Chapter-4

Foreign Exchange Risk Management

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Chapter 4
FOREIGN EXCHANGE RISK MANAGEMENT

INTRODUCTION

Had the world been a global village and had there been a single currency in the world, there would have been no need for foreign exchange. But practically the world is divided into various countries and each and every country has its own set of rules & regulations and has got its own currency.

Now the problem arises when the residents of two different countries enter into any type of business transactions (called international trade). In these transactions each country functions as a sovereign (supreme) state with its own set of rules & regulations & currency.

For example an American exporter exports some goods to an Indian importer. Now American exporter would like to receive payment in US Dollar only because Indian Rupee cannot be used as currency in USA. On the other hand Indian importer has his savings & borrowings in Indian rupee only hence he cannot make payment in US dollars. Hence there arises a need of conversion of importer's currency into exporter's currency. And this is done through FOREIGN EXCHANGE.

Foreign exchange: is the mechanism by which the currency of one country gets converted into the currency of another country.

Exchange rate is the rate at which one currency is converted into another currency. For example if 1 US dollar can be exchanged for 61 Indian Rupees then it is said that exchange rate is :

$1 = ` Rs. 61

(Note: *in practice home currency is written on the LHS. But we will not strictly follow this rule in further discussion.)*

WHO DETERMINES THE EXCHANGE RATE?

Suppose you want to purchase 1 US Dollar, for that you will have to pay 45 Indian Rupees. Why is it so ? Why not $1 = `1 ? or how come the rate of Exchange of $1 = ` 45 ? The rate of exchange is decided by the fiat (i.e. Government) in a fixed rate regime and by demand and supply for the two currencies in the foreign exchange market in a floating rate regime. Now the demand and supply is the outcome of the combined effect of multiple factors constantly at play. Some of the major factors are as follows:

1) **Balance of payments**: Balance of payments represents the demand for and supply of foreign currencies. If the demand for foreign currency is more than its supply then the domestic currency will depreciate and the foreign currency will appreciate. It means more units of domestic currency will have to be paid for the purpose of purchase of single unit of foreign currency.

2) **Inflation**: If inflation in the country is more than foreign country then purchasing power of domestic currency will reduce as compared to foreign currency. Means one has to pay

more units of domestic currency to purchase same basket of goods as compared to foreign currency. Hence home currency will depreciate.

3) **Interest Rates**: If interest rate increases in the country then the domestic investors will not invest in foreign countries. At the same time it will attract foreign investors to invest their money. As a result of this demand for home currency will increase and ultimately home currency will appreciate as compared to foreign currency.

4) **National Income**: Increase in national income means increase in living standards of the residents of the country, means increase in consumption. But if the production doesn't increase in the same proportion that will lead to increased imports. And if imports increases it will depreciate the home currency.

5) **Resource discoveries**: If a country is able to discover key resources, its currency gains in value.

6) **Other Factors:**
   i) Psychological Factors and speculation.
   ii) Investment opportunities available in the country.
   iii) Political factors & political stability etc.

HOW TO EXPRESS THE EXCHANGE RATE?

Exchange rate can be quoted in one of the following two manners :

Direct Quote: When exchange rate is expressed in terms of number of units of home currency for 1 unit of foreign currency, then it is called direct quote.

For example in India $1 = `45 is a direct quote.

Indirect Quote: When exchange rate is expressed in terms of number of units of foreign currency for 1 unit of home currency, then it is called indirect quote.

For example in India `1 = $ 0.0200 is an Indirect quote.

Indirect Quote = 1 / Direct Quote

Question 1

You are wondering where to look for latest exchange rate. Google search directly gives you exchange rate and you need not to click any other link after a search. Your friend suggested you to explore xe.com where you can find many other useful information about the currencies and exchange rate. There you found the exchange rate of £1 =$1.61. Is it a direct quote in USA? Is it s direct quote in UK? Is it a direct quote in India?

Question 2

Identify whether the following quotes offered by a Standard Chartered bank, are direct or indirect quotes:

Rate	Quoted in
$1 = ` 67	India
$1 = ` 67	USA
£1 = ` 77	United Kingdom
€1 = ` 66	India

¥ 1 = `6.40	Japan

Question 3

The following spot rates are observed in the foreign currency market:

CURRENCY FOREIGN CURRENCY PER U.S. $	
Britain pound	00.62
Netherlands Guilder	01.90
Italy Lira	1300.00
Japan Yen	140.00

On the basis of information, compute to the nearest second decimal number of

1. British pounds that can be acquired for $100
2. $ that 50 Dutch guilders will buy
3. Italian Lira that can be acquired for $10
4. Dollars that 1000 Japanese yen will buy.

WHAT ARE THE VARIOUS TYPES OF EXCHANGE RATES?

Foreign exchange rates are freely determined in the interbank market. Market comprises of buyers & sellers and accordingly there are two types of **interbank rates**:

Bid: It is the price at which the dealer is ready to buy foreign currency.
Ask (Offer): It is the price at which the dealer is ready to sell foreign currency.

Note:

1) As per FEDAI rules interbank bid and ask rates are quoted upto four decimal points, last two digits in multiple of 25. For example $1 = `45.3650.
2) Ask is always higher than Bid and difference between the two is called Bid-Ask spread.
3) Traditionally bid is written on the left hand side while ask is written on the right hand side. For example: $1 = `43.1225 – 43.1375 (Bid-Ask) or $1 = `43.6550/6750 (Bid/Ask).

Question 4

Bank of Rajasthan (an authorized dealer) approaches the dealing room of RBI today. Presently the interbank market quote is $1 = `43.2525/5050. Interpret the quote and given answer to the following questions:

1) To purchase $5000 for its import customer, how much rupees it needs?
2) To get `5,00,000, how many dollars are required?
3) If it sells $12,500 earned by its export customer, what amount will it receive?

Question 5

Consider the following Euro/USD quote: 0.9345 – 0.9375

(a) What is the cost of buying Euro 1,25,000 ?
(b) How much would you receive by selling 49,300 Euro?
(c) What is the cost of buying USD 78,500 ? (d) What is your receipt if you sell USD 63,400 ?

(Ans.: (a) $133761 (b) $52587 (c) € 73,594 (d) € 59247)

Question 6

If the current exchange rate is £1 = $ 1.6155/1.6215, calculate the amount recoverable/payable in the following cases:

(a) You sell £1,15,000, (b) You buy £1,15,000, (c) You sell $1,15,000, (d) You buy $1,15,000

All the foreign exchange transactions are carried out by authorized dealers (or commercial banks or money changers). Definitely dealers carry out these transaction to earn profit. Therefore they offer the exchange rates to their customers after adjusting (+ or -) profit margin on the interbank rates. These adjusted rates are called **merchant rates**. As per FEDAI rules merchant rate are quoted either upto 4 decimal points or upto 2 decimal points rounded off. Practically these are quoted upto two decimal points rounded off.

Merchant rate are calculated as follows:

1) Merchant bid rate = Interbank bid rate – Margin
2) Merchant ask rate = Interbank ask rate + Margin
3) As per FEDAI rules different margins are loaded for different types of rates but the margin remain in the range of (0.025% to 0.200%).

Question 7

Calculate the merchant rates given the following interbank rates & margins:

1) GBP 1 = `66.3250/4525
   T.T. selling rate margin 0.130 %
   T.T. buying rate margin 0.030 %

2) USD 1 = `44.4400/5100
   T.T. selling rate margin 0.150 %
   T.T. buying rate margin 0.080 %

WHAT ARE THE VARIOUS TYPES OF MERCHANT RATES?

