Foreign Exchange

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F o r e x

Globalisation of business, raising of capital from international institutions / markets has substantially increased in the last decade as compared to earlier periods. To accommodate the demands of investors and fund raisers, Foreign Financial Institutions have dramatically changed the various products through which funds are lent and new products are being introduced to meet the specific requirements of customers. The opening of Indian Economy has also given opportunity for investments in India by foreign investors.

International investment brings 2 types of risks: Primarily The risk of the asset itself and secondarily the risk of forex rate fluctuations. Eventhough the basic principles of financial management i.e. efficient allocation of resources and raising at the economical costs continued to remain the same, the environment (viz. Political risks, tax structures, forex risks, sources of finance etc.) in which this is happening has changed.

Forex Market is a 24 X 7 market working for 5 days in a week. Participants in forex market are:

- Tourists, importers, exporters, etc.
- Commercial banks,
- Commercial brokers, arbitragers, speculators, and
- Governments through their Central Banks.

Nostro, Vostro & Loro Accounts: In interbank transactions, funds are transferred from one account to another (even located in different countries) through these accounts. Each bank maintains these 3 types of accounts called Nostro, Vostro & Loro Accounts meaning "ours", "yours" and "theirs".

It implies a nostro account means "our account with you as per your books." Eg. State Bank of India, an Indian bank maintaining an account with American Express Bank in Newyork. This account is held SBI in USD as USD

is the local currency of Amex Bank and is operated in USD denomination. This will be a current account and does not carry any interest. However, any overdrawn positions are charged with interest and penal charges are levied. All receipts and payments of SBI in USD denomination are credited or debited to this account. This account will be exactly in the same way as an individual in India has a bank pass book for his account with an Indian bank.

Vostro account means "your account with us as per our books." Eg. Bank of Japan having an account with SBI in INR currency.

Loro account means "their account with us" meaning the account of a third bank in the books of respective two transacting banks. These accounts are used to transfer funds to a third bank by the transacting banks.

Exchange rate simply means the price of one nation's currency in terms of another nation's currency. Eg. GBP 1 = INR 90

Spot rate, cash spot rate & tom rate: Spot rate is the rate at which the currencies are expected to be exchanged. Though spot trades in forex market are intended for immediate settlement, actual settlement is to be made within 2 business days excluding the trade day. This is commonly referred as T + 2 settlement and the date is called settlement or value date. A rate as per which the cash is to be settled on the same day is called **cash spot rate** and on which cash can be settled the following day is called **tom rate**.

Spot rate quotations: The quotes / terms in forex market are used as per standard conventions viz. **A C I (Association Cambiste International)** conventions which are followed in interbank market. As per these conventions:

A pair of currencies is represented by the 3 letter **SWIFT (Society for Worldwide Interbank Financial Telecommunication)** codes separated by '/' (oblique) or '-' (hyphen). Eg. USD / INR spot (or USD – INR spot) 59.00 / 60.00

In a pair, the first currency is called as **base currency** and the second currency as **quoted currency** Viz. USD in the eg. Above.

(Caution: Sometimes in text books / examination problems this convention is not being strictly followed and inferences may have to be drawn from other available information in the problem.)

The exchange rate quotation reflects the number of units of quoted currency to a unit of base currency Viz. INR 59.00 / 60.00 to a unit one USD. Further, the first amount INR 59.00 is called banks **Bid rate (or buy rate)** and the second INR 60.00 is called the **Ask rate (or sell rate)** i.e. the bank is willing to buy dollars at Rs. 59 and is willing to sell dollars at Rs. 60. Further, bid of one currency becomes the ask of another currency and vice versa. The difference of Re. 1 (i.e. 60-59) is called as **Spread.**

If a quote is expressed as:

INR 60.1234/48 15/17 20/23 20/15 per USD

It is to be read as:

USD 1 = INR 60.1234 / 60.1248 Spot Rate

USD 1 = INR 60.1249 / 60.1265 Forward 30

USD 1 = INR 60.1254 / 60.1271 Forward 90

USD 1 = INR 60.1214 / 60.1233 Forward 180

The pair 15/17, 20/23 etc are called points. If they are in ascending order, it is to be treated as premium and added to the initial (i.e. the first) value given. In case they are in descending order, it is to be treated as discount and deducted from initial value.

