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FINAL CA
MAY '19
REVISION NOTES
Strategic Financial Management

Forex Management

FOREIGN EXCHANGE RISK MANAGEMENT

Foreign currency and foreign exchange :

- In the context of India, any currency other than Indian rupees is foreign currency.
- Foreign exchange includes currency, drafts, bills, letters of credits and traveler cheques which are denominated and ultimately payable in foreign currencies

What is a foreign exchange market :

- The foreign exchange market is a decentralized worldwide market.
- The participants in the foreign exchange market include central banks, commercial banks, brokers etc.
- The central banks monitor market movements and sentiments and intervene according to government policy.
- The function of buying and selling of foreign currencies in India is performed by authorized dealers / moneychangers appointed by the RBI.
- The foreign exchange department of the major banks are linked across the world on a 24 hour basis.
- Major commercial centers are London, Amsterdam, Frankfurt, Milan, Paris, New York, Toronto, Bahrain, Tokyo, Hong Kong and Singapore.

Briefly describe the functions of a foreign exchange market :

- Purchasing power is transferred across different countries which will enhance the feasibility of international trade and overseas investments
- The foreign exchange market acts as a central focal point wherein prices of various currencies are discovered.
- Enables the investors to hedge or minimize their risks
- Enables the traders to arbitrage any inequalities
- Provides an investment / trading avenue to entities who are willing to expose themselves to this risk.

What are the Determinants of Exchange rate

Interest rate parity
Purchasing Power Parity
Balance of payment position
Government Intervention
Market Expectation
Overseas Investment
Speculation

A. Interest Rate Parity theorem: (IRP)

As per IRP “the size of the forward premium (or discount) should be equal to the interest rate differential between the two countries concerned”. When IRP exists, covered interest arbitrage is not feasible because any interest rate differential advantage will be offset by the discount on the forward rate. Thus, the act of covered interest arbitrage would a return that is no higher than what would be generated by a domestic investment.

B. Purchasing power parity (Inflation) theorem

- Difference in inflation rates between two countries is considered as the most important factor for variations in exchange rates.
- If domestic inflation is high, it means domestic goods are costlier than foreign goods. This results in higher imports creating more demand for foreign currency, making it costlier. (In other words the value of domestic currency will decline).
- If a basket of goods cost Rs470 in India and \$10 in US then it is quite natural that the exchange rate should be Rs47/\$1
- PPP theory can be expressed by the formula:

$$PPP_r = \frac{\text{Spot rate} (1+rh)}{(1+rf)}$$

where rh is inflation rate at home; rf is the inflation rate of foreign country

Weakness of PPP theory :

It is not only inflation, which affects foreign currency movements.

PPP ignores substitution effects – i.e. instead of importing goods might be substituted.

C. Balance of payments position :

- The BOP position has a big impact on the value of a nation's currency.
- A big or consistent deficit would mount a pressure on the currency of a nation as deficits require payments in foreign currency.
- In the case of a fixed currency rate scenario – the local currency would be devalued thereby making imports costlier and exports cheaper.
- However in the free rate scenario a big or consistent deficit would be a forewarning for depreciation of a nation's currency

D. Government intervention :

At times the government would intervene by purchasing or selling foreign exchange to control pressures on the nation's currency.

F. Market expectation :

Market expectation as regards interest rates, inflation, taxes, BOP positions etc would affect the foreign exchange rates.

G. Overseas investment :

Overseas Investment flows have an impact of foreign exchange rate. E.g. if US investments in India increases there would be dollar inflows putting downward pressure on dollar in India.

H. Speculation :

Speculators including treasury managers of banks, by virtue of their buying and selling, tend to influence the rates.

I. International Fisher Effect (IFE)

IFE uses interest rate rather than inflation rate differentials to explain why exchange rate change over time, but it is closely related to Purchasing Power Parity theory because interest rates are often highly co-related with inflation rates.

According to IFE “nominal risk free interest rate contain a real rate of return and anticipated inflation”. This mean if investors of all countries required the same real rate of return, interest rate differentials between countries may be the result of differentials in expected inflation

What do you mean by Direct and Indirect quotes :**Direct quotes:**

- Number of units of the domestic currency per unit of foreign currency
- E.g. 1\$ = Rs 49.50 is a dollar direct quote of an Indian rupee in India. However the same quote when quoted in US is not a direct quote for an American.

