FOREX [16 to 30 Marks]

1. Basics
2. forward Contract
3. Spot Market Arbitrage
4. Cover deal
5. Exchange Rate Determinants
6. foreign Currency Exposure
7. Cancellation of forward Contract
8. foreign Currency A/c
9. Currency of Investment
10. Currency of Borrowing
11. International Cash Management
12. Currency Swap
13. Economic Exposure
14. Residual

① Exchange Rate

Exchange Rate

Direct Quote

1 unit of foreign currency is equal to How many units of Home currency

₹/$ = ₹83.25

₹/£ = 102.75

Indirect Quote

1 unit of home currency is equal to how many units of foreign currency

$/₹ = $0.0120

£/₹ = £0.0097

② Conversion of Currency (Imp)

Suppose ₹/$ 84.75

$1000 = ₹ ?

€/$ 1.1245

€1000 = $?

Rate जिसका दिया है (Base Rate) अगर वो ही Currency दिया है तो Multiply, नही तो divide

EXAMPLE – 01

₹/$ = 70.50

$100000 = ₹ ?

₹ 7050000

EXAMPLE – 02

$/₹ = 0.0140

$ 50000 = ?

3571428

EXAMPLE – 03

$/£ = 1.5235

$40000 = £ ?

£26255.33

EXAMPLE – 04

¥/₹ = 3.4245

₹5000 = ¥ ?

¥ 17122

EXAMPLE – 05

USD/INR = 70.50

₹ 100000 = $?

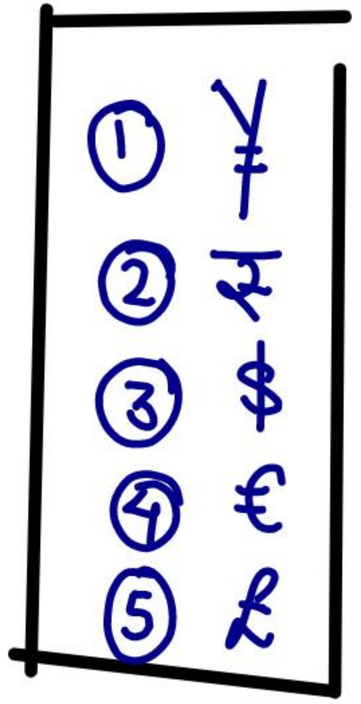
- Base currency

$1418.44

EXAMPLE – 06

INR/GBP = 94.75

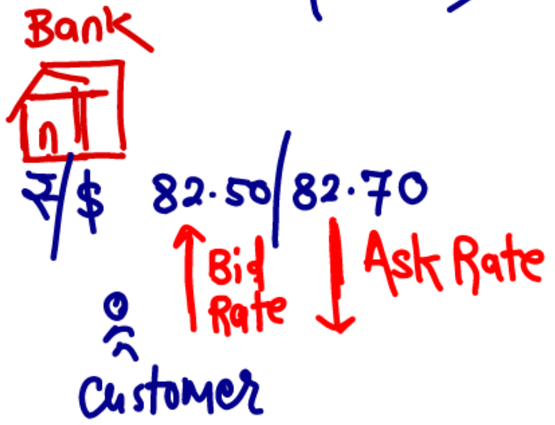
£ 40000 = ₹ ?



Imp

1. USD - GBP £/$
2. INR : JPY ¥/₹
3. GBP/USD 1.2545 $/£
4. JPY/INR 3.15 ¥/₹
5. INR/GBP 102.50 ₹/£

3. Bid & Ask Rate [Most Imp]



Banks buy currency at Lower Rate i.e. ₹ 82.50 is called "Bid Rate" & Banks sell currency at at higher Rate i.e. 82.70 is called "Ask Rate"

