,
2. At the same time due to increased demand, more imports of capital goods and other inputs are required for increasing production in the economy.

In the case of developing countries, it has been found that with the increase in growth rates the current account deficit usually deteriorated. But the other school of thought says that higher growth rate means greater export surplus, and therefore the increase in export thus strengthening the domestic currency.

- **Relative Money Demand and Supplies**

All the monetary models assert that if the rate of increase in domestic money supply is greater than the rate of increase in the foreign money supply, the domestic currency is expected to depreciate. This assertion assumes that the production in both the economies remains constant.

- **Relative Wealth Holdings**

The asset approach and the monetary models assert that relatively greater wealth holdings in a nation make currency appreciate in the near future. The wealth creation some time is the result of currency appreciation. This casual direction has not been tested empirically.

3.3 FACTORS AFFECTING A COUNTRY'S STRENGTH

Economy of a country is affected by number of factors like the economic growth rate, prevalence of inflation, level of employment, its reserves, economic, financial and political stability etc. The major factors that have an impact on a country's health are:

- **Economic Growth Rate:** The health of a country can be determined from its economic growth rate. The factors that investors basically consider to assess the country's position are like the rate of GDP, inflation, unemployment, trade balance etc.
- **Interest Rates:** This is the basic acceptable truth that money follows the interest rates. A country with high interest rates attracts money from all over the world economies because investors want to extract the most out of it. To study and forecast the trends in interest rate movements, the economic indicators are considered after the consultations of respective central bank of a country.
- **Political Stability:** Another, yet most important factor, having a bearing on the country's sound health is the political stability. If a country witness political turmoil, high level of unemployment, widening gaps between the targets and achievements, rising inflation etc., then the investors are reluctant to put their money in that country.

- **Self- Check Questions (Fill in the blanks)**

a) There are _____types of investment decisions.
b) The health of a country can be determined from its _____ rate.
c) _____ decisions are used to cover exchange risks.

3.4 INTERNATIONAL PARITY CONDITIONS

The economic theories which link exchange rates, price levels and interest rates together are termed as international parity conditions. These conditions are based on Law of one Price which states that keeping everything same, the price of a product tends to be same in all the markets. Among various theories, the important are the parity conditions that are discussed as below:

3.4.1 PURCHASING POWER PARITY (PPP)

One of the most popular and controversial theories in international finance is the purchasing power parity (PPP) theory, which focuses on the inflation-exchange rate relationship. There are various forms of PPP theory. The absolute form, also called "law of one price," suggests that prices of similar products of two different countries should be equal when measured in a common currency. If a discrepancy in prices as measured by a common currency exists, the demand should shift so that these prices should converge. For example, if the same products are produced by the India and the China, and the prices in the China is lower when measured in a common currency; the demand for that product should increase in the China while it declines in the India. Consequently, the actual price charged in each country may be affected and/or the exchange rate may adjust. Both forces would cause the prices of the products to be similar when measured in a common currency. Realistically, the existence of transportation costs, tariffs, and quotas may prevent the absolute form of PPP.

f

The relative form of PPP is an alternative version that accounts for the possibility of market imperfections such as transportation costs, tariffs, and quotas. This version acknowledges that because of these market imperfections, prices of similar products of different countries will not necessarily be the same when measured in a common currency, as long as the transportation costs and trade barriers are unchanged.

To illustrate the relative form of PPP, assume that two countries initially have zero inflation. Also assume that the current exchange rate between two countries currencies is in equilibrium. As time passes both countries may experience inflation; for PPP to hold, the exchange rate should adjust to offset the differential in the inflation rates of the two countries. If this occurs, the prices of goods in either country should appear similar to consumers. That is, consumers should note little difference in their purchasing power in two countries.

In equilibrium form

$$S = \frac{P_D}{P_F}$$

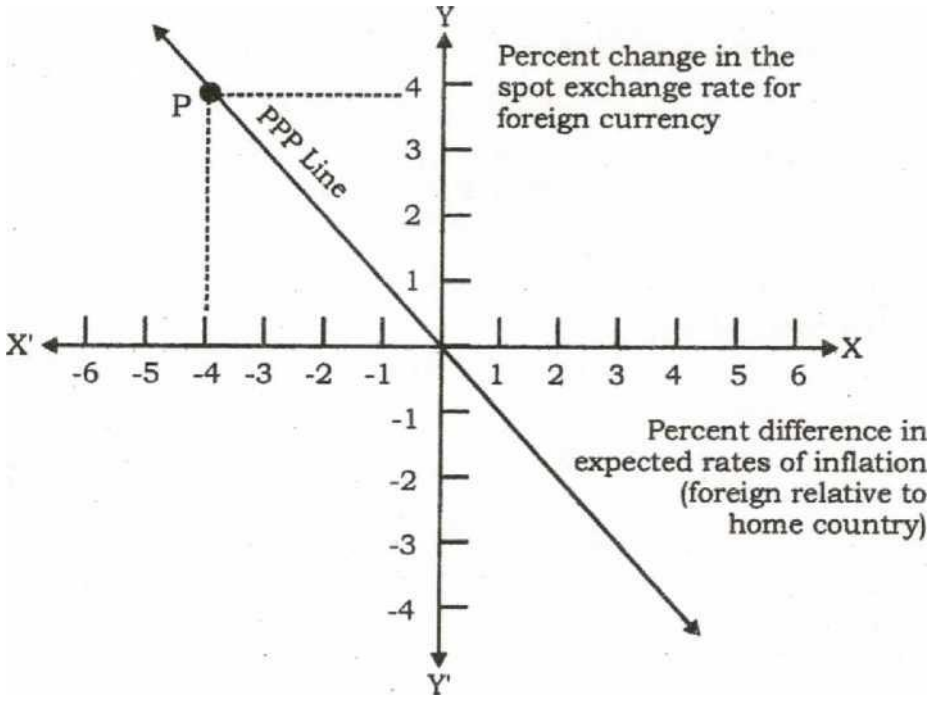
Where

S (Rs/$) = S is the spot rate

P_D is the price level in India, the domestic market

P_F is the price level in foreign market, the U.S. in this case.

This equation implies that as the price level in India rises, Rupee depreciates against $, because for each $ an increased number of $s are to be paid. The basic form of PPP is depicted in the figure below:



This PPP theory, however, is based on the implicit assumption that there are no transportation costs, tariffs, or other obstructions to the free flow of trade; that all commodities are traded internationally, that no structural changes (such as wars) take place in either nation. Since these assumptions are not true, the absolute version of PPP cannot be taken seriously. The relative version of the PPP theory is potentially more useful. It states the change in exchange rates to inflation rate differentials.

3.4.2 INTEREST RATE PARITY (IRP)

Once market forces cause the interest rates and exchange rates to be such that covered interest arbitrage is no longer feasible, we are in equilibrium state referred to as interest rate parity (IRP). In other words, the interest rate parity is a theory, which states that the size of the forward premium (or discount) should be equal to interest rate differential between the two countries of concern. When IRP exists, covered interest arbitrage is not feasible, because any interest rate advantage in the foreign country will be offset by the discount on the forward rate. Thus, the act of covered interest arbitrage would generate a return that is no higher than what would be generated by a domestic investment. It also has two forms:

(a) Covered Interest Rate Parity

(b) Uncovered Interest Rate Parity.

The Covered interest rate parity equation is given by

$$(1 + r_D) = f/S\ (1 + r_F)$$

Where $(1 + r_D)$ = Amount that an investor would get after a unit period by investing a rupee in the foreign market at r_F rate of interest and $(F/S)(1 + r_F)$ is the amount that an investor would get after a unit period by investing a rupee in the foreign market at r_F rate of interest. The above equation asserts that the investment of one rupee yields same return in the domestic as well as in the foreign market.

In case of uncovered interest rate parity

$$(1 + r_D) = \frac{S_1}{S}(1 + r_F)$$

Sj = Expected future spot rate when the receipts denominated in foreign currency is converted into domestic currency.

In general, under covered interest arbitrage, there is an incentive to invest in the higher-interest currency to the point where the discount of that currency in the forward market is less than the interest differential. If the discount on the forward market of the currency with the higher interest rate becomes larger than the interest differential, then it pays to invest in the lower-interest currency and take advantage of the excessive forward premium on this currency.

To correctly determine whether IRP holds, it is necessary to compare the forward rate (or discount) and interest rate quotations that occur at the same time. If the forward rate and interest rate quotations do not reflect the same time of day, then results could be somewhat distorted. Due to limitations in access to data, it is difficult to get quotations that reflect the same point in time. Consequently, the testing of IRP is subject to some error. Yet, that should not discourage attempt to determine whether IRP exists. The actual relationship between the forward rate premium and interest rate differential generally supports IRP. While there are deviations, they are often not large enough to make covered interest arbitrage worthwhile.

In general,

- IRP establishes the linkages across
  - — spot and forward currency markets
  - — domestic and overseas security markets
- IRP draws on the principle that, in equilibrium two investments exposed to the same risks must yield identical returns.
- IRP is ensured by arbitrage.

3.4.3 INTERNATIONAL FISHER EFFECT (IFE)

Along with PPP theory, another major theory in international finance is the international Fisher effect (IFE) theory. It uses interest rate rather than inflation rate differentials to explain why exchange rates change over time, but it closely related to the PPP theory because interest rates are often highly correlated with inflation rates. According to the so-called Fisher effect, nominal risk-free interest rates contain a real rate of return; interest rate differentials between countries may be the result of differentials in expected inflation.

The PPP theory suggests that exchange rate movements are caused by inflation rate differentials. If real rates of interest are the same across countries, any difference in nominal interest rates could be attributed to the difference in expected inflation. The IFE theory suggests that foreign currencies with relatively high-interest rates will depreciate because the high nominal interest rates reflect expected inflation.

3.5 EXCHANGE RATE FORECASTING-MEANING AND METHODS

Forecasting becomes all the more important today as number of national as well as international transactions is usually settled shortly. Exchange rate forecasts are necessary to evaluate the foreign-denominatedcash flows involved in international transactions. Thus, exchange rate forecasting is very important to evaluate the benefits and risks attached to the

international business environment. There are two pure approaches to forecasting foreign exchange rates:

(A) The fundamental approach

(B) The technical approach

A. Fundamental Approach

It is based on a wide range of data regarded as *fundamental* economic variables that determine exchange rates. These fundamental economic variables are taken from economic models and the variables are GNP, consumption, trade balance, inflation rates, interest rates, unemployment, productivity indexes, etc. In general, the fundamental forecast is based on structural models which are then modified to take into account statistical characteristics of the data and the experience of the forecasters. It is a mixture of art and science.

B. Technical Approach

The *technical approach* (TA) focuses on a smaller subset of the available data. In general, it is based on price information. The analysis is "technical" in the sense that it does not rely on a fundamental analysis of the underlying economic determinants of exchange rates Oj/asset prices, but only on extrapolations of past price trends. Technical analysis looks for the repetition of specific price patterns. It is an art, not a science. The most popular TA models are simple and rely on filters, moving averages (MA), or momentum indicators.

Filter methods,one of the methods under this approach, generate buy signals when an exchange rate rises X percent (the filter) above its most recent trough, and sell signals when it falls X percent below the previous peak. Again, the idea is to smooth (filter) daily fluctuations to detect lasting trends. The filter size, X, is typically between 0.5% and 2.0%. Low filter values, say 0.5%, generate more trades than a large filter, say 2%. Thus, low filters are more expensive than large filters. Large filters, however, can miss the beginning of trends and then be less profitable.

Some other methods are Moving Averages and Momentum models.

The basic methods available for forecasting exchange rates can be categorized in four groups:

3.5.1 Technical forecasting

3.5.2 Fundamental forecasting

3.5.3 Market based forecast

3.5.4 Mixed forecasting method.

3.5.1 TECHNICAL FORECASTING

This forecasting involves use of historical exchange rate data to predict future values. The fact that for some previous days, the exchange rate has moved in a direction which may provide a clue for future movement in exchange rate. For predicting the future movements, following methods are used:

- **Charting**: In this method, every day's exchange rate is plotted on a graph against time. The peaks, shoulders, triangles or other formations are detected and the forecasting is made. Basically, in technical analysis, a change in trend is identified at an early stage and an effort is made to maintain position as required (if trend indicates appreciation of the currency, the forecasts are made accordingly), unless the weight of the evidence indicates the reversal of the trend. Technical analysis is classified in three types of indicators:

  (a) The data indicators: These are market structure indicators. These indicators

monitor the trend of various price indices, market breadth, cycles and volumes of currencies traded in order to evaluate the health of bull and bear markets.

(b) Sentimental Indicator: These are also called expectation indicators. These indicators monitor the actions of different market participants. The assumption on which these indicators are based is that different groups of participants are consistent in their action at major market turning points.

(c) The flow of fond indicators: These indicators analysis the financial strength of participants and their capacity and need to buy and sell the currency. The fund flow indicators are: balance of trade, current account balance, balance of payment, debt, etc.

- **Trends in Data**: All the price movements in currencies are the reflections of hopes, fears, knowledge, optimism and greed. The prices of currencies are never what they are worth, but what people think are worth.

  There are three types of trends namely primary trend, intermediate trend and short-term trend. Primary trend continues for one or two years. It reflects the investor's attitude towards the unfolding of fundamentals in the business cycles. The business cycle extends for three to six years so that the bullish and the bearish trends take place.

  In the formation of primary trends, the price actions are not uniform. These appear in waves. The waves are formed by intermittent reactionary trends. These reactionary trends sire called intermediary trends. The intermediary trends have life of three to six months. The trends that interrupt the intermediary trends are known as short trends. These trends are usually caused by random news or events and are very difficult to identify.

  All the tools, such as support, resistance levels, price patterns, moving averages, trend line are used to measure the pattern of trends. The price moves in a series of peaks and troughs known as support and resistance.

- **Technical Indicators**: The technical indicators are these tools with the help of which one can find out the basic trend patterns. These tools help the forecaster to forecast the exchange rates. These technical indicators are:

- **Moving averages**: Moving average is an average of certain data of some specified interval, which rolls on the entire span of data. Its purpose is to smoothen out the fluctuations and get a clear picture of trend. There are three types of moving averages:

  (a) Simple Moving Average (SMA): Simple moving average is the arithmetic mean of data on some specified interval, which rolls over total span of data. A change from the rising to the decline trend is signaled by the price moving below its moving average. A bullish signal is triggered when price rallies above the moving average. The main advantage of this average is that it gives a clear signal of buy' or 'sell'. This moving average can be constructed for any time interval. Shorter the interval, the greater will be the capturing of movements of exchange rates and the choice of span depends upon the type of asset and market trends.

  (b)Weighted Moving Average (WMA): It gives importance to the most recent observation and the importance goes on declining as we go deep into past. It is

more sensitive than simple moving average. In this case, a warning trend reversal is given by the change in direction of the average than the cross over as in the case of simple moving average.

(c) Exponential Moving Average (EMA): This is a short cut of obtaining a weighted moving average. It also gives more weights to the recent observations because in exponential moving average, historical prices are also taken into consideration. In an exponential moving average chart, a buy signal is obtained when the price moves above moving average and sell signal is obtained when the prices move below moving average.

- **Momentum**: It measures the rate at which the prices rise or fall and gives useful indications for latent strength or weakness in the price trends. For short term forecasting, Momentum' is very useful tool. It is calculated by taking the price differences continuously for a fixed time interval such as 5-10 days. Smaller period produces more pronounced oscillations and as we elongate the period of differencing, such as twenty days or, more smoothness is induced and a much smoother curve is obtained in which the oscillations are less volatile. Any divergence observed between the price line and the momentum should be treated as early signal of reversal. The confirmation of this can be achieved by a cross-over of a moving average or violation of trend line. There are various types of momentum indicators. Some of the important indicators are rate of change indicator, relative strength index indicator and moving average convergence and divergence indicators.
- **Time Series Modeling**: This is also another technique of forecasting exchange rates. The basic assumption of this analysis is also the same as was in the case of charting. This analysis assumes that the exchange rates can be forecasted on the basis of historical movements exhibited in exchange rates. But this modeling use time series statistical analysis. One can use autoregressive models; seasonality and cyclical movements can be incorporated and forecast improved. Basic technique of the time series modeling is that it tries to model the stochastic process, which is supposed to generate successive exchange rates or changes in exchange rates. These models are ARMA (autoregressive moving average) or ARIMA (auto regressive integrated moving average) model of Box Jenkins approach. In these models, an attempt is made to estimate parameters of the models, which pertain to the underlying stochastic process. Assuming that the

parameters remain stable, the ARIMA model can be used to forecast exchange rate. Usual random walk model is given by:

$S_1 = \alpha S_{t-1} + u_t$

The model assumes that ut and vt are white noise, implying that E (u_t)= 0, E (u_t' u_{t+k}) = 0 for't' not equal to 'k'. The first model in the above set of equations relates changes in exchange rate to its historical values. These models have also beer^ used in the world for testing market efficiency of forex markets. In these models, it is possible to include more lags of dependent variable to improve the forecasting performance of the model. Apart from usual inclusion of lagged dependent variables, one may include variables capturingthe seasonality.

3.5.2 FUNDAMENTAL FORECASTING

Fundamental forecasting is based on fundamental relationship between economic variables and exchange rates. On the basis of independent variables along with their historical impact on currency's values, the corporations can develop exchange rate forecast models and use forecasts for making business decisions. Similarly, in the case of short run models, the balance of payment, current account and growth models are based on the fundamental variables determining the exchange rate. Purchasing power parity or interest rate parity or any of the monetary models can be used for the purpose. For example, if an economy is facing high inflation its currency is expected to depreciate. Similarly, if interest rates in an economy rise, its currency is expected to depreciate. Apart from the factors included in these theories, other factors can also be included in these models but the addition should have a logical extension. On basis of theories of exchange rates, subjective assessment of movement of exchange rates can be perspective; a forecast would be based on quantitatively measured impacts of factors on exchange rates.

Suppose we postulate that change in exchange rate between two currencies say Indian rupee and US dollar depend on one period past inflation rate differential (INFt-1) between Indian and US economy and the one period lag differential of percentage change in gross domestic product (DGDPt-1). In functional form, this relationship can be written as:

$$\nwarrow S_t = F\ (INF_{t-1},\ DGDP_{t-1})$$

Where ↖\St is the change in exchange rate.

3.5.3 MARKET BASED FORECASTING

When the forecasts are made on the basis of market indicators, the forecasting is known as market-based forecasting. There are two important indicators for forecasting exchange rate. These indicators reflect the market sentiments therefore may be used to forecast the exchange rate. Some of the market-based forecasters are.

- **Spot Rate**: When dollar is expected to appreciate, the speculators start buying dollars, thus pushing its price up against rupee immediately. Conversely, if dollar is expected to depreciate, the selling pressure builds up.
- **Forward Rate**; Forward rate is considered to be an impartial forecaster of exchange rate. Speculative buying and selling of currencies push the forward rate towards the expected future spot rate. If dollar is expected to appreciate in the future and the forward market is not reflecting this sentiment, the speculators would start buying currency if it is expected to appreciate at the future date and push the price to the expected levels.
- **Current Account Balance**: Current account balance is also important indicator for forming expectations on future spot rate. If in consecutive months, the current account balance exhibits deficits, the exchange rate is expected to depreciate and if it is exhibiting surpluses, the domestic currency is expected to appreciate.
- **Demand and Supply Approach**: As has been mentioned earlier, the exchange rate is influenced by the overall demand and supply of respective currency, in the same manner, changes in exchange rates can be forecasted by analyzing the said factors. The demand curve of a currency mainly represents the country's supply curve of exports, and the supply of a currency is derived from the country s imports. An increase in exports results in domestic currency appreciation and increase in imports

results in depreciation of domestic currency. Besides exports and imports, number of other factors like past investment, net transfers etc. also can be used to study the currency demand and supply. In case of domestic currency appreciation and depreciation,

Supply>demand, resulting in lower exchange rate and

Demand>Supply, resulting in increased exchange rate respectively.

Thus, in order to have a stable market, it is required that the elasticity of export supply and import demand curve together should be greater than one.

- **Self- Check Questions (MCQs)**

1. _____ techniques are typically based on formal economic models of exchange rate determination.

a) Technical analysis b) fundamental analysis c) exchange rate forecasting d) mean value error

2. A higher nominal interest rate in one country indicates the fact that the country's currency was expected to _____.

a) Appreciate b) evaluate c) devalue d) depreciate

3. To make predictions regarding fixed rate systems and devaluations, forecasters may employ

a) Macroeconomic information b) Financial information c) interest rate differentials

d) All of the above

3.5.4 MIXED FORECASTING

Usually, no single forecasting technique has been found to be consistently superior to the others; therefore, it is preferable to combine more than one technique to forecast the exchange rate. Some of the MNCs do use the mixed forecasting techniques so as to obtain best possible forecasts.

3.6 EVALUATION OF FORECAST PERFORMANCE

Generally, two criteria for judging the effectiveness of a forecasting exchange rate tool are there:

- **Accuracy**: Forecasted value turns out to be close to the actual future value, leaving a minor fluctuating error
- **Unbiasedness**: Where probability of overestimate is same as to probability of underestimate

MNCs have forecasting divisions that can forecast exchange rates on the basis of models and continue to monitor the forecasting the performance of these models. For this purpose, usually, measurement of the forecast error is required. There are various ways to compute forecast errors. The simplest one measure is called absolute percentage forecast error and is computed as:

Absolute forecast error as a

Percentage of the realised = $\frac{\text{(Forcasted value - Realised Value)}}{\text{Realised Value}}$

The error is computed using an absolute value, since this avoids the possible offsetting effect when determining the mean forecast error.

Keywords: *Exchange rate, PPP, Market based forecast, Hedging*

3.7 SELF- CHECK EXERCISE

- **LONG- QUESTION ANSWERS**

1. Throw light on the reasons for studying exchange rate forecasting.
2. Identify the factors that should be considered while forecasting exchange rates.
3. Discuss the meaning of international parity conditions. Also mention in detail the International Fisher Effect.
4. Discuss the various techniques for forecasting exchange rates. How the forecasting performance can be evaluated?

- **SHORT QUESTION ANSWERS**

1. Discuss the factors that affects a country's strength?
2. Write a short note on Purchasing Power Parity.
3. Describe the criteria for checking the effectiveness of a forecasting exchange rate tool.

3.8 SUGGESTED READINGS

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2. Seth, A.K., *International Financial Management,*Galgotia Publishing Company, New Delhi, 2000.
3. Sharan, V., *International Business,* 2nd Edition, Pearson Education, New Delhi, 2006.
4. Cherunilam, F., *International Economics,* 4th edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2007.

3.9 SELF- CHECK QUESTIONS (ANSWER KEY)

3.3 a) 2 b) economic growth 3) hedging

3.5.31) b 2) d 3) d

CURRENCY FUTURES, CURRENCY OPTIONS AND CURRENCY SWAPS

STRUCTURE

4.0 OBJECTIVES

After reading this chapter, the student should be able to:

- understand the concept, types and uses of various financial derivatives, and
- know how these derivatives differ from each other.

4.1 INTRODUCTION

Due to globalization and liberalization process initiated by the states all over the world, the international trade and financial activities have grown in multifold resulting into rising level of all types of risks for market participants such as market risk, interest rate risk, foreign exchange risk, inflation risk and price risk. Managing all these risks is essential and significant to be successful in financial and trading activities. Financial derivatives like options futures, forwards and swaps have emerged in the financial markets to handle and manage such risks.

The basic purpose of these instruments is to provide commitments to prices for future dates for giving protection against adverse movements in future prices, in order to reduce the extent of financial risks. Not only this, they also provide opportunities to earn profit for those persons who are ready to go for higher risks. In other words, these instruments, indeed, facilitate to transfer the risk from those who wish to avoid it to those who are willing to accept the same.

Today, the financial derivatives have become increasingly popular and most commonly used in the world of finance. This has grown with so phenomenal speed all over the world that now it is called as the derivatives revolution. In an estimate, the present annual trading volume of derivative markets has crossed US $ 30,000 billion, representing more than 100 times gross domestic product of India.

During the mid1990s, with the Indian government initiating the process of liberali2ing the financial market in all sectors specifically opening the market for foreign investment. As a result of it the infrastructure of the financial markets geared to international norms in all respects. The stock market's structure and trading in India have gone under a sea change. Institutionalization of broking activities, modernization, automation of stock exchanges and entry of foreign institutional investors have opened multiple options to various participants in the financial markets. Options and futures trading in India commenced from June, 2000 on National Stock Exchange and Bombay Stock Exchange in stock index futures, stock futures, stock index option and stock option.

This was significant development in the history of Indian stock markets. A lot of trading in futures and options segment in Indian stock market was seen and the number of market participants increased phenomenal in a short period. As a result, awareness about the financial derivatives instruments and their application has increased among the investing people at large.

4.2 Definition of Financial Derivative

The Securities Contracts (Regulation) Act 1956 defines "derivative" as under: "Derivative" includes

1. Security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.
2. A contract that derives its value from the prices, or index of prices of underlying securities.

The above definition contains the following features of financial derivatives:

1. The derivatives are financial products.
2. Derivative is derived from another financial instrument/contract called the underlying. In the case of Nifty futures, Nifty index is the underlying. A derivative derives its value from the underlying assets.

   In the simple words, derivatives refer to securities or to contracts that derive from another whose value depends on another contract or assets. As such financial derivatives are financial instruments whose prices or values are derived from the prices of other underlying financial instruments or financial assets. The underlying instruments may be equity share, stock, bond, debenture, treasury bill, foreign currency or even another derivative asset. For example, a stock option’s value depends upon the value of a stock on which the option is written. Similarly, the value of a treasury bill of futures contracts or foreign currency forward contract will depend upon the price or value of the underlying assets, such as treasury bill or foreign currency. In other words, the price of the derivative is not arbitrary rather it is linked or affected to the price of the underlying asset that will automatically affect the price of the financial derivative. Due to this reason, transactions in derivative markets are used to offset the risk of price changes in the underlying assets. In fact, the derivatives can be formed on almost any variable, for example, from the price of hogs to the among of snow falling at a certain ski resort.