Different merchant rates are used for different types of transactions, e.g., Telegraphic transfer, bill buying, bill selling, travelers' cheques, currency buying/selling etc. Following are exchange rates published in the Economic Times:

EXCHANGE RATES **SOURCE : AXIS BANK**

Currency	TT Buy	Bill Buy	TT Sell	Bill Sell	TC Buy	CCY Buy	TC Sell	CCY Sell
Australian Dollar	48.3000	48.2000	48.9200	49.0200	47.8500	47.5500	49.3700	49.6700
British Pound	76.0300	75.8800	77.4500	77.6000	75.3300	75.0300	78.1500	78.4500
Canadian Dollar	47.3200	47.2200	47.9400	48.0400	46.8700	46.5700	48.3900	48.6900
Danish Krone	8.8300	8.7800	9.0500	9.1000	8.6800	8.6300	9.2000	9.2500
Euro	65.9300	65.7800	67.1500	67.3000	65.2300	64.9300	67.8500	68.1500
Hong Kong Dollar	6.1900	6.1400	6.4100	6.4600	6.0400	5.9900	6.5600	6.6100
Japanese Yen (*100)	63.4500	63.3000	64.6700	64.8200	62.7500	62.4500	65.3700	65.6700
New Zealand Dollar	37.8700	37.7900	38.4900	38.5700	37.7200	37.2700	38.6400	39.0900
Singapore Dollar	37.8800	37.8000	38.5000	38.5800	37.7300	37.2800	38.6500	39.1000
Swedish Krona	7.1800	7.1300	7.4000	7.4500	7.0300	6.9800	7.5500	7.6000
Swiss Franc	53.4400	53.3400	54.1600	54.2600	52.9900	52.6900	54.6100	54.9100
UAE Dirham	13.2000	13.1500	13.5200	13.5700	13.0500	13.0000	13.6700	13.7200
US Dollar	48.7600	48.6600	49.3800	49.4800	48.3100	48.0100	49.8300	50.1300

Publication: The Economic Times Mumbai;

Cross currency Rates: Rupee is not quoted in terms of all the other currencies of the world while dollar is. Hence exchange rate of any Non -dollar foreign currency against the Rupee is determined by combination of dollar/rupee and dollar/other currency rates. For Example :

$1 = ` 45

$1 = DM 1.60

hence DM 1 = ` 28.125

Publication: The Economic Times Mumbai;

CROSS CURRENCY RATES

Currency	INR	USD	AUD	GBP	CAD	JPY	SGD	CHF	AED	EUR
Australia	48.6654	0.9937	-	0.6350	1.0220	76.2330	1.2710	0.9040	3.6500	0.7312
Britain	76.6398	1.5649	1.5749	-	1.6096	120.0570	2.0016	1.4236	5.7479	1.1515
Canada	47.6176	0.9723	0.9784	0.6213	-	74.5920	1.2436	0.8845	3.5713	0.7154
Euroland	66.5574	1.3590	1.3676	0.8684	1.3977	104.2600	1.7381	1.2362	4.9918	-
India	-	0.0204	0.0205	0.0130	0.0210	1.5670	0.0261	0.0186	0.0750	0.0150
Japan (100 units)	63.8400	1.3035	131.1800	83.3000	134.0700	-	166.7200	118.5900	4.7900	95.9150
Singapore	38.2911	0.7818	0.7868	0.4996	0.8041	59.9800	-	0.7112	2.8717	0.5753
Switzerland	53.8310	1.0993	1.1062	0.7024	1.1305	84.3330	1.4060	-	4.0371	0.8089
UAE	13.3345	0.2723	0.2740	0.1740	0.2800	20.8900	0.3482	0.2477	-	0.2003
US	48.9763	-	1.0063	0.6390	1.0285	76.7200	1.2790	0.9097	3.6730	0.7358

Question 8

Calculate the INR-JPY exchange rate from the following data:

1) INR/USD = 41.7900 and JPY/USD = 129.7500
2) INR/USD = 43.0000 and JPY/USD = 144.0000

Question 9

You, a foreign exchange dealer of your bank, are informed that your bank has sold a T. T. on Copenhagen for Danish Kroner 10,00,000 at the rate of Danish Kroner 1 = ` 6. 5150. You are required to cover the transaction either in London or New York market. The rates on that date are as under:

Mumbai - London	` 74.3000	` 74.3200
Mumbai - New York	` 49.2500	` 49.2625
London - Copenhagen	DKK 11.4200	DKK 11.4350
New York - Copenhagen	DKK 07.5670	DKK 07.5840

In which market will you cover the transaction, London or New York, and what will be the exchange profit or loss on the transaction? Ignore brokerages.

(Answer: 6.5079, 6.5102)

Question 10

An Indian shipping company has asked you to quote your spot TT selling rate for a freight remittance of DEM 1,50,000 to Frankfurt. Assuming Deutsche Mark is quoted in Singapore as under :

Spot USD 1 = DEM 1.6275

In interbank market US dollar is quoted as under :

Spot USD 1 = ` 36.2300

What rate will you quote to your customer ?

(Ans.: `22.26)

TWO WAY QUOTES

Question 11

Assuming French Franc were quoted in the London foreign exchange market as under:

Spot USD 1 = FFR 5.0200/0300

and the US dollars were quoted in the local interbank exchange market as under:

Spot USD 1 = ` 64.7900/7975

Exchange margin required by your bank is 0.15%. Calculate the rates of French Franc in terms of INR.

Question 12

From the following quotes of a bank, determine the rate at which Yen can be purchased with rupees.

(i) Rupee/Pd. Stg : 75.40 - 70

(ii) Dollar/Pounds : 1.563 – 65.

(iii) Yen/Dollar: 118 – 119.

(Ans.: `0.41)

Question 13

Edelweiss Bank Ltd. sold Hong Kong dollar 2 crores value spot to its customer at ` 8.025 and covered itself in the London market on the same day, when the exchange rates were
US$ 1 = HK $ 7.5880- 7.5920

Local interbank market rates for US $ were

Spot US $ 1 – ` 60.70-61.00

Calculate the cover rate and ascertain the profit or loss on the transaction. Ignore brokerage.

(Answer: 8.0390, ` 2,80,000)

Question 14

On December 27, 2005 a customer requested a bank to remit DG 250,000 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, 2001. The interbank market rates were as follows:

	December 27	January 3
1) Bombay ($ per `100)	3.15-3.10	3.12-3.07
2) London ($ per Pound)	1.7150/60	1.7175/85
3) Holland (DG per Pound)	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?

Question 15

Your forex dealer had entered into a cross currency deal and had sold US $ 10,00,000 against EURO at US $ 1 = EUR 1.4400 for spot delivery. However, later during the day, the market became volatile and the dealer in compliance with his management's guidelines had to square – up the position when the quotations were:

Spot US $ 1 INR 31.4300/4500
1 month margin 25/20
2 months margin 45/35

Spot US $ 1 EURO 1.4400/4450
1 month forward 1.4425/4490
2 months forward 1.4460/4530

What will be the gain or loss in the transaction in term of US dollars as well as Indian rupees?
(Answer: Loss Euro 5000, Rs. 1,09,201.5)

Question 16

You have following quotes from Bank A and Bank B:

	Bank A	Bank B
SPOT	USD/CHF 1.4650/55	USD/CHF 1.4653/60
3 months	5/10	
6 months	10/15	
SPOT	GBP/USD 1.7645/60	GBP/USD 1.7640/50

3 months	25/20
6 months	35/25

Calculate :

(i) How much minimum CHF amount you have to pay for 1 Million GBP spot?

(ii) Considering the quotes from Bank A only, for GBP/CHF what are the Implied Swap points for Spot over 3 months?

(Ans: (i) First to BUY USD against CHF at the cheaper rate i.e. from Bank A.1 USD = CHF 1.4655
Then to BUY GBP against USD at a cheaper rate i.e. from Bank B.1 GBP= USD 1.7650 (ii) 28/12)

CROSS CURRENCY ARBITRAGE

Question 17

Following are the foreign exchange rates:

$1 = `40.50/40.75

$1 = £ 0.55/ 0.56

£1 = `75/76

Identify the arbitrage opportunity if any from the above quotes.

Question 18

Following are the foreign exchange spot rates:

£1 = $ 1.61/1.62

$1 = ` 61/62

£1 = ` 101/102

Identify the arbitrage opportunity if any from the above quotes.