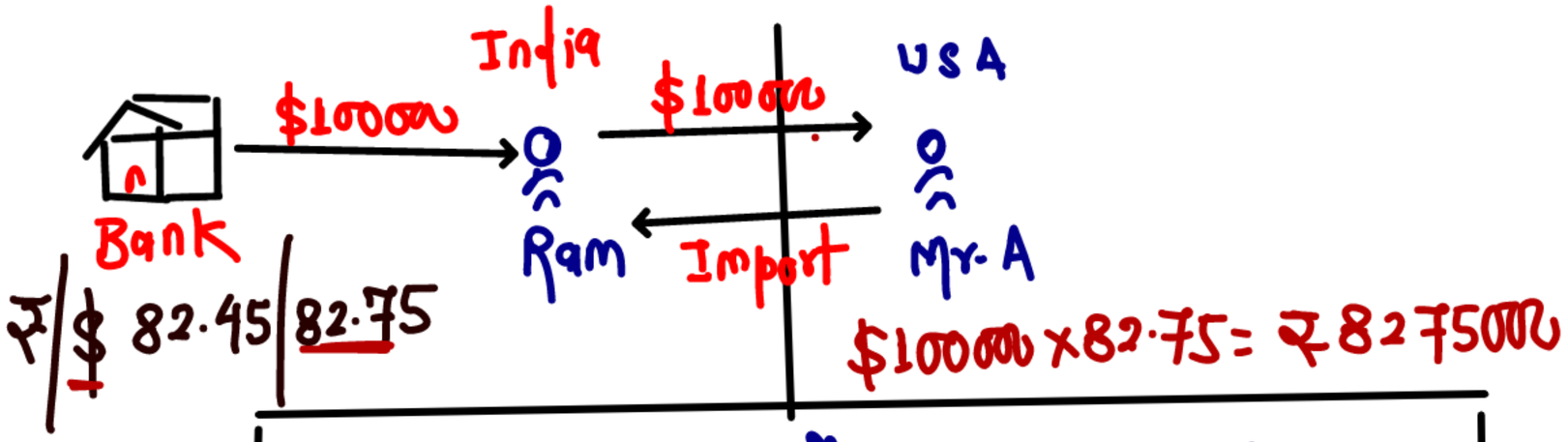
Difference between Bid Rate & Ask Rate is Called "Bid-Ask spread"

Bid-Ask spread = 82.70 - 82.50
= ₹ 0.20

Imp

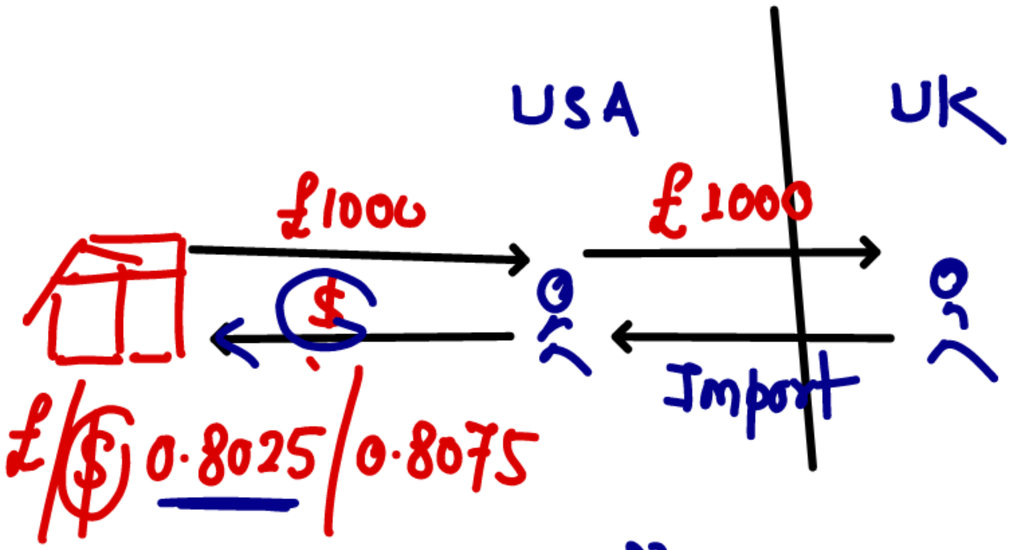
①	₹/$	82.50/90	82.50/82.90
②	₹/$	82.80/20	82.80/83.20
③	₹/€	92.45/25	92.45/93.25
④	$/£	1.2545/75	1.2545/1.2575

Eg



जिसका Rate दिया है (Base currency) Bank उस currency को Buy कर रहा है या Sell

Eg



Rate $ का दिया है

$$\frac{£1000}{0.8025} = \$1246.106$$

EXAMPLE – 07

₹/$ = 75.50/75.75

Mr. Ram import goods from US & $ 1,00,000 payable to US party. How much rupees are required to buy $ 1,00,000.

$100000 × 75.75

= ₹ 7575000

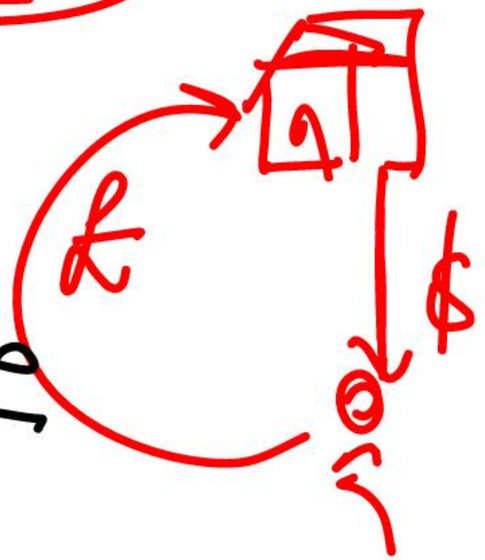
EXAMPLE – 08

$/£ = 1.50/1.55

A UK customer import goods from US & $ 10,000 payable to US party. How much pounds are required to buy $ 10,000.