4.3 FEATURES OF A FINANCIAL DERIVATIVE

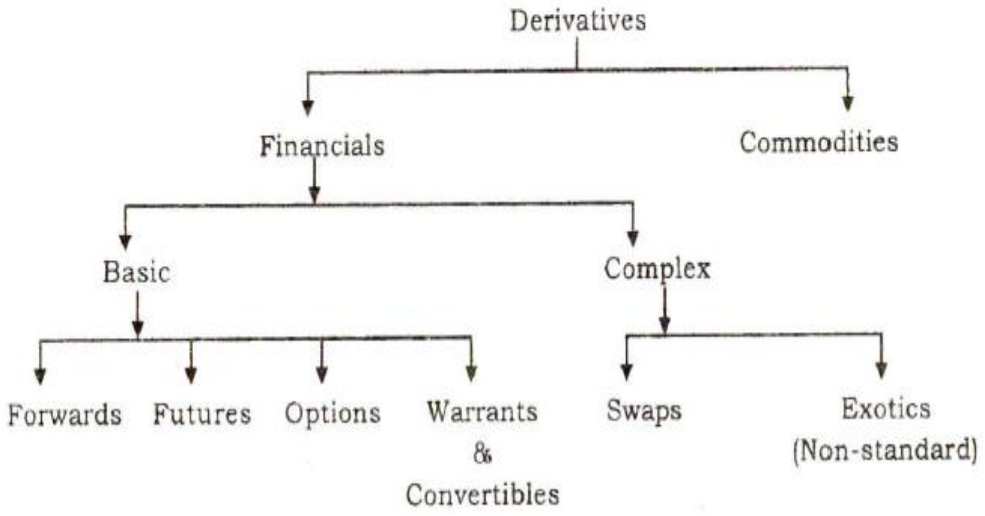
The basic features of the derivative instrument can be drawn from the general definition of a derivative irrespective of its type.

(i) A derivative instrument relates to the future contract between two parties.
(ii) The derivative instruments have the value which derived from the values of other underlying assets, commodities, financial assets, etc.
(iii) The counter parties have specified obligation under the derivative contract.
(iv) The derivatives contracts can be undertaken directly between the two parties or through theparticular exchange like financial futures contracts.
(v) The financial derivatives are carried-of balance sheet.

4.4 TYPES OF FINANCIAL DERIVATIVES

Presently, there are complex varieties of derivatives already in existence, and the markets are innovating newer and newer ones continuously. In simple form, the derivatives can be classified into different categories which are shown in the Fig.4.1

Figure 4.1: Classification of Derivatives



One form of classification of derivative instruments is between commodity derivatives and financial derivatives. The basic difference between these is the nature of the underlying instrument or asset. In a commodity derivative, the underlying instrument is a commodity which may be wheat, cotton, pepper, sugar, jute, turmeric, com, soyabeans, crude oil, natural gas, gold, silver, copper and so on. In a financial derivative, the underlying instrument may be treasury bills, stocks, bonds, foreign exchange, stock index, gilt-edged securities, cost of living index, etc. It is to be noted that financial derivative is fairly standard and there are no quality issues whereas in commodity derivative, the quality may be the underlying matters. However, the distinctionbetween these two from structure and functioning point of view, both are almost similar in nature.

Another way of classifying the financial derivatives is into basic and complex derivatives. In this, forward contracts, futures contracts and option contracts have been included in the basic derivatives whereas swaps and other complex derivatives are taken into complex category because they are built up from either forwards/futures or options contracts, or both. In fact,

such derivatives are effectively derivatives of derivatives.

4.5 BASIC FINANCIAL DERIVATIVES

4.5.1 FORWARDS

A forward contract is a simple customized contract between two parties to buy or sell an asset at a certain time in the future for a certain price.

The basic features of a forward contract are:

(i) The forward contracts are bilateral contracts.

(ii) Each contract is custom designed, and hence, is unique in terms of contract size, expiration date, the asset type, quality, etc.

(iii) In forward contract, one of the parties takes a long position by agreeing to buy the asset at a certain specified future date. The other party assumes a short position by agreeing to sell the same asset at the same date for the same specified price.

(iv) The specified price in a forward contract is referred to as the delivery price.

(v) In the forward contract, derivative assets can often be contracted from the combination of underlying assets, such assets are often known as synthetic assets in the forward market.

Classification of Forward Contracts

The forward contracts can be classified into different categories. Under the forward Contracts (Regulation) Act, 1952, forward contracts can be classified in the following categories.

Hedge Contracts: These forward contracts are that they are freely transfer-le and do not specify any particular lot, consignment or variety of delivery of the underlying goods or assets. Delivery in such contracts is necessary except in a residual or optional sense. These contracts are governed under the provisions of the Forward Contracts (Regulation) Act, 1952.

Transferable Specific Delivery (TSD) Contracts: These forward contracts are freely transferable from one party to other party. These are concerned with a specific and predetermined consignment or variety of the commodity. There must be delivery of the underlying asset at the expiration time. It is mandatory. Such contracts are subject to the regulatory provisions of the Forward Contracts (Regulation) Act, 1952, but the Central Government has the power to exempt (in specified cases) such forward contracts.

Non-transferable Specific Delivery (NTSD) Contracts: These contracts are of such nature which cannot be transferred at all. These may concern with specific variety or consignment of goods or their terms may be highly specific. The delivery in these contracts is mandatory at the time of expiration, expiration. Normally, these contracts have been exempted from the regulatory provisions of Forward Act, but the Central Government, whenever feels necessary, may bring them under the regulation of the Act.

Other Forward Contracts

Forward Rate Agreements (FRA): A forward rate agreement is a contract between the two parties, (usually one being the banker and other a banker's customer or independent party), in which one party (the banker) has given the other party (customer) a guaranteed

future rate of interest to cover a specified sum of money over a specified period of time in the future.

Range Forwards: Under his instrument, instead of quoting a single forward rate, a quotation is given in terms of a range, i.e., a range may be quoted for Indian rupee against US dollar at Rs 47 to Rs. 49. It means there is no single forward rate rather a series of rate ranging from Rs. 47 to 49 has been quoted. This is also known as flexible forward contracts. At the maturity, if the spot exchange rate is between these two levels, then the actual; spot rate is used. On the other hand, if the spot rate rises above the maximum of the range, i.e., Rs. 49 in the present case then the maximum level is, used. Further, if the spot rate falls below the minimum level, i.e., is 47, then the minimum rate will be used.

4.5.2 FUTURES

A futures contract is an agreement between a buyer and a seller where the seller agrees to deliver a specified quantity and grade of a particular asset at a predetermined time in futures at an agreed upon price through a designated market (exchange).

(BSE) website defines futures contract: "Futures are exchange traded contracts to sell or buy financial instruments or physical commodities for future delivery at an agreed price. There is an agreement to buy or sell a specified quantity of financial instrument/commodity in a designated future month at a price agreed upon by the buyer and the seller.

TYPES OF FINANCIAL FUTURES CONTRACTS

There are different types of contracts in financial futures which are traded in the various futures' financial markets of the world. These contracts can be classified into various categories which are as under:

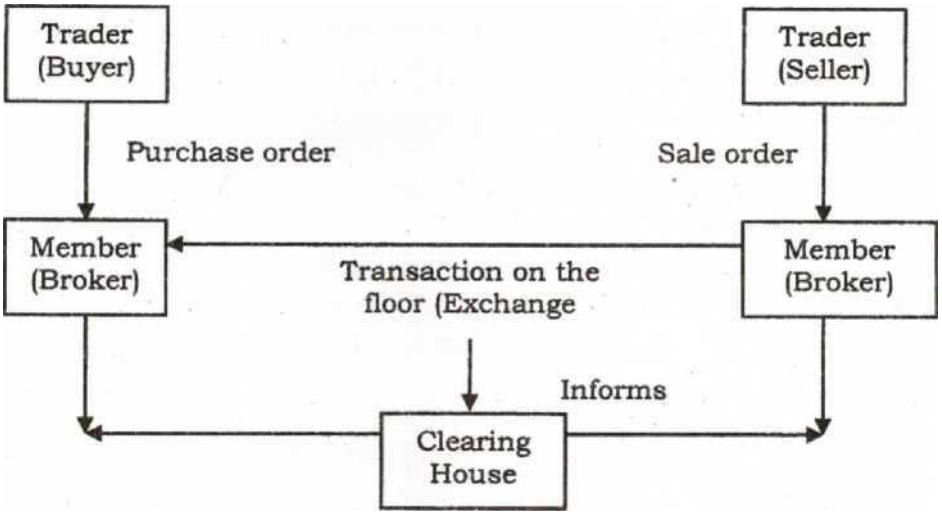
- **Interest Rate Futures**: It is futures trading on interest bearing securities.
- **Foreign Currencies Futures**: These financial futures, as the name indicates, trade in the foreign currencies.
- **Stock Index Futures**: These contracts are based on stock market indices.
- **Bond Index Futures**: Like Index futures, these futures contracts are also based on particular bond indices, i.e., indices of bond prices.
- **Cost of Living Index Futures**: These futures are based on a specified cost of living index.
- **Currency Futures**: A currency futures contract provides a simultaneous right and obligation to buy and sell a particular currency at a specified future date, a specified price and a standard quantity. In other words, in currency futures market, the different currencies are sold and purchased at the specified future date, at predetermined price and of specified quantity on a particular recognized exchange.
- **Features of Currency Futures Contracts**: The features of the contract are.
- **Organized Exchanges**: The currency futures contracts are negotiated only on recognized /organized exchanges with a designated physical location where such trading take place. These exchanges provide a ready, liquid market in which futures can be bought and sold at any time.
- **Standardization**: Like other futures contracts, the currency futures contract is also standardized by the respective organized exchanges on which trading are initiated.
- **Minimum Variation (Tick Size)**: In each futures market, there is minimum price variation, also called as tick, which is standardized for every content. It may vary

exchange to exchange. Generally, it is 0.01 percent or 0.0001 dollar per unit of currency,

- **Clearing House**: After a futures contract is agreed between the two parties at the trading floor, then the agreement between X and Y immediately replaced by two contracts one between X and clearing house, and other, between Y and the clearing house. The clearing house is responsible for keeping the accounts margin payments, settlement of deliveries and others like information and data collection. The clearing house plays a vital role between the two parties and eliminates the need for X and Y to investigate each other's creditworthiness and guarantees the financial integrity of the market. Further the clearing house gives the guarantee for execution and delivery of the contracts held till their maturity.
- **Marking-to-Market**: At the end of the trading session, all the outstanding contracts are reprised at the settlement price of that session. It means that all the futures contracts are daily settled, and profit and loss is determined on each transaction. This procedure, called marking-to-market, requires that funds change every day. The funds are added or subtracted from a mandatory margin (initial margin) that traders are required to maintain the balance in the account. Due to this adjustment, futures contract is also called as daily reconnected forwards.
- **Margins**: For the smooth functioning and execution of futures contracts at the exchanges, the exchange requires a performance bond in the form of a margin which must be deposited with the clearing house. It will be treated as security against each party's market position. The margin payment is a good-faith deposit which provides evidence of party's ability to settle the contract.
- **Trading Process**: Like other futures trading, the futures currency is also traded at the organized exchanges. The following Fig. exhibits the common flow diagram of how operations take place on currency futures market.

  Figure described the mechanism of the flow of transactions which are taken place at the recognized exchanges. When the market is open, the transactions take place at the floor of the exchange. Beyond the opening hours, negotiations may take place through an electronic system, called GLOBEX which connects the markets of Chicago, Paris, London and others from 2:30 p.m. until 7:05 a.m. the following morning. The GLOBEX system matches purchase and sale orders for each type of currency futures contract. Orders are confirmed electronically and the traders Eire informed about the quantity and price of the negotiations. This information is then sent to the clearing house which further make the adjustments in the buyers and sellers' margin accounts.

Figure 4.2: The common flow diagram of operations on currency futures market.



- **Hedging with Currency Futures**: Exchange rates are quite volatile and unpredictable, it is possible that anticipated profit in foreign investment may be eliminated, rather even may incur loss, Thus, in order to hedge this foreign currency risk, the traders oftenly use the currency futures. For example, a long hedge (i.e., buying currency futures contracts) will protect against a rise in a foreign currency value whereas a short hedge (i.e., selling currency futures contracts) will protect against a decline in a foreign currency's value.

  The general rule for determining whether a long or short futures position will hedge a potential foreign exchange loss is:

  Loss from appreciating in Indian rupee — - -► Short hedge

  Loss from depreciating in Indian rupee ----------*■ Long hedge

- **Self- Check Questions (Fill in the blanks):**

1. _____ gives the guarantee for execution and delivery of the contracts held till their maturity.
2. A _____ derives its value from the underlying assets.
3. _____ contracts are bilateral contracts.

4.5.3 SWAPS

A swap is an agreement between two counter parties to exchange cash flows in the future.

FEATURES OF SWAPS

Important features of a swap agreement are:

- **Counter Parties**: All swaps involve the exchange of a series of periodic payments between at least two parties.
- **Facilitators**: Swap agreements are arranged mostly, (known as swap facilitators), through an intermediary which is usually a large international financial institution/bank having network of its operations in major countries. Swap facilitators can be classified into two categories.
  1. Brokers
  2. Swap dealers
- **Cash Flow**: In the swap deal, two different payment streams in terms of cash flows are

estimated to have identical present values at the outset when discounted at the respective cost of funds in the relevant primary markets.

- **Documentations**: Swap transactions may be set up with great speed since their documentations and formalities are generally much less in comparable to loan deals.
- **Transaction Costs**: It has been also observed that transaction costs are relatively low in swap Transactions in comparison to loan agreements. They are unlikely to exceed half percent of the total sum involved in the swap agreement.
- **Termination**: Since swap is an agreement between two parties, therefore it cannot be terminated at one's instance. The termination also requires to be accepted by counter parties.
- **Default Risk**: Since most of the swap deals are bilateral agreements, therefore, the problems of potential default by either of the counter party exist, hence, making them more risky products in comparison to futures and options.

TYPES OF FINANCIAL SWAPS

Important financial swaps, which are popular in financial markets are:

1. Interest-Rate Swaps
2. Currency Swaps
3. Equity Swaps

INTEREST RATE SWAPS

At interest rate swap is a financial agreement between the two parties who wish to change the interest payments or receipts in the same currency on assets or liabilities to a different basis. There is no exchange of principal amount in this swap.

TYPES OF INTEREST RATE SWAPS

- **Plain vanilla swap**: It is also known as fixed-for-floating swap. In this swap, one party with a floating interest rate liability is exchanged with fixed rate liability. Usually swap period ranges from 2 years to over 15 years for a pre-determined notional principal amount. Most of deals occur within four years period.
- **Zero coupon to floating**: The holders of zero-coupon bonds get the full amount of loan and interest accrued at the maturity of the bond. Hence, in this swap, the fixed rate player makes a bullet payment at the end and floating rate player makes the periodic payment throughout the swap period.
- **Alternative floating rate**: In this type of swap, the floating reference can be switched to other alternatives as per the requirement of the counter party. These alternatives include three-month LIBOR, one-month commercial paper (which refers to the Federal Reserve release), T-Bill rate, etc. In other words, alternative floating interest rates are charged in order to meet the exposure of other party.
- **Floating-to-floating**: In this swap, one counter party pays one floating rate, say, LIBOR while the other counter party pays another, say, prime for a specified time period. These swap deals are mainly used by the non-US banks to manage their dollar exposure.
- **Forward swap**: This swap involves an exchange of interest rate payment that.does not begin until a specified future point in time. It is also kind of swap involving fixed for floating interest rate.
- **Rate-capped swap**: In this type of swap, there is exchange of fixed rate payments for floating rate payments, whereby the floating rate payments are capped. An upfront fee is paid by floating rate party to fixed rate party for the cap.

• **Swaptions**: Swaptions are combination of the features of two derivative instruments, i.e., option and swap. Option interest rate swaps are referred as swaptions. The buyer of the swaption has the right to enter into an interest rate swap agreement by some specified date in the future. The swaption agreement will specify whether the buyer of the swaption will be a Fixed rate receiver or a fixed rate payer. If the buyer exercises the option, then the writer of the option will become the counter party.

EQUITY SWAP

The equity swap involves the exchange of interest payment linked to the change in the stock index.

CURRENCY SWAP

A swap deal can also be arranged across currencies. It is an oldest technique in swap market. In this swap, the two payment streams being exchanged are denominated in two different currencies. For example, a firm which has borrowed Japanese yen at a fixed interest rate can 'swap away[1] the exchange rate risk by setting up a contract whereby it receives yen at a fixed rate in return for dollars at either a fixed or a floating interest rate.

The currency swap is, like interest rate swap, also two-party transaction, involving two counter parties with different but complimentary needs being bought by a bank. In this swap, normally three basic steps are involved which are as under:

1. Initial exchange of principal amount
2. Ongoing exchange of interest
3. Re-exchange of principal amounts on maturity

The first step in this swap is the initial exchange of the principal amounts at an agreed rate of exchange. This rate is usually based on the spot exchange rate. This initial exchange can be on a notional basis, i.e., no physical exchange of principal amounts. The counter parties simply convert principal amounts into the required currency-via-the spot market.

The second step is related with ongoing exchange of interest. After establishing the principal amounts, the counter parties exchange interest payment on agreed date based on the outstanding principal amounts at the fixed interest rates agreed at the outset of the transaction.

The third step is the re-exchange of principal-to-principal amounts. Agreement on this enables the counter parties to re-exchange the principal sums at the maturity date.

TYPES OF CURRENCY SWAPS

The structure of currency swaps differs from interest rate swaps in a variety of ways. The major difference is that in a currency swap, there is always an exchange of principal amounts at maturity at a predetermined exchange rate. Thus, the swap contract, behaves like a long dated forward, is foreign exchange contract, where the forward is the current spot rate. The currency swaps can be of different types based on their term structure. These have been discussed in brief.

• **Fixed-to-Fixed Currency Swap**: In this category, the currencies are exchanged at fixed rate, swap works like this. One firm raises a fixed rate liability in currency X, say US dollar ($) while the other firm raises fixed rate funding in currency Y, say, Pound (£). The principal amounts are equivalent at the current market rate of exchange. In swap deal, first party will get pound whereas the second party gets dollars. Subsequently, the first party will make periodic get (pound) payments to the second, in turn gets dollars computed at interest at a fixed rate on the respective principal amount of both currencies. At maturity, the dollar and pound principal are re-exchanged.

• **Floating-to-Floating Swap**: In this category, the counter parties will have payments at

floating rate in different currencies.

- **Fixed-to-Floating Currency Swap**: This swap is a combination of a fixed-to-fixed currency swap and floating swap. In this, one party makes the payment at a fixed rate in currency, say, X while the other party makes the payment at a floating rate in currency, say, Y. Contracts without the exchange and re-exchange of principals do exist. In most cases, a financial intermediary (a swap bank) structures the swaps deal and routes the payments from one party to other party.

The most important currencies in the currency swap market are the US dollar, the Swiss franc. The Deutsche Mark, the ECU, the Sterling pound, the Canadian dollar and the Japanese yen. The currency swap is an important tool to manage currency exposures and cost benefits at the same time. These are often used to provide long term financing in foreign currencies. This function is important because in many foreign countries, long term capital and forward foreign exchange markets are notably absent or not well developed. However, if the international financial markets were fully developed from all the angles, then the incentive to swap would be not so much due to availability of arbitrage opportunities.

4.5.4 OPTIONS

Whatever advantages the forward or the futures contract might hold for their purchaser, they have a common disadvantage; i.e. while they protect the holder against the risk of adverse movements in exchange rates, they eliminate the possibility of gaining a windfall profit from favorable movements. This was apparently one of the considerations, that led some commercial banks to offer currency options to their customers. Exchanges tracked currency options were first offered in 1983 by Philadelphia stock exchange (PHLX) options have proved to be a very versatile and flexible tool of risk management.

What are options?

An option is a financial instrument that gives the holder (buyer) the right, but not the obligation to sell (put) or buy (call) another financial instrument at a set price and expiration date.

CLASSIFICATION OF OPTIONS

1. American option - American option is the one which can be exercised by the buyer on or before the expiration date i.e. anytime between the day of purchase of the option and the day of its expiry.
2. European option - European option is the one which can be exercised by the buyer on the expiration only and not any time before that.
3. Call option - Call option gives the customer the right to buy.
4. Put option - Put option gives the right to sell, the contracted currencies at the expiration date.

Hedging in options

It can also be called as working of options. This can be studied in two parts - Working of call option is:

Call option is the option to buy stated number of units of the underlying foreign currency at a specific price per unit during a specific period of time. Working of option in case of call option can be explained with the help of the following example - If the US importer enters into the contract (an option contract) with German exporter with the following features -

Contract size : DM 62,500

Exercise/Strike price: $ 0.64 per DM (after loading option premium of $ 0.02 per DM)

Option Premium : $0.02 per DM

i.e. total cost of purchasing DM 62,500 is

= 62,500 x $0.02

= $ 1250

Expiration date or Maturity date: 60 Days

To explain the working now they will assume three situations.

If on the maturity date i.e. on 60th day the market value/spot rate of DM has risen to say $0.70, then option will be exercised. It means that the buyer will exercise his call/ buying option and will buy DM 62,500 at $0.64 and sell the same in the market at $0.70, making a profit of $2500. In this case profit is equal to spot price (minus) strike price option premium i.e.

Spot Price	=	43750 (62,500 x 0.70)
Strike Price	=	4000/3750(62,500 x 0.64)
Option Premium	=	1250 (62,500 x 0.02
Profit	=$ 2500	

This particular option will be "in-the-money", as the importer is going for strike price which is less than the spot rate.

Now, if the spot rate of DM declines below the strike price, say $0.60 then the buyer of the call option will choose not to exercise his option, and will go for spot rate i.e. the importer would let the option expire and purchase the DM in the spot market i.e. at the rate $0.60. In this case the buyer losses the option premium of $1250.

This option would be "out of the money" as the importer/buyer is not going for option but for spot rate which is less than the strike price.

Now, if the spot rate of DM in the spot market becomes equal to strike price, say $0.64, Then the buyer of the call option will choose the option, as it will cover the total cost of purchasing DM 62,500 i.e. $1250 which investor/buyer has already paid. This option would be "At-the-money

" Where spot rate is equal to the strike price. This can be explained with the help of a table and a diagram.

Call option

In-the-money (going for option)	When-Strike price >spot price 0.64 0.70
At-the-money	When-Strike price = Spot Price 0.64 0.64
Out-of-the-money (not going for option)	When > Strike Price >Spot Price 0.64 0.60

WORKING OF OPTIONS IN CASE OF PUT OPTION

The working of put option is just the reverse of call option. A put option is the option to sell a stated number of units of the underlying foreign currency at a specific price per unit during a specific period of time. Working of put option can be explained with the help of the following example. Example is same as stated earlier for call option. Like call option here also we will assume 3 situations.

If on the maturity date the spot rate of DM has fallen to, say, $0.60 and the strike price is $0.64 then the buyer of put option will immediately buy DM in the market at $0.60 and will exercise his option selling the DM at $0.64, thus making a profit of $1250. In pm option, profit is equal to (strike price - spot price) - option premium paid.

In the example:

Strike Price (62,500 x $0.64)	=	40,000
(-) Spot Price (62,500 x $0.60)	«	37,500
		2,500
(-) Option Premium		1,250
Profit	=	$1,250

In this case as investor is going for option, so this option is "in the money where strike price is more than spot price. Now if the spot rate of DM rises to, say, $0.70, then the buyer of put option will choose not to exercise his option to sell as he can sell in the market at a higher rate. In this case the investor losses the premium paid i.e. $1250. As the investor is not going for option i.e. $0.64. So this is called "out-of-the money. In this strike price is less than spot price.

The option would be "at the money" when strike price ($0.64) is equal to spot rate ($0.64). In put option, as the spot price falls further, the value of the put option rises.

Put option

"ln-the money (going for option)	When ->Strike price -> spot rate.
'At-the-money"	Strike price = Spot rate
Out-of-the money (not going for options)	When -> Strike price < Spot price

SPECULATION IN OPTIONS

In simple words, speculation making profit or gain from the movements of foreign exchanges rates. These profits are made by investor by adopting one of the following strategies.

Spread Strategies

Spread Strategies with options involve simultaneous sale and purchase of two different option contracts. The motivation with option spreads is to realize a profit if the underlying price moves in a certain fashion, while at the same time limiting the loss if it does not. These are speculative strategies not only with limited profit potential but also limited potential loss. The different strategies are

1. **Bullish Call Spread Strategy**

A bullish call spread consists of selling the call with the higher strike price and buying the call with the lower strike price. This strategy can be explained with the help of an eg.: **Example**: If there are two call options for the investor Call Option - I Call Option - I

Strike Price = $0.55 Strike Price = 0.65

Loading margin = 0.07 Loading Margin = 0.005

Under this strategy, initial investment cost is premium paid on the lower priced call minus the premium received on higher priced call. In the example, it is:

Initial investment cost = 0.07 - 0.005 = 0.065

Maximum profit that a speculator can get by adopting this strategy is the differences in the strike prices minus the initial investment cost. In the example it is:

Maximum Profit = Difference in the strike prices (minus)
Initial investment cost

In e.g.

Max profit = (0.65 - 0.55) - 0.065 =
0.10 - 0.065
= 0.035

Maximum loss under this strategy that a speculator can get is the initial investment cost i.e. in the e.g.

Max Loss = initial investment cost

Max loss = 0.065

Break even value is given by the lower striker price plus the initial investment cost. In the e.g.: It is Break even value = 0.55+0.065 = 0.6150.

It means that when strike price is 0.6150 there will be no net gain or loss.

The bullish call spread strategy thus yields a limited profit if the foreign currency appreciates and a limited loss if it depreciates. It can be explained with the help of a diagram.

2. **Bearish call spread strategy**

Bearish call spread strategy involves buying the call with higher strike price and selling the call with lower strike price. This strategy should be adopted by the investor if he (investor) expects the foreign currency to depreciate.

3. **Straddles strategy**

A straddles strategy consists of buying a call and a put option together of identical or some maturity and strike prices. If there is a drastic depreciation of currency gain is made on the put while in case of a drastic appreciation, the call gives a profit for moderate movements a net loss result.

4. **Strangles Strategy**

Strangles Strategy is similar to straddles. This strategy consists buying a call option at a strike price higher than the current spot rate and buying a put option at a strike price lower than current spot rate like the straddle it yields net gain for drastic or fast movements of the spot and a loss for moderate movements. The only positive point of strangle against straddle is the loss is similar as compared to loss accruing in straddles and in this strategy, profits can be acquired only when there is extreme movement of exchange rates.

OPTION PRICING AND VALUATION

In option pricing and valuation woe are concerned with the determination of the price of one option

The value of an option is comprised of two components.