PIP is the smallest movement a price can make.

Direct quote is the one where the home currency is quoted per unit of foreign currency (eg. **USD 1 =** INR 60) and vice versa is the **indirect quote** i.e where the foreign currency is quoted per unit of home currency (eg. **INR 1 =** USD 0.01667). Further, a direct quote of one country becomes an indirect quote for another country and vice versa. Direct quote is from home country point of view and indirect quote is from foreign country point of view.

American Terms are the rates quoted in USD **per unit of foreign currency**.

European Terms are the rates quoted foreign currency **per unit of USD.**

Cross currency rate is the exchange rate of two currencies of which none of them is the home currency of the country in which it is quoted.

Forward rate quotations: A forward rate occurs when buyers and sellers of currencies agree for deliver the currency at a future date. However, they agree for the amount of foreign currency, the exchange rate and the future date of delivery.

Usually the forward rate differs from the spot rate and includes a premium or discount to the spot rate. The premiums or discounts are represented in annual percentages unless otherwise stated. If the currency is costlier in future, it is said to be at premium and when it is cheap it is said to be at discount. Further, between any two currencies, if one currency is at premium, then other currency is impliedly at a discount and vice versa.

In a **direct quote** it is calculated by the formula:

Premium / Discount = [Forward (F) – Spot (S)] / Spot (S) X (12 / n) X 100

In an **indirect** quote it is calculated by the formula:

Premium / Discount = [Spot (S) – Forward (F)] / Forward (F) X (12 / n) X 100

Exchange rate forecasting: Foreign currency rates are highly volatile and any currency can become very costly or cheap in a matter of days, hours or sometimes even in minutes. The forex market has dramatically changed and the volumes in forex market are growing by leaps and bounds. This has necessitated the requirement of forecasting to enable better decision making. There are several methods and even programs and modules of forecasting forex rates. However, these can be broadly grouped under the following categories.

a. **Technical forecasting:** Historical data is used to forecast the future by the technique of interpolation. Eg. Time series models. Usually through this method short term rates can be predicted and these are not useful for long term.

b. **Fundamental forecasting:** The impact of changes in the economic variables (like GDP, BOP, and Inflation etc.) of a country to the exchange rates are studied and accordingly the future rates are predicted.

c. **Market based forecasting:** Market indicators are used to forecast the future rates. In this method, spot rates are invariable considered to project the future rates.

d. **Mixed forecasting:** This is a combination of all the above methods.

Exchange rate theories: There are three theories which explain the movement of exchange rates between two currencies.

Interest rate parity (IRP): As per this theory, the size of forward premium (or discount) should be equal to the interest rate differential between the two countries. When interest rate parity exists, covered interest arbitrage is not possible because any favourable interest benefit will be offset by equal unfavourable exchange variation and vice versa. Covered interest parity equation is expressed as below:

$$\mathbf{1 + r_d = (F / S) * (1 + r_f)} \text{ where,}$$

r_d = Domestic rate of interest, F = one unit of foreign currency, S = Spot rate and r_f = foreign rate of interest.

Purchasing power parity (PPP): As per this theory, the exchange rate of two currencies of two countries represents the relative purchasing power of those countries.

For example, if a basket of goods costs GBP 1 in U K and the same basket of goods costs INR 90 in India, then the exchange rate of the two currencies is shown as GBP 1 = INR 90. This theory suggests that the changes in the rates of inflation of respective countries is the reason for changes in exchange rates implying if inflation rates of two countries continues to be same, then the exchange rate between the currencies of those countries will also remain same. This is called the ABSOLUTE FORM OR LAW OF ONE PRICE. i.e. similar goods must cost same amounts in all countries.

A slight variant to the Absolute Form is called RELATIVE FORM. In this case the prices of goods are suitably adjusted for transportation costs, tariffs and quotas and then compared. As per this:

$$\mathbf{S = £ (P_d / P_f)} \text{ where,}$$

S = Spot rate, £ = Sectoral Constant, P_d = Domestic Price, and P_f = Foreign Price.