$10000 / 1.50

= £6666.67



EXAMPLE – 09

₹/£ = 90.25/45

Mr. Ram exported goods to UK & £ 40,000 receivable. How much rupees received if sell £ 40,000 to bank.

£40000 X 90.25

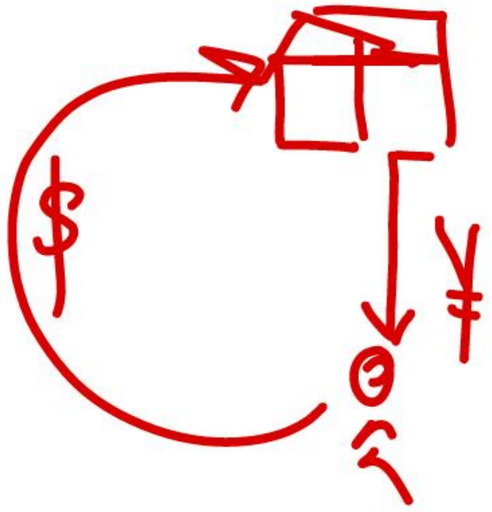
= ₹ 3610000

EXAMPLE – 10

¥/$ = 125/145

We want to buy ¥ 2,00,000. How much dollars are required.

Bank



¥ 200000 / 125

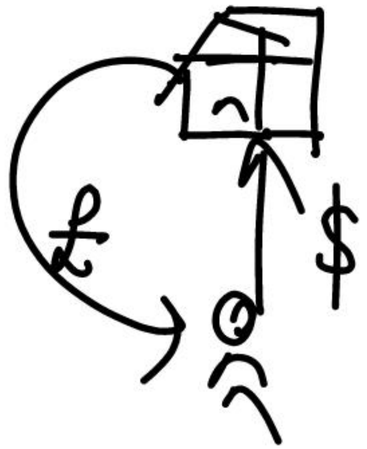
= $1600

EXAMPLE – 11

GBP/USD = 1.5525/75

We want to sell $80,000 then How much pounds are receivable from bank.

$/£ = 1.5525/1.5575



$\frac{\$80000}{1.5575}$

= £51364.36

Eg $/¥ 0.0080/0.0092

Customer wants to sell ¥500000 to Bank.

$ Receivables = ?

¥500000 X 0.0080

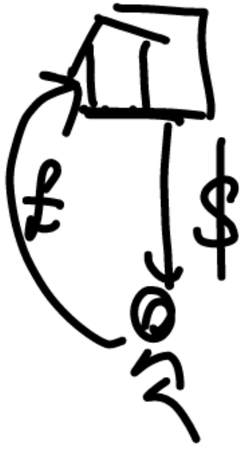
= $4000

$/£ 1.5617 - 1.5673

Buy $364897 from Bank

How Much £ required

① £ 233653



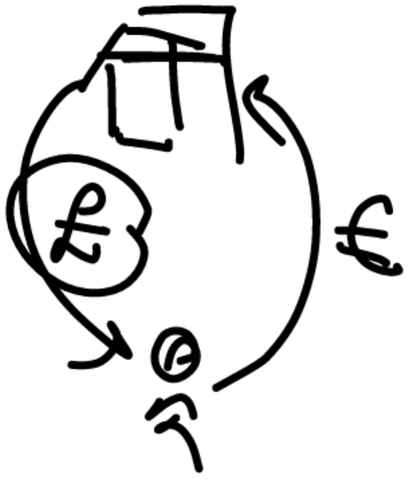
234!!37

€/£ 1.1960/1.1970

Sell €2800000 to Bank

£ Receivable = ?

2339181



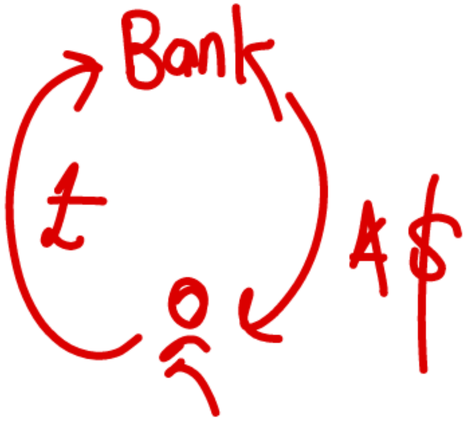
A$/£ 1.5250/1.5305

250000/1.5250

Buy A$ 250000 from Bank

£ required = ?

£



4. Appreciation & depreciation in currency

① ₹/$ = 80.00

- $ will appreciate by 10%.
  ₹/$ = ₹80 × 1.10
  = ₹88
- $ will depreciate by 10%.
  ₹/$ = ₹80 × 0.9
  = ₹72

② ₹/$ = 80

- ₹ will appreciate by 10%.
- ₹ will depreciate by 10%.