(i) Intrinsic value
(ii) Time value

The intrinsic value of an option is the amount by which the option is in the money. In simple words, intrinsic value is the extent to which an option would currently be profitable to exercise.

For call option -

Intrinsic value = spot price - strike price

For put option -

Intrinsic value = strike price - spot price

The Intrinsic value of an option must be positive number or zero. It cannot be negative. For a call option the strike price must be less than the spot rate of the currency for the call to have an Intrinsic value greater than zero. For put option, the strike price must be greater than the spot rate to have positive Intrinsic value. The more in the money option is, the more will be Intrinsic value. An out of the money option has no Intrinsic value. Option value over its Intrinsic value is called the time value of the contract. In simple words, time value is the amount option buyers are willing to pay for the possibility that the option may become profitable prior to expiration due to favorable change in the price of the underlying asset or currency.

An option loss its time value as its expiration date nears for example, an option with six months remaining until expiration will tend to have a higher price than an option with the same strike price but with only 3 months until expiration. At expiration an option is worth only its Intrinsic value. Time value cannot be negative. The value of an American option always exceeds its Intrinsic value because the time value is always positive up to expiration date. However, the case is more ambiguous for European options, because increasing the time to maturity may not increase its value, gives that it can only be exercised on maturity date.

Before expiration, an out of the money options has only time value, but on in the money options has both time value and Intrinsic value. The time value of currency option reflects the probability that its Intrinsic value will increase before expiration, this probability depends among other things, on the volatility of the exchange rate and interest rates.

Exchanges rate volatility is change in the value of money. An increase in currency volatility on value of money leads to increase in call option value. In simple words it has positive impact on call option value. Similarly, another factor is interest rates. A rise in the interest rate will cause call value to rise and put value to fall. And this requires consideration of both domestic and foreign interest rates. This valuation of option can also be explained with the help of a mathematical formula.

Formula

Mathematical formula for valuation of option is derived from The German – Kohlhagen Model for pricing currency options which is an adaptation of the black and Scholes model

Table 4.1: Forward and Futures Currency Contracts Compared

Basis	Forward	Futures
Size	Structured as per requirement of the party	Standard
Delivery dates	Tailored to individuals needs	Standard
Method of transaction	Established by the bank or broker through electronic media	Open auction among buyers and sellers on the floor of recognized exchange
Participates	Banks, brokers, forex dealers, multinational companies, institutional investors, arbitrageurs, traders, etc.	Banks, brokers, forex dealers, multinational companies, institutional investors, small traders, speculators, arbitrageurs, etc.
Range of currencies	Approximately 50 currencies including most European and pacific Basin currencies. In principle, any such currency where money market exists	Only major liquid currencies like US $, Canadian dollar, Yen, Mark, Pound sterling, French franc, Swiss franc, Australian dollar, Euro, etc.
Commission	Set by spread between dealer's quoted buy and sell price (bid-ask price) of the currency	Published brokerage fee by the
Margins	None as such, but compensating bank balances may be required	Margin deposit required
Settlement	Actual delivery or offset with cash settlement. No separate clearing house	Daily settlements to the market and variation margin requirements
Market place	Over the telephone worldwide and computer networks	At recognized exchange floor with worldwide communications
Accessibility	Limited to large customers banks, institutions, etc.	Open to anyone who is in need of hedging facilities or has risk capital to speculate
Regulation	Selfregulating	Regulation through exchanges
Frequency of delivery	More than 90 percent settled by actual delivery	Actual delivery has very less even below one percent
Price fluctuation	No daily limit	Daily limit
Secured	Risk is high being less secured	Highly secured through margin deposit, and so low or no risk.

applied to a slightly different environment. According to this model

$$C = \frac{FN(dist1) - EN(dist2)}{e^{rt}}$$

In the above formula

C = Price of the option

F = Forward exchange rate

E - Exercise Price

r = Risk free compounded interest rate differential

t = Time period remaining for maturity

e = base of natural logarithm

N (distl) and N (dist2) = the value of the cumulative normal density function. This is a statistical term and easily young from tables showing the area of the normal distribution for particular standard deviation.

- **Self- Check Questions (One word)**

1) Name any two types of interest rate swaps.
2) Which type of option gives the customer the right to buy.
3) An agreement between two counter parties to exchange cash flows in the future in known as?

4.8 GLOSSARY

- **Hedging or hedge**: A position or operation that offsets an underlying exposure
- **Foreign exchange risk**: The risk of facing uncertain future exchange rates.
- **Libor**: The deposit rate on interbank transactions in the Eurocurrency market.
- **Exercise Price or Strike Price**: the price specified in the option contract at which the holder has the right to purchase or sell the underlying currency.
- **Maturity Date**: The date on which the option contract expires.
- **Premium (option price or option value)**: The fee that the option buyer must pay the option seller at the time the contract is initiated. If the option lapse unexercised, the buyer loses this amount.

4.9 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. Explain the trading process of futures.
2. Discuss various types of interest rate swaps.
3. Explain the steps of currency swap.
4. How does a currency option differ from a forward contract? How does an option differ from a currency future?

- **SHORT QUESTION ANSWERS**

1. What are the basic features of forwards?
2. What are the basic features of the future?
3. Distinguish between Futures and Forwards contracts.
4. Discuss the classifications of options.

4.10 SUGGESTED READINGS

- Gupta, S. L., *Financial Derivatives: Theory Concepts and Problems,* Prentice Hall of India (Pvt.) Ltd., New Delhi, 2007.
- Vij, Madhu, *International Financial Management,* Excel Books, New Delhi, 2003.
- Levi, Maurice D., *International Finance,* Routledge Publication, New York, 2008.

- Srivastava, R. M., *Multinational Financial Management,* Excel Books, New Delhi, 2008.

4.11 SELF- CHECK QUESTIONS (ANSWER KEY)

4.5.2 1) Clearing house 2) Derivative 3) Forward

4.7 1) Plain vanilla and Forward swap 2) Call option 3) SWAPS

TRANSLATION EXPOSURE

STRUCTURE

5. OBJECTIVES

After going through this chapter, the student should be able to:

- explain the concepts of translation exposure,
- discuss its impact on financial statements of the reporting enterprises,
- discuss various ways of hedging translation exposure, and
- compare and contrast various hedging techniques.

5.1 INTRODUCTION

In this chapter,you will learn about translation exposure facing international enterprises. This exposure is also known as accounting exposure. You will also learn about the impact of translation exposure on the financial statements of the reporting enterprises.

Translation exposure measures the effect of an exchange rate change on published financial statements of a firm. Translation exposure refers to the amount of risk facing the reporting enterprise as a result of the need to translate its financial statements prepared in

one currency into statements in another currency. This risk is most relevant to be takencare of in case of multinational firms which must consolidate their financial results at the end of the year Since the foreign exchange rates keep on changes the net present worth of an enterprise when translated into currency other than the reporting currency results into gain or loss which is known as translation gain or loss.

The manner in which financial statements are translated depend upon; Accounting policy of the enterprise, the legal framework and accounting standards The Accountingframework is the legally required form in which companies must report operating results and financial condition to shareholders. The financial statements contain information of merest various other parties viz lenders, debtors, regulators. Thus, the translation accounts for consolidation into parent accounts faces translation exposure and may pose serious implications for the parent company. Thus, the effect of transaction risk is likely to affect the interests and the decisions of various interested parties.

5.2 TRANSLATION EXPOSURE DEFINED

Translation exposure sometimes called accounting exposure measures the effect of an exchange rate change on published financial statements of a firm. It refers to the amount of risk facing the reporting enterprise as a result of the need to translate its financial statements prepared in one currency into statements in another currency.

5.3 TYPES OF TRANSLATION EXPOSURE

Translation Exposure can be positive (asset) or negative (Liability). It la' the assets of a reporting enterprise are exposed. It would be negativewhen the liabilities of the reporting enterprise are exposed. An asset or liability is considered exposed when it is to be translated at a rate different from the rate at which it was originally recorded. An increase in the foreign exchange rate coupled with positive or asset exposure will gain and a decrease in the foreign exchange rate coupled with positive or asset exposure will lead to a loss. An increase in the foreign exchange rate coupled with negative or liability exposure will lead to a loss and a decrease in the foreign exchange rate coupled with negative or liability exposure will lead to a loss.

An accounting model of receipts and payments is implicit when reference is m translation risk as it depends upon the decision as to whichassets or liabilities are considered as exposed. Translation risks are commonly restricted by experts to contractually committed receipts and payments. Uncommitted ones may never appear on financialstatement at all.

Translation (position) risk can be measured either aggressively for gain or defensivelyto avoid loss. Some companies prefer the objective of leaving the impact of currency movements unchanged between successive reporting periods. They prefer to smooth rather than optimize or minimize the effect of currency movements. Defensive management app involves adjustment of each position to zero. Aggressive position risk management is difficult but not wrong in principle, as long as it is a calculated and adequately controlled and the relevant policy disclosed to and understood by investors.

5.4TRANSLATION METHODS

Enterprises having international operations will have foreign currency denominated assets and liabilities, revenues and expenses. The financial statements of an MNCs overseas

subsidiaries must be translated from local currency to home currency prior to consolidation with the parent s financial statements. If currency values change, foreign exchange translation gains or losses may result. Assets and liabilities that are translated at the current (post change) exchange rate are considered to be exposed; those translated at a historical (pre change) exchange rate will maintain their historic home currency values and hence, are regarded as not exposed. Items and/or transactions are said to be exposed if the following two conditions are met: (1) they are denominated in foreign currencies and (2) they are translated at the current exchange rate. Translation exposure is simply the difference between exposed assets and exposed liabilities. There is a difference of opinion among accountants regarding (1) which assets and liabilities are exposed and (2) when accounting-derived foreign exchange gains and losses should be recognized (reported on the income statement). Thus, such gains and losses are of an accounting nature - that is, no corresponding cash flows are involved. There are four most common methods of translation;

i. The current rate method.
ii. the current/ non-current method,
iii. the monetary/non-monetary method, and-
iv. the temporal method

1. Current Rate Method

The current rate method is the simplest among all the translation methods. This method considers all assets and liabilities as exposed. Under this method, all balance-sheet and income items are translated at the current rate. Thus, if a firm's foreign currencies denominated assets exceed its foreign currency denominated liabilities, devaluation must result in a loss and a revaluation in a gain.

2. Current/Non-Current Method

Under current/non-current method, all the foreign subsidiary's current assets and liabilities are translated into home currency at the current exchange rate. Each non-current asset or liability is translated at its historical exchange rate; that is, the rate in effect at the time the asset was acquired or the liability incurred. Hence, a foreign subsidiary with positive local currency working capital will result into a translation loss (gain) from devaluation (revaluation) with the current/non-current method and vice versa if working capital is negative. The items in the income statement are translated at the average exchange rate of the period, except for those revenue and expense items associated with concurrent assets or liabilities. The latter items, such as depreciation expense, are translated at the same rates as the corresponding balance sheet items. Thus, it is possible to see different revenue and expense items with similar maturities being translated at different rates.

3. Monetary/Non- monetary Method

The monetary/non-monetary method differentiates between monetary assets and liabilities. The monetary assets are those items that represent a claim to receive a fixed amount of foreign currency. Non-monetary liabilities are those items that represent a claim to pay a fixed amount of foreign currency.

Monetary items (for example, cash, accounts payables and receivables and long-term debt) are translated at the current rate. Non-monetary items (for example, inventory, fixed assets and long-term investments) are translated at historical rates. Income statement items are translated at the average exchange rate during the period, except for revenue and expense items related to non-monetary assets and liabilities: The latter items, primarily depreciation

expense and cost of goods sold, are translated at the same rate as the corresponding balance-sheet items. As a result, the cost of goods sold may be translated at a rate different from that used to translate sales.

4. Temporal Method

This method is a modified version of the monetary/non-monetary method. This method differs from monetary/non-monetary method only in respect to translation of inventory. Under the temporal method, inventory is not translated at the historical rate, but it is translated at the current rate. Income statement items are normally translated at an average rate for the reporting period. However: cost of goods sold and depreciation and amortization charges related to balance sheet items carried at past prices are translated at historical rates.

5.5FINANCIAL ACCOUNTING STANDARDS AND TRANSLATION EXPOSURE

The discussion above leads to the conclusion that various methods of translation available lead to wide variation in the results reported under different methods of translation. This led to need for standardize the translation practices. Consequently, the Financial Accounting Standards Board (FASB) of the US issued accounting standard number 8 to establish uniform standard of translating foreign currency denominated financial statements.

5.5.1 FASB 8

FASB No. 8 requires US companies to: (1) show all translation gains and losses in the current income statement and (2) use different exchange rates for different balance-sheet items. FASB 8, which was based on the temporal method, became effective on January 1, 1976. the requirements of this standard were consistent with generally accepted accounting practice that requires balance sheet items to be valued (translated) according to their underlying measurement basis (that is, current or historical). Almost immediately upon its adoption, controversy started over FASB 8. A major source of corporate dissatisfaction with FASB 8 was the ruling that all reserves for foreign currency losses be disallowed. Before FASB 8, many companies established a reserve and were able to defer unrealized gains and losses by adding them to, or charging them against the reserve. In that way, corporations generally were able to cushion the impact of sharp changes in currency values on reported earnings. With FASB-8, however, fluctuating values of foreign currencies often had more impact on profit-and loss statements than did the sales and profit margins of multinational manufacturers' product lines. In 1981, widespread dissatisfaction by corporate executives over FASB 8 led to a new translation standard - FASB 52.

5.5.2 FASB 52

FASB No. 52 requires US companies to: (1) treat all translation gains and losses as net worth and (2) translate all balance-sheet items at the current exchange rate, except net worth. Thus, according to FASB 52, firms must use the current rate method to translate foreign currency denominated assets and liabilities into home currency. All foreign currency revenue and expense items on the income statement must be translated at either the exchange rate in effect on the date these items are recognized or at an appropriately weighted average exchange rate for the period. The most important aspect of 'the new standard was that unlike the case with FASB 8, most FASB 52 translation gains and losses bypass the income statement and are accumulated in, a separate equity account on the parent's balance sheet. FASB 52 also, for the first time, differentiated between the functional

currency and the reporting currency. An affiliate's functional currency is the currency of the primary economic environment in which the affiliate generates and expends cash. If the enterprise's operations are relatively self-contained and integrated within a particular country, the functional currency would generally be the currency of that country. It is also possible that the functional currency is neither the local currency nor the home currency, but rather is a third currency. This especially happens in high inflation countries. The reporting currency, on the other hand, is the currency in which the parent firm prepares its own financial statements. FASB 52 requires that the financial statements of a foreign unit first be stated in the functional currency, using generally accepted accounting principles.

At each balance sheet date, any assets and liabilities denominated in a currency other than the functioned currency, or from settling such items, generally must appear on the foreign unit's income statement. That is, if the functional currency is identical to the local currency, translation gains and losses must appear in the balance sheet as a separate item called cumulative translation adjustment under the shareholder's equity account. If the functional currency is other than the local currency, then all financial statements prepared in local currency must first be translated into the functional currency. This translation is done according to the temporal method previously required by FASB 8, and therefore, the resulting translation gains and losses must be reported in the income statement.

5.5.3 Accounting Standard-11

In India, Institute of Chartered Accountant of India has issued AS-11, which is based on IAS-21 prescribed by International Accounting Association in this regard.

Recording Transactions on Initial Recognition

A transaction in a foreign currency should be recorded in the reporting currency by applying to the foreign currency amount the exchange rate between the reporting currency and the foreign currency at the date of the transaction, except in respect of inter-related transactions.

Two or more transactions are considered in ter-related if, by virtue of being set off against one another or otherwise, they affect the net amount of reporting currency that will be available on, or required for, the settlement of those transactions. Although the exchange rates applicable to realizations and disbursements in a foreign currency may be different, an enterprise may, where legally permissible, partly use the receivables to settle the payables directly, in which case the payables and receivables are reported at the exchange rate as applicable to the net amount of receivable or payable. Further, where realizations are deposited into, and disbursements made out of, a foreign currency bank account, all the transactions during a period (e.g. a month) are reported at a rate that approximates the actual rate during that period.

Reporting Effects of Changes in Exchange Rates Subsequent to Initial Recognition

At each balance sheet dates:

(a) monetary items denominated in a foreign currency (e.g.foreign currency notes, balances in bank accounts denominated in a foreign currency, and receivables, payables and loans denominated in a foreign currency) should be reported using the closing rate.

However, in certain circumstances, the closing rate may not reflect with reasonable accuracy the amount in reporting currency that is likely to be realized from, or required to disburse, a foreign currency monetary item at the balance sheet date, e.g., where there are restrictions on remittances or where the closing rate is unrealistic and it is not possible to affect an exchange of currencies at that rate at the balance sheet date. In such circumstances, the relevant monetary

item should be reported in the reporting currency at the amount which is likely to be realized from, or required to disburse, such item at the balance sheet date;

(b) Non-monetary items other than fixed assets, which are carried in terms of historical cost denominated in a foreign currency, should be reported using the exchange rate at the date of the transaction;

(c) non-monetary items other than fixed assets, which are carried in terms of fair value or other similar valuation, e.g. net realizable value, denominated in a foreign currency, should be reported using the exchange rates that existed when the values were determined (e.g. if the fair value is determined as on the balance sheet date, the exchange rate on the balance sheet date may be used); and

(d) The carrying amount of fixed assets should be adjusted as stated below:

Exchange differences arising on repayment of liabilities incurred for the purpose of acquiring fixed assets, which are carried in terms of historical cost, should be adjusted in the carrying amount of the respective fixed assets. The carrying amount of such fixed assets should, to the extent not already so adjusted or otherwise accounted for, also be adjusted to account for any increase or decrease in the liability of the enterprise, as expressed in the reporting currency by applying the closing rate, for making payment towards the whole or a part of the cost of the assets or for repayment of the whole or a part of the monies borrowed by the enterprise from any person, directly or indirectly, in foreign currency specifically for the purpose of acquiring those assets.

The carrying amount of fixed assets which are carried in terms of revalued amounts should also be adjusted in the manner described above. However, such adjustment should not result in the net book value of a class of revalued fixed assets exceeding the recoverable amount of assets of that class, the remaining amount of the increase in liability, if any, being debited to the revaluation reserve, or to the profit and loss statement in the event of inadequacy or absence of the revaluation reserve.

Recognition of Exchange Differences

Exchange differences arising on foreign currency transactions should be recognized as income or as expense in the period in which they arise, except as the cases discussed above.

Translation of the Financial Statements of Foreign Branches

The need for foreign currency translation arises in respect of the financial statements of foreign branches of the parent enterprise.

The financial statements of a foreign branch should be translated using the following procedures in paragraphs

1. Revenue items, except opening and closing inventories and depreciation, should be translated into reporting currency of the reporting enterprise at average rate. In appropriate circumstances, weighted average rate may be applied, e.g., where the income or expenses are not earned or incurred evenly during the accounting period (such as in the case of seasonal businesses) or where there are exceptionally wide fluctuations in exchange rates during the accounting period. Opening and closing inventories should be translated at the rates prevalent at the commencement and close respectively of the accounting period. Depreciation should be translated at the rates used for the translation of the values of the assets on which depreciation is calculated.

2. Monetary items should be translated using the closing rate. However, in circumstances where the closing rate does not reflect with reasonable accuracy the amount in reporting currency that is likely to be realised from, or required to disburse, the foreign currency item at the balance sheet date, a rate that reflects approximately the likely realisation or disbursement as aforesaid should be used.
3. Non-monetary items other than inventories and Fixed assets should be translated using the exchange rate at the date of the transaction.
4. Fixed assets should be translated using the exchange rate at the date of the transaction. Where there has been an increase or decrease in the liability of the enterprise, as expressed in Indian rupees by applying the closing rate, for making payment towards the whole or a part of the cost of a fixed asset or for repayment of the whole or a part of monies borrowed by the enterprise from any person, directly or indirectly, in foreign currency specifically for the purpose of acquiring a fixed asset, the amount by which the liability, is so increased or reduced during the year, should be added to, or reduced from, the historical cost of the fixed asset concerned.
5. Balance in 'head office account[1], whether debit or credit, should be reported at the amount of the balance in the 'branch account[1] in the books of the head office after adjusting for un-responded transactions.
6. The net exchange difference resulting from the translation of items in the financial statements of a foreign branch should be recognized as income or as expense for the period, except to the extent adjusted in the carrying amount of the related fixed assets in accordance with paragraph 22 above.
7. Contingent liabilities should be translated into the reporting currency of the enterprise at the closing rate. The translation of contingent liabilities does not result in any exchange difference as defined in this Statement.

- **Self- Check Questions (One word)**

1) Which method of translation exposure is known as a modified version of the monetary/non-monetary method?

2) Give any two examples of monetary items.

3) Give any two examples of non-monetary items.

5.6A HEDGING STRATEGY FOR TRANSLATION RISK

As you can see, translation exposures are serious enough to merit specially designed hedging strategies. There are three methods for managing translation exposure: (I) adjusting fund flows; (2) entering into forward contracts; and (3) exposure netting.

To hedge translation exposure, a company must adopt the following strategy. First, the company must increase hard-currency assets and decrease hard-currency liabilities. Second, the company must decrease soft-currency assets and increase soft-currency liabilities.

The strategy shown above essentially involves increasing hard currency (likely to appreciate) and decreasing weak currency (likely to depreciate) assets, while simultaneously

decreasing hard currency liabilities and increasing weak currency liabilities. For example, if devaluation appears likely, the basic hedging strategy would be executed as follows: reduce the level of cash, tighten credit terms to decrease accounts receivables, increase local currency borrowing, delay accounts payable, and sell the weak currency forward. Despite their prevalence among firms, however, these hedging activities are not automatically valuable. If the market already recognizes likelihood of currency appreciation or depreciation, this recognition will be reflected in the costs of the various hedging techniques. Only if the firm's anticipation differs from the market' and is also superior to the market, can hedging lead to reduced costs. Otherwise, the principal value of hedging would be to protect a firm from unforeseen currency fluctuations.

5.6.1. Funds Flow Adjustment

Most techniques for hedging impending local currency devaluation reduce local currency assets or increase local currency liabilities, thereby generating local currency cash. If accounting exposure is to be reduced, these funds must be converted into hard currency assets. For example, a company will reduce its translation loss if, before local currency devaluation, it converts some of its local currency cash holdings to the home currency, this conversion can be accomplished, either directly or indirectly, by means of various funds adjustment techniques.

Funds adjustment involves altering either the amounts or the currencies (or both) of the planned cash flows of the parent and/or its subsidiaries to reduce the firm's local currency accounting exposure. If local currency devaluation is anticipated, direct finds- adjustment methods include pricing exports in hard currencies and imports in the local currency, investing in hard currency securities, and replacing hard currency borrowings with local currency loans. The indirect methods include adjusting transfer prices on the sale of goods between affiliates, speeding up the payment of dividends, fees and royalties, and adjusting the leads and lags of inter subsidiary accounts. The latter method, which is the one most frequently used by multinationals, involves speeding up the payment of inter subsidiary accounts payables and delaying the collection of inter subsidiary accounts receivables. These hedging procedures would be reversed for an appreciation of the local currency. In addition, techniques such as transfer price, fee and royalty, and dividend flow adjustments fall into the realm of corporate policy and are not usually under the treasurer’s control. It is, therefore, incumbent on the treasurer to educate other decision makers about the impact of these tools on the costs and management of corporate exposure. For those countries in which a format in local currency forward contracts does not exist, leading and lagging and local currency borrowing are the most important techniques. The bulk of international business, however, is conducted in those few currencies for which forward markets do exist.

5.6.2. Forward Contracts

Forward contracts facilitate sale or purchase of assets/ currencies at predetermined rates on predetermined dates in future. Forward contracts can reduce a firm's transaction exposure. Forward contract can also be used to hedge translation exposure by creating an offsetting asset or liability in a foreign currency. For example, suppose U.K Company has translation exposure of 50 million pounds (that is, sterling assets exceed sterling liabilities by that amount). This company can eliminate its entire translation exposure by selling 50 million pounds forward. Any loss (gain) on its translation exposure will then be offset by a corresponding gain (loss) on its forward contract. It is to be noted that the gain (or loss) on the forward contract is of a cash flow nature and is netted against an unrealized translation loss (or’ gain),

5.6.3. Exposure Netting

Exposure netting is another hedging technique. This technique involves offsetting exposures in one currency with exposures in the same or another currency such that gains and losses on the two currency positions will offset each other.

5.7GLOSSARY

- Translation exposure sometimes called accounting exposure measures the effect of an exchange rate change on published financial statements of a firm.
- Current/non-current method assumes that financial-statements accounts should be grouped according to maturity.
- Monetary/non-monetary method is the method under which monetary assets and monetary liabilities are translated at current exchange rates while non-monetary assets, non-monetary liabilities, and owners' equity are translated at historical rates.
- Temporal method is the method under which inventory is usually translated at the historical rate, but it could be translated at the current rate if inventory is carried at market prices or at replacement costs.
- Current rate method is the method that translates all assets and liabilities at the current exchange rates except owners' equity.
- Parent currency, sometimes called reporting currency, is the currency of the country where the parent company is located.
- Functional currency is the currency of the country where the foreign operation of a multinational company is located.
- Hedge is an approach designed to reduce or offset a possible loss.
- Balance sheet hedge involves the selection of the currency in which exposed assets and liabilities are denominated so that an exchange rate change would make exposed assets equal to exposed liabilities.
- Exposure netting is a method of offsetting exposures in one currency with exposures in the same or another currency in such a way that gains or losses on the first exposure will be offset by losses or gains on the second exposure.
- Leading means to pay or collect early.
- Lagging means to pay or collect late.
- Transfer prices are prices of goods and services sold between related parties, such as a parent and its subsidiary.