The sectoral constant varies from product to product and from industry to industry. When studying the impact at macro level, dealing with several constants will be a tedious and risky affair as well.

International Fisher effect (IFE): This theory considers interest rate differentials. This theory states that nominal risk free interest rate consists of two parts:

a. Real rate of return and

b. A set off component for expected rate of inflation in the country.

This implies if investors of all countries require same real rate return then the exchange rates fluctuation is in direct relation with interest rate differentials.

IFE states that currencies of countries with high interest rates depreciates with currencies of countries with low interest rates because high interest rates reflect high inflation and vice versa.

Comparison of IRP, PPP & IFE: All theories relate to determination of exchange rates.

IRP focuses on why **forward rates** differ from spot rates.

PPP and IFE focus on how a countries **future spot rate changes** over time. PPP states that spot rates will change in accordance with **inflation differentials** whereas IFE states that spot rates change in accordance with **interest rate differentials**.

Foreign Exchange (rate) Risk: Risk is involved in every activity and Foreign Exchange Rate is no exception to this. Exchange rate fluctuations have a series of impacts on almost every aspect of the country's economy. Investors holding their own government's bonds, denominated in their own currency, and spending all their money at home are affected by changes in exchange rates if exchange rates prompt changes in interest rates. If governments increase interest rates to defend their currencies when they fall in value on the foreign exchange markets, holders of domestic bonds will find their assets falling in value along with their currencies. Bond prices fall when interest rates increase. It is difficult to think of any firm or individual that is not affected in some way or other by the international environment. Jobs, bond and stock prices, food prices, government revenues and other important economic variables are all tied to exchange rates and other developments in the global financial environment. There are several types of risks like:

Financial Risk: It is the potential loss due to uncertainity in move4ment of forex rates, interest rates, credit quality liquidity position etc.

Business risk (investment risk): This is the variability in earnings of a company due to change in cash inflows and outflows of capital investment projects.

Credit or default risk: This is the risk that a company or individual will be unable to pay the contracted principal, interest or debt. Government bonds are least risky with least returns while corporate bonds are more risky with related increased returns.

Country risk: This is the risk that the country would not be able o honour the financial commitments. When a country defaults, it affects all other financial instruments relating to that country.

Interest rate risk: This risk relates to changes in interest rates. Interest rate depends on the demand for and supply of money and the rate of inflation. A rise in the interest rate during the term of investor's debt security hurts the performance of the stocks and bonds.

Liquidity risk: This relates the inability of a party to meet the liabilities on due dates due to liquidity crunch eventhough healthy. This happens due to the inability of the party to convert his assts into cash.

Political risk: This is the financial risk that arises due to sudden changes of policies by Governments.

Market risk (Volatility risk): This is the risk that arises due to day to day fluctuations in stock market. The stocks will be performing well during bull phase and vice versa in bear phase. The price changes are mostly due to euphoria, sentiment and temperament of individuals and is not related to the real underlying changes.

Foreign exchange risk: This relates to the change in overseas assets or liabilities due to change in the rates of foreign exchange. Foreign exchange risk applies to all financial instruments that are in currencies other than domestic currency.

Foreign exchange exposure: When an organisation enters into an international transaction, it is subjects itself to three types of exposures:

Transaction exposure: This relates to the change in the value of an asset or liability between the date of transaction and its settlement date due to change in exchange rate.

Translation exposure (Accounting exposure): This relates to the change in the value of an asset or liability in complying with the Accounting Standards for recording of transactions in books of account.

Economic exposure: This refers to the change in the economic value of a company and the cost structure of its products due to changes in the exchange rate. The changes in exchange rate could be due to devaluation or revaluation.

Methods of managing forex exposure: There are various methods to cover the risk of forex fluctuations a host of new products are continuously entering the market to suit individual customer requirements.

Some of the methods are:

A. Derivatives
B. Hedges
C. Netting
D. Matching
E. Leading & lagging
F. Price variation
G. Invoicing in foreign currency.