ICAI	₹/$ = 72	₹/$ 88

Logically = $\frac{80}{1.10} = 72.72$

$\frac{80}{0.9} = 88.89$

Ram = Age 20 YEARS

Shyam Age 30 YEARS

Shyam : $\frac{30-20}{30} \times 100 = 33.33\%$

Ram : $\frac{30-20}{20} = 50\%$

EXAMPLE – 12

₹/$ = 70

If $ will appreciate by 10% what is new Exchange Rate.

(Page No. 02)

EXAMPLE – 13

₹/$ = 70

If ₹ will depreciate by 10% what is new Exchange Rate.

(Page No. 02)

70×1.10

$= 77$

EXAMPLE – 14

₹/$ = 70

If $ will depreciate by 10% then calculate New Exchange Rate.

(Page No. 02)

70 × 0.9

EXAMPLE – 15

₹/$ = 70

If ₹ will appreciate by 10% then calculate New Exchange Rate.

(Page No. 02)

70 × 0.9

5. Cross Rates (Imp)

- **Without Bid Ask**

India

Ram

How Much Rupees required for 1 £ (₹/£ = 100)

₹/$ = 80

$/£ 1.25

₹/£ = 80 × 1.25

= ₹100

EXAMPLE – 16

₹/$ = 60

$/£ = 1.50

₹/£ = ?

(Page No. 02)

EXAMPLE – 17

₹/£ = ₹ 90

$/£ = 1.50

₹/$ = ?

$₹90 \times \frac{1}{1.50}$

$= ₹60$

(Page No.

EXAMPLE – 18

¥/₹ = 3.45

₹/$ = 70

$/¥ = ?

$$\frac{1}{70} \times \frac{1}{3.45} = 0.00414$$

(Page No. 03)

EXAMPLE – 19

£/$ = 0.8045

$/₹ = 0.0167

₹/£ = ?

$$\frac{1}{0.0167} \times \frac{1}{0.8045} \quad 74.43$$

(Page No.

EXAMPLE – 20

¥/$ = 145

$/₹ = 0.165

¥/₹ = ?

145 x 0·165

= 23·925

(Page No.

EXAMPLE – 21

GBP/USD = 1.3575

USD/ INR = 70.7525

GBP/INR = ? 96.05

(Page No. 03)

$/£ = 1.3575

₹/$ = 70.7525

₹/£ = 70.7525 X 1.3575

= 96.05

EXAMPLE – 22

₹/$ = 60

$/€ = 1.25

€/£ = 1.40

₹/£ = ?

(Page No. 03)

$$\frac{₹}{\$} \times \frac{\$}{€} \times \frac{€}{£}$$

$$60 \times 1.25 \times 1.40 = 105$$

EXAMPLE – 23

£/$ = 0.8045

₹/$ = 45.25

₹/€ = 72.50

€/£ = ?

(Page No. 04)

$$\frac{€}{₹} \times \frac{₹}{\$} \times \frac{\$}{£}$$

$$\frac{1}{72.50} \times 45.25 \times \frac{1}{0.8045} = 0.7758$$

(ii) Cross Rate with Bid-Ask

India

₹/$ = 80.25 / 80.75

Ram

UK

$/£ 1.25 / 1.30

How Much Rupees required for 1 £ ?

₹/$ 80.25 / 80.75

$/£ 1.25 / 1.30

₹/£ Bid = ?

Ask = ?

Bid Rate = 80.25×1.25

$= 100.3125$

Ask Rate = 80.75×1.30

$= 104.975$

* अगर हमे ₹ देकर £ खरिदना है । Bank £ Sell (Ask)
  - ₹ देकर $ Buy करना होगा
    ₹/$ 70·75
  - $ देकर £ Buy करना होगा
    $/£ = 1·5085

Ask ₹/£ = 70·75 × 1·5085

* अगर हम £ Sell करके ₹ लेना चाहते है तो Bank £ Buy करेगा
  - £ Sell करके $ लेंगे
    $/£ 1·5045
  - फिर Bank को $ देकर ₹ लेंगे
    ₹/$ 70·25

Bid ₹/£ 70·25 × 1·5045

EXAMPLE – 24

₹/$ = 70.25/70.75

$/£ = 1.5045/1.5085

₹/£ = ?

(Page No. 04)

Bid = 70·25 × 1·5045 = 105·69

Ask = 70·75 × 1·5085 = 106·73

- अगर हमे £ Buy करना है और हमारे पास $ है।

→ पहले $ से ₹ Buy करना होगा

₹/$ = 71.25

→ हमारे पास ₹ आ गया अब Bank को ₹ देकर £ Buy करेंगे ₹/£ = 91.25

Ask $/£ = $\frac{1}{71.25} \times 91.25$

EXAMPLE – 25

₹/£ = 90.45/91.25

₹/$ = 71.25/71.75

$/£ = ?