5.8SUMMARY

Translation risk refers to the impact of exchange rate changes on the valuation of foreign assets (mainly foreign subsidiaries) and liabilities on a multinational company's consolidated balance sheet. Usually, translation risk is measured in net terms, i.e. net foreign assets minus net foreign liabilities. Translation Exposure can be positive (asset) or negative (Liability). It is positive when the assets of a reporting enterprise are exposed. It would be negative when the liabilities of the reporting enterprise are exposed. An asset or liability is considered as exposed when it is to be translated at a rate different from the rate at which it was originally recorded. An increase in the foreign exchange rate coupled with positive or asset exposure will lead to a gain and a decrease in the foreign exchange rate coupled with positive or asset exposure will lead to a loss. An increase in the foreign exchange rate coupled with negative or liability exposure will lead to a loss and a decrease in the foreign exchange rate coupled with negative or liability exposure

will lead to a loss. There is a difference of opinion among accountants regarding (1) which assets and liabilities are exposed and (2) when accounting-derived foreign exchange gains and losses should be recognized (reported on the income statement). Thus, such gains and losses are of an accounting nature - that is, no corresponding cash flows are involved. There are four most common methods of translation; the current rate method, the current/ non-current method, the monetary/non-monetary method, and the temporal method. The current rate method is the simplest among all the translation methods. Under current rate method, all balance-sheet and income items are translated at the current rate. Under current/non- current method, all the foreign subsidiary's current assets and liabilities are translated into home currency at the current exchange rate. Each non-current asset or liability is translated at its historical exchange rate; that is, the rate in effect at the time the asset was acquired or the liability incurred. Under Monetary/ non- monetary method, monetary items (for example, cash, accounts payables and receivables and long-term debt) are translated at the current rate. Non-monetary items (for example, inventory, fixed assets and long-term investments) are translated at historical rates. Income statement items are translated at the average exchange rate during the period, except for revenue and expense items related to non- monetary assets and liabilities: The latter items, primarily depreciation expense and cost of goods sold, are translated at the same rate as the corresponding balance-sheet items. As a result, the cost of goods sold may be translated at a rate different from that used to translate sales. Temporal method is a modified version of the monetary/non-monetary method. This method differs from monetary/non-monetary method only in respect to translation of inventory. Under the temporal method, inventory is not translated at the historical rate, but it is translated at the current rate. Income statement items are normally translated at an average rate for the reporting period. However: cost of goods sold and depreciation and amortization charges related to balance sheet items carried at past prices are translated at historical rates.

FASB No. 8 requires US companies to: (1) show all translation gains and losses in the current income statement and (2) use different exchange rates for different balance-sheet items. FASB 8, which was based on the temporal method, became effective on January 1, 1976. FASB No. 52 requires US companies to: (1) treat all translation gains and losses as net worth and (2) translate all balance-sheet items at the current exchange rate, except net worth. Thus, according to FASB 52, firms must use the current rate method to translate foreign currency denominated assets and liabilities into home currency. All foreign currency revenue and expense items on the income statement must be translated at either the exchange rate in effect on the date these items are recognized or at an appropriately weighted average exchange rate for the period. According to Accounting Standard -11, a transaction in a foreign currency should be recorded in the reporting currency by applying to the foreign currency amount the exchange rate between the reporting currency and the foreign currency at the date of the transaction, except in respect of inter-related transactions. At each balance sheet dates: (a) monetary items denominated in a foreign currency (e.g. foreign currency notes, balances in bank accounts denominated in a foreign currency, and receivables, payables and loans denominated in a foreign currency) should be reported using the closing rate. However, in certain circumstances, the closing rate may not reflect with reasonable accuracy the amount in reporting currency that is likely to be realized from, or required to disburse, a foreign currency monetary item at the balance sheet date, e.g., where there are restrictions on remittances or where the closing rate is unrealistic and it is not possible to affect an exchange of currencies at that rate at the balance sheet date. In such circumstances, the

relevant monetary item should be reported in the reporting currency at the amount which is likely to be realized from, or required to disburse, such item at the balance sheet date; (b) Non-monetary items other than fixed assets, which are carried in terms of historical cost denominated in a foreign currency, should be reported using the exchange rate at the date of the transaction; (c) non-monetary items other than fixed assets, which are carried in terms of fair value or other similar valuation, e.g. net realizable value, denominated in a foreign currency, should be reported using the exchange rates that existed when the values were determined (e.g. if the fair value is determined as on the balance sheet date, the exchange rate on the balance sheet date may be used); and (d) The carrying amount of fixed assets should be properly adjusted.

5.9SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. What are the methods of measuring translation risk? Which one of these would you recommend and why?

2. What do you mean by hedging for translation exposure? Examine their utility?

3. Compare and contrast FASB-8 AND FASB-52

- **SHORT QUESTION ANSWERS**

1. What is translation risk? Examine its significance.
2. Explain the requirements of Accounting Standard-11 for translation of foreign currency transactions and items.
3. Explain the procedure to recognize exchange differences.

5.10 SUGGESTED READINGS

1. Rathore Shirin, *International Accounting,* Chapter-12 Foreign Exchange Risk management, Prentice Hall of India, New Delhi, 1996.
2. IFAC, ED 3: *Proposed International Management Accounting Practice in Foreign Currency Exposure and Risk management,* Accountancy, Vol. 98, pp 134-142, London, 1987.
3. Srinivaslu, S.L., *Classifying Foreign Exchange Exposure, Financial Executive,* Vol.57, pp 36-44, February, 1983.
4. Accounting Standard Board, Accounting Standard-11 (revised) Accounting for the Effect of Changes in the Foreign Exchange Rate
5. Canadian Institute of Chartered Accountants, *Handbook Section-1650: Foreign Currency Translation,* CICA, Toronto, 1983.

5.11 SELF- CHECK QUESTIONS (ANSWER KEY)

5.5 1) Temporal 2) Cash, long term debts 3) Fixed Assets, inventory

TRANSACTION EXPOSURE

STRUCTURE

6 OBJECTIVES

After going through this chapter, the student should be able to:

- explain the concepts of transaction exposure,
- understand distinction between transaction and translation exposure,
- assess transaction risk, and
- understand tactics and techniques management of exposure and Risk.

6.1 INTRODUCTION

Transaction exposure arises when a firm faces contractual cash flows that are fixed in a foreign currency. This is also referred to as conversion exposure or cash flow exposure. It concerns the actual cash flows involved in setting transactions denominated in a foreign currency. These could include, for example:

- sales receipts
- payments for goods and services
- receipt and/or payment of dividends
- servicing loan arrangements as regards interest and capital

For example, suppose that ABC Ltd. Of Canada has XYZ Ltd for services provided to XYZ Ltd sites on the North Sea in Britain. ABC Ltd. invoice is for £1 million, due in three months. When ABC Ltd. receives £1 million three months from now, it will convert these British pounds into Canadian dollars at the spot rate of exchange prevailing at that time. The future spot rate cannot be known in advance. Consequently, in dollar terms, the value of the settlement is uncertain. If the British pound appreciates (depreciates) against the Canadian dollar, the dollar receipt will be higher (lower). The uncertain end-result suggests that if ABC Ltd. does nothing to address this uncertainty, it is effectively speculating on the future course of the exchange rate. It is as if ABC Ltd. is willing to take a bet that the British pound will appreciate against the Canadian dollar.

Consider another example. Say, Mitsubishi of Japan enters into a loan contract with the Swiss bank UBS that calls for payment of SF100 million for principal and interest in one

year. To the extent that the yen/Swiss franc exchange rate is uncertain, Mitsubishi does not know how much yen will be required to buy SF100 million spot in one year's time. If the yen appreciates (depreciates) against the Swiss franc, a smaller (larger) yen amount will be needed to retire the SF-denominated loan.

These examples suggest that whenever a firm has foreign-currency-denominated receivables or payables, it is subject to transaction exposure, and the eventual settlements have the potential to affect the firm's cash flow position. Since modern firms are often involved in commercial and financial contracts denominated in foreign currencies, management of transaction exposure has become an important function of international financial management. Unlike economic exposure, transaction exposure is well defined. Transaction exposure is simply the amount of foreign currency that is receivable or
payable

The existence of an exposure alerts one to the fact that any change in currency rates, between the time the transaction is initiated and the time it is settled, will most likely alter the originally perceived financial result of the transaction. It is, for example, important to commence monitoring the exposure from the time a foreign currency commitment becomes a possibility, not merely when an order is initiated or when delivery takes place. The financial or conversion gain or loss is the difference between the actual cash flow in the domestic currency and the cash flow as calculated at the time the transaction was initiated, i.e., the date when the transaction clearly transferred the risks and rewards of ownership. Where financing of a transaction takes place, such as a loan obligation, there are also gains/losseswhich may result.

6.2 DISTINCTION BETWEEN TRANSACTION AND TRANSLATION EXPOSURE

The addition of the word 'risk' after 'transaction' or 'translation' tends to convey that transaction risk and translation risk are two different risks, i.e., different external threats. Indeed, they may be more appropriately viewed as different ways of looking at and managing the same (or at least largely overlapping) external threats. An accounting model of receipts and payments is implicit when reference is made to translation risk, and a cash flow model of receipts and payments is implicit when reference is made to transaction risk. Translation risks are commonly restricted by experts to contractually committed receipts and payments. Uncommitted ones may never appear on financial statements at all. Clearly, this category of contractually committed receipts and payments overlaps with a considerable proportion of those included in transaction risks. In fact, some writers would treat transaction and translation risks as co-terminus, whereas others would wish to extend transaction risk to include a number of uncommitted future transactions. What is common to all of them, however, is that the distinction is not between different external threats, i.e., different mismatches. Transaction and translation mismatches arise largely from the same transactions: both threats are from the effect of adverse movements in the same nominal exchange rates on the outcomes of largely the same transactions. The distinction is effectively between two models of the business used by managers, the accounting model and the future cash flows model. The contrast concerns the values (current market or balance sheet values) and the time horizon which the currency manager has in mind when managing the risks. The distinction is subjective in that it turns on manager's perceptions: if he is concerned with accounting values and with losses or gains arising in financial reporting periods, then he is

managing the translation or accounting risk; if he is concerned with the amount of the future cash receipt or payment on its expected date, then he is managing transaction risk. The distinction between translation and transaction risk is, therefore, between management perceptions, not between external threats or risks. This is, however, important to recognize and provide for.

Translation (position) risk can be measured either aggressively for gain or defensively to avoid loss. Some companies prefer the objective of leaving the impact of currency movements unchanged between successive reporting periods. They prefer to smooth rather than optimise or minimise the effect of currency movements. Defensive management approach involves adjustment of each position to zero. Aggressive management of freely floating currencies is for those who either have reason to know they can beat market expectations oi future exchange rates, or have special tax position which loads the dice in their favor after tax. Aggressive management is more likely to be successful with controlled or managed currencies or over very short periods. Aggressive position risk management is difficult, but not wrong in principle, as long as it is a calculated and adequately controlled and the relevant policy disclosed to and understood by investors.

- **Self- Check Questions (True/ False)**

1. The accounting model of receipts and payments is implicit in the concept of translation risk.
2. The distinction between transaction and translation risk is based on different external threats.
3. Defensive management of translation risk involves adjusting each position to zero.

6.3 ASSESSMENT OF RISK

The process of assessing risk is an ongoing, dynamic activity extending from the time an initial forecast is made (when the risk concerns the potential for fluctuations between the contract rate and the market rate) right up to the eventual conclusion (when the risk relates to the settlement of the transaction and the resultant variation from that originally contemplated). The existence of a net transaction or translation exposure or the contemplation of a possible net economic exposure requires the use of suitable and practical techniques to measure and evaluate the risks involved.

6.4 FORECASTING

The environment for the assessment of exchange rates is a constantly changing one and the available sources of information vary considerably in their reliability and sophistication. Nevertheless, from such governmental and monetary authority statistics as are available, as well as from the worldwide exchange markets themselves, it is necessary to obtain the appropriate external inputs to facilitate the requirement for any internal prediction (see also paragraphs 76-80). Within each enterprise the availability of expertise will vary and this must also be recognized in any risk assessment. In some enterprises, the view adopted may be that future exchange rates cannot be forecasted. If this is the case, forward rates reflect the market's best expectations, and these rates should be used.

Assumptions

- It is essential to determine and record each and every assumption used in the

measurement and forecasting processes and its source, in order to be quite clear as to the starting point and to be in a position to monitor, investigate, explain and quantify each and every subsequent deviation or variance that occurs.

The regulations, restrictions and constraints imposed by legislation or other regulatory bodies must be identified and their likely impact and evolution has to be anticipated.

The course and pattern of economic events has a crucial bearing on exchange rate trends and movements. Predictions may be required in the areas of:

- economic growth
- interest rates
- movement in money aggregates and reserves
- central bank actions
- governmental actions
- political perceptions
- inflations rates
- taxation rates
- This applies again:
- nationally
- internationally, by country involved, as well as globally in certain instances

Risk is dependent on the possible degree of exchange rate fluctuations in the currencies involved. The expectations of such fluctuations in the currency markets themselves are reflected in changes in the premium or discount between the spot and forward exchange rates for any currency. Where the enterprise has a choice as regards the currency in w'hichatransaction may be settled or initiated, these options should also be considered. Then, for each currency, dependent on the materiality of the currency exposure, the enterprise should forecast its expected or likely exchange rate movements:

- on a month-by-month basis or *as otherwise required for the cash-management cycle* for transaction exposures
- on a semi-annual or annual basis for translation exposures
- over time periods which are consistent with the particular circumstances ofthe enterprise for economic exposures

Risk analysis is concerned with the future and with predictions of exchange rates. This, by definition, involves uncertainty and it is crucial to examine many alternative scenarios and possible trade-offs for any assumptions made. It is normally advisable to assess the future on the basis of:

- optimistic assumptions;
- pessimistic assumptions; or
- Most likely assumptions; with probability ratings applied to each basis.

The degree of sophistication used in dealing with the variable factors will depend on the scale of the operations concerned, the significance of the risks involved, the resources available to the enterprise and the cost/benefit thereof.

6.5 MANAGEMENT OF EXPOSURE AND RISK

The approach of an enterprise to the management of foreign currency exposure and risk is ultimately based on the costs and benefits of alternative strategies. Some enterprises may adopt a comprehensive system of risk management, particularly where the extent of exposure is large, or where management has a defensive attitude to risk. On the other hand, the costs of a comprehensive risk management strategy may outweigh the benefits where the extent of

exposure is small, or where management chooses to adopt a speculative approach to exchange rate movements.

Whatever approach is adopted, it is absolutely necessary that the basic philosophy, policies, objectives and organization structure of the enterprise concerning the management of foreign currency exposure and risk are set at the highest level, formally recorded and communicated, as well as regularly reviewed and modified.

6.6 TACTICS AND TECHNIQUES MANAGEMENT OF EXPOSURE AND RISK

Forecasting

A program of active exposure management needs to have access to a considerable amount of data which requires analysis and assessment leading to recommendations for direction and action. Formal forecasts should, therefore, be prepared at least semi-annually and reviewed at least monthly, having due regard to the volatility of currency markets. Predictions are to be made not only of future rates, but also their likely movement, *volatility* and trends.

There are five main sources of input which assist in the forecasting process:

- the highly efficient currency markets themselves and the forward rates prevailing in these markets;
- ongoing daily contact with foreign currency dealers;
- economic and financial information from public or proprietary sources;
- external currency forecasting specialists, notably the international divisions of major banking groups; and
- Journals and newsletters which concentrate on analyzing currency movements and predicting trends.

Depending on the resources available, some or all of these sources should be used. They, in turn, would rely on one or all of the following forecasting techniques, each having a role to play in arriving at a recommendation:

- time-series and other statistical or econometric analyses;
- opinion gathering and judgment; and
- Alternative scenario and sensitivity analysis.
- Without any forecasting activity, the scope of the exposure management function becomes unduly curtailed to little more than the use of simple hedging techniques or the implementation of a straightforward formal cover or uncover policy. The purpose of any forecasting activity is to identify the possible/probable exchange rate fluctuation and at the same time to determine:
- What is acceptable as a range of variation in exposure?
- What risk exceeds the tolerance capacity or buffer limits of the enterprise?

6.7 MANAGEMENT TECHNIQUES

- Where relevant, the various techniques for managing currency exposure (which are only briefly identified in the following paragraphs) are used, subject to the approval of any exchange control authority, and subject to the availability of the particular technique in the market place. The extent to which the techniques can be employed is also dependent on their commercial practicality in particular situations, as well as on the enterprise's size and negotiating strength. Only brief definitions are given of the general and specific techniques more commonly in use, without attempting, in the space limitation of this Statement, to discuss them in any detail or their respective merits. They are included merely as useful examples.

Where many companies operate within an overall group of companies, whether they are subsidiaries or associates, the opportunities to apply balancing techniques between companies should always be explored at group level.

Netting - This process offsets intra-group transactions (between parent and subsidiary, or subsidiary and fellow subsidiary) in order to reduce transfer values and only reflect and account for the net balance.

Typically, a group of companies would modify settlement dates to select a single date for settling the net amount. Each subsidiary still retains the same currency risk, but a netting system, which offsets and manages exposures centrally, enables cover to be limited to net currency positions.

Substitution Changing the source of raw materials, finished products, and/or markets operated in, as a reaction to, or in anticipation of, changes in currency relationships.

Matching The action within an enterprise whereby receipts and payments or loans and investments in the same or correlated currencies are specifically matched so that only the net exposure difference on each transaction date or reporting date needs to be addressed.

Leading and Lagging A mechanism whereby a company accelerates (leads) or delays (lags) payments or receipts in anticipation of exchange rate movements. This requires an appraisal of both the exchange rates and the interest rates of both countries, since the interest earned on a local currency investment may compensate for any depreciation in that currency.

Pricing Policy This technique requires a choice to be made in advance of the currency, in which the transaction is to be designated and subsequently settled, or regularly adapting and amending prices to take account of altered exchange rates or even incorporating price adjustment/escalation clauses into the terms of the contract, whereby the currency risk is transferred away. It assumes the cooperation of the outside party (supplier or customer). For example, if customers agree, an enterprise can affect all its foreign invoicing in its local currency and thereby reduce its exposed receivables.

Asset/liability management The process whereby equal and opposite deposits or borrowings are created in a particular currency to match payments or receipts, or liabilities and assets or, alternatively, where foreign arid domestic banks accounts are denominated in appropriate currencies through which settlements can be effected. This technique may be used in the Euro currency markets or in the local market where the exposure exists. An appraisal of the exchange rates and interest rates of both countries is necessary.

Hedging This is the general term used for the process of protecting the accountable value of foreign currency monetary assets and liabilities by anticipating future exchange rate movements. Exposure to unrealized foreign exchange (translation) losses can be reduced to nil, or to a defined or budgeted amount, by entering into forward exchange contracts or using other hedging instruments, taking due consideration of the cost/benefit relationships. It can be also achieved by "natural" hedging, for instance, whereby foreign assets are financed by foreign borrowings, both in the same currency.

Forward exchange contracts The "classic" exposure management technique is the purchase or sale (i.e. covering) of a company's future currency commitments in the forward markets which exist in all major industrial countries. This technique is normally used for the protection of transaction exposure with a time frame of up to twelve months. It is, however, possible in some currencies to obtain longer periods of cover or to roll over cover arrangements. By using a forward exchange contract, the counterparties agree to exchange two currencies at a

rate which is fixed at the time the contract is made (the forward rate), on a specified value date which is more than two business days in the future.

The forward rate is either higher (premium) or lower (discount) than the spot rate and the price (premium or discount) may be influenced by a number of factors, including:

- forecast inflation differentials;
- interest rates in the relevant countries;
- expectations of spot rate movements; and
- supply and demand.

In practice, however, the forward rate is determined principally by computing the interest rate differentials between the relevant currencies.

Forward/forward or forward swap Often the precise date for the settlement of a transaction is not known. The original forward contract, in such cases where it does not coincide with the final transaction date, needs therefore to be extended (or in some cases brought back) to the now known settlement date. This is done by the simultaneous purchase and sale of a currency for different maturity dates, effectively cancelling the original contract and reinstating it to the new forward date.

A forward/forward is a swap whereby the foreign currency is bought (or sold) for one future date (say one month later) and sold (or bought) back for another future date (say three months later).

A forward swap (or spot against forward spot) is where a currency is bought (or sold) for the spot value date and simultaneously sold (or bought) back for a future value date. It is sometimes referred to as a currency swap.

Rolling cover Where there exists a continuous stream of a large number of relatively low-value transactions, it is more cost-effective to take out one single large forward contract. This contract is renewed or "rolled forward" on maturity and the individual transactions can be accumulated on a currency advance account rather than settled on a spot basis.

Currency Option This allows the buyer the right, but not the obligation to purchase (or sell) currency at an agreed price on the expiry date (European) or within a specified option period (American). For this right, the buyer pays the seller a non-refundable premium. Normally options and futures, singly or in combination, are used as a stop loss mechanism or can be traded in and out, up to the date they expire.

Currency Futures Contract Such a contract gives rise to an obligation to purchase (or sell) a standard amount of a currency at a specified price on a future standard date through an organized exchange. The buyer or seller of a futures contract is required to lodge an initial deposit (margin) with the clearing house of the exchange and this must be left in place for as long as the position is held. In addition, variation margin is received from, or paid to, the clearing house as the position held generates profits or losses through movements in market prices. Futures contracts are tradeable up to expiry date and may be used in place of forward exchange contracts.

Cross-currency Swaps The technique whereby two parties with either existing or anticipated liabilities (or assets) in different currencies agree, usually via an intermediary, to exchange (swap) their liabilities (assets) so that the first party would be servicing (receiving the cash flows from) the liability (asset) of the other party and vice versa. Crosscurrency swaps may take various forms, but the conventional structures include fixed-to- fixed, floating-to-fixed and floating-to-floating interest rate swaps. By executing a crosscurrency swap, a borrower may

thereby alter or eliminate the exchange risk for the remaining life of the liability (asset).

Risk Transfer (Risk Guarantee) Arrangement To encourage exports, government agencies offer insurance in the form of accepting the currency risk inherent in receivables denominated in foreign currencies. Typically, the exporter will, for a small premium, transfer the risk of all subsequent movements in the exchange rate relative to the specific transaction.

Barter trade Cross-border barter transactions can be a direct response to exchange rate uncertainties in that they eliminate any form of exposure by virtue of matching, in advance, corresponding financial assets/liabilities created by the underlying movement of goods or services between two countries and arranging for them to be settled by the originators of the transactions in their country of origin.

- **Self- Check Questions**

1. What is the general term used for protecting the accountable value of foreign currency monetary assets and liabilities?

a) Forward exchange contracts b) Leading and Lagging

c) Hedging d) Netting

2. What is the primary purpose of netting in managing currency exposure?

a) generating profits b) reducing transfer values and reflecting net values

c) anticipating exchange rate movements d) increasing transaction exposure

6.8 GLOSSARY

- **American Option**: An option, wherever written, which may be exercised on any business day within the option period.
- **Arbitrage**: Arbitrage is that activity which attempts to take advantage of temporary rate discrepancies between different foreign exchange markets. Arbitrageurs buy in the low-cost market and sell in the high cost, thereby forcing spot and forward rates in the different markets towards a common price.
- **At-the-money**: An option with an exercise price equal to or near the current spot price.
- **Band**: Maximum permitted range of fluctuation of a given currency against a reference currency according to the existing international agreement.
- **Bid or Bid Rate**: The rate of exchange at which a foreign exchange dealer will buy a currency.
- **Bilateral Netting**: The process whereby two affiliated companies regularly offset their receipts and payments with each other, so that a single net intercompany receipt or payment is made between the two in each period. (This can also be extended to a multilateral process).
- **Blocked Account**: The bank account of a non-resident of a country, where the amount of currency in the account cannot be transferred to another country or currency without special permission.
- **Buyer's Option**: The owner of a buyer's option can take delivery on the currency contract at any time between the dates specified in the option.
- **Call Option**: Confers on the holder the right to buy a specified currency.

- **Closing Exchange Rate**: The exchange rate prevailing at a financial reporting date.
- **European Option**: An option, wherever written, which can only be exercised on the expiry date.
- **Floating Rate Currency**: Currency having its exchange rate determined by market forces including central bank intervention, but having no limits to its fluctuation relative to any reference currency.
- **Forward Contract**: A contract to exchange a given amount of one currency for another at some future date (usually at one, three or six months ahead).

»**Forward /Forward Deal**: Simultaneous purchase and sale of one currency for different forward value dates or simultaneous deposit and loan of one currency for different maturity dates, which effectively provides a deposit to commence on a future date.

- **Forward/Forward Swap**: A pair of forward exchange deals involving forward (or Forward Swap) purchase and a forward sale of a currency, simultaneously entered into, but of different maturities.
- **Forward Margin:** The difference between the forward rate and the spot rate of a currency. The forward margin is either at a discount or a premium to the spot rate.
- **Hedge**: Action taken by a company to reduce or eliminate a currency exposure.

Hedging: The protection of the accounting value of foreign currency assets and liabilities against unrealized foreign exchange (translation) losses.

- **Put Option**: Confers on the holder the right to sell a specified currency.
- **Rollover**: The extension of a maturing forward contract or the extension of a maturing loan: i.e., a new interest determination date. Medium term Eurocurrency loans are often arranged "for a period of five years with a rollover every six months".
- "**Short" Position**: An oversold position where the liabilities in the currency exceed the assets in that same currency.
- "**Spot Forward" Swaps**: The simultaneous spot purchase or sale of a currency and an offsetting sale or purchase of the same currency in the forward market.
- **Swap Deal**: A simultaneous spot sale and a forward purchase, or a simultaneous spot purchase and a forward sale.

6.9 SUMMARY

Transaction exposure arises when a firm faces contractual cash flows that are fixed in a foreign currency. This is also referred to as conversion exposure or cash flow' exposure. It concerns the actual cash flows involved in setting transactions denominated in a foreign currency. Transaction risk and translation risk are two different risks. The process of assessing risk is an ongoing, dynamic activity extending from the time an initial forecast is made (when the risk concerns the potential for fluctuations between the contract rate and the market rate) right up to the eventual conclusion (when the risk relates to the settlement of the transaction and the resultant variation from that originally contemplated). There are a number of methods for management of transaction risk. The approach of an enterprise to the management of foreign currency exposure and risk is ultimately based on the costs and benefits of alternative strategies. Some enterprises may adopt a comprehensive system of risk management, particularly where the extent of exposure is large, or where management has a defensive attitude to risk. On the other hand, the costs of a comprehensive risk management strategy may outweigh the benefits where the extent of exposure is small, or where management chooses to

adopt a speculative approach to exchange rate movements. Whatever approach is adopted, it is absolutely necessary that the basic philosophy, policies, objectives and organization structure of the enterprise concerning the management of foreign currency exposure and risk are set at the highest level, formally recorded and communicated, as well as regularly reviewed and modified.

6.10 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. What are the methods of measuring transaction risk? Which one of these would you recommend and why?
2. What do you mean by hedging for transaction exposure? Examine its utility?
3. What are the different methods for the management of transaction risk? How would you select an appropriate method for the management of transaction risk?