Question 19

From the following exchange rates, identify that whether there is any arbitrage opportunity or not?

`1 = € 0.0180/0.0182

€ 1 = ¥ 170/175

100 ¥ = `33.50/34.25

1) Identify the arbitrage opportunity if any from the above quotes.
2) What if 100 ¥ = `30/31 or 31/32 or 32/33?

Question 20

Followings are the spot exchange rates quoted at three different forex markets :

USD/INR 48.30 in Mumbai
GBP/INR 77.52 in London
GBP/USD 1.6231 in New York

The arbitrageur has USD1,00,00,000. Assuming that there are no transaction costs, explain whether there is any arbitrage gain possible from the quoted spot exchange rates.
(Answer $112968)

WHAT ARE THE REASONS THAT ENCOURAGES TO INVEST ABROAD?

Here are the some of the reasons which encourages a person to invest abroad:

1) **Reduction of Risk**: Investing abroad or establishing a project in a foreign country is a good tool for diversification of risk, and this is called international diversification.
   If a person already running a project in the country, establishes another type of project in the same country then he can not diversify risk that much effectively. Because that other project is also exposed to same economic cycle of the country. But if a establishes the same project in another country then it will more effectively diversify his risk.
   Hence International diversification is more effective than domestic diversification because economic cycle do not move together.

2) **Increase in Returns**: By investing in foreign countries one can earn more profits. Because there may exist a demand supply gap in that country. Or sometimes cost of production of good is also cheaper in some of the countries, for example Labour is cheap in India.

3) **Tax and other benefits**: In under-developed countries generally taxation is high. However this countries provide very attractive tax and other benefits to foreign organizations to attract the foreign currency investments.

WHAT ARE THE VARIOUS TYPES OF RISKS/EXPOSURES IN INTERNATIONAL TRADE?

When a person enters into an international trade then he is exposed to foreign exchange rate risk. This risk can be classified as follows:

1) **Transaction Risk**: Transaction risk refers to the effect of exchange rate movement associated with the time-gap between the date of the transaction and the date on wich the consideration is settled. These generally occur at operational level.

2) **Translation Risk**: Translation risk is the profit or loss associated with converting foreign currency denominated assets/liabilities (also income and expenses) into reporting currency. It emerges when for the limited purpose of financial reporting, items of income, expenses, assets and liabilities denominated in foreign currency are translated into home currency, i.e., reporting currency. The effect of such translation need not necessarily affect the cash flows of an entity. [Risk under this category, relates to the accounting treatment of changes in exchange rates for reporting purposes and is somewhat technical. It is governed by Accounting Standard 11.

3) **Operating/Economic Risk**: Economic risk is an unanticipated change in exchange rate, which has an impact on the potential of an organization to perform.. Transaction risk generally occurs at the operational level. But, economic risks occur at the strategic or tactical levels. Hence this type of risk cannot be measured in accounting terms. Nevertheless, these risks do affect the "value of a firm". These are changes that are difficult to read but have a bearing on both the existing balance sheet as also its future cash flows.

4) **Political Risk:** Political risk refers to the consequences that political activities in a country may have on the value of a firm's overseas operations.

Question 21

Match the items in Column A, with appropriate items in Column B

Column A	Column B
1. ABC in India, sets up a sugar plant in Mauritius. The local government there introduces controls on sugar price.	Translation
2. XYZ enters into a long-term arrangement with a company in Portugal for sale of Indian goods there. Rupee appreciates considerably	Political
3. Oxygens Ltd. imports goods worth $ 25,000 on 1st January (Re/$45-46). When the payment is made on 31st march rate becomes Re/$ is 45.50-46.50	Economic
4. MGM Exporters Ltd. send a container load of designer-wear items to UK, it will receive full payment of Pounds 2,75,000 from UK importer at ` 101 per pound in April. On BS Date (In March) the Re/Pound rate stood at ` 99.	Transaction

(Ans.: Political, Economic, Transaction, None)

HOW TO MANAGE THE FOREIGN EXCHANGE RISK?

There are no. of tools to manage the foreign exchange risk. Some of these are as follows:

1) Home currency invoicing
2) Leading & Legging
3) Exposure netting
4) Forward exchange contract
5) Currency futures
6) Currency Options
7) Money market hedge

Question 22

Decide the mode of invoicing in the following cases.

1(a) : Lokudyog Ltd. in India exports polished Diamonds. The last shipment was invoiced in Belgian Francs. The importer, a sister concern in Antwerp, has informed that from 1st January 2003 Belgian Francs is not a traded currency. Lokudyog has to decide on invoicing either in Euro or in Rupees. Euro is showing signs of appreciation against all major currencies.

1(b) : Paper Products Ltd., in India imports specialty paper. The shipment is being organized by a Hong Kong intermediary from Mainland China. Payment terms are 60 days. Spot Re/HKD 6.50. While Rupee is gaining against US Dollar, it is depreciating against HK Dollar. The CIF value of shipment is HKD 210,000/-.

Question 23

Other things being equal, determine whether arranging for invoicing in rupees is advantageous in the following cases:

(a) Ambika (P) Ltd. is exporting pepper to a trader in New Jersey for an invoice value of ` 84,32,000/-. Payment terms are 90 days. Spot rate Re/$ is 42.16-36. Rupee is expected to gain. Is it advantageous to invoice in Rupees ?

(b) Maruti Enterprises and Co. Dibrugarh, imports spare parts for machine from Messrs. Magayachi, Osaka, Japan. Value of consignment is ` 13,25,000/-. Payment terms are 50% in 90 days, balance 50% in 180 days from date of shipment from Japan. Spot rate Re/¥ 0.4010. An estimate of what the forward rate would be, is not available, though it is known that ¥ is expected to move in synchrony with $. Rupee may either gain or lose on $. Is it advantageous to have the import invoiced in Rupees ?

(Ans.: (a) Invoice in rupees (b) Depends)

Question 24

DEF Ltd. has imported goods to the extent of US$ 1 crore. The payment terms are 60 days interest-free credit. For additional credit of 30 days, interest at the rate of 7.75% p.a. will be charged.

The banker of DEF Ltd. has offered a 30 days loan at the rate of 9.5% p.a. Their quote for the foreign exchange is as follows :

Spot rate INR/US$	62.50
60 days forward rate INR/US$	63.15
90 days forward rate INR/US$	63.45

Which one of the following options would be better?

1. Pay the supplier on 60th day and avail bank loan for 30 days.
2. Avail the supplier's offer of 90 days credit.

(Answer: 1. Rs. 63.65 crores, 2. Rs. 63.86 crores)

Question 25

(a) Gibralater Limited has imported 5000 bottles of shampoo at landed cost in Mumbai, of US $ 20 each. The company has the choice for paying for the goods immediately or in 3 months time. It has a clean overdraft limited where 14% p.a. rate of interest is charged. Calculate which of the following method would be cheaper to Gibralater Limited.

(i) Pay in 3 months time with interest @ 10% and cover risk forward for 3 months.

(ii) Settle now at a current spot rate and pay interest of the overdraft for 3 months.

The rates are as follow :

Mumbai ` /$ spot : 60.25-60.55

3 months swap : 35/25

(Answer: (1) ` 61,80,750 (2) ` 62,66,925)

Question 26

NP and Co. has imported goods for US $7,00,000. The amount is payable after three months. The company has also exported goods for US $ 4,50,000 and this amount is receivable in two months. For receivable amount a forward contract is already taken at Rs.48.90. The market rates for Rs. And Dollar are as under:

Spot	Rs. 48.50/70
Two months	25/30 points
Three months	40/45 points

The company wants to cover the risk and it has two options as under:

(i) To cover payables in the forward market and

(ii) To lag receivables by one months and cover the risk only for the net amount. No interest for delaying the receivables is earned. Evaluate both the options if the cost of Rupee Fund is 12%. Which option is preferable?