(Page No. 04)

Bid Rate = $\frac{1}{71.75} \times 90.45 = 1.2607$

Ask Rate = $\frac{1}{71.25} \times 91.25 = 1.2807$

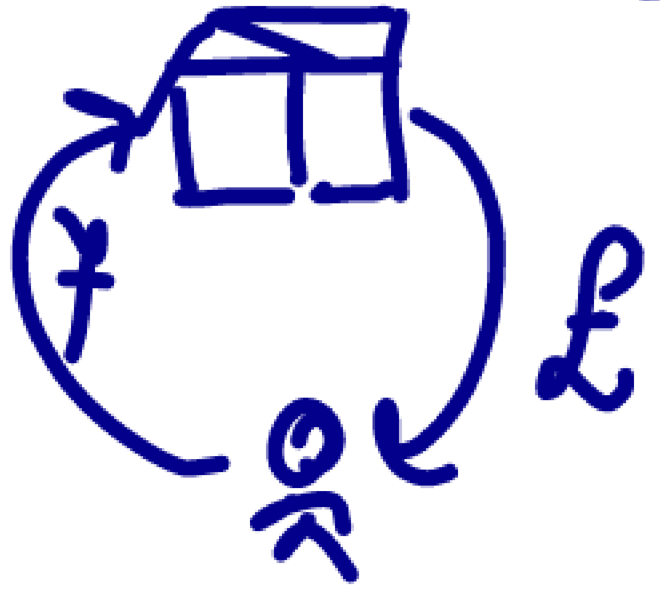
JPY/GBP = 0.0045/0.0075

Buy £2000 from Bank

¥ = ?

44444.44

£/¥ 0.0045/0.0075



$\frac{2000}{0.0045} =$

- अगर हमे £ Buy करना है और हमारे पास $ है।

→ पहले $ से ₹ Buy करना होगा

₹/$ = 71.25

→ हमारे पास ₹ आ गया अब Bank को ₹ देकर £ Buy करेंगे

₹/£ = 91.25

Ask $/£ = $\frac{1}{71.25} \times 91.25$

EXAMPLE – 25

₹/£ = 90.45/91.25

₹/$ = 71.25/71.75

$/£ = ?

(Page No. 04)

Bid Rate = $\frac{1}{71.75} \times 90.45 = 1.2607$

Ask Rate = $\frac{1}{71.25} \times 91.25 = 1.2807$

₹/€ 96.02/96.25

₹/£ 102.45/102.95

€/£ Bid = $\frac{1}{96.25} \times 102.45$

= 1.0644

Ask Rate = $\frac{1}{96.02} \times 102.95$

= 1.0722

Case 1 हमारे पास £ है और हमे Bank को £ बेचकर € Buy करना है।

- first £ Sell करके ₹ Buy करेंगे

  ₹/£ = 102.45

- उसके बाद ₹ देकर € Buy करेंगे

  ₹/€ = 96.25

  €/£ = $\frac{1}{96.25} \times 102.45 = 1.0644$

Case-2 हमे Bank से £ Buy करना है € देकर

- Buy ₹ from €

  ₹/€ = 96.02

- Buy £ from ₹

  ₹/£ = 102.95

€/£ $\frac{1}{96.02} \times 102.95$

= 1.0722

¥/₹ 3.25/3.85

$/₹ 0.0128/0.0132

¥/$ Bid = $3.25 \times \frac{1}{0.0132}$

Ask $3.85 \times \frac{1}{0.0128}$ = Bid = 246.21

Ask = 300.78

EXAMPLE – 25

₹/£ = 90.45/91.25

₹/$ = 71.25/71.75

$/£ = ?

1.2606 Bid =

1.2807 Ask =

(Page

EXAMPLE – 26

¥/$ = 145/153

¥/£ = 182/185

£/$ = ?

$$\text{Bid} = \frac{1}{185} \times 145 = 0.7838$$

$$\text{Ask} = \frac{1}{182} \times 153 = 0.8407$$

(Page No. 04

- हमे $ देकर £ Buy करना है

- Buy ₹ from $

  $/₹ = 0.0168

- Buy € from ₹

  ₹/€ = 75.85

- Buy £ from €

  £/€ = 0.8525

$$\$/£ = \frac{\$}{₹} \times \frac{₹}{€} \times \frac{€}{£}$$

$$= 0.0168 \times 75.85 \times \frac{1}{0.8525}$$

EXAMPLE – 27

$/₹ = 0.0165/0.0168

₹/€ = 75.45/75.85

£/€ = 0.8525/0.8605

$/£ = ?