Derivatives are broadly classified into the following types:

i) Forwards based derivatives:
   (a) Forward contracts
   (b) Swaps
      1. Interest rate swaps
         i. Floating to fixed rate
         ii. Fixed to floating rate
         iii. LIBOR to Prime based
         iv. Prime to LIBOR
      2. Currency swaps: currency A to currency B

i. Plain vanilla swaps
ii. Basis rate swaps
iii. Asset swaps
iv. Mortgage swaps
v. Amortising swaps
vi. Forward swaps
vii. Swaptions
viii. Callable swaps
ix. Canapé swaps

3. Commodity swaps
4. Equity swaps

(c) Future contracts

1. Interest rate futures
2. Currency futures
3. Stock index futures

ii) Options

(a) Call option

(b) Put option

Brief description of the above:

Derivative: A derivative transaction is a bilateral contract or payment exchange agreement whose value depends on (i.e derives from) the value of an underlying asset. The underlying asset could be an index, interest rate, exchange rate, equity price etc. Eg. If sensex touches 20000 within a month, A agrees to buy 1000 shares of TCS @ Rs. 1600 per share from B.

Forward contract: This is the simplest form of derivative. One party (say A) agrees to buy (or sell) and another party (say B) to sell (or buy) a specified quantity of a nominated underlying financial instrument at a specified price on a specified future date.

In a forward contract, the buyer of the contract draws his value at maturity from its delivery terms or a cash settlement. On maturity, if the price of the underlying is higher than the contract price, the buyer makes a profit or vice versa if the price is lower. The gain to the buyer is a loss to the seller.

Forward contract can be booked for a maximum period of 6 months as per ECM of RBI and for extended periods, it has to be rolled over. For forward contracts exceeding 6 months, RBI permission is necessary.

Forward contracts can be cancelled at any time and the gain or loss on cancellation will be to the account of the buyer. If the cancellation is done before 30 days of booking, as per FEDAI rules, no gain is paid to buyer but loss, if any, is charged to him. Forward contracts have to be executed or cancelled before their maturity date. Any open contracts after maturity date are to be cancelled by the bank on 15th day of maturity, in case of absence of instructions from customer.

Swaps: These are changing of one type of agreed arrangement to another type of arrangement without affecting the original arrangement. In a swap transaction, the participants agree to exchange cash flows (either fixed or calculated amounts basing on the value of the underlying) at specified intervals called settlement dates.

Interest rate swaps: In interest rate swaps, no exchange of principal takes place but only the interest amounts are paid or received on the notional principal amount. The interest amounts are worked in such a way that a fixed rate loan becomes a floating rate loan or a prime rate loan becomes a LIBOR linked loan. Usually this sort of arrangement outside the principal contract arrangement benefits both the involved parties since each party exploits his relative advantage.

Currency swaps: This involves exchange of liabilities between currencies. This helps in hedging the risk related to currencies. These sorts of arrangements help borrowers to raise funds from institutions in countries where they have more goodwill and can negotiate best lending terms and use the funds elsewhere as per requirement. A complicated version of currency swap is called **circus swap** which involves converting a fixed or floating rate loan in one currency into floating rate loan of another currency. In a currency swap, the principal is usually exchanged:

- At the beginning, or
- At the end, or

- A combination of both, or
- Never.

Plain vanilla swap: This is the simplest, basic and earliest type of currency swaps where the parties agree to convert their fixed rate of loan to floating rate or vice versa. Interests are exchanged on specified dates till an agreed term.

Basis rate swap: In this the swap is made between two floating rate liabilities but the method of ascertaining floating rates for both the loans differ. Eg. Prime rate, LIBOR + rate.

Asset swap: In this, interest receipts are swapped instead of liabilities.

Mortgage swap: In this type mortgage backed securities are bought by financing through short term variable rate debt.

Amortising swaps: in these swaps, notional principal repayment is made at periodic intervals.

Forward swaps: These are the swaps which are arranged to run from some point in future.

Swaptions: These are the swaps with the benefit of options. The buyer of the swaption has the right but not the obligation to enter into a swap agreement. However, the term, notional principal and interest rate are predetermined. These types of arrangements are especially useful while participating in tenders and there is uncertainty in cash flow.

Canapé swaps: In these type of swaps, only interest payments of one currency are exchanged for interest payments of another currency.