Note: Assume that points given for two and three months are swap points.

(Answer: i) Rs.1,23,61,750 ii) Rs. 1,25,19,250)

Question 27

U.S. Imports co. , purchased 1,00,000 Mark's worth of machines from a firm in Dortmund, Germany. The value of the dollar in terms of the mark has been decreasing. The firm in Dortmund offers 2/10 net 90 term. The spot rate of mark is dollar 0.55, the 90 days forward rate is $0.56.

1. Compute the dollar cost of paying the within 10 days.
2. Compute the $ cost of buying a forward contract to liquidate the account in 90 days.
3. The differential between part 1 and part 2 is the result of the time value of money (The discount for prepayment) and protection from currency value fluctuation. Determine the magnitude of each of these components.

Question 28

AMK Ltd. An India based company has subsidiaries in U.S. and U.K.

Forecasts of surplus funds for the next 30 days from two subsidiaries are as below:

U.S.	$12.5 million
U.K.	£6 million

Following exchange rate information are obtained:

	$/Rs.	£/Rs.
Spot	0.0215	0.0149
30 days forward	0.0217	0.0150

Annual borrowing/deposit rates (simple) are available.

Rs.	6.4%/6.2%
$	1.6%/1.5%
£	3.9%/3.7%

The Indian operation is forecasting a cash deficit of Rs.500 million. It is assumed that interest rates are based on a year of 360 days.

(I) Calculate the cash balance at the end of 30 days period in Rs. for each company under each of the following scenarios ignoring transaction costs and taxes:
  (a) Each company invest/finances its own cash balances/deficits in local currency independently.
  (b) Cash balances are pooled immediately in India and the net balances are invested/borrowed for the 30 days period.

(II) Which method do you think is preferable from the parent company's point of view?

(Ans: 475.33, 486.58)

Question 29

Sun Ltd. in planning to import an equipment from Japan at a cost of 3,400 lakh yen. The company may avail loans at 18 per cent per annum with quarterly rests with which it can import the equipment. The company has also an offer from Osaka branch of an India based bank extending credit of 180 days at 2 per cent per annum against opening of an irrecoverable letter of credit.

Additional information :

Present exchange rate Rs.100 = 340 yen

180 day's forward rate Rs.100 = 345 yen

Commission charges for letter of credit at 2 per cent per 12 months.

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

Hint: on opening of letter of credit an importer has to make payment of following charges:
1) Commission or opening fees, which is normally payable in advance.
2) Interest, which is added to the amount of Letter of credit hence payable at the end.
3) Assume that company will have to borrow money in Indian rupees @18%p.a. compounded quarterly to pay the advance commission.
(Ans: 1092.03, 1006.15)

Question 30

NP and Co. has imported goods for US $7,00,000. The amount is payable after three months. The company has also exported goods for US $ 4,50,000 and this amount is receivable in two months. For receivable amount a forward contract is already taken at Rs.48.90. The market rates for Rs. And Dollar are as under:

Spot	Rs. 48.50/70
Two months	Rs.25/30 points
Three months	40/45 points

The company wants to cover the risk and it has two options as under:
(i) To cover payables in the forward market and
(ii) To lag receivables by one months and cover the risk only for the net amount. No interest for delaying the receivables is earned. Evaluate both the options if the cost of Rupee Fund is 12%. Which option is preferable?

(Ans: Rs.1.24 cr., 1.22875 cr.)

TYPES OF FOREIGN EXCHANGE CONTRACTS:

Cash: Settlement today (also named as Ready Contract)
Tom: Settlement on the next working day
Spot: Settlement on 2nd working day

Forward: Settlement any date beyond spot. Forward contracts are of following two types:
(Outright) Forward Exchange contract: means a contract to purchase or sale a specific amount of foreign currency at a predetermined rate of exchange (called forward exchange rate) on a specified future date.

(Option) Forward exchange contract: means a contract to purchase or sale a specific amount of foreign currency at a predetermined rate of exchange (called forward exchange rate) during a specified period of time and without any obligation on the customer to execute the contract.

Other types of forward exchange contracts:
- Roll-over forward contracts

- Cross currency forward contracts
- Cross currency roll over forward contracts

Forward premium/ discount: means the difference between forward rate and spot rate.
Direct Quote: In the case of direct quote, If the forward rate is more than spot rate then the currency is said to be trading at premium and vice versa. Usually forward premium or discount is expressed as an annual percentage as follows:
Forward Premium(+) / discount (-) = [(Forward-Spot) / Spot] x (12/n) x 100

Indirect Quote : If the forward rate is less than spot rate then the currency is said to be trading at premium and vice versa. Usually forward premium or discount is expressed as an annual percentage as follows:
Forward Premium(+) / discount (-) = [(Spot - Forward / Forward] x (12/n) x 100
[Note that: P = D/1-D) and D = P/(1+P), here P = %premium and D = %Discount]

Question 31
Calculate forward premium/discount for both currencies:
1) Spot rate is $1=`66.56 and one year Forward rate is $1 = `65.42
2) Spot rate `1 = € 0.0200 and six months forward rate is `1 = € 0.0192

Question 32
Determine whether the home currency is appreciating or depreciating, and compute the annual percentage of change.

Quote in Mumbai for	Spot	Forward
South African Rand	6.53	1 month : 6.40
Canadian Dollar	31.80	3 months : 32.00

(Ans.: `Appreciating 24.375%, `Depreciating 2.5%)

Question 33
Forex information given below covers both the spot rate and the forward rate. You have to determine whether the home currency is appreciating or depreciating in relation to foreign currency.

	Spot	**Forward**	**Home Currency**
1	` 154.53 = 1Kw. D	3 month = 154.14	Rupees
2	Yen 195.40 = 1£	1 month = 194.46	GBP
3	Euro 0.6111 = 1 CAD	1 month = 0.6320	Euro

(Ans.: A, D, D)

CALCULATING FORWARD RATE

Question 34

Suppose that 1 French franc could be purchased in the foreign exchange market for 20 US cents today. If the franc appreciated 10% tomorrow against the dollar, how many francs would a dollar buy tomorrow?

Question 35

Fleur du lac, a French co., 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 French francs 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? Make calculations in francs per $.

SWAP POINTS

Forward premium or discount can also be shown by points, which are called **swap points**. Forward premium is shown in ascending order while forward discount is shown in descending order. For example:

Forward Premium

Spot (Jan.) USD 1 = ` 44.4000 / 4200
Spot/February 2000 / 2100
Spot/March 3500 / 3600
It means forward rates for February and March respectively are:
Feb. USD 1 = ` 44.6000 / 6300
Mar. USD 1 = ` 44.7500 / 7800

Forward Discount

Spot (Jan.) USD 1 = ` 44.3200 / 4100
Spot/February 3800 / 3600
Spot/March 5700 / 5400
It means forward rates for February and March respectively are:
Feb. USD 1 = ` 43.9400 / 44.0500
Mar. USD 1 = ` 43.7500 / 43.8700

HEDGING THE RISK THROUGH FORWARD CONTRACT

Question 36

An Indian Importer purchased a machinery from a British exporter on 18th of July 2005. The value of machine is GBP 1,00,000. The importer has to pay the amount three months after the date of purchase. Spot rate of exchange is GBP 1 = ` 67.68.

It is expected that the Rupee will depreciate and the exchange rate may become GBP = ` 69.33. The importer wants to hedge this risk by entering into a forward exchange contract. Three months forward rate is ` 68.20 per GBP. Is it worthwhile to enter into forward exchange contract? Calculate the profit/loss with and without forward contract.

If the actual exchange rate after three months appears to be GBP 1=` 67.98, is the decision of importer to enter into forward contract, right ?

Question 37

A company operating in a country having the dollar as its unit of currency has today invoiced sales to an Indian company, the payment being due three months from the date of invoice. The invoice amount is$7500 and at today spot rate of $0.025 per `1, is equivalent to `3,00,000.

it is anticipated that the exchange rate will decrease by 10%over the three months period and in order to protect the dollar proceeds, the importer proposes to take appropriate action through foreign exchange market. the three month forward rate is quoted as $0.0244 per `1.