- **SHORT QUESTION ANSWERS**

1. What is transaction risk? Examine its significance.
2. Distinguish between transaction and translation exposure.
3. Write a short on management of transaction exposure and risk.

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6.12 SELF- CHECK QUESTIONS (ANSWER KEY)

6.2 1) True 2) False 3) True

6.7 1) c 2) b

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ECONOMIC EXPOSURE

STRUCTURE

7.0 OBJECTIVES

After going through this chapter, the student should be able to:

- explain the concept of economic exposure,
- differentiate between transaction and economic exposure,
- discuss how to measure the economic exposure, and
- describe strategies to cover economic exposure.

7.1 INTRODUCTION

The economic exposure refers to the sensitivity of firm's cash flows to changes in exchange rates. The value of firm's cash flows can be affected by exchange rate movements if it executes foreign-currency-denominated transactions, receives revenues from foreign customers, or is subject to foreign competition. Transaction exposure is the part of economic exposure. Transaction exposure refers to the possibility of incurring foreign exchange losses and gains on the transactions already entered into (contractual obligations) and denominated in foreign currency, as result of exchange rate changes. Transactions include credit purchases and sales, borrowed funds, loaned funds, receipts and payments. Suppose, for example, an Indian firm has a contract to export products in which it agreed to accept dollars. Its cash flows will be adversely affected if the dollar depreciates and apposite will be the case if dollar appreciates. Transaction exposure is contract specific and some time is regarded as a short-term economic exposure. The economic exposure is broader in scope than transaction exposure. It also includes other ways in which a firm's cash flows can be affected by exchange rate changes. For example, an Indian firm exports product to Japan that is priced in rupees and its competitors are located in Japan. When the Japanese yen depreciates against the Indian rupee, Japanese importers will shift their purchases toward the local suppliers, as result demand for Indian products will likely decrease. Indian firm's rupee cash flows will be adversely affected. Exchange rate changes affect not only the firms that are engaged in the international business but also the purely domestic firms. Consider, for example, an Indian bicycle manufacturer that uses only domestic materials and sells exclusively in Indian market. Because of no foreign-currency receivables or payables, Indian bicycle manufacturer is not subject to transaction exposure. It can be subject to economic exposure if it competes against imports, say from Chinese bicycle manufacturers. When the Chinese Yuan depreciates against the Indian rupee, Indian customers will shift their purchases toward the Chinese

bicycle manufacturers, as a result demand for Indian bicycles will likely decrease. Here, Indian bicycle manufacturer is subject to economic exposure but not to transaction exposure.

7.2 MEASURING ECONOMIC EXPOSURE

Economic exposure is the risk associated with a change in the net present value of a firm's expected cash flows, due to an unexpected change in exchange of currency. We can measure the degree to which cash flows are affected by unexpected changes in exchange rates. An easy way of assessing a firm's economic exposure is applying regression analysis to actual cash flow from the past periods converted into home currency and average exchange rate data over that period. The estimated beta co-efficient can be computed as follows:

$$\Delta CF_t = \alpha + \beta\alpha E_t + e_t$$

ΔCF_t = percentage change in inflation-adjusted cash flows

ΔE_t = percentage change in the exchange rate of currency over period t

e_t = random error term

α = intercept

β = slope coefficient

If the estimated beta co-efficient is positive and statistically significant, this implies that a positive change in the currency's value has a favorable effect on the firm's cash flows. If it is negative and significant, this implies an inverse relationship between the change in currency's value and the firm's cash flows.

7.3 HEDGING ECONOMIC EXPOSURE

It is difficult, if not impossible, to cover economic exposure. Diversification of production, marketing, and financing is one of the main ways to hedge economic exposure. A firm can choose any one or a combination of the following strategies to cover economic exposure:

Pricing Policy: Pricing policy involves increasing or decreasing price of product due to exchange rate changes. If the foreign currency depreciates against domestic currency, then an exporter/manufacturer can attempt to remain competitive by lowering prices. Suppose, for example, rupee appreciates against U.S. dollar an Indian firm selling overseas or competing at home against foreign imports can cut its rupee prices to maintain market share. Conversely, it can use weaker rupee to raise prices and to recoup the losses incurred from the strong rupee.

Market Selection: A firm that sells highly specified, differentiated products to high income group may not be harmed as much by a foreign currency depreciation as will a mass marketer. The demand for such products will be more inelastic, less sensitive to exchange rate risk. If the firm is a mass marketer and currency of importer country or foreign competitor depreciates. The foreign importers will shift their demand toward the local suppliers or foreign competitor whose currency depreciates. The strategy in this case should be to pull out of the existing market and search new markets.

Plant Location: Alternatively, a firm can diversify the location of their production sites to mitigate the effect of exchange rate movements. For example, during 1980s many Japanese and American firms shifted production offshore in response to a strong domestic currency.

Flexible Sourcing Policy: Even if all production is domestic, the firm can take advantage of changes in exchange rates if it has flexibility in sourcing. Suppose, for example, if euro depreciates against U.S. dollar, a U.S. firm can take advantage by sourcing to Europe. Flexible sourcing includes foreign labour as well as foreign components and raw materials.

Foreign Borrowing. An exporter can also reduce its exposure to unexpected changes in exchange rates by financing a portion of its business with loans in importer's currency. If the importer s currency depreciates, the firm will need fewer units of foreign currency to cover the

interest and loan repayments. This favorable effect can partially offset adverse effect of weak importer's currency on a firm's revenue.

Contractual Hedges. MNCs can also use contractual hedges such as forward, futures and options markets to stabilize their cash flows. Use of short-term contractual hedges to cover long term economic exposure has been questioned, however. Since economic exposure is likely to continue indefinitely, contractual hedges provide the cover against exchange rate changes only for the period of contract.

- **Self- Check Questions:**

1) Howcan a firm mitigate the effect of exchange rate movements through plant location?

a) Increase production domestically

b) Shift production offshore

c) Use flexible sourcing

d) Adopt pricing policy

2) What is an example of flexible sourcing mentioned in the passage?

a) Increasing domestic production

b) Shifting production offshore

c) Using foreign labor and components

d) Borrowing in the importer’s currency

3) How can a firm remain competitive when the foreign currency depreciates against the domestic currency?

a) Increase prices

b) Maintain prices

c) Lower prices

d) Shift production offshore

7.4 SUMMARY

The economic exposure refers to the sensitivity of firm's cash flows to changes in exchange rates. The economic exposure is broader in scope than transaction exposure because it can change a firm's competitiveness across many markets and products. Transaction exposure refers to the possibility of incurring foreign exchange loss and gain on the transactions already entered into and denominated in foreign currency, as result of exchange rate changes. It is difficult, if not impossible, to cover economic exposure. Diversification of production, marketing and financing is one of the main ways to hedge economic exposure.

7.5 GLOSSARY

- **Economic Exposure** refers to the sensitivity of firm's cash flows to changes in exchange rates.
- **Hedging** is a risk management strategy used in limiting or offsetting probability of loss from fluctuations in the prices of commodities, or currencies.
- **Transaction Exposure** refers to the possibility of incurring foreign exchange losses and gains on the transactions already entered into and denominated in foreign currency, as

result of exchange rate changes.

7.6 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. What is the economic exposure? How do you measure it?
2. Discuss the various strategies to cover economic exposure.

- **SHORT QUESTION ANSWERS**

1. Distinguish between transaction and economic exposure.
2. How selecting a plant location can help to cover economic exposure.

7.7 SUGGESTED READINGS

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7.8 SELF- CHECK QUESTIONS (ANSWER KEY)

7.3 1. b) 2. c) 3.c)

COST OF CAPITAL FOR FOREIGN INVESTMENTS

STRUCTURE

8.0 OBJECTIVES

After studying this chapter, you should be able to:

- explain how to compute the weighted average cost of capital,
- compare the cost of capital across major countries, and
- know how MNCs use cost of capital for assessing projects in foreign countries.

8.1 INTRODUCTION

The cost of capital is a central concept in financial management. It is the minimum rate of return an investment project must generate in order to pay its financing costs. When a firm has both debt and equity in its capital structure, its financing cost can be represented as weighted average cost of capital (WACC) of various sources of finance used by it. It can be measured by weighting the after-tax borrowing cost of the firm and the cost of equity, using the capital structure ratio as weight. Specifically,

$k_c = D/ (E + D) k_d (1 - t) + E/ (E + D) k_e$

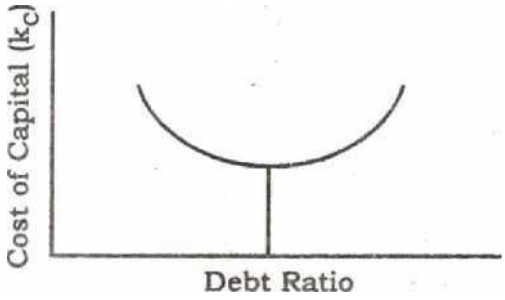
Where:

k_c = weighted average cost of capital,
E = firm's equity,
D = amount of firm's debt,
k_d = before tax cost of debt,
t = corporate tax rate,
k_e= cost of equity capital.

The firm's mixture of debt and equity is called its capital structure. The firm will like to construct an optimal structure that minimizes the overall cost of capital and maximizes the shareholders wealth. The debt has its advantage (tax deductibility of interest payments, unlike dividend payments), but also has its disadvantage (increased bankruptcy probability). The WACC is a weighted average of relatively low-cost debt and high-cost equity. If we increase the proportion of debt, then the weight of low-cost debt increases and the weight of high-cost equity decrease. The greater the use of debt, the greater is the interest payments and greater is the burden on firm to service debt. Consequently, the required rate

of return by potential new shareholders or creditors will increase to reflect the higher probability of bankruptcy. Figure 8.1 shows that cost of capital of firm declines in the initial stages as the debt-equity ratio is increased. However, beyond a certain level of debt-equity ratio the cost of capital starts increasing. This suggests that firm should increase its use of debt financing until the point at which bankruptcy probability becomes large enough to offset the tax advantage of using debt.

Figure 8.1: Cost of Capital and Capital Structure



8.2 COST OF EQUITY CAPITAL

The cost of equity capital is minimum (required) rate of return necessary to induce investors to buy or hold the firm's stock. This required rate of return is the discount rate that equates the present value of sill expected future dividends per share with the current price per share. This approach for calculating the cost of equity is known as Gordon dividend growth model. The formula for cost of equity is:

$$K_e = D_1 / P + g$$

Where:

D_t = dividend per share expected to be paid at the end of one year,

P = current market price per share,

g = annual dividend growth rate.

The growth rate of dividend can be calculated from the historical data. The historical data can provide forecasts of future earnings. The dividend growth model is simple. It has limited application in practice because of its two assumptions. First, the dividend per share will grow at a constant rate. Second, an expected dividend growth rate should be lower than the cost of equity capital. These assumptions imply that it cannot be applied to companies that do not pay dividend, or to companies that are not listed on stock exchange, or whose dividend policies are highly volatile.

Another popular approach to estimate the cost of equity is the capital asset pricing model (CAPM). According to CAPM, required return on a company's equity is:

$r_i = r_i + \beta_i(r_m - r_f)$

Where:

r_i = required return on the equity of company,

r_f = the risk-free rate,

β_i = Cov(r_m, r_m/σ^2 rm i.e., systematic risk of security i,

r_m = expected return on market portfolio.

(r_m–r_f) = market risk premium.

The CAPM is based on the assumption that intelligent risk-averse investors seek to diversify their risk, and, as a result, the only risk that is rewarded with a risk premium is systematic or undiversified risk. Market imperfections may obstruct efficient diversification by investors exposing them to unsystematic risk. The investors then will require a compensation for unsystematic risk, a factor which is not found in CAPM. Another problem with using CAPM is determining how to compute beta. It is common practice to use past data to estimate future betas.

8.3 COST OF DEBT

The cost of debt for a firm may be defined as the discount rate that equates the net proceeds of the debt issue with the present value of interest and principal payments. Conceptually, the cost of debt is yield to maturity (YTM). The cost of debenture is the value of k_d, in the following equation.

$$P = \sum_{t=1}^{n} 1/(1+K_d)^t + F\ (\ 1+\ K_d)^n$$

P_0= current market price of the debenture
I = annual interest payment
n = number of years left to maturity
F = maturity value of the debenture

The before-tax cost is the rate of return required by the lenders. However, it is easy to compute the before-tax cost of debt, k_d, issued and to be redeemed at par; it is simply equal to the coupon rate of interest. The required return to lenders is not equal to the company's cost of debt because interest payments are tax-deductible. The after-tax cost of debt, k_d (1- t), is used to calculate the weighted average cost of capital. This is same as k_d multiplied by (1-t), where t is the corporate tax rate.

8.4 COST OF CAPITAL FOR MNCS

The cost of capital for MNCs may differ from that for domestic firms because of the following differences r

(1) Size of the firm. MNCs are usually bigger in size than purely domestic firms. MNCs generally borrow substantial amount of funds and by virtue of their size, they are in a position to achieve lower per unit floatation costs.

(2) Access to international capital markets. They may raise funds in a number of capital markets such as the Eurocurrency markets, local capital markets, and foreign capital markets. Since the costs of debt as well as equity vary among countries, it may allow them to obtain funds at lower cost than domestic firms.

(3) International diversification. International diversification may bring stability in cash flows and lower systematic risk of investment. MNCs ability to diversify investment risks internationally may reduce their cost of capital.

(4) Tax concessions. MNCs may lower their overall taxes because they can use tax heaven countries. MNCs availing various tax advantages may be able to lower their overall cost of capital.

(5) Exchange rate risk. MNCs may be more exposed to exchange rate fluctuations such that their cash flows may be more volatile and their bankruptcy

probability may be higher. The volatility in cash flows will increase the cost of capital of an MNC.

(6) Country risk. Country risk is potentially negative impact of a country's economic and political environment on MNCs cash flows. If for a particular project, country risk perceived is high, the discount rate applied to cash flows will also be high.

8.5 THE COST OF CAPITAL ACROSS COUNTRIES

There exist differences in cost of capital across countries due to imperfect international financial markets. MNCs should know the disparity in the cost of capital across countries because this disparity can affect their decisions on where to establish subsidiaries and where to obtain funds. Country differences in the cost of debt are dh cussed next, followed by country difference in the cost of equity.

The cost of debt is composed of the risk-free interest rate plus a risk component. The risk-free interest rate is the interest rate that it is assumed can be obtained by investing in financial instruments with no default risk such as T-bills. The risk premium on the debt is a form of compensation for investors who tolerate the extra risk - compared to that of a risk-free debt.

The cost of debt is higher in some countries than other because of higher risk-free interest rate and/or risk premium. The risk-free rate is determined by the interaction of supply and demand of loan-able funds. The factors which influence the supply and demand of funds include tax laws, monetary policies, demographics, and general economic conditions which differ among countries. The risk premium also varies over time and place.

Cost of equity for a firm is the minimum rate of return necessary to attract investors to buy or hold a firm's common stock. The cost of equity can be measured as a risk-free interest rate that could have been earned by investors, plus a premium to reflect the risk of the firm. As risk-free interest rates differ among countries, cost of equity capital also
differs.

8.6 USING WACC FOR FOREIGN PROJECTS

The cost of capital for a project depends on the risk of the particular project. MNCs can use company beta if the foreign project is of same risk and has same capital structure as the corporate. The only adjustment needed is for potential country risk. However, both project risk and project capital structure can vary from the company norm. This makes it necessary to adjust the various costs and weights of the different sources of finance to reflect their actual values. It can find a comparable local firm with same risk as project and adjust for any differences in capital structure and risk. Suppose, for example, Alpha Ltd. is considering undertaking a 10-year project in Kenya. Alpha Ltd. has a beta of 1.3 and debt-equity ratio of 0.7. However, Alpha Ltd. has discovered that the average beta and debt-equity ratio of similar projects in Kenya is 1.6 and 1.2, respectively. The company is thinking to finance the project with 50% equity and 50% debt. What is the appropriate weighted average cost of capital? Given: r_f = 8 %, r_m = 16%, tax rate = 40% and before tax cost of debt, k_d = 11%.

The company cost of capital is not appropriate for this project. We need to unlevered and then re-lever the comparable beta to find out the cost of equity, ke, for this project

as follows:

- Un-lever the project beta using the debt-equity ratio of similar projects in Kenya:

$$\text{Un-levered } \beta = \frac{\text{Comparable}}{\beta 1+(1-t) * D/E}$$

$$= \frac{1.6}{1 + (1-0.4) * 1.2}$$

$$= 0.9302$$

- Re-lever the project beta using the project's debt-equity ratio:

  Re-levered β = Un-levered beta x [1 + (1-t) * D/E]

  = 0.9302 * [1 + (1-0.4) *1]

  =1.558

- The cost of equity for th oject is:

  $K_e = r_m + \beta (rm - r_f)$

  = 8% + 1.558 (16% - 8%)

  = 20.46%

- The project WACC is:

  k_c = E/ (E+D) k_e + D/ (E+D) k_d {1 - t)

  = (1/2)20.46% + (1/2) 11% (1-0.4)

  = 13.53%

- **Self- Check Questions (Fill in the blanks)**

1. _____ is the minimum rate of return an investment project must generate in order to pay its finance costs.
2. the firm's mixture of debt and equity is called its _____.
3. _____ is minimum rate of return necessary to induce investors to buy or hold the firm's stock.

8.7 SUMMARY

An MNCs cost of capital may be lower than that of a domestic firm in the same industry because of its size advantage, access to international capital markets, and an ability to diversify investment risks internationally. There exist differences in cost of capital across countries due to imperfect international financial markets. MNCs should know the disparity in the cost of capital across countries because this disparity can affect their decisions on where to establish subsidiaries and where to obtain funds.

8.8 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

(1) What factors affect a company's cost of capital? Why do multinational companies usually enjoy a lower cost of capital than purely domestic companies?

(2) What is the cost of capital? Explain the use of cost of capital for assessing foreign projects.

- **SHORT QUESTION ANSWERS**

(1) Write a short note on WACC.

(2) Explain the concept of cost of debt.

8.9 GLOSSARY

- **Beta,** Pj, is a measure of systematic risk inherent in security. This reflects how sensitive is the rate of return on a given equity stock to changes in the return on market portfolio.
- **Leverage** is borrowing money to supplement existing funds for investment in such a way that the potential positive or negative outcome is magnified and/or enhanced.
- **Market risk premium** is expected return on a market portfolio minus risk free rate of interest. The investors require compensation for systematic risk which is reflected in beta.
- **Optimum capital structure** is defined as the combination of debt and equity that minimises the cost of capital and maximises the value of firm.
- **Price-earnings ratio** the P/E ratio is equal to a stock's market capitalization divided by its after-tax earnings over a 12-month current or forward period.
- **Systematic risk** is non-diversifiable market risk of an asset.
- **Yield to Maturity,** YTM is a rate of return anticipated on a bond if it is held until the maturity date.

8.10 SUGGESTED READINGS

- Eun, Cheol S. and Resnick, Bruce G., *International Financial Management,* Tata McGraw Hill Publishing Company, New Delhi, 2004.
- Madura, Jeff, *International Financial Management,* Cengage Learning India (Pvt.) Ltd., New Delhi, 2008.
- Shapiro, Alan, C., *Multinational Financial Management, 7th* Edition, John Wiley & Sons, New York, 2006.

8.11 SELF- CHECK QUESTIONS (ANSWER KEY)

8.6 1) Cost of capital 2) Capital structure 3) Cost of equity capit

MBA-Distance Education (Second Year)
Semester-Ill

Lesson No.9

AUTHOR: PARNEET KAUR

CAPITAL BUDGETING FOR MULTINATIONAL COMPANIES

STRUCTURE

9.0 OBJECTIVES

After reading this chapter the students should be able to:

- understand the meaning and concept of multinational capital budgeting,
- to understand the problems and issues in multinational capital budgeting, and
- to know about the methods of multinational capital budgeting.

9.1 INTRODUCTION

The Fundamental goal of the financial manager is to maximize shareholders' wealth. Shareholders' wealth is maximized when the firm, out of a list of prospective investments selects a combination of those projects that maximize the company's value to its shareholders. This selection process requires the financial manager to discount the project cash flows at the firm's weighted average cost of capital, or the projects' required rate of return, to determine the net present value. Alternatively, the internal rate of return that equates project cash flows to the cost of the project is calculated. Finance managers generally believe that the criteria of net present value is the most appropriate in domestic capital budgeting since it will help the company to

select only those investments which maximize the wealth of the shareholders.

9.2 FOREIGN COMPLEXITIES

Capital budgeting for multinational firms uses the same framework as domestic capital budgeting. However, multinational firms engaged in evaluating foreign projects face a number of complexities, many of which are not there in the domestic capital budgeting process. Some of these factors are as follows:

9.2.1 Parent versus Project Cash Flows

Parent (i.e., home-country) cash flows must be distinguished from project (i.e., host-country) cash flows. While parent, cash, flows reflect all cash flow consequences for the consolidated entity, project cash flows look only at the single country where the project is located- For example, cash flows generated by an investment in Spain may be partly or wholly taken away from one in Italy; with the end result that the net present value of the investment is positive from the Spanish affiliate's point of view but contributes little to the firm's worldwide cash flows.

9.2.2 Financing versus Operating Cash Flows

In multinational investment projects, the type of financing package is often critical in making otherwise unattractive projects attractive to the parent company. Thus, cash may flow back to the parent because the project is structured to generate such flows via royalties, licensing fees, dividends, etc. Unlike in domestic capital budgeting, operating cash flows cannot be kept separate from financing decisions.

9.2.3 Foreign Currency Fluctuations

Another added complexity in multinational capital budgeting is the significant effect that fluctuating exchange rates can have on the prospective cash flows generated by the investment. From the parent's perspective, future cash flows abroad have value only in terms of the exchange rate at the date of repatriation. In conducting the analysis, it is necessary to forecast future exchange rates and to conduct sensitivity analysis of the project's viability under various exchange rate scenarios.

9.2.4 Long Term Inflation Rates

Differing rates of national inflation and their potential effect on competitiveness must be considered. Inflation will have the following effects on the value of the project:

(a) It will impact the local operating cash flows both in terms of the prices of inputs and outputs and also in terms of the sales volume depending on the price elasticity of the product

(b) It will impact the parent s cash flow by affecting the foreign exchange rates, and

(c) It will affect the real cost of financing choices between foreign and domestic, sources of capital.

9.2.5 Subsidized Financing

In situations where a host government provides subsidized project financing at below-market rates, the value of that subsidy must be explicitly considered in the capital budgeting analysis. If a company uses the subsidized rate in the analysis, there is an implicit assumption that the subsidy will exist through the life of the project. Another approach might be to incorporate the subsidized interest rates into the analysis by including the present value of the subsidy rather than adjusting the cost of capital.

9.2.6 Political Risk

This is another factor that can significantly impact the viability and profitability of foreign projects. Whether it be through democratic elections or as a result of sudden developments such as revolutions or military coups, changes in a country's government can affect the attitude in that country towards foreign investors and investments. This can affect the future cash flows of a project in that country in a variety of ways. Political developments may also affect the life and the terminal value of foreign investments.

9.2.7 Terminal Values

While terminal values of long-term projects are difficult to estimate even in the domestic context, they become far more difficult in the multinational context due to the added complexity from some of the factors discussed above. An added dimension is that potential acquirers may have widely divergent perspectives on the value to them of acquiring the terminal assets. This is particularly relevant if the assets are located in a country that is economically segmented due to a host of restrictions on cross-border flow of physical or financial assets,

9.3 PROBLEMS AND ISSUES IN FOREIGN INVESTMENT ANALYSIS

In conducting multinational capital budgeting analyses from a parent’s perspective, the additional risk rising from projects located abroad can be handled in at least two ways. One possibility is to add a foreign risk premium to the discount rate that would be used for a domestic project. This higher rate is intended to capture the additional uncertainties arising from exchange risk, political risk, inflation, and such factors. The second possibility is to adjust the cash flows for the foreign projects to reflect the additional risk. The discount rate stays the same as for domestic projects. Thus, the additional complexities resulting from doing business abroad must be incorporated in the analysis through adjustments to either the discount rate or the projected cash flows. Rather than make these adjustments arbitrarily, firms can use wide-ranging publicly available data, historical analysis, and professional advice to make reasonable decisions.

9.3.1 Incremental Cash Flows

The most important and also the most difficult part of an investment analysis is to calculate the cash flows associated with the project: the cost of funding the project; the cash inflows during the life of the project; and the terminal, or ending value, of the project. Shareholders are interested in how many additional dollars they will receive in the future for the dollars they layout today. Hence, what matters is not the project’s total cash flow per period, but the incremental cash flows generated by the project.

The distinction between total and incremental cash flows is a crucial one. Incremental cash flow can differ from total cash flow for a variety of reasons. We now examine some of these reasons.

Cannibalization

When Honda introduced its Acura line of cars/ some customers switched their purchases from the Honda Accord to the new models. This example illustrates the phenomenon known as cannibalization, a new product taking sales away from the firm's existing products. Cannibalization also occurs when a firm builds a plant overseas and winds up substituting foreign production for parent company exports. To the extent that sales of a new product or plant just replace other corporate sales, the new project's estimated profits must be reduced by the earnings on the lost sales. The previous examples notwithstanding, it is often difficult to assess the true magnitude of cannibalization because of the need to determine what would have

happened to sales in the absence of the new product or plant. Consider the case of Motorola building a plant in Japan to supply chips to the Japanese market previously supplied via exports. In the past, Motorola got Japanese business whether it manufactured in Japan or not. But now Japan is a chip-making dynamo whose buyers no longer have to depend on U.S. suppliers. If Motorola had not invested in Japan, it might have lost export sales anyway. But instead of losing these sales to local production, it would have lost them to one of its rivals. The incremental effect of cannibalization-which is the relevant measure for capital budgeting purposes - equals the lost profit on lost sales that would not otherwise have been lost, had the new project not been undertaken. Those sales that would have been lost anyway should not be counted a casualty of cannibalization.

Sales Creation

Black & Decker, the U.S. power tool company, significantly expanded its exports to Europe after investing in European production facilities that gave it a strong local market position in several product lines. Similarly, GM s auto plants in England use parts made by its U.S. plants, parts that would not otherwise be sold if GM's English plants disappeared. In both cases, an investment either created or was expected to create additional sales for existing products. Thus, sales creation is the opposite of cannibalization. In calculating the project's cash flows, the additional sales and associated incremental cash flows should be attributed to the project.