Indirect quotes:

- Number of units of a foreign currency per fixed number of domestic currency;
- E.g. Rs 100 = \$0.2245

What is Two way quotes**Bid price and offer price**

- Bid is the price at which a dealer is willing to buy another currency and offer is the rate at which he is willing to sell the currency.
- E.g. a quote of Rs /\$ is Rs42,50 / 42.55 it means that the dealer will buy \$ at Rs 42.50 and sell dollar at 42.55

Spreads

- Spread is the difference between the bid rate and the offer rate and usually represents the profit margins that a dealer expects to make.

What is meant by Cross currency rates

- In India all buy and sell transactions are routed through the US \$.
- Hence all deals involving any other currency would necessarily involve converting in US\$ and then converting the US\$ into INR.
- Thus if an Indian importer wishes to buy Yen he would first have to sell rupees and buy dollar; then he would sell dollar and buy yen.
- The banker would obtain the Yen / \$ rate from Singapore or Tokyo and then apply the Rs /\$ rate to determine the amount of rupees required to buy the desired Yen.

Spot rate, Forward rate, cash rate and Tom rate :

1. Spot rate : Rate quoted for transactions that will settled two business days from the transaction date (T+2)
2. Forward rate : Rate quoted for transactions that will be settled beyond two business days at a mutually agreed rate and date.
3. Cash rate : Rate quoted for transactions that will settled on the same day (T+0)
4. Tom rate : Rate quoted for transactions that will be settled in one business day form the date of transaction (T+1)

What is Appreciation and depreciation of currency :**(A) Appreciation:**

- A currency is said to have appreciated if it is able to purchase more of the other currency.
- E.g. if Rs / \$ is 1\$ = Rs45 and it changes to 1\$ = Rs46 then dollar is said to have appreciated.

(B) Depreciation :

- A currency is said to have depreciated if it is able to purchase less of the other currency.
- E.g. if Rs / \$ is 1\$ = Rs45 and it changes to 1\$ = Rs44 then dollar is said to have depreciated and rupee appreciated.

What do mean by Premium and discount :**• Premium :**

- A currency is said to be at a premium if it is more expensive in the forward than in the spot
- If Rs / \$ spot is 44.95/45.00 and 3 month forward is 45.20/45.25 we say that dollar is at a premium

• Discount

- A currency is said to be at a discount when it is quoting higher in the spot and cheaper in the forward.

Briefly describe Arbitrage and the kinds of arbitrage operations

Arbitrage means buying in one market & selling in another to take advantage of price differential. For example a customer can make profits by purchase of dollars in one market where it is available at a cheaper rate and sell the dollars in another market (directly or through other currencies) at a higher rate. There are three types of arbitrages that are dominant in the market :

1. Geographical arbitrage : Buying currency in say London market & selling it in say Tokyo
2. Triangular arbitrage : Involves three currencies and three markets (also known as three point arbitrage)
3. Spot - forward Arbitrage (also known as Interest rate arbitrage) If the spot rate + interest is greater or less than the forward rate there exists an arbitrage potential.

What are the various foreign currency accounts maintained by Banks :**1. Nostro Account :**

Nostro means "our account with you"

Nostro account is the account maintained by the Bank in India with the bank abroad.

E.g. PNB may maintain a bank account with Citibank, New York. Such account would obviously be in dollars. All foreign exchange transactions routed through Nostro Accounts. The concept of Nostro Account and Exchange Position is explained in details towards the end of the notes.

2. Vostro Account :

Vostro means "your account with us".

E.g. Citibank New York may maintain a Rupee account with SBI

3. Loro Account :

Loro means "their account with you"

E.g. SBI has an account with Citibank New York. When Syndicate Bank refers to this account in any correspondence with Citibank New York it would refer to it as Loro account.

Nostro Account and Exchange Position Explained.

Nostro Account refers to “Our Account with you”. For example if Bank of Baroda maintains a Dollar Account with CITIBANK (US), Bank of Baroda will refer it to as Nostro A/c : Citibank(US) meaning our account with Citibank. A Nostro A/c is a current account - no interest is earned on the balance kept in the account; but if the account is overdrawn then interest is charged.

The account is prepared in the books of the bank in which the account is maintained. A Nostro a/c is very similar to a passbook maintained by a customer in a bank - Hence actual inflow of foreign currency will be credited to the account and outflow will be debited.