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

Question 38

Following information relates to AKC Ltd. Which manufactures some part of an electronic device which are exported to USA, Japan, Europe on 90 days credit terms.

Cost and sales information:	Japan	USA	Europe
Variable cost per unit	Rs.225	Rs.395	Rs.510
Export Sales price per unit	Yen 650	US$10.23	Euro 11.99
Receipts from sale due in 90 days	Yen 78,00,000	US $ 1,02,300	Euro 95,920

Foreign Exchange Rate Information:

	Yen/Rs.	US$/Rs.	Euro/Rs.
Spot Market	2.417-2.437	0.0214-0.0217	0.0177-0.0180
3 months forward	2.397-2.427	0.0213-0.0216	0.0176-0.0178
3 months spot	2.423-2.459	0.02144-0.02156	0.0177-0.0179

Advice AKC Ltd. Whether it should hedge it's foreign currency risk or not.
(Hedge, Do not hedge, Hedge)

FATE OF A FORWARD CONTRACT

A forward contract entered into between the bank & the customer may end up in the following ways :

1) **Execution** : Customer may take or give the delivery on the due date.
2) **Cancellation** : Customer may request for cancellation of forward contract. This request may be made:
   i) on the due date,
   ii) before the due date
   iii) After the due date

3) **Extension**: Customer may request for extension of due date. This request may be made:
   i) on the due date,
   ii) before the due date
   iii) After the due date
4) **Early delivery**: Customer may request for early delivery, i.e., delivery before the due date.

CANCELLATION OF FORWARD CONTRACT

In case of request for cancellation of a forward contract bank will enter into a reverse contract with same customer for the same delivery date. Means in case of request for cancellation of a **forward purchase** contract on the due date, bank will enter into a **spot sale** contract with the same customer. Difference between these two rates is called exchange difference.

If selling rate is more than buying rate i.e. exchange difference is positive, bank will recover it from the customer. But if selling rate is less than buying rate i.e. exchange difference is negative, bank will pay it to the customer. Keep in mind that this recovery or payment is not the profit or loss of the bank. Because the bank will also have some receipt from or payment to the market and ultimately it will earn only margin/commission on two contracts.

Note: Bank can also recover flat charges from customer for cancellation. Amount of flat charges differ from bank to bank. Currently it is around Rs.500-Rs.1000.

Question 39

On 15th November, ICICI bank booked a 3 months forward purchase contract of $20,000 for its export customer. On that date exchange rate was as follows:

Spot rate $1 = `68.3200/3325

3 months swap points 1000/1500

On the due date customer requests for cancellation of this contract. Calculated the amount recoverable from of payable to the customer if the Exchange rate is as follows:

Spot rate $1 = `67.5300/5400

3 months swap points 500/1000

If the customer requests for cancellation on 15th January then calculate the amount recoverable from or payable to the customer if the exchange rates on that date were as follows:

Spot rate $1 = `69.5300/5400

3 months swap points 500/1000

Margin in all the above cases is 0.1%/0.125%.

Question 40

On 30th April the bank entered into a forward sale contract of DEM 10,000 at ` 34, due on 30th June. On the same date the bank covered its position by a forward purchase at ` 33. On the due date the customer requested for cancellation of the contract. The prevailing exchange rate on 30th June were as under:

Spot Interbank rate DEM 1 = ` 33.5000/6000

margin is 0.125%

Spot Merchant rate DEM 1 = ` 33.46/33.64

Calculate the amount recoverable from or payable to the customer.(Ans. Recover `5400)

Question 41

In previous question assume that the customer made the request for cancellation of the contract on 30th May. The prevailing prices on 30th May are as under:

Spot Interbank rate DEM 1 = ` 33.7000/8000
Forward June 3000/2500
margin is 0.125%
Forward June (merchant rates) DEM 1 = ` 33.36/33.59

Calculate the amount recoverable from the customer.

(Ans. Recover `6400)

Question 42

A bank enters into a forward purchase TT covering an export bill for Swiss Francs 1,00,000 at Rs. 32.4000 due on 25th April and covered itself for same delivery in the local inter bank market at Rs. 32.4200. However on 25th March, exporter sought for cancellation of contract as the tenor of the bill is changed. In Singapore market, Swiss Francs were quoted against US Dollars as under :

Spot	USD 1 = Sw.Fcs 1.5076/1.5120
One month forward	1.5150/1.5160
Two month forward	1.5250/1.5270
Three month forward	1.5415/1.5445

And in the inter bank market US dollars were quoted as under :

Spot	USD 1 = Rs. 49.4302/.4455
Spot/April	.4100/.4200
Spot/May	.4300/.4400
Spot/June	.4500/.4600

Calculate the cancellation charges payable by the customer if exchange margin required by the bank is 0.10% on buying and selling.
(Answer: Rate 32.947, Recover 54700)

EXTENSION OF FORWARD CONTRACT

If the customer requests for extension of a forward contract then the bank will cancel existing contract and will book a fresh forward contract for the desired date. Means now there are three contracts with same customer:

1) Original contract
2) Contract for cancellation
3) New contract.

All the above contacts are with the customer hence will be entered into at the merchant rate. But as per FEDAI rules bank **need not** to load margin for the second and third contract. But it can round off the rate in its favor.

Note: Another way of extension could be to extend the contract with the original contract rate and to recover or pay the difference between cancellation contract and new contract.

Question 43

Indore branch of Indusind Bank had booked a 4 months forward purchase contract for USD 1,00,000 at ` 45.22 on 1st August, covering a TT remittance against a bill for collection and covered itself in the local market at ` 45.2650. However, on the maturity date the customer requested the bank to extend contract by one month. Assuming that on-going market rates for US dollar on 1st December are as under:

Spot	USD 1 ` 45.1925/2575
One month	6000/7000

What will be the extension charges payable by the customer? Also calculate the rate at which the contract will be re-booked.

Question 44

In previous question assume that the customer made the request for extension one month before the maturity date, i.e. 1st November. The exchange rates on that date were as under:

Spot	USD 1 ` 45.1300/2100
One month	3000/3500
Two months	4000/5000

EARLY DELIVERY OF FORWARD CONTRACTS

If customer request for execution of contract before its due date, it is termed as early delivery. In this case bank will execute the contract for customer at the original rate. But in the market it will have to enter into a new spot contract to execute the request of customer and also a forward contract to cancel the original position. Difference between these two contracts is termed as swap difference.

If the selling rate in the market is higher than the buying rate then bank will give this positive difference to the customer and if selling rate is less than the buying rate than the bank will recover this negative difference from the customer. **It means if the swap difference is positive then bank will give it to the customer and if it is negative bank will recover is from the customer.**

Here one can note the difference between exchange difference & swap difference as follows:

Exchange difference	Swap difference
Difference of exchange rates of two contracts of a bank with its customer.	Difference of exchange rates of two contracts of a bank with the market.
The two rates mentioned above are merchant rates	The two rates mentioned above are Interbank rates
The two contracts mentioned above are entered into on two different dates.	The two contracts mentioned above are entered into on a single day.
If the exchange difference is positive then bank will recover it from customer.	If the exchange difference is positive then bank will recover it from the market and pay it to the customer.

Question 45

The bank entered into an agreement with its customer on 10th July for a forward purchase contract for USD 4,000 delivery 10th September at the rate of ` 28.14 per dollar covering itself by a forward sale at ` 28.16. On the 10th of August, the customer requests the bank to purchase the bill of USD 4,000 under this contract. Calculate the amount that would be paid to the customer assuming the following rates in the interbank market on 10th August :

Spot	USD 1 = ` 28.1025/1075
Delivery September	28.6475/6550

interest on outlay of funds at 12% and inflow of funds at 8%.