(Page No. 04)

$$\text{Bid} = \frac{\$}{₹} \times \frac{₹}{€} \times \frac{€}{£} \times \frac{1}{£}$$

$$= 0.0165 \times 75.45 \times \frac{1}{0.8605} = 1.4467$$

$$\text{Ask} = 0.0168 \times 75.85 \times \frac{1}{0.8525} = 1.4947$$

EXAMPLE – 28

GBP/USD = 1.5045/85

USD/JPY = 152/155

JPY/GBP = ?

£/¥

$/£ 1.5045/1.5085

¥/$ 152/155

£/¥

$$Bid = \frac{1}{1.5085} \times \frac{1}{155} = 0.0043$$

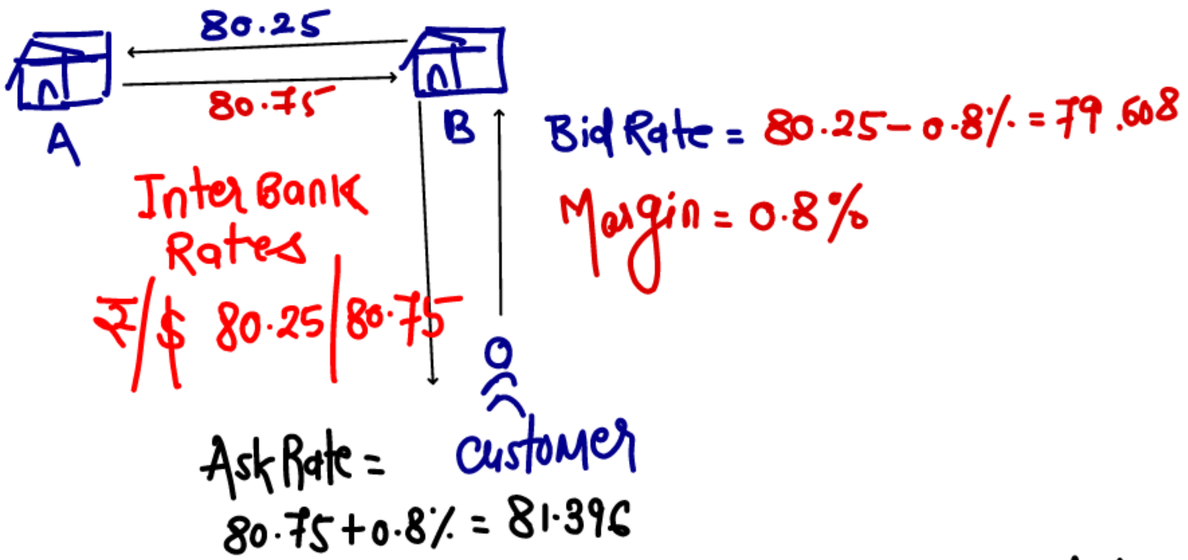
$$Ask = \frac{1}{1.5045} \times \frac{1}{152} = 0.0044$$

Bid = 0.0043

Ask = 0.0044

(Page No

6. Calculation of Customer's Rate



If Inter Bank Rates are given, then Margin is added to Ask Rate & Substracted from Bid Rate to calculate customer's Rate.

(Bank sell करेगा तो ऑफर ज्यादा है
& Buy करेगी तो ऑफर कम है)

QUESTION – 01

Given:

US$ 1 = ¥ 107.31

£ 1 = US$ 1.26

A$ 1 = US$ 0.70

(i) Calculate the cross rate for Pound in Yen terms

(ii) Calculate the cross rate for Australian Dollar in Yen terms

(iii) Calculate the cross rate for Pounds in Australian Dollar terms

(RTP November - 2020)

(Page No. 22)

¥/$ 107.31

$/£ 1.26

$/A$ 0.70

① ¥/£

¥/£ = 107.31 × 1.26 = 135.21

② ¥/A$ = 107.31 × 0.70 = 75.117

③ A$/£ = $\frac{1}{0.70} \times 1.26 = 1.800$

QUESTION – 03

On January 28, 2013 an importer customer requested a Bank to remit Singapore Dollar (SGD) 2,500,000 under an irrevocable Letter of Credit (LC). However, due to unavoidable factors, the Bank could effect the remittances only on February 4, 2013. The inter-bank market rates were as follows:

	January 28, 2013	February 4, 2013
US$ 1 = ₹	₹ 45.85/45.90	₹ 45.91/45.97
GBP £ 1 = $	US$ 1.7840/1.7850	US$ 1.7765/1.7775
GBP £ 1 = SGD	SGD 3.1575/3.1590	SGD 3.1380/3.1390

The Bank wishes to retain an exchange margin of 0.125%

Required:

How much does the customer stand to gain or lose due to the delay?