Terms used with reference to Nostro A/c

Telegraphic Transfer (TT) - A mode of immediate transfer of funds (earlier done through telegrams / telex - now done online)

TT issuance / TT Sale / TT remittance: Suppose a customer of Bank of Baroda requires BoB to transfer immediately \$100,000 to his associate in US. He will pay the Rupee equivalent to BoB (India) and BoB will instruct CITIBANK (US) to hand out \$100,000 to the associate. In such a case CITIBANK (US) after handing out \$100,000 will debit the Nostro A/c

TT payment / TT Purchase: Mr. Rastogi (a US citizen) remits \$10,000 to his brother Ram in India. Ram will approach BoB which will hand out the Rupee equivalent of \$10,000. BoB in turn will receive \$10,000 from Mr Rastogi's banker. Hence in this case \$10,000 will be credited to the Nostro A/c

DD Payment / Encashment of DD/ DD Purchase: Desi Indian Ltd receives a DD of \$5000 issued in its favour from Washington. Desi Indian Ltd will approach BoB to encash the DD - BoB will hand over the Rupee Equivalent of \$5,000 and in turn will encash the DD of \$5000. Hence the Nostro A/c will be credited.

DD issuance: Mr Bharat of New Delhi approaches BoB to get a DD issued for \$1000 in favour of a supplier payable at Boston (USA). The Bank charges Rs.68000 and issues the DD. This transaction won't be entered in the Nostro A/c on the date of issuance of DD. It will be entered on the day the amount of DD is paid. On that day the Nostro A/c will be debited with \$1000

Forward Contracts: These are not entered into Nostro A/c on the day of the contract - these are entered on the day they are executed.

Bill of Exchange Purchased: These are not entered on the day of purchase - these are entered on the day of realisation

What is LIBOR and what is its Significance in International transactions:

- a. LIBOR stands for London Interbank Offered Rate.
- b. It is the base rate of interest rate with respect to which most international financial transactions are priced.
- c. It is used as the base rate for a large number of financial products such as borrowings, lendings, swaps etc.
- d. Banks and Financial institutions often use LIBOR as the base rate when setting or deciding interest rate of loans, savings, mortgages etc.

- e. It is the average of quotes taken from 15 to 18 banks on 5 currencies (GBP, USD, JPY, Euro, CHF) and across 7 maturities (1 day, 1 week, 1 month, 2 month, 3 month, 6 month and 12 months)

What is capital account convertibility and what are its basic objectives

Capital account convertibility (CAC) means the freedom to convert local financial assets into foreign financial assets and vice versa at market determined rates of exchange. This implies that Capital Account Convertibility allows anyone to freely move from local currency into foreign currency and back.

Objectives of capital account convertibility

- To deepen and integrate financial markets
- Increased access to global savings
- Discipline domestic policy makers
- Allow greater freedom to individual decision-making
- Facilitate resident Indians to invest their surplus outside the country
- Move capital from one country to another without hindrances

RISK MANAGEMENT - THEORY**What do you mean by Foreign exchange risk**

Foreign exchange Risk (also known as FX Risk) is a financial risk that exists when a financial transaction is denominated in a currency other than the home currency.

The risk is that there may be an adverse movement in the exchange rate of the denomination currency in relation to the home currency before the date when the transaction is completed.

Investors and business exporting or importing goods and services or making foreign investments have an exchange rate risk which have severe financial consequences.

What are the Foreign exchange risk affecting Profit and loss account

- i. Imports of raw materials
- ii. Export of goods
- iii. Sundry remittances for royalty
- iv. Interest payment on outstanding FX loan
- v. Translation of financial statements of offshore entities
- vi. Depreciation on fixed assets financed through FX loans

What are the Foreign exchange risk affecting the Balance sheet

Imports of fixed assets through foreign exchange loan

Approvals of foreign exchange (loans pending draw down)

Recognition of exchange rate risk (when should the risk be recognized)

- i. At the time of budgeting
- ii. At the time of raising import orders
- iii. At the time of receiving export orders
- iv. At the time of approvals of foreign exchange loan
- v. At the time of shipment of goods / drawdown of loan
- vi. On the due date of payment

What are the different types of foreign exchange exposure**Transaction exposure**

- i. Occurs when a change in foreign exchange rate occurs between the time a transaction is executed and the time it is settled
- ii. Thus this risk occurs whenever the cash flow is affected in a particular transaction

Translation exposure

Occurs when the assets and liabilities which are denominated in one currency are translated into another currency for inclusion in financial statement

Economic Exposure

This is the risk of a change in the foreign exchange rate due to change in the economic condition of one country

Write a brief note Foreign exchange risk management (FERM)

- i. Also known as exposure management.
- ii. Copes with the possibility of incurring a loss on account of a open or an unhedged position in foreign exchange.
- iii. Especially important where
 - a. a large proportion of a corporate earnings / expenses are in foreign exchange; or
 - b. where any fluctuation in the FX has the potential to disturb the corporate ability to execute a strategic plan

What are the Fundamental hedging principles to be kept in mind

- i. Hedging must be done centrally to avoid duplication.
- ii. All currency exposures need to be included in the hedging programs.
- iii. A portfolio approach is required to take the net effect of exposures into account.
- iv. Before hedging the exposure using financial market products, the possibilities of exploiting built in hedge strategies need to be explored.