Question 46

The bank had agreed on 20th February that it will sell on 20th April to the customer DEM 10,000 at ` 34.57. On the same day bank recovered its position by buying forward from the market due 20thApril at the rate of ` 34.5550. On 20th March, the customer approaches the bank to sell DEM 10,000 under the forward contract earlier entered into. The rates prevailing in the interbank market on this date are:

Spot	` 34.4725/4800
April	` 35.2550/2625

interest on outlay of funds at 12% and on inflow of funds at 8%.

What is the amount that would be recovered from the customer on the transaction ?

AUTOMATIC CANCELLATION

If a customer does not execute a forward contract on due date it will be automatically cancelled on 15th day from the due date. This contract cannot be executed or extended after the due date. If the customer requests execution or extension of this contract then bank will book a fresh exchange contact for customer.

In case of automatic cancellation bank will recover (but not pay) the following:

1) Exchange difference (if it is positive)
2) Swap difference (if it is negative)
3) Interest (on outflow)

Bank can also recover flat charges of `100.

Question 47

On 1st January, the bank enters into a forward purchase contract with an export customer for USD 10,000 due on 1st March at an exchange rate of `35.60 and covers its position in the market at `35.65.

The customer defaults to execute the contract on the due date. On 16th March the bank cancels the contract unilaterally. The following were the exchange rate prevalent:

On 1st March	Interbank TT rates	USD 1 = `35.75/80
	1 month forward	`35.90/95
	Merchant TT rates	USD 1 = `35.67/90

On 16th March	Interbank TT rates	USD 1 = `36.10/15
	Merchant TT rates	USD 1 = `36.05/20

Question 48

An Import customer booked a forward contract with the bank on 10th April for USD 20,000 due 10th June at `36.40. The bank covered its position in the market at `36.28.

The exchange rates for dollar in the interbank market on 10th June and 25th June were:

	10th June	25th June
Spot	USD 1 = `35.80/82	35.68/72
June	35.92/95	35.80/85
July	36.05/09	35.93/99
August	36.30/35	36.18/25
September	36.60/66	36.48/56

Exchange margin 0.15%

Interest on outlay of funds 12%

How will the bank react if the customer requests on 25th June:

1. to cancel the contract
2. to execute the contract, or
3. to extend the contract with due date to fall in August.

INTEREST RATE PARITY

$$\frac{1 + r^h}{1 + r^f} = \frac{F}{S}$$

Here

r^h = rate of interest in home country

r^f = rate of interest in foreign country

F = Forward rate (direct quote)

S = Spot rate (direct quote)

Question 49

Suppose that on 1 January 2001 the spot rate is UKP1=$1.50 and the US & UK interest rates are 6% and 8% per annum respectively. What would we expect the six month forward rate to be?

Question 50

Singapore dollar (SG$) and Indian Rupee rates are available to you as under

SPOT rates:	20.725 `/SG$
	0.04825 SG$/`
90day rate	20.687 `/SG$
	0.04834 SG$/`

Singapore prime interest rate as on date is 9.5 %. Note: Use 365 day's a year

Required:

1. Explain what is implied about the Indian interest rate.

2. Calculate and comment on Indian rate if the forward exchange rate was 0.04795 SG$/`
3. Calculate and comment on the 90 days forward rate on Rs. SG $ if Indian interest rate was 8%.

Question 51

This is the beginning of a new accounting year. A UK based company is pursuing two business opportunities one each in Euroland and in USA. If the opportunity materializes, cash flows from Euroland are likely to be spread over a four-year period, while those from USA would be over three years, from the end of current year. Real interest rates in UK, Euroland, and USA are 6%, 5% and 7% respectively. In London Euro is quoted at 1.50, while USD is at 1.60. What conversion rate should the CFM use, in his cash flow and NPV computations?

(Ans.: Euro/pound 1.4858, 1.4717, 1.4578, 1.4440 $/pound 1.6150, 1.6303, 1.6456)

Question 52

The following table shows interest rates for the United States dollar arid French francs. The spot exchange rate is 7.05 francs per dollars. Complete the missing entries:

	3 Months	6 Months	1 Year
Dollar Interest rate (annually compounded)	$11^{1/2}$%	$12^{1/4}$%	?
Franc Interest rate (annually compounded)	$19^{1/2}$	?	20%
Forward franc per dollar	?	?	7.5200
Forward discount per franc per cent per year	?	– 6.3%	?

(Ans: 7.19, 19.2%, 6.25%, 12.5%; Answers considering compounding 7.17, 19.7%, same)

Question 53 (Hedging)

Exporters Plc. a UK company, is due to receive 500,000 Northland dollars in six month's 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 Northland dollars to the pound.

Calculate how much Exporters Plc. actually gains or losses as a result of the hedging transactions if, at the end of the six months, the pound, in relation to the Northland dollar, has (i) gained 4%, (ii) lost 2% or (iii) remained stable.

You may assume that the forward rate of exchange simply reflects the interest differential in the two countries (i.e. it reflects the Interest Rate Parity analysis of forward rates).

Question 54 (Hedging)

A UK company expects to receive Singapore dollars 4,00,000. The actual due date falls exactly six months from now. Assume that Interest rate in Singapore is 15%, while that in UK is 12%. Current spot rate is SGD 2.5 = 1 GBP. Evaluate the situation, if Pound was to (a) gain 4%, (b) lost 2% or (c) remains stable at present level. Assume that the forward exchange rate reflects the interest rate parity analysis of forward rates. Should the company take forward cover ? Consider exchange rates upto three decimal point.

(Ans.: (a) Gain 3945 (b)Loss 5474 (c) Loss 2209)

INTEREST RATE ARBITRAGE

Question 55

Spot rate of exchange is $1 = `66 while six months forward rate is $1 = `69. Rate of interest in India is 8%p.a. while it is 2%p.a. in USA. How can you make profit? What if the forward rate is $1= `67?

Question 56

Interest rate in Euroland and in India stand at 3.50% p.a., and 6.00% p.a. respectively. If the Spot Rupee/Euro rate is 71.75, what is your estimate of one year future spot rate if the Interest rate parity theory holds good? If the forward rate is 72 what action would follow ? If the forward rate is 75 will there be a change in action ?

Question 57

Following is the rate quoted at Bombay for British pound: Spot rate Pound 1 = ` 96.30/96.80

Interest Rates

	India		**London**	
	Invest	Borrow	Invest	Borrow
3 months	8%	10%	5%	6%
6 months	9%	11%	6%	8%

Identify the No arbitrage Zone for the period of 3 months as well as 6 months. Verify whether there is any scope for covered arbitrage if the actual forward rates are as follows:

3m forward 95.80/96.40

6m forward 97.10/98.45

INTEREST RATE HEDGE/ MONEY MARKET HEDGE

FOR IMPORTER

1) Borrow home currency
2) Convert it into foreign currency (spot merchant ask)
3) Invest it in foreign country
4) Make payment of import bill on maturity out of the investment proceeds
5) Make payment of home currency borrowing along with interest.

FOR EXPORTER

1) Borrow foreign currency
2) Convert it into home currency (spot merchant bid)
3) Invest the above amount in home country
4) Repay foreign currency borrowing out of export proceeds.
5) Realize the home currency investment on the maturity date.

Question 58 (Importer)

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 Co. at a cost of $ 51 Lakhs payable in dollars in three 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 not more than ` 22 crores.

Exchange rates	(`/Dollar)
Spot	40-42;
1 month forward	41-43;
3 months forward	42-45

Interest rates (available to P Ltd.)

	India		USA	
	Deposit Rate(%)	Borrowing Rate(%)	Deposit Rate(%)	Borrowing Rate(%)
1 month	13.00	15.00	7.00	10.00
3 months	13.00	16.00	8.00	11.00

Calculate whether it is possible for P Ltd. to achieve a cost directly associated with this transaction of not more than `22 crores by means of a forward market hedge, or money market hedge. Transaction costs may be ignored.