Opportunity Cost

Suppose IBM decides to build a new office building in Sao Paulo on some land it bought ten years ago. IBM must include the cost of the land in calculating the value of undertaking the project. Also, this cost must be based on the current market value of the land, not the price it paid ten years ago. This example demonstrates a more general rule. Project costs must include the true economic cost of any resource required for the project, regardless of whether the firm already owns the resource or has to go out and acquire it. This true cost is the opportunity cost, the cash the asset could generate for the firm should it be sold or put to some other productive use. It would be foolish for a firm that acquired oil at $3/barrel and converted it into petrochemicals to sell those petrochemicals based on $3/barrel oil if the price of oil has risen to $30/barrel. So, too, it would be foolish to value an asset used in a project at other than its opportunity cost, regardless of how much cash changes hands.

Transfer Pricing

By raising the price at which a proposed Ford plant in Dearborn will sell engines to its English subsidiary. Ford can increase the apparent profitability of the new plant, but at the expense of its English affiliate. Similarly, if Matsushita lowers the price at, which its Panasonic division buys microprocessors from its microelectronics division, the latter's new semiconductor plant will show a decline in profitability. It is evident from these examples that the transfer prices at which goods and services are traded internally can significantly distort the profitability of a proposed investment. Where possible, the prices used to evaluate project inputs or outputs should be market prices. If no market exists for the product, then the firm must evaluate the project based on the cost savings or additional profits to the corporation of going ahead with the project. For example, when Atari decided to switch most of its production

to Asia, its decision was based solely on the cost savings it expected to realize. This approach was the correct one to use because the stated revenues generated by the project were meaningless, an artifact of the transfer prices used in selling its output back to Atari in the United States.

Fees and Royalties

Often companies will charge projects for various items such as legal counsel, power, lighting, heat, rent, research and development, headquarters staff, management costs, and the like. These charges appear in the form of fees and royalties. They are costs to the project, but are a benefit from the standpoint of the parent firm. From an economic standpoint, the project should be charged only for the additional expenditures that are attributable to the project; those overhead expenses that are unaffected by the project should not be included when estimating project cash flows. In general, incremental cash flows associated with an investment can be found only by subtracting worldwide corporate cash flows without the investment from post investment corporate cash flows. In performing this incremental analysis, the key question that managers must ask is, what will happen if we don't make this investment? Failure to heed this question led General Motors during the 1970s to slight investment in small cars despite the Japanese challenge; small cars looked less profitable than GM's then-current mix of cars. As a result, Toyota, Nissan, and the other Japanese automakers were able to expand and eventually threaten GM's base business. Similarly, many U.S. companies that thought overseas expansion too risky today find their worldwide competitive positions eroding. They didn't adequately consider the consequences of not building a strong global position. In addition to the taxes the subsidiary pays to the host government, there will generally be withholding taxes on dividends and other income remitted to the parent. In addition, the home country government may tax this income in the hands of the parent. If double taxation avoidance treaty is in place, the parent may obtain some credit for the taxes paid abroad. The specific provisions of the tax code in the host and home countries will affect the kinds of financial arrangements between the parent and the subsidiary. There is also the related issue of transfer pricing which may enable the parent to further reduce the overall tax burden:

Blocked Funds

Sometimes, a foreign project can become an attractive proposal because the parent has some funds accumulated in a foreign country, which cannot be taken out (or can be taken out only with heavy penalties in the form of taxes). Investing these funds locally in a subsidiary or a joint venture may then represent a better use of such blocked funds. In addition, like in domestic projects: we must be careful to take account of any interactions between the new project and some existing activities of the firm-for instance, local production will usually mean loss of export sales.

Illustration: Investing in Memory Chips. Since 1984, the intense competition from Japanese firms has caused most U.S. semiconductor manufacturers to lose money in the memory chip business. The only profitable part of the chip business for them is in making microprocessors and other specialized chips. Why do they continue investing in facilities to produce memory chips despite their losses in this business?

U.S. companies care so much about memory chips because of their importance in fine-tuning the manufacturing process. Memory chips are manufactured in huge quantities and are fairly simple to test for defects, which make them ideal vehicles for refining new production processes. Having worked out the hugs by making memories, chip companies apply an improved

process to hundreds of more complex products. Without manufacturing some sort of memory chip, most chipmakers believe, it is very difficult to keep production technology competitive. Thus, making profitable investments elsewhere in the chip business may be contingent on producing memory chips. Although the principle of incremental analysis is a simple one to state, its rigorous application is a tortuous undertaking. However, this rule at least points executives responsible for estimating cash flows in the right direction. Moreover, when estimation shortcuts or simplifications are made, it provides those responsible with some idea of what they are doing and how far they are straying from a thorough analysis.

9.3.2 Parent versus Project Cash Flows

A substantial difference can exist between the cash flow of a project and the amount that is remitted to the parent firm because of tax regulations and exchange controls. In, addition, project expenses such as management fees and royalties are returns to the parent company. Furthermore, the incremental revenue contributed to the parent MNC by a project can differ from total project revenues if, for example, the project involves substituting local production for parent company exports or if transfer price adjustments shift profits elsewhere in the system. Given the differences that are likely to exist between parent and project cash flows, the question arises as to the relevant cash flows to use in project evaluation. Economic theory has the answer to this question. According to economic theory, the value of a project is determined by the net present value of future cash flows back to the investor. Thus, the parent MNC should value only those cash flows that are, or can be, repatriated net of any transfer costs (such as taxes) because only accessible funds can be used for the payment of dividends and interest, for amortization of the firm's debt, and for reinvestment.

Three-Stage Approach

To simplify project evaluation, a three-stage analysis is recommended. In the first stage, project cash flows are computed from the subsidiary's standpoint, exactly as if the subsidiary were a separate national corporation. The perspective then shifts to the parent company. This second stage of analysis requires specific forecasts concerning the amounts, timing, and form of transfers to headquarters, as well as information about what taxes and other expenses will be incurred in the transfer process.

Finally, the firm must take into account the indirect benefits and costs that this investment confers on the rest of the system, such as an increase or decrease in export sales by another affiliate. Estimating Incremental Project Cash Flows

Essentially, the company must estimate a project's true profitability. True profitability is an amorphous concept, but basically it involves determining the marginal revenue and marginal costs associated with the project. In general, as mentioned earlier, incremental cash flows to the parent can be found only by subtracting worldwide parent company cash flows (without the investment) from post investment parent company cash flows. This estimating entails the following:

1. Adjust for the effects of transfer pricing and fees and royalties. Use market costs/ prices for goods, services, and capital transferred internally Add back fees and royalties to project cash flows since they are benefits to the parent remove the fixed portions of such costs as corporate overhead
2. Adjust for global costs benefits that are not reflected in the project's financial statements. These costs benefits include
   - Cannibalization of sales of other units

- Creation of incremental sales by other units
- Additional taxes owed when repatriating profits
- Foreign tax credits usable elsewhere
- Diversification of production facilities
- Market diversification
- Provision of a key link in a global service network

The second set of adjustments involves incorporating the project's strategic purpose and its impact on other units. Although the principle of valuing and adjusting incremental cash flows is itself simple, it can be complicated to apply. Its application is illustrated in the case of taxes.

9.3.3 Tax Factors

Because only after-tax cash flows are relevant, it is necessary to determine when and what taxes must be paid on foreign-source profits. To illustrate the calculation of the incremental tax owed on foreign-source earning, suppose an affiliate will remit after tax earnings of $150,000 to its U.S. parent in the form of a dividend. Assume the foreign tax rate is 25%, the withholding tax on dividends is 4%, and excess foreign tax credits are unavailable. The marginal rate of additional taxation is found by adding the withholding tax that must be paid locally to the U.S. tax owed on the dividend. Withholding tax equals $6,000 (150,000 x 0.04), while U.S. tax owed equals $12,000. This latter tax is calculated as follows. With a before-tax local income of $200,000 (200,000 x 0.75 = 150,000), the U.S. tax owed would equal $200,000 x 0.34. or $68,000. The firm then receives foreign tax credits equal to $56,000-the $50,000 in local tax paid and the $6,000 dividend withholding tax leaving a net of $12,000 owed the IRS. This calculation yields a marginal tax rate of 12% on remitted profits as follows:

$$\frac{\mathbf{6.000} + \mathbf{12,000}}{150,000} = \mathbf{0.12}$$

If excess foreign tax credits are available, then the marginal tax rate on remittances is just the dividend withholding tax rate of 4%.

9.3.4 Political and Economic Risk Analysis

All else being equal, firms prefer to invest in countries with stable currencies, healthy economies, and minimal political risks, such as expropriation. But all else is usually not equal, so firms must assess the consequences of various political and economic risks for the viability of potential investments. The three main methods for incorporating the additional political and economic risks, such as the risks of currency fluctuation and expropriation, into foreign investment analysis are

1. Shortening the minimum payback period,
2. Raising the required rate of return of the investment, and
3. Adjusting cash flows to reflect the specific impact of a given risk.

9.3.5 Adjusting the Discount Rate

The additional risk confronted abroad is usually described in general term instead of being related to their impact on specific investments This rather vague view of risk probably explain the prevalence among multinationals of two unsystematic View probably explains prevalence among economic risks of overseas approaches to account for the added political and overseas operations One IS to use a higher discount rate for foreign operations; another, to require a shorter payback period, for instance, if exchange restrictions are anticipated, a normal required return of 15% might be raised to 20%, or a five-year payback period may be shortened to three years. Neither of the aforementioned approaches, however, lends itself to a careful evaluation of the actual impact of a particular risk on investment returns. Thorough risk analysis requires an assessment of the magnitude and timing of risks and their implications for the projected cash flows. For example, an expropriation five years hence is likely to be much less threatening than one expected next year, even though the probability of it occurring later may be higher. Thus, using a uniformly higher discount rate just distorts the meaning of the present value of a project by penalizing future cash flows relatively more heavily than current ones, without obviating the necessity for a careful risk evaluation. Furthermore, the choice of a risk premium is an arbitrary one, whether it is 2% or 10%. Instead, adjusting cash flows makes it possible to fully incorporate all available information about the impact of a specific risk on the future returns from an investment.

9.4 METHODS OF CAPITAL BUDGETING

9.4.1 Discounted Cash Flow Analysis (DCF)

DCF technique involves the use of the time-value of money principle to project evaluation. The two most widely used criteria of the DCF technique are the net present value (NPV) and the internal rate of return (IRR). Both the techniques discount the projects' cash flow at an appropriate discount rate. The results are then used to evaluate the projects based on the acceptance/rejection criteria developed by management.

NPV is the most popular method and is defined as the present value of future cash flows discounted at an appropriate rate minus the initial net cash outlay for the projects. The discount rate used here is known as the cost of capital. The decision criteria isto accept projects with a positive NPV and reject projects which have a negative NPV.

$$NPV = -I + \sum_{t=1}^{n} \frac{CF}{(I+K)^t}$$

The NPV can be

Where

I_0 = initial cash investment

CFt expected after tax cash flows in year t.

k = weighted average cost of capital,

n = life span of the project.

The NPV of a project is the present value of all cash inflows including those at the end of the project's life minus the present value of all outflows.

The decision criteria is to accept a project if NPV >= 0 and to reject if NPV is <0. IRR is calculated by solving r in the following equation.

$$\sum_{t=1}^{n} \frac{CF}{(I+K)^t} - I_0 = 0$$

Where r is internal rate of return of the project.

The IRR method find the discount rate which equates the present value of the cash flows generated by the project with the initial investment or the rate which would equate the present value of all cash flows to zero.

9.4.2 The Adjusted Present Value Approach (APV)

A DCF technique that can be adapted to the unique aspect of evaluating foreign projects is the adjusted present value approach (APV). The APV format allows different components of the project's cash flow to be discounted separately. This allows the required flexibility, to be accommodated in the analysis of the foreign project. The APV approach uses different discount rates for different segments of the total cash flows depending upon the degree of certainty attached with each cash flow. In addition, the APV format helps the analyst to test the basic viability of the foreign project before accounting for all the complexities. If the project is acceptable in this scenario, no further evaluation based on accounting for other cash flows is done. If not, then an additional evaluation is done taking into account the other complexities. As mentioned earlier, foreign projects face a number of complexities not encountered in domestic capital budgeting.

The APV model is a value additivity approach to capital budgeting i.e. each cash flow is a source of value is considered individually. Also, in the APV approach each cash is discounted at a rate of discount consistent with the risk inherent in that cash flow. In equation form the APV approach

$$APV=-I_0+\sum_{t=1}^{n}\frac{Xt}{(I+K^*)^t}+\sum_{t=1}^{n}\frac{T_t}{(I+i_d)^t}+\sum_{t=1}^{n}\frac{St}{}$$

can be written as

Where

Io = present value of investment outlay

$\frac{X_t}{(I+K^*)_t}$ = present value of operating cash flows

$\frac{T}{t}$

= present value of tax shields (I+id)t

$\frac{S_t}{(I+id)^1}$ = present value of interest subsidies

The various symbols denote

T_t = tax saving in year t due to the financial mix adopted.

S_t = before tax value of interest subsidies (on the home currency) in year t due to project specific financing. i_d = before tax cost of dollar debt (home currency)

- **Self- Check Questions**

1. Capital budgeting is also known as:

a) Investment decision making b) Planning capital expenditure

c) both of the above d) None of the above

2. Which of the following is not a capital budgeting decision?

a) Expansion programme b) Acquisition of long-term assets

c) Replacement of an existing asset d) Inventory Control

3. Which of the following is not true for capital budgeting?

a) Sunk costs are ignored b) Opportunity costs are excluded

c) Incremental cash flows are considered d) Relevant cash flows are considered

4. Depreciation is incorporated in cash flow because it:

a) is unavoidable cost b) is a cash flow c) reduces tax liability d) involves an outflow

9.5 SUMMARY

This chapter presents a review of the NPV capital budgeting framework and expands the methodology into APV model that is suitable for analyzing capital expenditures of a MNCin a foreign land. The chapter first analyses the problems and issues in foreign investment analysis, then the issue of whether capital budgeting should be assessed from the project or parent's viewpoint is addressed. Another important dimension in multinational capital budgeting is whether to adjust cash flows or the discount rate to account for the additional risk that arises from the foreign location of the project. Finally, the chapter discusses the NPV and the APV models as they can be used by a MNC to the weed out unprofitable projects and rank profitable ones in the order of their contribution to the profitability of the firm.

Keywords: *Capital budgeting, Cash flows, risk analysis*

9.6 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**
  1. Outline the various issues of concern in multinational capital budgeting.
  2. What are the various methods used for capital budgeting of MNCs?
- **SHORT QUESTION ANSWERS**
  1. Explain any two issues faced by multinational firms during foreign investment analysis.
  2. Write a short note on Political & Economic risk analysis.
  3. What do you understand by opportunity cost?

9.7 SUGGESTED READINGS

1. Levi, D., Maurice, *International Finance,* Routledge Publication, New York, 2008.
2. Vij, Madhu, *International Financial Management,* Excel Books New Delhi, 2006.

9.8 SELF- CHECK QUESTIONS (ANSWER KEY)

9.5 1) c 2) d 3) b

MULTINATIONAL FINANCIAL MANAGEMENT
AUTHOR: AMANPREET SINGH

FINANCING FOREIGN TRADE

STRUCTURE

10.0 OBJECTIVES

After studying this unit, you should be able to:

- describe the procedure of pre-shipment credit,
- explain various types and procedure of post-shipment credit,
- explain the role of Export Import Bank of India, and

- describe the recent development in export finance.

10.1 INTRODUCTION

Government of India has introduced various steps to extend the credit facilities to boost international trade. These credits are available to exporters at concessional rates at preshipment and post shipment stage. Institutional framework for providing finance comprise of RBI, Commercial Bank, Export Import Bank of India, Export Credit Guarantee Corporation of India. RBI is the central authority that lays down the policy and procedural framework for these institutions.

Finance for short and medium term is provided by Indian and foreign commercial banks which are members of Foreign Exchange Dealers Association. The RBI functions as refinancing institutions for short- and medium-term loans granted by commercial and EXIM bank. Commercial banks finance loan at concessional rate, which in turn is financed by RBI and Exim Bank at concessional rate. IN case these banks are not willing to re-finance, these are entitling for interest rate subsidy. ECGC also plays important role through its various policies and guarantees providing cover for commercial and political risks involved in foreign trade.

10.2. PRE-SHIPMENT FINANCE

Pre-shipment finance is provided to exporters for the purpose of raw material, processing them and converting them into finished goods for the purpose of exports. There are various types of pre-shipment finance available. We will discuss hereby each of them -

10.2.1 Packing Credit

As its name suggest, it means finance facility till the goods are packed. The basic purpose of packing credit is to enable exporters to procure, manufacture and store the goods meant for exports. It is short-term credit. Packing credit is granted against confirm purchase order or Letter of Credit. Sometimes, clear advance may also be granted. Many advances are clean at their initial stage when the goods are yet not acquired. Once the goods are acquired and in the custody of exporter, bank usually convert the clean advance into hypothecation pledge. The procedure of packing credit is as given below -

Eligibility - Packing credit is available to all exporters whether merchant exporters, Export/Trading/Star Trading/Super Star Trading Houses and manufacturer exporters. Also, manufacturers of goods, which in turn supply it to Export/Trading/ST/SST Houses and Merchant Exporters, are eligible for packing credit. This is called third party export finance. The foreign buyer through the medium of any reputed banks opens the letter of credit on exporter's company giving all terms and conditions of exports. The LC preferred by banks should be opened by some reputed bank of importing country and it should be confirmed and irrevocable. Also, banks may extend the pacing credit without any LC or confirm export order in case the exporter has excellent track record and also the buyer is regular one and before it many documents on this buyer's account are negotiated and payment is received. In such cases, banks would insist on producing LC in reasonable period of time, which is approx. 90 days.

The amount of packing credit depends upon the credibility of exporter. Generally, it is 75% to 90% of FOB value of goods. At the maximum it can be up to full value of goods on FOB basis Indian port basis.

Packing credit is short-term finance facility hence available for maximum 180 days

from date of disbursement of funds. In some special case it can go up to 270 days too. In such cases, exporters need to prove the need of it and the circumstances should be beyond the control of exporters.

The rate of interest for packing credit is dynamic feature of the banks. Based on the guidelines of RBI, it may change. But it is usually lower than the normal rate of interest. It is generally equal to PLR. For RBI, it depends upon the forex reserve position of nation and as guided by ministry of commerce.

10.2.2 Advance Against Incentives

When the value of the material to be procured is more than the FOB value of export receivables, the credit value may be more than the FOB value. This means the excess cost of production will be adjusted against the incentive's receivables from government. For Example, if the domestic price of goods is more than the value of export orders, the difference represents the different incentives provided by the government will bridge the gap and also will provide the profits. In such cases, the banks may grant loan against these incentives' receivables.

10.2.3 Pre-shipment Credit in Foreign Currency

Also, the pre-shipment credit is available to exporters in foreign currency against the imported input materials to produce the goods. This is the case where exporter needs to import intermediate or raw material, which will be re-exported after value addition into it. These loans are available in any of the foreign currency.

10.3 POST SHIPMENT FINANCE

It refers to any credit facility provided to any exporter after the shipment of goods till the date the payment is realized. It is valid if the exporter has not availed the pre-shipment credit facility. While granting the post-shipment credit, banks are governed by RBI guidelines, Foreign Exchange Dealers Association of India, the trade control regulation and international convention and code of international chamber of commerce. The amount of credit depends upon the value of goods exported.

Post shipment finance is granted under various methods. The exporters may choose the facility as per their requirement. The bank scrutinizes the documents as submitted by exporter as per norms of foreign exchange control provisions. 1.) Documents are drawn in permitted currencies and method of payment received should be permitted one. 2.) All documents including Invoice, Packing List, Shipping bill duly endorsed by Custom Authorities, copy of BL/AWB should be submitted to banks for onward negotiation or other purposes as required by bank to facilitate the financing. The documents should be submitted with in certain time limit. 3.) Credit period or Usance period depends upon the credit extended to overseas buyer. There are various types of post shipment finance facilities available to exporters as discussed below.

10.3.1. Negotiation of Documents under Letter of Credit

Letter of credit (LC) or Documentary credit is the one of the most widely used method of international payment in case of merchandise commodities. Most of the international trade is carried out under LC. Under this, importer opens and LC/Documentary credit on exported confirming a contract to undergo a transaction under some terms and conditions, which exporter has to comply with. While complying with these terms and conditions, importer is bound to accept the goods imported and release the payment against it. The LC is opened by importers' bank which is called opening bank and is opened on exporter which is called beneficiary. Exporters' bank is called the beneficiary's bank. It gives complete details on value, rate and amount of transaction along with other terms and conditions like date of shipment, purchase order number, mode of shipment, terms of the contract (FOB, CNF, CIF etc.), mode of shipment

(sea/air), documents required (invoice, packing list, inspection report, certificate of origin, GSP certificate or any other document required). Once the goods are shipped as per above guidelines, exporter needs to submit the original documents with his bank for negotiation. The bank checks the documents thoroughly and if found ok in all respects, documents are negotiated and exporter is credited with the amount equal or less than the FOB value of invoice. In case of any deviation from LC terms and condition may lead to problem for exporters. The bank may refuse to negotiate the documents or the amount negotiated may be marginal to full amount depending upon the credibility of exporter and previous transaction record with the buyer. The risk and responsibility lie with exporter in case there is any default from buyer.

10.3.2 Purchase or Discount of Foreign Bills

This is another widely used mode of payment in international trade. Here the documents are either sent on Documents against Acceptance (D/A) basis or Documents against Payment (D/P) basis. It this method, there is no bank who ensure the payment. There is set limit of exporter up to which he can raise the credit. This limit is set by bank based on the financial and credit worthiness of exporter. In this mode of trade, all documents in original are submitted with the bank and banks send it to buyer based on the terms of the contract. If term of the contract is DP basis, the documents are released to buyer by his bank only against payment. IN case the terms of payment are DA, buyer needs to accept the documents before he could get the consignment release. Once the documents are accepted, payment is ensured by the buyers' bank to exporter's bank.

Under such export contracts, financing bank insist exporters to avail ECGC cover. ECGC covers the risk of payment in case there is default by buyer. ECGC charge certain premium against this risk cover and enquire about the credit worthiness of overseas buyer through its overseas office. In case of developed countries like US, EU, UK, JAPAN, Korea, where payment default risk is less, premium is quite less while in risk prone nations like African nations, Lebanon, and other nations of central Asia, Middle East, premium is high since the risk is high.

10.3.3 Export Under Deferred Payments

For all above facilities, the payment should be realized within 180 days. But in case due to some reasons, exporter is not able to realize the payment in 180 days, it needs to obtain permission from RBI through authorized agent, which is normally his bank only. There are few trades like turnkey projects, engineering projects and engineering goods, where terms of contract state the payment may take more than 180 days, the RBI has made special provision to finance the projects for defer payments. Projects exports eligible for such facility are as -

- **Turnkey Projects:** these projects involve supply of equipment along with design, detailed engineering, commissioning of plants etc.
- **Construction Projects:** includes civil works, steel structure works along with associated supply of construction material and equipment.
- **Technical and consultancy services:** it involves personnel, furnishing of know-how, skills operations and maintenance services and management services.

- **Self- Check Questions (One word)**

1. Which type of finance is provided to exporters for procuring, manufacturing and storing the goods meant for exports?
2. Name any two types of post shipment finance.
3. When was EXIM bank established?

10.4 EXPORT IMPORT BANK OF INDIA (EXIM BANK)

Introduction

Export-Import Bank of India (Exim Bank) is the apex financial institution in India, operating in the sphere of financing India's international trade. Exim Bank was established in March 1982, under an Act of Parliament of India. In the international arena, Exim Bank belongs to a universe of Export Credit Agencies. Such Agencies exist in most industrialized economics and many large developing countries, with the principal objective of promoting exports through finance. However, as one of the first Export Credit Agencies to be established in a developing country, Exim Bank s export financing and promotion activities are far more diverse than similar institutions in industrialized countries. Exim Bank's mission is to develop commercially viable relationships with a target set of externally oriented companies by offering them a comprehensive range of products and services, aimed at enhancing their internationalization efforts.

The Bank's principal focus is on promoting India's exports by offering finance at various stages of export cycle like product development, production, marketing, export credit at pre-shipment and post-shipment stages, investment abroad and import of technology. The Bank operates a wide range of lending programs. Financial packages offered by the Bank are competitive and multi-currency. Within India, Exim Bank has representative offices at Ahmedabad, Bangalore, Chennai, Hyderabad, Kolkata, Mumbai, New Delhi and Pune. The Bank has five overseas offices at Budapest, Johannesburg, London, Singapore and Washington D.C. These offices prospect for business and market the Bank's services in their respective areas of operation. Exim Bank operates a range of financing programs and provides information advisory services. One of the export credit programs operated by Exim Bank is 'Lines of Credit'.

Exim Bank extends Lines of Credit to overseas Commercial Banks, Financial Institutions, Regional Development Banks and other overseas entities to provide a safe mode of non-recourse financing option to Indian exporters, particularly SMEs.

10.4.1 How does it work?

- Exim Bank signs LOC Agreement with overseas Borrower Institutions (Borrower) and announces the availability of LOC for utilization, when the Agreement becomes effective.
- Exporter checks with Exim Bank, available amount under the LOC and quantum of service fee payable to Exim Bank and negotiates contract with Importer.
- Importer approaches the Borrower for approval of the contract.
- Borrower appraises the proposal. If satisfied approves the contract and refers to Exim Bank for concurrence for inclusion of contract for being financed under the LOC.
- Exim Bank accords approval to the contract, if in conformity with the terms of LOC.
- Exim Bank conveys contract approval to the exporter and the Borrower.
- The Importer arranges remittance of advance payment to the Exporter and also opening of a Letter of Credit, which states that the contract is covered under Exim Bank’s LOC to the Borrower and reimbursement will be by Exim Bank for the Eligible Value of Credit.
- Exporter executes the contract/ships the goods/provides services.
- Commercial bank in India, designated as the Negotiating Bank, negotiates shipping documents and pays the exporter.
- Exim Bank reimburses the Negotiating Bank, on receipt of valid claim and service fee, by debit to the LOC account of the Borrower.
- Borrower repays Exim Bank on due dates.

10.4.2 Eligible Goods

Capital goods, plant and machinery, industrial manufactures, consumer durables and any other items eligible for being exported under the Exim Policyof the Government of India.