Briefly list the various Exchange rate risk management techniques

- i. Forward contract
- ii. Currency options
- iii. Range forwards
- iv. Money Market Hedge
- v. Currency swaps
- vi. Currency futures.
- vii. Matching receipts and payments
- viii. Leads and lags
- ix. Netting
- x. Arbitrage operations

Briefly list down the various techniques for managing Interest rate risks

- i. Forward interest rate agreements
- ii. Interest rate swaps
- iii. Interest rate caps
- iv. Interest rate floors
- v. Interest rate collars

What are Forward contracts

- i. An immediate firm and binding agreement between bank and customer to buy or sell an agreed amount of currency at a date of exchange and at a rate fixed at the time the contract is made.
- ii. The time frame can vary from a few days to many years.
- iii. Forwards (unlike futures) are not traded on the exchange.
- iv. Hence the only way to exit a forward contract is to cancel the forward cover.
- v. The decision to hedge would depend upon the cost of hedging (forward premia) and also the expected movement in the foreign exchange rates.
- vi. A forward contract locks on to a particular exchange rate thereby insulating from exchange rate fluctuation.
- vii. In India forward contracts are available for period's up to 12 months.

- viii. Forward premia are determined by demand and supply.
- ix. Internationally the forward premia or discounts reflect the prevailing interest rate differentials and as such arbitrage opportunities are limited.
- x. As a rule a currency with a higher interest rate trades at a discount to a currency with lower interest rates.

How do you Close out of forward contracts

When the customer cannot perform the forward exchange contract the bank will close out the contract in one of the following manner:

If the customer was to sell foreign exchange forward (Exporter)

The bank will sell foreign exchange spot and buy it forward from the customer

If the customer was to buy foreign exchange forward (Importer)

The bank will sell foreign exchange forward and buy back the same at spot rate

What are the Advantages / disadvantages of forward cover

Forward cover provides insurance to the taker and thereby acts as a hedge.

However by taking a forward cover one cannot take advantage of upswings or favorable movements in foreign exchange rates.

Currency futures

- i. Closely related to currency forwards.
- ii. Popularly known as futures contracts
- iii. A standardized agreement to buy or sell a pre specified amount of foreign exchange in the futures market at some specified future date.
- iv. Available for most hard currencies of the world say Yen, DM, £ sterling, \$.
- v. Futures being standardized are dealt on an organized exchange.

Difference between forward contracts and futures contract

(Important Theory question)

Criteria	Forward contracts	Futures contracts
Nature and size of contract	Size and maturity not standardized	Size and maturity are standardized
Mode of trading	Directly between the client and the bank	Through the clearing house
Liquidity	Relatively low liquidity	High liquidity due to standardization
Deposits / Margins	Deposits / margins not required. Not marked to market	Requires guarantee deposits / margins. Marked to market every day
Default risk	Very High	Relatively less due to mark to market procedures
Actual delivery	Closure involves actual delivery of currencies	Position are reversed to close the deal

What are Currency options

It is a financial instrument that provides the holder a right but not an obligation to buy or sell pre-specified amount of currency at a predetermined rate on a specified date.

What are the different types of currency options

Call options

- i. The right to buy a particular currency at a specified rate on a particular date. or within a specified period.
- ii. Such an option will be exercised only if the rate of the currency on the exercise date is higher than the option strike price

Put options

- i. The right to sell a particular currency at a specified rate on a particular date. or within a specified period.
- ii. Such an option will be exercised only if the rate of the currency on the exercise date is lower than the option strike price

Briefly describe the features of options trading

- i. Hedges foreign exchange exposures while at the same time gives the opportunity to take advantages of favourable upswings.
- ii. The cost of currency option is limited to the option premia.
- iii. However the seller of the option runs an unlimited risk as against the risk run by the buyer which is limited to the option premia paid.
- iv. In view of the high unlimited risk of the seller options are mainly dealt in the hard currencies and are traded on the OTC.