(Note: Calculate the rate in multiples of 0.0001)

(Study Material, PM & Exam November - 2011)

(Page No. 24)

28/1/2013

₹/SGD

- Buy $ from ₹
  ₹/$ = 45.90
- Buy £ from $
  $/£ = 1.7850
- Buy SGD from £
  SGD/£ = 3.1575

$$₹/SGD = \frac{₹}{\$} \times \frac{\$}{£} \times \frac{£}{SGD}$$

$$= 45.90 \times 1.7850 \times \frac{1}{3.1575}$$

$$= ₹25.9482 + 0.125\% = 25.9806$$

4/2/2013

₹/SGS

$$45.97 \times 1.7775 \times \frac{1}{3.1380}$$

$$= 26.0394 + 0.125\%$$

$$= 26.0719$$

Loss due to the delay $(25.9806 - 26.0719)\ 2500000$

$= ₹228250$

QUESTION – 04

December 27, 2001 a customer 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 affect the remittance only on January 3, 2002. The interbank market rates were as follows:

	December 27	January 3
Bombay	$ /₹ 100: 3.15-3.10	3.12-3.07
London	$/1 pound: 1.7250/60	1.7175/85
	DG / 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?

(Page No. 25)

① GBP/USD = 1.2540/1.2570 $/£

Buy $5000 from Bank

£ required = ?

3977.77

3987.24

QUESTION – 03

On January 28, 2013 an importer customer requested a Bank to remit Singapore Dollar (SGD) 2,500,000 under an irrevocable Letter of Credit (LC). However, due to unavoidable factors, the Bank could effect the remittances only on February 4, 2013. The inter-bank market rates were as follows:

	January 28, 2013	February 4, 2013
US$ 1 =	₹ 45.85/45.90	₹ 45.91/45.97
GBP £ 1 =	US$ 1.7840/1.7850	US$ 1.7765/1.7775
GBP £ 1 =	SGD 3.1575/3.1580	SGD 3.1380/3.1390

The Bank wishes to retain an exchange margin of 0.125%

Required:

How much does the customer stand to gain or lose due to the delay?

(Note: Calculate the rate in multiples of 0.0001)

(Study Material, PM & Exam November - 2011)

(Page No. 24)

28/1/2013

₹/SGD

- Buy $ from ₹
  ₹/$ = 45.90
- Buy £ from $
  $/£ = 1.7850
- Buy SGD from £
  SGD/£ = 3.1575

$$₹/SGD = \frac{₹}{\$} \times \frac{\$}{£} \times \frac{£}{SGD}$$

$$= 45.90 \times 1.7850 \times \frac{1}{3.1575}$$

$$= ₹25.9482 + 0.125\% = 25.9806$$

4/2/2013

₹/SGS

$$45.97 \times 1.7775 \times \frac{1}{3.1380}$$

$$= 26.0394 + 0.125\%$$

$$= 26.0719$$

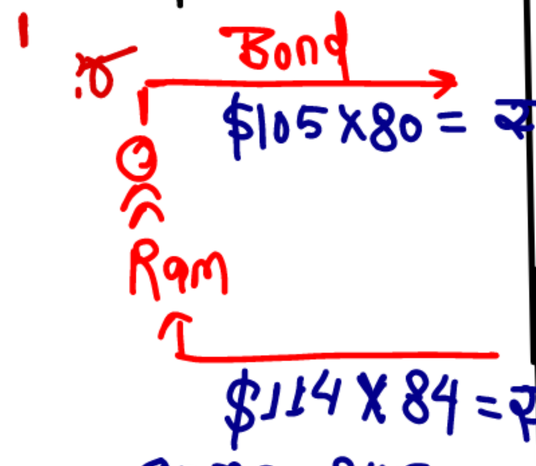
Loss due to the delay $(25.9806 - 26.0719) \times 2500000$

$= ₹228250$

Eg

Suppose $ appreciated by 5% Calculate Return for Indian Investor

Spot Rate $1 = ₹80



$$\% = \frac{9576 - 8400}{8400} \times 100 = 14\%$$

USA

Bond = $105

Investment for 1 YEAR

After 1 YEAR =

Coupon = $7

Redeemable Value = $107

Calculate % of Return for US Investor

$$HPR = \frac{(\$107 - \$105) + \$7}{\$105} \times 100$$

$$= 8.57\%$$

$$\text{Or } \left[(1.0857)(1.05) - 1\right] = 14\%$$

QUESTION – 05

$5000 $5250 $350

The price of a bond just before a year of maturity is $ 5,000. Its redemption value is $ 5,250 at the end of the said period. Interest is $ 350 p.a. The Dollar appreciates by 2% during the said period. Calculate the rate of return.