Question 59 (Exporter)

An exporter is a UK based company. Invoice amount is $3,50,000. Credit period is three months. Exchange rates in London are :

Spot Rate ($/₤)	1.5865 – 1.5905
3-Months Forward Rate	($/₤) 1.6100 – 1.6140

Rate of Interest in Money Market :

	Deposit	Loan
$	7%	9%
₤	5%	8%

Compute and show how a money-market hedge can be put in place. Compare and contrast the outcome with a forward contract.

(Answer: MMH £ 217904, FC £ 216853)

Question 60 (Importer-tax)

On March 1, 2005, the B Ltd. bought from a foreign firm electronic equipment that will require the payment of LC 900,000 on May 31,2005. The spot rate on March 1, 2005, is LC 10 per dollar; the expected future spot rate is LC 8 per dollar; and the ninety-days forward rate is LC 9 per dollar. US interest rate is 12% and foreign interest rate is 8 percent. The tax rate for both countries is 40 percent. B Ltd. is considering three alternatives to deal with the risk of exchange rate fluctuations.

a. To enter the forward market to buy LC 900,000 at the ninety-days forward rate in effect on May 31,2005.

b. To borrow an amount in dollars to buy the LC at the current spot rate. This money is to be invested in government securities of the foreign country; with the interest income, it will equal LC 900,000 on May 31,2005.
c. To wait until May 31,2005, and buy LC at whatever spot rate prevails at that time.

Which alternative should the B Ltd. follow in order to minimize its cost of meeting the future payment in LCs? Explain.

Question 61 (Exporter)

Expo is an importer/exporter of textiles and textile machinery. It is based in the UK but trades extensively with countries throughout Europe. It has a small subsidiary based in Germany. The company is about to invoice a customer in Germany DM 750000 payable in three month's time. Expo's treasure is considering two methods of hedging the exchange risk;

- **Method 1:** borrow DM for three months, convert the loan into sterling and repay the loan out of eventual receipts.
- **Method 2:** Enter into a three-month forward exchange contract with the company's bank to sell DM750000.

The spot rate of exchange is DM2.3834 to the £1. The three-month forward rate of exchange is DM2.3688 to the £1. Annual interest rates for three month's borrowing are : Germany 3 per cent p.a. ; UK 6 percent p.a.

Requirement: Advise the treasurer on:

1. Which of the two method is the most financially advantageous for Expo and
2. Other factors to consider before deciding whether to hedge the risk using the foreign currently markets;

(Ans. MMH 317019, forward 316616)

(Hint for part 2. : Other factors to be considered:-

1. Borrowing capacity of the company
2. Size of the deal
3. Possible offset elsewhere in the group
4. Transaction cost
5. Hedging through future, option, swap etc.)

Question 62

LML export its products throughout the world. It has today received from a regular customer in France an order worth £350000 at today's spot market exchange rate. It has also received from a new customer in Uganda an order worth £150000 at today's spot rate. Both orders are to be paid in the respective importer's currency. Terms of trade are 60 day's credit. No discount is offered for early payment. Past experience shows that the French customer may take up to 90 day's to pay.
Foreign exchange rates (mid rates)

	French francs/US$	US$/£	Uganda Shilling/£
Spot	5.7485	1.4920	1700

1. month forward	5.7622	1.4898	N/A
2. month forward	5.7727	1.4886	
3. month forward	5.7833	1.4873	

Money Market rates (% per annum)

	Deposit	Borrowing
UK Bank	5	8
Uganda Bank	15	N/A
US Domestic Bank	3	6

These rates are fixed for a period of two or three months for immediate deposits or borrowings. LML convert all foreign currency receipt into pound sterling immediately on receipt. Wherever possible, the company uses forward exchange contracts to hedged its currency risks.

In view of the lack of forward markets in Uganda, the Ugandan, customer has offered to pay $ US225000 to LML in three month's time, instead of Ugandan shillings in 60 days. The customer is able to do this as a result of his government's new economic liberalization policies.

You are required:

1) To calculate the sterling receipts that LML can expect from its sales to the French Customer, assuming LML hedged it risk using the forward market;
2) To calculate the expected sterling receipt from the Ugandan customer, assuming its offer of payment in US$ is accepted. Assume LML hedged its risk using.
   - The forward market, or
   - The money market,

   And advice LML on which method is most advantageous;

Question 63 (Investment)

your bank's London office has surplus funds to the extent of USD 5,00,000/- for a period of 3 months the cost of the funds to the bank is 4% p.a. It propose to invest these funds in London, New York or Frankfurt and obtain the best yield, without any exchange risk to the bank. The following rates of interest are available at the three centre for investment of domestic funds there at for a period of 3 months.

London	5% p.a.
New York	8% p.a.
Frankfurt	3% p.a.

The market rates in London for US $ and Euro are as under :

	London on New York	London on Frankfurt
Spot	1.5350/90	1.8260/90
1 month	15/18	60/55
2 month	30/35	95/90
3 month	80/85	145/140

At which centre, will the investment be made & what will be maturity amount in terms of US dollars after 3 months.

(Answer: $5,07, 565, $5,10,000, $5,08,120)

Question 64 (Capital Budgeting)

You have been engaged to evaluate an investment project overseas in a country called East Africa, which is a political stable country. The project involves an initial cost of East African dollar 2.5 crores (EA $) and it is expected to earn post tax cash flows as follows:

Year	1	2	3	4
Cash flow in (EA $ lacs)	75	95	125	135

Further, the following information is available:

1. The expected inflation rate in East Africa in 3% per Year.
2. Real interest rate of India as well East Africa is same and is expected to remain same during the currency of project.
3. Current spot rate is EA $ 2 per `1.
4. Risk free rate of interest in East Africa is 7% and in India 9%.
5. Required return from the project is 16%.

You may make suitable (generally acceptable) assumptions in order to evaluate the project.

Question 65

OJ Ltd. Is a supplier of leather goods to retailers in the UK and other Western European countries. The company is considering into a joint venture with a manufacturer in South America. The two companies will each own 50 per cent of the limited liability company and will share profits equally. £450000 of the initial capital is being provided by OJ Ltd. and the equivalent in South American dollar (SA$) is being provided by the foreign partner. The managers of the joint venture expect the following net operating cash flows, which are in nominal terms.

	SA$ 000	(Forward Rates of exchange to the £ sterling)
Year 1	4250	10
Year2	6500	15
Year3	8350	21

Requirement:

Assume you are financial adviser retained by OJ Limited to advise on the proposed joint venture Calculate the NPV of the project under the two assumptions explained below. Use a discount rate of 16 per cent for both assumptions.

Assumption 1: The South America country has exchange controls which prohibit the payment of dividends above 50 per cent of the annual cash flows for the first three years of the project. The accumulated balance can be repatriated at the end of the third year.

Assumption 2: The government of the South America country is considering removing exchange controls and restriction on repatriation of profits. If this happens all cash flows will be distributed as dividends to the partner companies at the end of each year.

Question 66 (Swaps)

Mc Donnoughs Hamburger Company wishes to lend $ 500,000 to its Japanese subsidiary. At the same time, Yasufuku Heavy Industries is interested in making a medium-term loan of approximately the same amount to its U.S. subsidiary . The two parties are brought together by an investment bank for the purpose of making parallel loans. Mc Donnoughs will lend $

500,000 to the U.S. Subsidiary of Yasufuku for 4 years at 13 percent. Principal and interest are payable only at the end of the fourth year with interest compounding annually. Yasufuku will lend the Japanese subsidiary of Mc Donnoughs 70 million yen for 4 years at 10%. Again the principal and interest (annual compounding) are payable at the end. The current exchange rate is 140 yen to the $. However , the dollar is expected to decline by 5 yen to the dollar per year over the next 4 years.

(a) If these expectations prove to be correct, what will be the dollar equivalent of principal and interest payments to Yasufuku at the end of 4 years?
(b) What total dollars will Mc Donnoughs receive at the end of 4 years from the payment of principal and interest on its loan by the U.S. subsidiary of Yasufuku?
(c) Which party is better off with the parallel loan arrangement? What would happen if the yen did not change in value?