What are Currency swaps

- i. A legal agreement between two parties to exchange the principal and interest rate obligation or receipts in different currencies.
- ii. A currency swap is an agreement to exchange fixed or floating rate payments in one currency for fixed or floating payments in a second currency plus an exchange of the principal currency amount.
- iii. Allows the customer to re-denominate a loan from one currency to another.
- iv. Re-denomination done to reduce borrowing costs and also to hedge against a perceived foreign exchange fluctuation.
- v. Currency swaps enables corporate to exploit their comparative advantage in raising funds in one currency to obtain savings in other currencies.
- vi. A company has no longer got to live with a bad decision – if it feels that it has erred in the choice of currency it can always swap it.

What is meant by Money Market Hedge (MMH)

A money market hedge involves simultaneous borrowing and lending activities in two different currencies to lock in the home currency value of a future foreign currency cash flow. The simultaneous borrowing and lending activities enable a company to create a home made forward contract.

How to create a MMH in case we have a export receivable in \$ (say):

- a. Since we have a receivable in \$ (an asset) to create a MMH we need to create a liability in \$ - i.e. we need to borrow in \$.
- b. The amount to be borrowed in \$ will be the Present value of the \$ receivable amount (@ borrowing rate).
- c. The amount borrowed in \$ will then be converted in home currency using spot rate and invested at the deposit rates of the home currency.
- d. The export receivable realised will then be used to repay the borrowings.

How to create a MMH in case we have a import payable in \$ (say)

- a. Since we have a import payable (i.e liability) to create a MMH we need to create an asset (i.e Invest) in \$.
- b. The amount to be invested in \$ will be the amount equal to present value of the Payable (@ deposit rate of \$).
- c. The requisite amount of \$ required for making the investment will be purchased at spot rates and the domestic currency outlay so required (to purchase the \$) will be borrowed at borrowing rate of domestic currency.
- d. On the maturity date, the deposit maturity amount will be used to settle the import payable obligation.

What are the Internal measures for Reducing foreign exchange risks – [Important Theory Question]

- A. Matching receipts and payments : Foreign exchange risk can be eliminated if the company has the same currency exposure for receipts as well as payments.
- B. Invoicing or billing in the desired currency : One way to reduce the risks associated with FX is to raise the invoice in the home currency. However it may be impractical to adopt this system to international transaction unless the product of the company has got such a demand that its terms and conditions will be accepted by parties all over the world.
- C. Leads and lags (leading and lagging): Sound financial management practices require that assets should be in strong currency while liability should be maintained in weak currency.

Leading and lagging refers to the technique of adjusting the timing of receipts and payments.

Leading: It is a process to collect the receivables from foreign debtors before they are due (if the home currency is expected to strengthen) and to pay the foreign currency creditors before their due date (if home currency is expected to depreciate)

Lagging: Lagging refers to delay the collection of receivables from foreign debtors (if the home currency is expected to weaken) and also to delay payment to creditors after their due date (if home currency is expected to appreciate)

D Netting and its Advantages

- i. Very often we find MNCs have mutual trading amongst themselves.
- ii. Foreign exchange risk exposure of such companies can be substantially reduced if the FX receivables and payables are settled on a net basis rather than making two way flow of moneys.
- iii. To do netting it is important that the dates of settlement and the currency of settlement should be common.

Advantages of Netting:

- a. Reduces the number of cross border transactions between group entities thereby decreasing the overall administration costs of such
- b. Reduces the need for foreign exchange conversion and hence decreases transaction costs associated with foreign exchange conversion.
- c. Improves cash flow forecasting since net cash transfers are made at the end of each period.

G. Indexation clauses

- i. This is yet another way to hedge against foreign exchange fluctuation.
- ii. The agreement of export or import includes an indexation clause which says that the contract price to be adjusted for any adverse movement in foreign exchange rate.
- iii. Obviously such clause can be inserted depending upon the bargaining strength of the parties.
- iv. Any clause which stipulates that the entire loss arising out of adverse movement in foreign exchange to be borne by one party will be perceived to be very harsh and is rarely adopted.
- v. Normally a milder version, which says that any fluctuation beyond a certain threshold limit will be borne by one party.

H. Sharing risks This is a diluted form of indexation clause whereby both the parties to the contract agree to share the risks arising out of adverse movement in some predetermined ratio / manner.**I. Shifting the manufacturing base**

- i. This technique is normally useful for MNCs who have the ability to set up manufacturing bases across the globe and have sale around the world.
- ii. In case the MNC has its production base in one country while the sales are predominantly in another country, the company may find it advantageous to shift the manufacturing base to the country of sale in order to avoid risks associated with foreign exchange fluctuations.