10.4.3 Financing Programs

Exim Bank has introduced many innovative finance schemes to suite the requirement of Indian exporters and commodities of high potential exports from India. Many of the schemes are highly successful. Many of these schemes are popular in overseas markets but Exim Bank has modified to suite it as per requirement of Indian Exporters, potential markets and product line.

10.4.3.1 Loans to Indian Companies

Deferred payment exports: Term finance is provided to Indian exporters of eligible goods and services which enables them to offer deferred credit to overseas buyers. Deferred credit can also cover Indian consultant, technology and other services. Commercial banks participate in this program directly or under risk syndication arrangements.

10.4.3.2 Pre-shipment Credit

Finance is available from Exim Bank for companies executing export contracts involving cycle time exceeding six months. The facility also enables provision of rupee mobilization expenses for construction or turnkey project exporters.

10.4.3.3 Term loans for export production

Exim Bank provides term loans/deferred payment guarantees to 100% export-orientedunits, units in free trade zones and computer software exporters. In collaboration with International Finance Corporation, Exim Bank provides loans to enable small and medium enterprises upgrade export production capability. Facilities for deeded exports; Deemed exports are eligible for funded and non- funded facilities from Exim Bank.

10.4.3.4 Overseas Investment Finance

Indian companies establishing joint ventures overseas are provided finance towards their equity contribution in the joint venture.

10.4.3.5 Finance for Export Marketing

This program, which is a component of a World Bank loan, helps exporters implement their export market development plans.

10.4.3.6 Loans to Foreign Governments, Companies and financial Institutions

Overseas Buyer's Credit: Credit is directly offered to foreign entities for import of eligible goods and related services, on deferred payment.

10.4.3.7 Lines of Credit

Besides foreign governments, finance is available to foreign financial institutions and government agencies to on-lend in the respective country for import of goods and services from India.

10.4.3.8 Re-financing Facility to Banks Overseas

Re-financing facility is extended to banks overseas to enable them to provide term finance to their buyers' world-wide for imports from India.

10.4.3.9 Loans to Commercial Banks in India

Export Bills Rediscounting: Commercial Banks in India who are authorized to deal in foreign exchange can rediscount their short-term export bills with Exim Banks, for an unexpired usance period of not more than 90 days.

10.4.3.10 Refinance of Export Credit

Authorized dealers in foreign exchange can obtain from Exim Bank 100% refinance of deferred payment loans extended for export of eligible Indian goods.

10.4.3.11 Guaranteeing of Obligations

Exim Bank participates with commercial banks in India in the issue of guarantees required by Indian companies for the export contracts and for execution of overseas construction and turnkey projects.

10.4.3.12 Underwriting Service

Enables Indian Exporters to raise finance from overseas capital markets through public/ right issue or debentures with underwriting commitment of Exim Bank.

10.4.3.13 Finance for Deemed Exports

Enables Indian companies to meet cash flow deficit of contracts secured in India and financed by multilateral funding agencies.

10.4.3.14 Factoring

It is an attractive way of providing export finance to exporters. In this system factor bear the complete credit risk. Who is a factor? A factor is a special type of agent who, depending on the type of agreement, offers a variety of services. These services include coverage of credit risk, collection of export proceeds, maintenance of account receivables and advance of funds. Purchase of receivables of its clients without recourse is the most important service of the factor. Big advantage to the exporter is that it is without recourse
financing which means that risk of non-payment by the importer is to be borne entirely by the factor.

In India, the RBI has approved international export factoring service on with recourse basis. It provides new dimension to management of export receivables. SBI factors and commercial services pvt. ltd., Mumbai, have been permitted to provide export factoring. IN this system, the exporter enters into an export factoring agreement with exporters' factor. The exporter ships the goods to approved foreign buyer. Each invoice is made payable to specific factor in the importer's country. Copies of invoices and shipping documents are sent to the importer's factor. Exporter factor will make pre-payment to the exporter against approved export receivables. On receipt of payment from the importer on due date of invoice, importer's factor remits the funds to exporter's factor. The exporter factor pays the exporter the balance payment after deducting the premium and pre-payment.

10.4.3.15 Forfeiting

Forfeiting refers to the non-recourse discounting of export receivables. It is a mechanism of financing that involve less risk and enhances the international competitiveness. It converts a credit sale into a cash sale for an exporter. In this system, forfeiting agency discounts international trade receivable of exporter. The forfeiter pays the exporter in cash and undertake the risk associated with the export deal. The exporter surrender, without recourse to him, his right to claim for payment on goods delivered to an importer. All exports of capital goods and other goods made to medium to long term credit are eligible to be financed for forfeiting in India. Exim Bank plays an intermediary role between the Indian exporter mid the overseas forfeiting agency. The exporter approaches Exim bank for forfeiting transaction. The bank receives the bills of exchange or promissory note from the exporter and sends them to the forfeiter for discounting. Subsequently, the bank arranges for the discounted proceeds to be remitted to the Indian exporter. The bank issues the appropriate certificates to enable Indian exported to remit commitment fee and other charges. RBI has allowed authorized dealers to undertake the forfeiting of medium-term export receivables.

- **Self- Check Questions (Fill in Blanks)**

1. _____ is a special type of agent who bears the complete credit risk and maintains the account receivables.

2. _____ refers to the non- recourse discounting of export receivables.
3. _____ plays an important role in promoting exports from India through its various financing schemes.

10.5 SUMMARY

Export finance is provided at the pre-shipment and post-shipment stages. In India, the export credit facilities are provided largely by commercial banks, RBI and EXIM banks offer re-finance. EXIM bank, in certain cases, participates with commercial banks in extending medium and long-term credit to exporters. In India, pre-shipment finance is offered in the form of (i) Packing credit (ii) Advance against incentives and (iii) Pre-Shipment Credit in Foreign Currency (PCFC). Packing credit facilities are provided to the exporters for making necessary arrangements for executing export contracts. The basic purpose of packing credit is to enable the eligible exporters to procure, process, manufacture or store the goods meant for export. It is extended on the strength of either the letter of credit or confirmed export contracts. Generally, the amount of packing credit does not exceed FOB value of the export goods or their domestic value whichever is less. When the value of the materials to be procured for export is more than FOB value of the contract, the exporters may get the credit against the receivables export incentives. The pre-shipment finance is also made available in foreign currency.

The credit provided by an exporter after the shipment of goods is referred to the post shipment credit. The quantum of credit depends on export sales and receivables. Various types of post-shipment credits are: (i) Negotiation of Export Documents under letter of credit (ii) Purchase/ discount of foreign bills (iii) Advance against bills sent on collection basis (iv) Advance against goods sent on consignment basis (v) Advance against export incentives (vi) Advance against un-drawn balances (vii) Advance against retention money (viii) Postshipment export credit guarantee and export finance guarantee and (ix) Post shipment credit in foreign clemency. Deferred credit facilities are offered for export of engineering goods, turnkey projects and consultancy projects. Export Import Bank plays an important role in promoting exports from India through its various financing schemes. It refinances to commercial banks in respect of credit extended by them to exporter, gives loans to Indian companies for financing exports under deferred payment, provides lines of credit and buyer s credit to overseas entities. The bank also advises Indian exporters on matters pertaining to terms of payment, export financing, etc. Factoring and Forfeiting are the recent developments in export financing.

10.6 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. What is the purpose of extending packing credit to exporters? Explain the procedures of packing credit.
2. What is post - shipment finance? Explain various methods of post-shipment finance.
3. Explain the procedures of Export under deferred payments.

- **SHORT QUESTION ANSWERS**

Write short notes on:

i) Pre-shipment Credit in Foreign Currency

ii) Post-Shipment Credit in Foreign Currency

iii) Buyer's Credit

iv) Factoring

v) Forfeiting

10.7 GLOSSARY

- **Credit**: All kinds of financial loan provided by bank or other financial institutions.
- **Incentives**: To promote the exports from India, government provides various monetary and non-monetary benefits to exporters. These benefits are called incentives
- **FOB**: Free on Board. Exporter is liable till the goods are delivered on Indian port. Title of risk is transferred as soon as goods are shipped on board.
- **CIF**: Cost + freight + insurance - Exporter bear the cost of goods, freight and insurance till the goods are reached at the port of destination. Title of risk is transferred as soon as goods are delivered on port of destination.
- **C&F:** Cost and freight - Exporter bear the cost of goods and freight while the insurance in on buyer's account. Title of risk is transferred as soon as goods are shipped on board. But the freight cost will be borne by the exporter only.
- **Usance period** - Credit period.

10.8 SUGGESTED READINGS

- Varshney, R. L. and Bhattacharya, B., *International Marketing,* Sultan Chand, New Delhi.
- Agarwal, Raj, *International Business,* Excel Books, New Delhi.

10.10 SELF- CHECK QUESTIONS (ANSWER KEY)

10.3 1) pre- shipment finance
2) Letter of credit &export under deferred payment
3) March, 1982
10.4 1) Factor
2) Forfeiting
3) EXIM Bank

MULTINATIONAL CASH MANAGEMENT

STRUCTURE

11.0OBJECTIVES

After the completion of this chapter, you should be able to understand:

- the basics of cash management in a Multinational Corporation,
- short-term borrowings and Investments, and
- centralized versus Decentralized Cash Management.

11.1INTRODUCTION

Within the constraints imposed by the exchange control and other regulations, a MNC has access to a much wider menu of funding avenues and investment vehicles for short-term funding and investment decisions, the currency of short-term borrowing and investment decisions, the currency of short-term borrowing and investment is irrelevant from the point of view of cost of funding or return on investment. There may however be other factors such as political risk and taxation which may influence this decision. Apart from funding and investment avenues, the mechanics of efficient cash transmission and configuration of bank accounts is an important aspect of cash management in an MNC. Finally, the decision to centralize cash management in a separate cash management center needs to be carefully evaluated. There are significant gains from centralizing the cash management and exposure management functions particularly when substantial intercorporate payments are involved.

There are however a few disadvantages especially from the local subsidiary point of view which must be clearly understood and incorporated in the overall performance appraisal framework Management of short-term assets and liabilities-cash, investments, inventories, receivables, payables-is an important part of the finance manager's job. Funds flow continually in and out of a corporation as goods are sold, receivables are collected, short-term borrowings are availed of, payables are settled and short-term investments are made.

The essence of short-term financial management can be stated as:

1. Minimize the working capital needs consistent with other policies (e.g., granting credit to boost sales, maintain inventories to provide a desired level of

customer service etc.)

2. Raise short-term funds at the minimum possible cost and deploy short-term surpluses at the maximum possible rate of return consistent with the firm's risk preferences and liquidity needs.

In a multinational context, the added dimensions are the multiplicity of currencies and a much wider array of markets and instruments for raising and deploying funds. Cash management can be considerably more complex because of the possibility of raising and deploying cash in many currencies, may locations, and profit opportunities presented by imperfections in international money and foreign exchange markets. Even a purely domestic firm or a firm with imports and exports but no cross-border manufacturing facilities can "internationalize" its cash management if the government of the country permits free capital inflows and outflows.

Thus, an American firm serving largely domestic markets can, if it wishes to, raise short-term funding in offshore markets to meet its working capital needs as also park its temporary cash surpluses in foreign securities or Euro deposits. In India as of now, the capital account has not been opened up. It is the avowed policy of the government to discourage short-term foreign borrowing and capital outflows we regulated.

There has been a gradual trend towards liberalization of the capital account. Indian firms have been permitted access to foreign money markets (through domestic banks) for pre shipment credits for exports and settlement of import payments. The Exchange Earners Foreign Currency (EEFC) account facility, allows exporters to maintain up to 50% of their foreign currency earnings in a foreign currency denominated account balances with domestic banks which can be used for all permissible current account transactions. However, they do not as yet have full freedom to access foreign money markets for their day-to-day cash management purposes. The foreign subsidiaries of Indian companies are of course governed by the exchange controls regulations of the host country. The distinction between a passive, defensive approach and an active, opportunistic approach applies to cash management too. The passive approach confines itself to minimizing cash needs and currency exposure as well as optimal deployment of cash balances arising out of the firm's operating requirements. The active approach deliberately creates cash positions to profit from perceived market imperfections or the firm’s supposedly superior forecasting ability.

11.2 SHORT-TERM BORROWING AND INVESTMENT

International money markets particularly in well-developedfinancial centers like London, New York, and Tokyo offer a variety of instruments to raise short-term financing as well as place short-term funds. The principal dimensions of the borrowing-investment decisions are the instrument, currency, location of the financial center, and any tax related issues. Between them they decide the cost of or return on funds, extent of currency exposure, the ease with which funds can be moved from one location and currency to another, and thus the overall efficiency of the cash management function. In this section, we will focus on the cost/return dimension. The other considerations-location, currency and so on-will be taken up later. Apart from bank loans, the other major instruments for short-term funding are commercial paper and, in the US domestic money market, bankers' acceptances. Commercial paper as a funding device is accessible only to corporations with high creditworthiness. For such entities, it is a cheaper form of funding than a bank loan. We know that on a covered basis, yields are equal (apart from transactions cost) across

Eurocurrencies. Hence, on a covered basis, the choice of currency of borrowing does not matter. Only when the borrower firm holds views regarding currency movements which are different from market expectations as embodied in the forward rate, does the currency of borrowing become an important choice variable. ^

The international Fisher open condition says where iA — iB = Se (A/B) (...1)

where Se (A/B): Expected depreciation of currency A against currency B.

However, if speculators are risk averse, a risk premium must be incorporated in the above relationship: iA - iB = Se (A/B) + RP (...2) where RP denotes the risk premium.

This coupled with the interest parity relation implies F(A/B) - Se(A/B) + RP (...3} where F(A/B) is the relevant forward rate and Se(A/B) is the expected future spot rate Note that the risk premium can be negative or positive depending upon whether speculators as a group are required to be net short or long in the forward market. Thus, the forward rate can on average equal the future spot rate even in the presence of a constant risk premium. However, in a particular instance, a firm may have reasons to believe that the forward rate is in an underestimate or overestimate of the future spot rate. In such cases, the firm should compare the effective expected cost of borrowing across different currencies and choose the least cost alternative. Note that this involves risk, and any saving on borrowing cost reflects compensation for the added risk.

Following the same reasoning, on a covered basis the firm should be indifferent between various currencies when it comes to placing temporary excess funds since the covered yields are identical. Considerations such as availability of various investment vehicles-deposits, CDs, CP, treasury bills and as on-and their liquidity may lead to one currency being favored over another. A firm willing to take on added risk, can make uncovered investments hoping to profit from its superior forecasting ability.

11.3 SURPLUS CASH

In a multinational corporation with production and selling subsidiaries spread around the world, cash inflows and outflows occur in diverse currencies. Apart from cost and return considerations, several other factors influence the choice of currencies and locations for holding cash balances. The bid-ask spreads in exchange rate quotations represent transaction costs of converting currencies into one another. There may of course be other costs such as telephone calls, telexes, and other paperwork and so on. Minimizing transaction costs would require that funds be kept in the currency in which they are received if there is possibility that they might be needed later in the same currency. A related but distinct consideration is that of liquidity, viz. funds should be held in a currency in which they are most likely to be needed. This may not be the same as the currency in which that cash comes in. Militating against these factors is the political risk dimension. The parent firm may want to hold all surplus cash in its home currency to minimize the risk of its assets being frozen by a foreign government. However, this consideration would influence the location of the financial center where the funds are held, rather than the currency and is likely to be of some importance only in the case of politically highly unstable countries.

Availability of investment vehicles and their liquidity is another important factor. Major money market centers such as London, New York, Zurich and so forth offer a wide variety of highly liquid money market instruments so that the firm does not need to hold practically any idle cash balances.

Finally, withholding taxes may influence the choice. If balances are held in interest bearing assets in a country which has a withholding tax on non-resident interest income, and the tax rate exceeds the parent's home country tax rate, the parent may not be able to get full credit for the foreign tax paid and such a location may therefore become unattractive for holding funds.

11.4 INVESTING SURPLUS FUNDS

Once the treasurer has identified the cash flows and determined how much surplus funds are available in which currencies and for what durations, he or she must choose appropriate investment vehicles so as to maximize the interest income, while at the same time minimizing currency and credit risks and ensuring sufficient liquidity to meet any unforeseen cash requirements. The major investment vehicles available for short-term placement of funds are:

(1) short-term bank deposits,
(2) fixed-term money market deposits such as CDs, and
(3) financial and commercial paper.

The main considerations in choosing an investment vehicle can be summarized as follows: . .

1. Yield

Total return on the investment including interest income and any capital gain or loss. Very often, security and liquidity considerations may take precedence over yield.

2. Marketability

Since liquidity is an important consideration, the ease with which the investment can be unwound is important. Instruments like CDs have well developed secondary markets while Cps and trade related paper have limited liquidity.

3. Exchange Rate Risk

If funds eventually required in currency A are invested in currency B, there is exchange rate risk. If covered, then as we saw above, there is no advantage to switching currencies,

4. Price Risk

If a fixed-term investment such as a CD or a T-bill has to be liquidated before maturity, there is the risk of capital loss if interest rates have moved up in the meanwhile.

5. Transactions Costs

Brokerage commissions and other transactions costs can significantly lower the realized yield particularly on short-term investments. Money-market investments are often available in fixed minimum sizes and maturities, which may not match the size of the available surplus and the duration for which it is available. For instance, consider the case of a treasurer who has a surplus of USD 180,000 for 90 days. 90-day USD CDs are an attractive instrument offering 10% return but the denomination is USD 100,000 per CD. The treasurer can purchase one CD and invest 80,000 dollars in a bank deposit earning 6% or borrow USD 20,000 via an overdraft facility at 13% and purchase two CDs. Which course of action is preferable?

Let us cast the problem in more general terms. Let M denote the minimum size of the investment instrument, S the surplus funds, i the interest on the instrument, d the interest rate on the bank deposit, and b the interest rate on borrowing or overdraft.

Then the breakeven size of excess funds is given by

$M * I - (M - S^*) \times b = S^* \times d$ $S^* = M [(b - i)/(b - d)]$ that is,

If excess funds on hand exceed S*, money should be borrowed to invest in the money market instrument; otherwise, the excess funds should be left in a bank deposit.

In the example at hand, M = 100,000, i = 0.10, d = 0.06, and b = 0.13.

The breakeven size of surplus funds is

100,000[(0.13 - 0.10)/(0.13 - 0.06)] = 42,857.14

Since the treasurer has USD 80,000 excess, it is preferable to borrow USD 20,000 and purchase two CDs. A similar problem arises when the duration for which surplus funds are available does not match the term of a money market investment. Suppose a treasurer has EUR 250,000 available for 10 days. A 30-day fixed deposit is paying 7% p.a. Thus, the gap is 20 days. The money can be placed in a current account earning 2% p.a. Overdraft facility can be availed of for 20 days at a cost of 9 % p.a. Here we can define a "breakeven" period such that if the actual period exceeds the breakeven, money should be borrowed to take advantage of the higher return on the fixed deposit.

11.5 FINANCING SHORT-TERM DEFICITS

Just as judicious management of short-term surplus funds can earn extra income for the firm, careful handling of short-term deficits can lead to significant savings. The treasurer's objective in this regard should be to minimize the overall borrowing requirement consistent with the firm's liquidity needs, and to fund these at the minimum possible all-in cost.

One of the cheapest ways of covering short-term deficits in internal funds. In a multinational firm with several subsidiaries, it often happens that while one division has a short-term funds requirement, another has surplus funds. While the former may have to take an expensive bank loan or overdraft facility, the latter may not have very attractive investment opportunities beyond bank deposits. A centralized cash management system with cash pooling described below can efficiently allocate internal surpluses so as to optimize interest earnings net of interest costs for the corporation as a whole. However cross-border inter-company loans are a complex area.

These are issues related to differences in tax regimes, existence of double taxation treaties, differences in accounting norms, and exchange risk. Specialist advice is usually necessary to exploit these opportunities in an optimal fashion.

External sources of short-term funding consist of overdraft facilities, fixed-term bank loans and advances and instruments like commercial paper, trade and bankers' acceptances.

Apart from the all-in cost of funding, consideration such as collateral or security requirements, flexibility in terms of repayment schedule, speed with which a new facility can be arranged, effect on firm's credit rating and so forth also play a role in evaluating the funding options. The size and maturity mismatch problems arise here, too. For instance, suppose a treasurer determines that he has a requirement of USD 60,000 for 30 days. An overdraft facility would cost him 12% while a 30-day term loan is available at 9 % but the minimum amount is USD 100,000. Surplus funds can be kept in a deposit earning 5%.

The problem again is to determine the "breakeven" size of funding requirement such that if the actual need is larger than this, it is preferable to go in for the term loan rather than an overdraft facility. In other case, an amount of USD 100,000 is needed for 18 days whereas a term loan isO for a minimum of 30 days. Once again, the reader can determine the breakeven gap above which it is preferable to take the loan and place the funds in a deposit during the days they are needed.

All-in cost must be determined on a post-tax basis. Withholding taxes, deductibility of interest, fees and other charges related to a funding facility, tax treatment of inter-subsidiary interest payments, and tax treatment of exchange gains and losses if funding is availed of in a different currency are among the issues which must be carefully analyzed.

11.6 CENTRALIZED VERSUS DECENTRALIZED CASH MANAGEMENT

A multinational corporation with subsidiaries in different parts of the world has cash

flows in a variety of currencies and countries. It can leave cash management to individual subsidiaries (who will also manage their currency exposures) or have a centralized cash management system. In the latter case it can create a "Cash Management Centre" which may be a part of the parent company, located at one of the subsidiaries or a separate entity incorporated for that purpose. Centralized cash management has several advantages which we will discuss below. Some examples of real-life cash management systems can be found in the references cited in the bibliography, many international banks such as Chase Manhattan, Citicorp offer their own cash management systems often suitably modified to take into account a particular corporation's needs.

Netting

In a typical multinational family of companies, there are a large number of intercorporate transactions between subsidiaries and between subsidiaries and the parent. If all the resulting cash flows are executed on a bilateral, pairwise basis, a large number of currency conversions would be involved with substantial transaction costs. With a centralized system, netting is possible whereby the cash management centre (CMC) nets out receivables against payables, and only the net cash flows are settled among different units of the corporate family. Consider the case of an American multinational with subsidiaries in France, Switzerland, and the UK. The parent operates a cash management center. By a specific date each month-say the 15th - all units, the subsidiaries as well as the parent report their receivables and payables among themselves to the CMC, The CMC uses the current spot rates to convert all cash flows into a common denominator, viz. US dollars. Figure 1 shows the positions reported by the various units. The spot rates are assumed to be USD/CHF = 1.5000, GBP/USD = 1.6000 and EUR/USD = 0.9000.

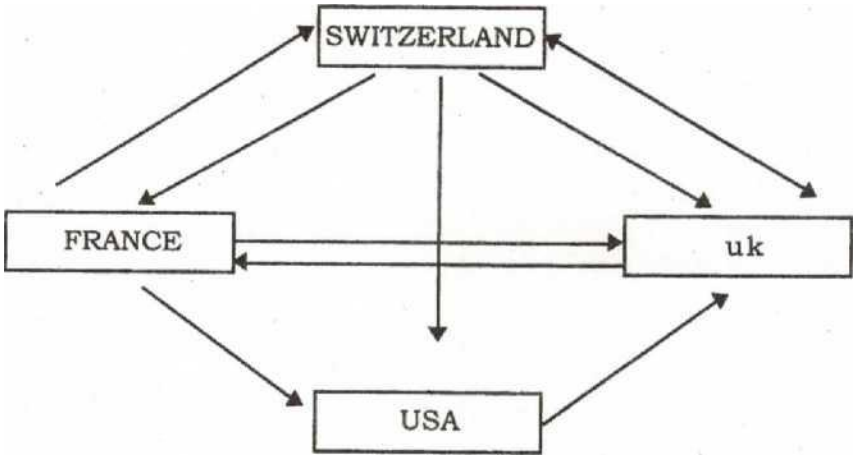


Figure 11.1: Intra-corporate obligations before netting

The CMC nets out the receivables against payables of each unit and info™15 payers to pay designated amounts to the net receivers. The actual settlement take place at a specified date-say the 25th of the month-for which the net payers acquire the, necessary currencies at the spot rate ruling at that time (two days before the settlement date). Any exchange gains or losses are attributed to the individual units. The net positions of the various units, in millions of dollars, are as follows (+ sign indicates inflow and a - sign an

outflow):

US Parent: +2 + 1 - 4.8 = - 1.8
UK **Subsidiary**: + 4.8 + 3.2 + 1.6 - 2.25 - 6.0 = + 1.35
France Subsidiary: + 4.5 + 2.25 - 1.0 - 3.2 - 2.0 - 0.55
Switzerland Subsidiary : + 1.0 + 6.0 - 4.5 - 1.6 - 1.0 =**0.1** . ..

Figure shows the net positions between each pair of units(the dashed lines) and the actual payments (the solid lines).

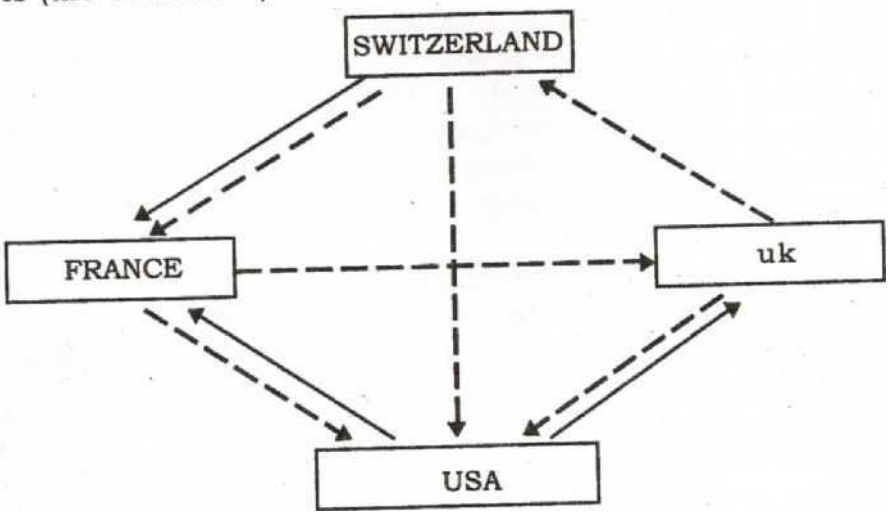


Fig. 11.2 : Intra-corporate net position and payments after netting

Netting need not be confined to intra-corporate transactions. Transactions with third parties can also be incorporated. More flexibility can be achieved in cash management if netting can be combined with leading and lagging. Payments to cash surplus units can be lagged (with appropriate compensation at the ruling rates of interest), and those to cash deficit units can be accelerated to manage overall cash needs and minimize the use of bank credit lines.