Question 67 (Law of one price)

In 2001 a Transistor cost $22.84 in New York, $69 in Singapore and 3240 rubles in Moscow:

1) If the law of one price held, what was the exchange rate between US dollars and Singapore dollar? Between US dollars and rubles?
2) The actual exchange rate in 2001 were S$1.63 = US$1 and 250 rubles = US$1. Where would you prefer to buy your Transistor?

Question 68 (law of one price)

Sampras Tennis Rackets Cost UKP 100 in the UK and 150 in the US. The current exchange rate is UKP 1=$1.50. Explain what happens if inflation, which is presently 0% in both the UK and the US, increases to 10% in the US?

NOSTRO ACCOUNT

WHAT IS NOSTRO, VOSTRO AND LORO ACCOUNT?

In Latin NOSTRO account means “Our Account with you”. For example if State Bank of India opens a dollar account with the New York bank then it is called Nostro account.

VOSTRO means “Your account with us”. For example rupee account of Sri Lanka bank with State Bank of India.

LORO means “Their account with them”. If Bank of Rajasthan wants to transfer dollar to the nostro account of SBI maintained with the New York Bank, they will call this account LORO account.

HOW TO PREPARE NOSTRO ACCOUNT?

There are two parts of Nostro account: 1) Exchange position 2) Fund/ Cash Position.

a) Exchange position

It is also called Currency position. The aggregate relationship between the amount of a currency bought and the amount of the same currency sold is known as ‘position‘ in the currency. It can be as under:

Overbought position: If amount of foreign currency bought by a bank is more than the amount sold, the bank is said to have ‘overbought’ or ‘long’ or ‘plus’ position.

Oversold position: If amount of foreign currency sold by a bank is more than the amount bought, the bank is said to have ‘oversold’ or ‘short’ or ‘minus’ position.

Square position: If amount of foreign currency bought by a bank is equals the amount sold, the bank is said to have 'square' position. Similarly, if there is small difference in a currency bought and sold the bank is said to have 'Near Square position.

b) Cash position

It is also called Fund position. Banks maintain accounts with counter – party banks always in foreign currency. Banks depending on items requirement have many such accounts in different currencies. It is not uncommon that the bank may have more than one account even in one currency. Balances available in the accounts reflect cash position. Cash position and Fund position do not tally.

Question 69

You as a dealer had the following position in EURO:

Opening balance with Dresner, Frankfurt	20,000
Opening position (overbought)	15,000
Purchased a TT	1,50,000
Issued a draft	20,000
TT remittance outward	1,25,000
Purchase an export bill payable at Milan	2,75,000
Forward sales	2,75,000
Export bill realized	45,000

What steps would you take if you were required to maintain a balance of EURO 70,000 in the Nostro account and keep a square position?

Question 70

You as a dealer in foreign exchange have the following position in Swiss Francs on 31st October, 2004:

	Sw. Fcs.
Balance in Nostro account (credit)	1,00,000
Opening position Overbought	50,000
Purchased a bill on Zurich	80,000
Sold Forward TT	60,000
Forward Purchase Contract cancelled	30,000
Remitted by TT	75,000
Draft on Zurich Cancelled	30,000

What steps would you take, if you are required to maintain a credit balance of Sw. Fcs. 30,000 in the Nostro account and keep as overbought position on Sw. Fcs. 10,000?

FEDAI RULE 8 : EARLY DELIVERY, EXTENSION AND CANCELLATION OF FORWARD

EXCHANGE CONTRACTS

I. GENERAL

a. At the request of the customer, unless stated to the contrary in the provisions of the Exchange Control Manual, it is optional for a bank to –
   i. Accept or give early delivery;
   ii. Extend the contract;
b. It is the responsibility of the customer to effect delivery or to request the bank for extension/ cancellation as the case may be on or before the maturity date of the contract.
c. Banks will levy a minimum charge around Rs.500-Rs.1000 for every request from a cancellation of a contract.
d. Merchant Foreign Exchange Contracts booked prior to 31st December, 1998 and delivery of which is effected after 1st January, 1999 wherein one of the currencies is EMU member country currency- the delivery of the said currency can be in the euro or in the currency of contract, at the option of the bank customer.

II. EARLY DELIVERY

If a bank accept or gives early delivery, the bank shall recover/ pay swap difference, if any.

III. EXTENSION

Forward contract, either short term or long term contracts where extension is sought by the customers (or are rolled over) shall be cancelled (at T.T. Selling or Buying Rate as on the date of cancellation) and rebooked only at current rate of exchange. The difference between the contracted rate and the rate at which the contract is cancelled should be recovered from/ paid to the customer at the time of extension. Such request for extension should be made on or before the maturity date of the contract.

IV. CANCELLATION

a. In the case of cancellation of a contract at the request of the customer, the bank shall recover/ pay, as the case may be, the difference between the contacted rate and the rate at which the cancellation is effected.
b. Rate at which cancellation is to be effected:
   i. Purchase contracts shall be cancelled at the contracting bank's spot T.T. selling rate current on the date of cancellation.
   ii. Sale contracts shall be cancelled at the contracting bank's spot T.T. buying rate current on the date of cancellation.
   iii. Where the contract is cancelled before maturity, the appropriate forward T.T. rate shall be applied.
c. Exchange difference not exceeding Rs. 50/- shall be ignored by the contracting bank.
d. In case a purchase contract becomes overdue, due to the bank's inability to accept the bills tendered as approved bills and the exporter takes up the contract by tendering other approved bills or cancels the contract within a reasonable time, such cancellations shall be governed by IV (a), (b) and (c) above.

e. Notwithstanding the fact that the exchange contract between the customer and the bank becomes impossible of performance, for whatever reason, including Government prohibitory order, the exchange contract shall not be deemed to have become void and the customer shall forthwith apply to the bank for cancellation subject to provisions of paras IV (a), (b) and (c) above.

f. i. In the absence of any instructions from the customer, vide para a(b) contracts which have matured shall on the 15th day from the date of maturity be automatically cancelled. In case the 15th day falls on a Saturday or holiday, the contract will be cancelled on the next succeeding working day
 Note: The customer cannot effect delivery extend or cancel the contract after the maturity date and the procedure for automatic cancellation on the 15th day from maturity date should be adhered to in all cases of default by the customer.
 ii. Swap cost, if any, shall be recovered from the customer under advice to him.
 iii. In case, the contract is ultimately cancelled, the customer will not be entitled to the exchange difference, if any, in his favour, since the contract is cancelled on account of his default.
 iv. In case of delivery subsequent to automatic cancellation the approapriate current rate prevailing on such delivery date shall be applied.

V. SWAP COST

a. Swap cost to be recovered from customers. In all cases of early delivery of purchase or sale contracts, swap cost shall be recovered from customers irrespective of whether an actual swap is made or not. Such recoveries should be made either back-ended or frontended in the discretion of banks.
b. Swap Gain
 Payment of swap gain to the customer will normally be made at the end of the swap period.

VI. OUTLAY AND INFLOW OF FUNDS

a. Interest at not below the prime lending rate of the respective bank on outlay of funds by the bank for the purpose of arranging the swap shall be recovered in addition to the swap cost in case of early delivery of purchase or sale contracts and early realization of export bills negotiated. The amounts of funds outlayed shall be arrived at by taking the difference between the original contract rate and the rate at which the swap could be arranged.
b. If such a swap leads to inflow of funds, the amount shall be arrived at as above and interest shall be paid in the discretion of banks to the customer at the appropriate rate applicable for term deposits for the period for which the funds remained with the bankdeposits for 180 days (presently 8% per

FEDAI RULE 9- SCHEDULE OF CHARGES

I. Forward Contracts

For booking sale and purchase contracts	Around Rs.500-Rs.1000 per contract
For each request for early delivery, extension or cancellation.	Around Rs.500-Rs.1000 + swap cost and Cancellation charges where applicable.