Briefly describe the various Mechanisms for Managing Interest rate risks**A. Forward Interest rate agreement (FRA)**

FRA is a financial contract (for a specified period from the start date to the maturity date) between two parties to exchange interest payments for a notional principal amount on the settlement date.

B. Interest rate swaps (IRS)

IRS is a financial contract between two parties to exchange a stream of payments for a notional principal amount on multiple occasions during a specified period.

Accordingly on each payment date that occurs during the swap period cash payments are made by one party to another.

C. Interest rate caps (option)

An interest rate cap is a contract that enables borrowers with floating rate debt to limit or "cap" their exposure to rising interest rates.

Under this contract, the cap buyer is reimbursed for the amount by which the floating rate index exceeds a certain threshold.

An interest rate cap can be structured to protect customers from increases in a variety of floating rate indices, including LIBOR, commercial paper, prime and U.S. Treasury rates.

Typically, the buyer makes an up-front payment to purchase the cap. In general, the longer the term of the cap and the more protection offered by the cap, the more expensive the cap will be.

D. Interest rate floors:

It is a contract that enables lenders who have lent money at floating rates to limit their exposure to downward movement of interest rates. Under this contract, the floor buyer is reimbursed for the amount by which the floating rate falls short of the floor level.

E. Interest rate collars

An Interest rate collar can be created by a entity (which has purchased a cap) by selling a floor. The buyer of the cap needs to pay premium for the cap purchased. The amount of premium outflow on the cap purchased can be reduced by selling a floor and receiving a premium. By doing so the buyer of the cap sacrifices some of the gains that he can make on a downward interest move - and by sacrificing this amount he saves on the premium.

PROBLEMS

Changing of Quotes

Q.1 Find the Re / \$ quote from the given set of quote

- a. \$ / Re = 71.25.
- b. \$ / Re = 71.25 / 71.50

Calculation of Cross Currency Quotes

Q.2 Find the Re / \$ quote from the following set of quotes:

- ₹ / £ = 92.10
- £ / CHF = 0.90
- CHF / ¥ = 0.0090
- ¥ / \$ = s112

Q.3 Find the \$ / £ quote from the following set of quotes

- ¥ / \$ = 112.10 / 15
- ¥ / CHF = 111.60 / 45
- € / CHF = 0.88 / 0.90
- € / £ = 1.20 / 1.21

(Solution : 1.3268 / 1.3793)

Q.4 On December 27, 2017 a customer is Mumbai requested a bank to remit DG 2,50,000 to Holland in payment of import of diamonds under an irrevocable LC. However due to bank strikes, the bank could effect the remittance only on January 3, 2018. The interbank market rates were as follows:

	December 27	January 3
Mumbai	\$ / ₹ 100 = 3.15 / 3.10	3.12 / 3.07
London	\$ / £ = 1.7250 / 60	1.7175 / 85
	DG / £ = 3.9575 / 90	3.9380 / 90

The bank wishes to retain an exchange margin of 0.125%. How much does the customer stand to gain or lose due to the delay.

Q.5 Given the following Swap points / Swap rate calculate the relevant forward rates:

- a. Spot ₹ / \$ = 70.60 / 70.70
3 month swap point 5/10
∴ 3 Month forward rate =
- b. Spot ₹ / \$ = 70.60 / 70.70
3 month swap point 9/4
∴ 3 Month forward rate =
- c. Spot ₹ / \$ = 70.60 / 70.70
3 month swap rate 0.02/0.06
∴ 3 Month forward rate =
- d. Spot ₹ / \$ = 70.60 / 70.70
3 month swap rate 0.08/0.02
∴ 3 Month forward rate =

Geographical Arbitrage

Q.6 Given the following set of quotes from two different markets what will be the arbitrage action and the profits:

Mumbai • / \$ = 71.25 / 71.50

New York ₹ / \$ = 71.10 / 71.15

What will your answer be if the quotes were as under:

Mumbai • / \$ = 71.25 / 71.50

New York ₹ / \$ = 71.15 / 71.20

Interest Rate Arbitrage

Q.7 Given the following information:

Exchange rate

Canadian \$ 0.665 per DM (Spot)

3 Month forward

Canadian \$ 0.670 per DM

Interest rates

DM: 7% p.a

Canadian \$: 9% p.a

What operations would be carried out to take the possible arbitrage gains?