Exposure Management .

If individual subsidiaries are left to manage their currency exposures, each mil have to access the forward market (or other appropriate hedging devices),once again increasing transactions costs. The CMC can adopt a corporate perspective and look at overall currency composition of recievables and payables. Since the overall portfolio will be will be fairly diversified, currency risk is considerably reduced. The CMC can match and pair recievable^

and GBP - to achieve some degree of natural hedge.

funds and short-term borrowing on behalf of the entire corporate family. The CMC can in fact function as a finance company which accepts loans from individual surplus units, makes loan to deficit units and also undertakes market borrowing and investment. By denominating the intra-corporate loans in the units' currencies, the responsibility for exposure management is entirely transferred to the finance company and the operating subsidiaries can concentrate on their main business, viz. production and selling of goods and services. Cash pooling will also reduce overall cash need since cash requirements of individual units will not be synchronous.

The concept of CMC can be combined with that of a reinvoicing center. Under this system, notionally all subsidiaries sell their output to the reinvoicing center which is located in a low-tax country. The sales are invoiced in the selling company's currency. The reinvoicing center takes title to the goods and in turn sells to third party customers, as well as other members of the corporate family which may be production and/or sales subsidiaries. The actual deliveries are made from the selling units to the buying units. For intra-corporate sales, the buying units are invoiced in their respective currencies. Thus, the entire currency exposure is transferred to the reinvoicing centre which can use matching and pairing to minimize resource to forward markets or other hedging devices. Also, the reinvoicing centre can access foreign exchange markets more efficiently than individual subsidiaries. Leading and lagging can be used to transfer funds from cash-surplus units to cash-deficit units.

CMCs, finance companies, and reinvoicing centres are generally located in major money market centres where active markets in foreign exchange and a variety of money market instruments are available. Also, the presence of an efficient banking system can facilitate speedy settlement of receivables and payables.

Some important issues have to be sorted out before setting up a centralized cash management system with netting and cash pooling. If the CMC uses a single currency as the common denominator to compute net positions, this will lead to transactions exposure for individual subsidiaries. Hence, the choice of the common currency must be made in the light of cool currencies of the individual divisions, existence of sufficiently active forward markets and other hedging products between these currencies and the common currency and so forth. The second issue is related to rules governing settlement of debts within the system. If an individual subsidiary has a net debtor position, how much time should it be given to settle, how much interest should it charged on overdue, how to prevent a subsidiary from arbitraging between its local money market and the CMC (e.g. if a subsidiary can earn a much higher rate in the local money market than what it has to pay on overdue to the centre, it will have incentive to delay payments) are among the considerations which must be thoroughly analyzed.

Disadvantages of Centralized Cash Management

Despite these advantages, complete centralization of cash management and funds holding will generally not be possible. Some funds have to be held locally in each subsidiary to meet unforeseen payments since banking systems in many developing countries do not permit rapid transfers of funds. Also, some local problems in dealing with customers, suppliers and so on, have to be handled on the spot for which purpose local banks have to be used and local banking relationships are essential. Each corporation must evolve its own optimal degree of centralization depending upon the nature of its global operations, locations of its subsidiaries and so forth. Further, conflicts of interest can arise if a subsidiary is not wholly owned but a joint venture with a minority local stake. What is optimal with regard to cash and exposure management from an overall corporate perspective need not be necessarily so from the point of view of local shareholders.

Self- Check Questions

1) What is the primary goal of cash management?
   A) Maximizing long-term investments
   B) Minimizing cash inflows
   C) Minimizing the cost of holding cash
   D) Maximizing short-term liabilities

2)Which of the following is a cash management technique to accelerate cash inflows?
A) Stretching accounts payable
   B) Offering discounts for early payment
   C) Increasing inventory levels
   D) Delaying customer collections

3)What is the purpose of a cash budget in cash management?
   A) To track long-term investments
   B) To plan and control cash inflows and outflows
   C) To manage accounts receivable
   D) To assess market trends

Fill in the Blanks:

1)Cash conversion cycle is calculated as ____ minus ___.
2) The process of converting marketable securities into cash is known as _____.

11.7 CHECK YOUR PROGRESS

Visit some of web sites of the foreign subsidiaries of Indian companies and try to find out the exchange control regulations of the host country, and try to employ some of the techniques of cash management discussed in this lesson.

11.8 SUMMARY

This lesson focuses on the critical issues involved in discharging the cash management function in a multinational corporation. Within the constraints imposed by the exchange control and other regulations, a MNC has access to a much wider menu of funding avenues and investment vehicles for short-term funding and investment decisions, the currency of short-term borrowing and investment decisions, the currency of short-term borrowing and investment is irrelevant from the point of view of cost of funding or return on investment. Today, in most multinational companies, cash management is organized centrally. The major goal is to concentrate overall group liquidity as much as is possible and reasonable. Ideally, this pooling is done across national borders and banks. In a broader sense, cash management comprises the organization of the process of all incoming and outgoing payments in the most efficient way. To achieve this, organizations need, on the one hand, instruments like bank policy and cash pooling, and, on the other hand, software intelligence. In reality the right mix of organizational and software intelligence probably leads to the best result.

11.9 GLOSSARY

- **Cash Pooling**: Cash pooling is the standard instrument for efficient cash management. There are two basic concepts available: Notional Pooling and Zero Balancing Approach.
- **Yield**: Total return on the investment including interest income and any capital gain or loss. Very often, security and liquidity considerations may take precedence over yield.
- **Credit Risk**: Credit risk is the risk that counterparty will not settle an obligation for full value.

11.10 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**

1. Discuss the major dimension of Foreign Exchange Market in India.
2. Differentiate between Current Account and Capital Account.
3. What are the major sources of raising foreign currency finance? Discuss.

- **SHORT QUESTION ANSWERS**

1. Write a note on India's Balance of Payments.
2. Briefly explain the disadvantages of centralized cash management.
3. What do you understand by transaction cost?

11.11 SUGGESTED READINGS

1. Jain, P. K, *International Financial Management,* Macmillan India Limited, 2007.
2. Madura, Jeff, International Financial Management, McGraw Hill Publishing Company, 2003.
3. Shapiro, Alan, C., *Multinational Financial Management,* 8th Edition, J. Wiley & Sons, New York, 2006.

11.12 SELF- CHECK QUESTIONS (ANSWER KEY)

11.6 Multiple Choice:

1)c) Minimizing the cost of holding cash

2)b) Offering discounts for early payment

3)b) To plan and control cash inflows and outflows

Fill in the Blanks:

1) Operating cycle minus accounts Payable Deferral Period.

2) Disinvestment.

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INTERNATIONAL TAXATION ENVIRONMENT

STRUCTURE

12.0 OBJECTIVES

After reading this chapter the students should be able to:

- Understand the meaning and concept of International Tax,
- know the concept and problem of Double Taxation, and
- understand method adopted to avoid Double Taxation.

12.1 INTRODUCTION

Every country while exercising its sovereignty has the right to decide how it chooses to tax the foreign income of its residents and the income of foreigners which originates within its borders. Similarly, it must decide how its product and sales taxes are to apply to its imports and exports. Consequently, the tax system of one country clashes with the tax system of other countries, unless the tax policy decisions are made in conjunction with them.

12.2 OBJECTIVES OF TAXATION

In international tax environment taxes are imposed basically for fulfilling twoobjectives: Tax Neutrality and tax equity

12.2.1 TAX NEUTRALITY

Tax neutrality has its foundations in the principles of economic efficiency and equity. Tax neutrality is determined by three criteria. Capital-export neutrality is the criterion that an ideal tax should be effective in raising revenue for the government and not have any negative effects on the economic decision-making process of the taxpayer. That is, a good tax is one that is efficient in raising tax revenue for the government and does not prevent economic resources from being allocated to their most appropriate use no matter where in the world the highest rate of return can be earned. So, it is based on worldwide economic efficiency.

A second neutrality criterion is national neutrality. That is, taxable income is taxed in the same manner by the taxpayer's national tax authority regardless of where in the world it is earned. National tax neutrality is based on the principle of equality. In United States, for example, foreign-source income is taxed at the same rate as U.S earned income and a foreign tax credit is given against taxes paid to a foreign government. However, the foreign tax credit is limited to the amount of tax that would be due on that income if it were earned in the United States.

The third neutrality criterion is capital-import neutrality. This criterion implies that the tax burden a host country imposes on the foreign subsidiary of MNC should be the same regardless of which country the MNC is incorporated and the same as that placed on domestic firms. Implementing capital-import neutrality means that if the U.S. tax rate were greater than the tax rate of a foreign country in which a U.S. MNC earned foreign income additional tax on that income above the amount paid to the foreign tax authority would not be due in the United States. The concept of capital-import neutrality like national neutrality is based on the principle of equality and its implementation provides a level competitive playing field for all participants in a single marketplace at least with respect to taxation.

12.2.2 TAX EQUITY

The Tax equity principle says that all similarly situated taxpayers should participate in the cost of operating the government according to the same rules. Operationally, this means that regardless of the country in which an affiliate of a MNC earns taxable income, the same tax rate and tax due date apply. A dollar earned by a foreign affiliate is taxed under the same rules as a dollar earned by a domestic affiliate of the MNC.

12.3 CONCEPT OF DOUBLE TAXATION

InternationalTax is a field where the taxing jurisdiction of two countries is involved. Tax is a sovereign issue and every state has its right to tax its residents but when there is taxing of the same property or person by two different states then the conflicts arise. The problem comes when there is an "imposition of comparable taxes in two or more states on the same taxpayer in respect of the same subject matter and for identical periods "(OECD Committee on Fiscal Affairs). Therefore, International double taxation occurs where the tax authorities of two or more countries concurrently impose taxes having the same bases and incidence in such a way that a person incurs a heavier tax burden than what he supposestoo. A country will usually reserve a right to tax its residents on their worldwide income and also the tax authority usually wishes to tax all income and gains no matter the person is resident or no and this is done on source basis. Under the source principle a county reserves the right to tax not only the worldwide income and gains of its tax residents but also the income and gains of non-residents arising within its border. One of the key issues on international tax is the question of jurisdiction which arises through residence and source. The way in which these concepts interact causes potential problems and there is more debate about which is more important in terms of the allocation of taxing rights between nation states. Principle

guiding the development of international tax policy includes capital export neutrality and capital import neutrality. Much of the focus of current international tax policy development stems from the need to control the tax planning activities of multinational group of companies who have considerable choice available to them as to where to locate their activities so as to potentially achieve tax savings.

12.3.1 THERE ARE TWO KINDS OF DOUBLE TAXATION

1) Juridical Double Taxation

International double (or multiple) taxation occurs where the tax authorities of two or more countries concurrently impose taxes having the same bases and incidence in such a way that a person incurs a heavier tax burden than if he were subject to one tax jurisdiction only.

2) Economic Double Taxation

Economic double taxation takes place when two different persons are taxable in respect of the same income and capital.

To avoid this double taxation, countries enter into double taxation treaties with other countries based on the OECD model. The Organization for Economic Co-operation and Development is an international body which plays a very important role and its model on avoiding double taxation is very well adopted by most of the developed economies follows its own US model and most of the developing nations including India follow the UN model which is mostly based on the OECD model with one of the major differentiating factors being the definition of permanent establishment. Tax treaties avoid double taxation through a tie breaker clause. There are times when individuals and corporations are resident for tax purposes in more than one jurisdiction and in such a case the tax treaty between nations decide the taxing right.

12.3.2 METHODS OF ELIMINATING DOUBLE TAXATION

The objective of double taxation can be achieved Tax treaties employ various methods or a combination of

(i) Exemption Method

One method of avoiding double taxation is for the residence country to altogether exclude foreign income from its tax base. The country of source is then given exclusive right to tax such incomes. This is known as complete exemption method and is sometimes followed in respect of profits attributable to foreign permanent establishments or income from immovable property. Indian tax treaties with Denmark, Norway and Sweden embody with respect to certain incomes.

(ii) Credit Method

This method reflects the underline concept that the resident remains liable in the country of residence on its global income, however as far the quantum of tax liabilities is concerned credit for tax paid in the source country is given by the residence country against its domestic tax as if the foreign tax were paid to the country of residence itself.

(ill) Tax Sparing

One of the aims of the Indian Double Taxation Avoidance Agreements is to stimulate foreign investment flows in India from foreign developed countries. One way to achieve this aim is to let the investor to preserve to himself/itself benefits of tax incentives available in India for such investments. This is done through "Tax Sparing". Here the tax credit is allowed by the country of its residence, not only in respect of taxes actually paid by it in India but also in respect of those taxes India forgoes due to its fiscal incentive provisions under the Indian Income Tax Act.

Thus, tax sparing credit is an extension of the normal and regular tax credit to taxes that are spared by the source countryi.e. forgiven or reduced due to rebates with the intention of providing incentives for investments. The regular tax credit is a measure for prevention of

double taxation, but the tax sparing credit extends the relief granted by the source country to the investor in the residence country by the way of an incentive to stimulate foreign investment flows and does not seek reciprocal arrangements by the developing countries.

12.3.3 APPLICABILITY OF TREATY BENEFITS

In order to get the benefit of a tax treaty, it is necessary to have an access to it. For that purpose, a person must qualify in terms of the treaty as a:

— person
— resident of any of the Contracting states; and
— beneficial owner of the income by the way of dividends, interest or royalties for a lower rate of withholding tax.

Residence of a Person/ Resident

The determination of the residential status is of great significance as the taxability of income under the domestic laws depends upon it, and as also only the resident of a contracting state can seek relief from double taxation. The expression 'resident of contracting state' is defined to mean any person who, under the laws of that state, is

1. liable to tax therein by reason of
2. domicile, residence, place of management or
3. any other criterion of a similar nature.

The treaty provisions set forth rules for determination whether a person is a resident of a contracting state for purposes of the treaty. The determination looks for first to a person's liability to tax as a resident under the respective taxation laws of the contracting state. If a person is resident in both the contracting states, there are provisions to assign a single state of residence to him for purposes of the treaty through tie-breaking rules.

Business Income

The business income of a non-resident is taxable in India under section 9(l)(i) of the ITA only if it accrues or arises, directly or indirectly, through or from any business connection in India, property in India, asset or source of income in India, or through the transfer of an Indian capital asset. Explanation 2 of section 9(1) (i) contain an inclusive definition of business connection; as per which a business connection is said to exist if any person carrying on a business activity acts on behalf of a non-resident and:

— has and habitually exercises an authority to conclude contracts on behalf of the non-resident
— has no such authority, but habitually maintains in India a stock of goods or merchandise from which he regularly delivers goods or merchandise on behalf of the non-resident
— habitually secures orders in India, mainly or wholly for the non-resident or its affiliates.

Permanent Establishment

Double taxation agreement restricts the jurisdiction of the contracting states to taxing business income of a foreign enterprise only if such enterprise carries on business in India through a permanent establishment. The term "permanent establishment" as defined in Article 5 means a fixed place of business through which business of an enterprise is carried on. The definition requires performance of business activity through a fixed place of business in another country. The expression has been defined as:

a. fixed place of business through which the business of an
b. enterprise is
c. Wholly or partly carried on.

The first part of Article 5(1) postulates that the existence of a fixed place of business

whereas the second part postulates that the business is carried on through a fixed place. If the second part is not attracted, there is no permanent establishment. [10] Thereby meaning that there should necessarily be a fixed place of business through which the enterprise must conduct business activity and that activity must be income generating.

Treating Shopping

Treating shopping is an expression which refers to the act of a resident of a third country taking advantage of a fiscal treaty between states. A person acts through a legal entity created in a state essentially to obtain treaty benefits that would not be available directly to such person. The basic feature of treaty shopping is the establishment of base companies in other states solely for the purpose of enjoying the benefit of a particular treaty rules existing between the state involved and the third state. An example of treaty shopping can be the India-Mauritius double Taxation agreement where various companies have been incorporated in Mauritius to take advantage of the Indo-Mauritius DTAA in which capital gains are to be assessed as per the law of the state of residence of the entity.However, under the Mauritian law, tax is not levied on capital gains which means that the capital gains made by the Mauritian entity on transfer of shares in an Indian company go unassessed. However, the last few tears have seen a change in the approach of the States in the wake of wide reports of extensive money laundering and the tax evasion. As a consequence, a lot of countries are adopting a "Limitation of Benefits" clause in the tax treaties so as restrict third parties from taking advantage of tax treaties between two other states.

12.4 DOUBLE TAXATION RELIEF

Relief against double taxation can be provided mainly in two ways

(a) Bilateral Relief

(b) Unilateral Relief

Bilateral Relief

The government of two countries can enter into agreement to provide relief against double taxation, worked out on the basis of mutual agreement between the two concerned sovereign states. This may be called a scheme of bilateral relief as both concerned powers agree as to the basis of the relief to be granted by either of them.

agreement for bilateral relief may be of following two kinds

(a) Agreement, where two countries agree that income from various specified sources which are likely to be taxed in both the countries should either be taxed only in one of them or that each of the two countries should tax only a particular specified portion of the income so that there is no overlapping. Such an agreement will result in a complete avoidance of double taxation of the same income in the two countries. This is known as exemption method of relief.

(b) The agreement that does not envisage any such scheme of single taxability but merely provides that, if any item of income is taxed in both the countries, the assessee should get relief in a particular manner. Under this type of agreement, the assessee is liable to have his income taxed in both the countries but is given a deduction, from the tax payable by him in India, of a part of the taxes paid by him

thereon, usually the lower of the two taxes paid. This is known as tax credit method of relief.

Unilateral Relief

The above procedure for granting relief will not be sufficient to meet all cases. No country will be in a position to arrive at such agreement as envisaged above with all the countries of the world for all time. The hardship of the taxpayer however is a crippling one in all such cases. Some relief can be provided even in such cases by home country irrespective of whether the other country concerned has any agreement with India or has otherwise provided for any relief at all in respect of such double taxation. This relief is known as unilateral relief.

12.5 DOUBLE TAXATION RELIEF PROVISIONS IN INDIA

In India the relief against double taxation is provided under section 90 and 91 of the Income-tax acts.

Where there is agreement with foreign countries

Section 90

1. The Central Government may enter into an agreement with the Government of any country outside India-
   a. for the granting of relief in respect of income on which have been paid both income-tax under this Act and income-tax in that country, or
   b. for the avoidance of double taxation of income under this Act and under the corresponding law in force in that country, or
   c. for exchange of information for the prevention of evasion or avoidance of income-tax chargeable under this Act or under the corresponding law in force in that country, or investigation of cases of such evasion or avoidance, or
   d. for recovery of income-tax under this Act and under the corresponding law in force in that country, and may, by notification in the Official Gazette, make such provisions as may be necessary for implementing the agreement.
2. Where the Central Government has entered into an agreement with the Government of any country outside India under sub-section (1) for granting relief of tax, or as the case may be, avoidance of double taxation, then, in relation to the assessee to whom such agreement applies, the provisions of this Act shall apply to the extent they are more beneficial to that assessee.

Countries with which no agreement exists.

Section 91.

1. If any person who is resident in India in any previous year proves that, in respect of his income which accrued or arose during that previous year outside India (and which is not deemed to accrue or arise in India), he has paid in any country with which there is no agreement under section 90 for the relief or avoidance of double taxation, income-tax, by deduction or otherwise, under the law in force in that country, he shall be entitled to the deduction from the Indian income-tax payable by him of a sum calculated on such doubly taxed income at the Indian rate of tax or the rate of tax of the said country, whichever is the lower, or at the Indian rate of tax if both the rates are equal.
2. If any person who is resident in India in any previous year proves that in respect of his income which accrued or arose to him during that previous year in Pakistan he has paid in that country, by deduction or otherwise, tax payable to the Government

under any law for the time being in force in that country relating to taxation of agricultural income, he shall be entitled to a deduction from the Indian income- tax payable by him-

a. of the amount of the tax paid in Pakistan under any law aforesaid on such income which is liable to tax under this Act also; or

b. of a sum calculated on that income at the Indian rate of tax; whichever is less.

If any non-resident person is assessed on his share in the income of a registered firm assessed as resident in India in any previous year and such share includes any income accruing or arising outside India during that previous year (and which is not deemed to accrue or arise in India) in a country with which there is no agreement under section 90 for the relief or avoidance of double taxation and he proves that he has paid income-tax by deduction or otherwise under the law in force in that country in respect of the income so included he shall be entitled to a deduction from the Indian income-tax payable by him of a sum calculated on such doubly taxed income so included at the Indian rate of tax or the rate of tax of the said country, whichever is the lower, or at the Indian rate of tax if both the rates are equal.

12.6 OECD MODEL

The OECD model recognizes the right of the source country to tax profits arising from the presence of the PE with the resident state giving tax relief for the tax paid in the source state. With globalization and free movement of capital and labour, there has been a major shift in the policies and objectives of the OECD as far as double tax treaties are concerned. The focus has shifted from avoiding double taxation to avoiding double non-double taxation. Since OECD consists of the 30 most wealthy and developed nations in the world, they have seen their tax base being eroded in recent times because of mushrooming of tax havens and with their domestic companies establishing and expanding overseas. The developed nations have tried to protect their tax base by enacting various anti-avoidance provisions. The three most common anti - avoidance measures adopted by the taxing authorities of these countries is Controlled Foreign Companies regime, transfer pricing and thin capitalisation, OECD has recognised these measures and has adopted them in the model stating that they do not contravene the basic International Tax principles.

1. Transfer Pricing

Today the role of multinational enterprises in the world trade has increased over last 20 years and this growth presents complex taxation issues for both tax administration and the MNEs themselves since separate country rules for the taxation of MNEs cannot be viewed in isolation but must be addressed in a broad international context. The need to comply with laws and administrative requirements that may differ from country to country creates additional problems. Transfer prices are the prices at which an enterprise transfers physical good and intangible property or provides services to associated enterprises. Article 9 of OECD deals with associated enterprises and it deals with transfer pricing at arm length's principle. There are various methods given to use transfer pricing and the concerned state is ready to use any of them.

2. Thin Capitalisation

Financing an overseas investment is complex as it can be financed by equity, intra group debt or external debt when a group guarantee may be required by the lender. This is important

as interest is deductible and dividends are not. Thin capitalization rules really relate to excessive loans to help tax authorities to protect their tax base in relation to inbound investment by regulating the proportion of debt on which interest is deductible. Thin capitalisation is a mechanism wherein funds are infused into a company in the form of loan rather than equity to avail tax benefits to ensure that the capital of the company is very small or thin. A higher debt component in the capital structure reflects by an extraordinary high debt-equity ratio enables companies to save on taxes since interest on loans is normally deductible for calculating taxable profits. This is in contrast to dividends which are not deductible. If the company's debt or equity ratios exceeds a certain norm then some or all of the interest is to be disallowed as an expense or depending on the terms of the relevant country's domestic legislation more generally treated as dividends. The most, obvious thin capitalization arises in the context of associated enterprises, Article 9 of OECD Model which allows the profits of associated enterprises to be adjusted to the arm s length profit should be considered first.

3. Controlled Foreign Company (CFC)

The general rule of international tax is that the profits of a subsidiary are not taxed in the country of the parent unless and until distributed by dividends to the parent. Controlled Foreign Company rules help tax authorities to protect their tax base in relation to outbound investment by providing an alternative means of taxation at the level of parent company. CFC rules operates in an environment where all group transaction take place at arm s length.

The general feature of CFC

(1) Bring forward the time of taxation at the level of parent
(2) Tax system which might otherwise not be taxed
(3) Focus on investment income
(4) Can focus on and therefore tax business profit

Self- Check Questions

1)What is the primary purpose of a Double Taxation Avoidance Agreement (DTAA)?
a. To increase tax rates
b. To promote tax evasion
c. To prevent double taxation of income
d. To encourage tax competition
2)Transfer pricing regulations are designed to:
a. Facilitate tax avoidance
b. To ensure fair taxation of multinational enterprises
c. Discourage international trade
d. Increase administrative burden on businesses
3)In the context of international taxation, what does CFC stand for?
a. Common Financial Criteria
b. Controlled Foreign Corporation
c. Cross-Border Financial Code
d. Centralized Fiscal Control
4)Which international organization plays a crucial role in developing and updating internationaltax standards?
a. International Monetary Fund (IMF)
b. World Trade Organization
c. Organisation for Economic Co-operation and Development (OECD)
d. United Nations (UN)

Fill in the Blanks:

1)The _____ is a method used to allocate profits among different jurisdictions based on certain factors like sales, assets, and payroll.

2) One of the key principles of international taxation is the concept of _____ which ensures that income is taxed in the country where it is earned.

3)Transfer pricing guidelines recommend that transactions between related entities should be conducted at _____ prices to avoid tax evasion.

4)The _____ is a report submitted by multinational enterprises to provide information about their global allocation of income, taxes paid, and certain indicators of economic activity.

12.7 SUMMARY

When the jurisdiction of the tax structure of any country is enlarged to activities beyond its

national frontiers, an important principle of taxation of inter-individuality equity gets disturbed. Double taxation is the most discussed though not the only part of the problem of international taxation, since it is responsible for a multitude of international disputes. Double taxation generally arises on account of differing residence rules which may cause an assessee to be resident in two countries. Relief against double taxation may be provided unilaterally or bilaterally.

12.8 SELF- CHECK EXERCISE

- **LONG QUESTION ANSWERS**
  1. Explain the term 'double taxation' and examine the factors which give rise to it.
  2. What do you understand by unilateral relief against double taxation? Examine the different forms it may take.
- **SHORT QUESTION ANSWERS**
  1. Explain the concept of OECD model.
  2. Explain any two methods of eliminating double taxation.

12.9 SUGGESTED READING

1. Levi, Maurice, D., *International Finance,* Routledge Publication, New York, 2008.
2. Vij, Madhu, *International Financial Management,* Excel Books, New Delhi, 2006.
3. Shiren, Rathore, *International Accounting,* Prentice Hall Publication, New Delhi, 1996.

12.10 SELF- CHECK QUESTIONS (ANSWER KEY)

12.6 1)c. To prevent double taxation of income

2)b. Ensure fair taxation of multinational enterprises

3)b. Controlled Foreign Corporation

4) c. Organization for Economic Co-operation and Development (OECD)

Fill in the Blanks:

1)profit split method

2) source taxation

3) arm's length

4) country-by-country report (CBCR)