Futures contracts: The basic features of future contract are same as forward contracts. However, there are differences between them as below:

	Feature	Forward Contract	Futures Contract
1	Amount	Flexible	Fixed amounts
2	Maturity	Any valid agreed business date	Fixed dates
3	Farthest Maturity date	Open	12 months forward
4	Currencies traded	All currencies	Major currencies
5	Cross rates	Can be included in one contract	Requires different contracts
6	Market place	Global network	Limited to regular market and few exchanges
7	Price fluctuations	No daily limit in many	Daily price limit set by exchanges.

		currencies	
8	Risk	Depends on counter party	Minimal due to margin requirements
9	Honouring of contract	By delivery	Mostly by reverse contract
10	Cash flow	None until maturity date	Initial margin and ongoing variation margin due to daily marking to market.
11	Trading hours	24 X 7 hours	4 – 8 hours trading sessions.

Options: These are the second type of derivatives and are similar to swaps. These can be bought for a premium. The advantage of options over swaps and forwards is that options give the buyer the desired protection while allowing him to benefit from a favourable movement in the underlying price. Option is of two types: viz.

Call option (i.e a right to buy)

Put option (i.e a right to sell)

The persons selling the options are called **Writers or Grantors.** Options are also classified into **American options** (can be settled at any time during the currency of option) and **European options** (to be settled at the end of the option period.) The differences between Options and Futures are as below:

	Options	**Futures**
1	Only the seller (writer) is obliged to perform	Both parties are obliged to perform
2	Premium is paid by buyer of option to seller	No premiums are paid
3	Loss is limited while gains are unlimited.	Both loss and gain are unlimited
4	Option can be exercised at any time during option period (American option)	Contract has to be honoured by both parties on specific agreed dates.
5	No margin requirements	Margin is required and Mark to Market process and related filling up of margin are involved.

Money market hedge: This involves simultaneous borrowing and lending of two currencies (usually one of them will be home currency) to lock in the home currency value of a foreign currency cash flow.

Netting: This procedure is adopted by MNCs'. The receivables and payables of the group in various countries are netted and settled by transfer of differential amounts only. However, the laws of respective countries are to be kept in mind while adopting this procedure. In India this method is not permitted as per E C M.

Matching: This is similar to netting but in this case even III parties can be involved. This is adopted when a company has two way cash flow viz. Foreign currency receipts and payments. The receipts and payments are planned in such a way that both of these occur on same day or nearby dates and the values are also almost identical.

Leading and lagging: This refers to preponing or postponing the payments or receipts to take advantage of favourable exchange rates.

Price variation: This refers to change of sale or purchase price to take care of exchange fluctuations.

Invoicing in foreign currency: In this case companies adopt the same currency for exports trade as that for imports trade and vice versa to cover themselves against forex rate fluctuations.

Arbitrage: This refers to simultaneous buying and selling of foreign currencies in different markets to make money by taking advantage of exchange rate variations between different currencies.

Strategies for exposure management: There is no standard method to be adopted by a corporate to take the benefit and ward off the adverse effects of forex rate fluctuations. The method adopted depends on the attitude of the management towards risk, financial strength, vulnerability, nature of business etc. There are 4 types of strategies that may be adopted:

Low risk – low returns: In this method all forex exposures are hedged as soon as they arise ignoring the attractiveness or otherwise of the forward rate.

Low risk – reasonable returns: In this method selective hedging is done when forward rates are attractive, and rest of the positions are kept open when they are not attractive.

High risk – low returns: This is the worst method. In this all exposures are kept open and unhedged.

High risk – high returns: This method requires continuous booking and cancellation of contracts with a view to take benefit of favourable movements and ward off unfavourable movements in forex market.

Questions

1. "Operations of foreign Exchange Market are exposed to a number of risks." Discuss.

   Two types of answer: a. List of exposures &

   b. list of risks.

2. what is the meaning of:

   a. Interest Rate Parity;

   b. Purchasing Power Parity.

3. Write short notes on the following:

   a. Leading and lagging

   b. Meaning and advantages of netting

   c. Nostro, Vostro & Loro accounts.

Thank You!

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