Premiums & Discounts (Appreciation / Depreciation of Currencies)

Q.8 The following table shows interest rates for the US \$ and French Francs (FF). The spot exchange rate is 7.05 FF per US \$. Complete the following entries:

	3 months	6 months	1 year
Dollar interest rate (p.a)	11.5%	12.25%	?
FF Interest rate (p.a)	19.5%	?	20%
Forward FF per \$?	?	7.52
Forward Discount per FF p.a	?	-6.35%	?

Q.9 Fleur Du Lac, a French Company, has shipped goods to an American importer under a letter of credit arrangement, which calls for payment at the end of 90 days. The invoice is for \$ 1,24,000. Presently the exchange rate is 5.70 FF to the \$. If the French Franc were to strengthen by 5% by the end of 90 days, what would be the transaction gain or loss in French Francs? If it were to weaken by 5% what would happen ?

Q.10 Exporters company, a UK company, is due to receive 5,00,000 Northland dollars (N\$) in 6 months' time for goods supplied. The company decides to hedge its currency exposure by using the forward market. The short term interest rate in the UK is 12% p.a and the equivalent rate in Northland is 15%. The spot rate of exchange is 2.5 N\$ to the £ .

You are required:

- i. To calculate how much Exporters Company actually gains or loses as a result of the hedging transaction if at the end of 6 months the £ in relation to the N\$ had (i) gained 4% (ii) lost 2% or (iii) remained stable.
- ii. You may assume that the forward rate of exchange simply reflects the interest differential in the two countries.

Q.11 A company operating a country having the dollar as its unit of currency has today invoiced sales to an Indian company, the payment being due 3 months from the date of invoice. The invoice amount is \$ 13750 and at today's spot rate of \$ 0.0275 per ₹ 1 is equivalent to ₹. 5,00,000.

It is anticipated that the exchange rate will decline by 5% over the 3 month period and in order to protect the \$ proceeds, the importer proposes to take appropriate action through foreign exchange market.

The 3 month forward rate is quoted as \$ 0.0273 per ₹ 1.

You are required to calculate the expected loss and to show how it can be hedged by forward contract.

Money Market Hedge / Leading and Lagging

Q.12 EXAMPLE ON MONEY MARKET HEDGE

EXAMPLE (A)

Payable of \$ 10,00,000 due in 6 months' time.

Spot Rate : 1\$ = 70.00/72.00

Deposit and borrowing rates are as under

	India		USA	
	Deposit rate	Borrowing rate	Deposit rate	Borrowing rate
3 months	8%	10%	3%	5%

Show how Foreign exchange risk can be hedged through a money market hedge.

EXAMPLE (B)

Receivable of \$ 5,00,000 due in 6 months' time.

Spot Rate : 1\$ = 72.00/75.00

Deposit and borrowing rates are as under

	India		USA	
	Deposit rate	Borrowing rate	Deposit rate	Borrowing rate
3 months	6%	8%	2%	4%

Show how Foreign exchange risk can be hedged through a money market hedge.

Q.13 The finance director of P Ltd has been studying exchange rates and interest rates relevant to India and USA. P Ltd has purchased goods from the US C at a cost of \$ 51 lakhs payable in dollars in 3 months' time. In order to maintain profit margins, the finance director wishes to adopt, if possible, a risk free strategy that will ensure that the cost of the goods to P Ltd is no more than ₹ 22 crores.

Exchange rates (₹ / \$: Spot : 40-42) and 3 Months forward : ₹ / \$ = 42-45

Interest rates available to P Ltd are as under:

	India		USA	
	Deposit rate	Borrowing rate	Deposit rate	Borrowing rate
3 months	13%	16%	8%	11%

Calculate whether it is possible for P Ltd to achieve a cost directly associated with this transaction of no more than ₹ 22 crores by means of a forward market hedge, market hedge or leading which is available @ 3%

Q.13 A X Ltd is supposed to make payment of \$ 1,00,000 today when the spot rate is ₹ 40-42. One month forward is available at \$ 1 = ₹ 39-41 and the penal interest for late payment would at 12% p.a. Company's cost of capital is 15%. You are required to advise the client whether to go for lagging or to make the payment right away

Q.14 Star trek Ltd is an Indian company. It has subsidiaries in US, UK and Singapore, named X, Y and Z respectively. The intercompany owing's are as follows:

Debtor	Creditor	Amount due
X	Y	£ 1,00,000
X	Z	SG \$ 30,000
Y	X	\$ 70,000
Y	Z	SG \$ 25,000
Z	X	\$ 65,000

The relevant exchange rates are as follows:

\$ 1	=	₹. 46.15
£ 1	=	₹. 83.80
SG \$ 1	=	₹. 27.70

If Startrek wants to do multilateral netting, ascertain the net payment for settlement to be made mutually by the subsidiaries

Nostro A/c & Vostro A/c

Q.15 You as a dealer have the following position in Swiss francs (CHF) on October 31st:

Balance in Nostro A/c (Cr)	1,00,000
Opening Position (Overbought)	50,000
Purchased a Bill on Zurich	80,000
Sold TT Forward	60,000
Forward Purchase Contract cancelled	30,000
Remitted by Telegraphic Transfer	75,000
Draft on Zurich Cancelled	30,000

What steps you would take if you required to maintain a credit balance of Swiss francs 30,000 in the Nostro Account and keep an overbought position of Swiss 10,000.

Suppliers Credit

Q.16 Alert Ltd is planning to import a multi-purpose machine from Japan at a cost of ¥ 3400 lakhs. The company can avail loans at 18% p.a with quarterly rests with which it can import the machine. However, there is an offer from Tokyo based branch of an Indian Bank extending credit of 180 days at 2% p.a against opening of an irrevocable letter of credit.

Other information:

Present exchange rate	₹ 100 = ¥ 340
180 days forward rate	₹ 100 = ¥ 345

Commission charges for letter of credit at 2% for 12 months.

Advise whether the offer from the foreign branch should be accepted.

Q.17 Z Ltd importing goods worth \$ 2 million requires 90 days to make the payment. The overseas supplier has offered a 60 days interest free credit period and for additional credit for 30 days an interest of 8% per annum. The Bankers of Z Ltd offer 30 days loan at 10% per annum and their quote for foreign exchange is as follows:

Spot	1 \$ = ₹ 56.50
60 days forward	1 \$ = ₹ 57.10
90 days forward	1 \$ = ₹ 57.50

You are required to evaluate the following options:

- Pay the supplier in 60 days; or
- Avail the suppliers offer of payment after 90 days.

Hedge Using Futures

Q.18 P Inc is a company operating in the USA which imports goods from Q Plc in the UK. P Inc is due to pay £ 6,50,000 to Q Plc on 20th February 2017. It is now 12th November 2016. The following futures contracts (contract size £ 62500 are available on the Philadelphia exchange:

<u>Expiry</u>	<u>Current futures rate</u>
December	1.4900 \$ / £
March	1.4960 \$ / £

Illustrate how P Inc can use future contracts to reduce the transaction risk if on 20th February the spot rate is 1.5030 \$ / £ and March Futures are trading at 1.5120 \$ / £. The spot rate on 12th November is 1.4850 \$ / £

Q.19 XYZ Ltd is an export oriented business house based in Mumbai. The company invoices in customers' currency. Its receipt of \$ 1,00,000 is due on 1st September 2017. Market information as on June 1, 2017

Exchange Rates		Currency Futures	
\$ / ₹		\$ / ₹	
Spot :	0.02140	Contract size	₹ 472000
1 Month forward	0.02136	June	0.02126
3 Month forward	0.02127	September	0.02118

Future Month	Initial Margins	Interest rate in India
June	₹ 10,000	7.50%
September	₹ 15,000	8.00%

On September 1, 2017 the spot rate \$ / ₹ is 0.02133 and currency future rate is 0.02134. Comment which of the following methods would be most advantageous to XYZ Ltd:

- Using Forward contracts
- Using Currency Futures
- Not hedging currency risks

Cancellation Extension of Forward contracts

Cancellation on's Due Date

Q.20 On 15th January 2017 you as a banker booked a forward contract for \$ 2,50,000 for your import customer deliverable on 15th March 2017 at • 65.3450. On due date customer requests you to cancel the contract. On this date quotation for \$ in the interbank market is as follows:

Spot	1 \$ = 65.2900 / 2975
Spot / April	3000 / 3100
Spot / May	6000 / 6100

Assuming that the flat charges for the cancellation is ₹ 100 and exchange margin is 0.10%, then determine the cancellation charges payable by the customer.

Cancellation before due date

Q.21 You as a banker has entered into a 3 months forward contract with your customer to purchase AUD 1,00,000 at the rate of • 47.2500. However after 2 months your customer comes to you and request cancellation of the contract. On that date quotation for AUD in the market is as follows:

Spot	1 AUD = ₹ 47.3000 / 3500
1 month forward	1 AUD = ₹ 47.4500 / 5200

Determine the cancellation charges payable by the customer