(Study Material, PM & Exam May – 2012)

(Page No. 27)

US Investor

$$\text{Return} = \frac{\$5250 + 350 - \$5000}{\$5000} \times 100$$

$$= 12\% \text{ p.a.}$$

Other than US Investor

$$\text{Return} = \left[(1.12)(1.02) - 1\right] \times 100 = 14.24\%$$

2. Spot Market Arbitrage

Suppose forice of $

In India = ₹/$ 80.50

In USA = ₹/$ 80.90

Buy $ from India at ₹ 80.50 &

Sell in USA at ₹ 80.90

Arbitrage Gain = (₹ 80.90 - 80.50)

= ₹0.40 per $

EXAMPLE – 29

₹/$ = 60.50/60.75 India

₹/$ = 60.90/61.25 USA

Calculate Arbitrage Gain

(Page No. 05)

Buy $ from India at ₹ 60.75

& sell in USA at ₹ 60.90

Gain = 0.15 per $

EXAMPLE – 30

$/£ = 1.5025/1.5175 US

$/£ = 1.5075/1.5195 UK

Calculate Arbitrage Gain

UK ~~/~~ US

(Page No. 05)

No Arbitrage

EXAMPLE – 31 (Imp)

In USA

₹/$ = 60

$/£ = 1.50

i. On the basis of above exchange rate, what should be price of £ in India. ₹/£

ii. If £ is quoted in India at ₹ 80, calculate arbitrage.

(Page No. 05)

① price of £ in India (should be)

₹/$ 60

$/£ 1.50

₹/£ = 60 × 1.50 = ₹90

② Arbitrage

If Actual Rate of £ in India ₹80 then buy £ from India at ₹80 & sell in USA at ₹90.

EXAMPLE – 32

₹/$ = ₹ 60.50 INDIA
$/£ = $ 1.5045 USA
£/₹ = £ 0.0125 UK

£/₹ $\frac{1}{1.5045} \times \frac{1}{60.50} = 0.01099$ £/₹

If you have ₹1,00,000 calculate arbitrage.

(Page No. 05)

Following steps are applied for Arbitrage

1. Buy £ from UK (₹ 100000 × 0.0125) = £1250
2. Buy $ from US (£1250 × 1.5045) = $1880.625
3. Sell $ in India ($1880.625 × 60.50) = ₹113778

Arbitrage Gain = ₹113778 - ₹100000
= ₹13778

EXAMPLE – 33

₹/$ = 60.50/60.75 INDIA

$/£ = 1.5075/1.5125 USA

£/₹ = 0.0125/0.0135 UK

If you have ₹ 1,00,000 calculate arbitrage gain.

Arbitrage process

(Page No. 05)

- Buy £ from UK (₹ 100000 × 0.0125) = £1250
- Buy $ from USA (£1250 × 1.5075) = $1884.375
- Sell $ In India ($1884.375 × 60.50) = ₹114005

Gain = 114005 - 100000 = 14005

QUESTION – 06

On the same date that the DM spot rate was quoted at $ 0.40 in New York, the price of the pound Sterling was quoted at $ 1.80:

(i) What would you expect the price of the Pound to be Germany?

(ii) If the Pound was quoted in Frankfurt at DM 4.40/Pound, what would you do to profit from situation.

(Page No. 28)

NY $/DM = $0.40

$/£ = $1.80

$$DM/£ = \frac{1}{\$0.40} \times 1.80 = 4.50$$

Arbitrage

Buy £ from frankfurt at DM 4.40 & sell in NY at DM 4.50

Arbitrage (4.50 - 4.40)

= DM 0.10 per £

QUESTION – 07

$1000000

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$112968

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 USD 1,00,00,000. Assuming that there are no transaction costs, explain whether there is any arbitrage gain possible from the quoted spot exchange rates.

(Study Material & PM)

(Page No. 28)

① $ → ₹ → £ — $

② $ → £ → ₹ → $

QUESTION – 08

USD 10,000 is lying idle in your Bank Account. You are able to get the following quotes from the dealers:

Dealer	Quote
A	EUR/USD 1.1539
B	EUR/GBP 0.9094
C	GBP/USD 1.2752

Is there an opportunity of gain from these quotes?

(Exam November – 2020)

(Page No. 29)

QUESTION – 09

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

USD/INR	59.25/59.35 in Mumbai
GBP/INR	102.50/103.00 in London
GBP/USD	1.70/1.72 in New York

The arbitrageur has USD 1,00,00,000. Assuming that bank wishes to retain an exchange margin of 0.125%. explain Whether there is any arbitrage gain possible from the quoted spot exchange rates.

(Page No. 30)

₹/€ 98.25/99.45

£/€ 0.8025/0.8150

₹/£ 102.45/103.05

970.4025

16984.13

We have ₹ 100000

Arbitrage Gain =

3 forward Contract (Imp)

It over the Counter (OTC) Contract in which Contract to buy or sell Currency in future at predetermine Rate (forward Rate)

EXAMPLE – 34

Spot Rate

₹/$ = 70.50/71.25

3 Months Expected SR

₹/$ = 74.00

3 Months Forward Rate

₹/$ = 72.50

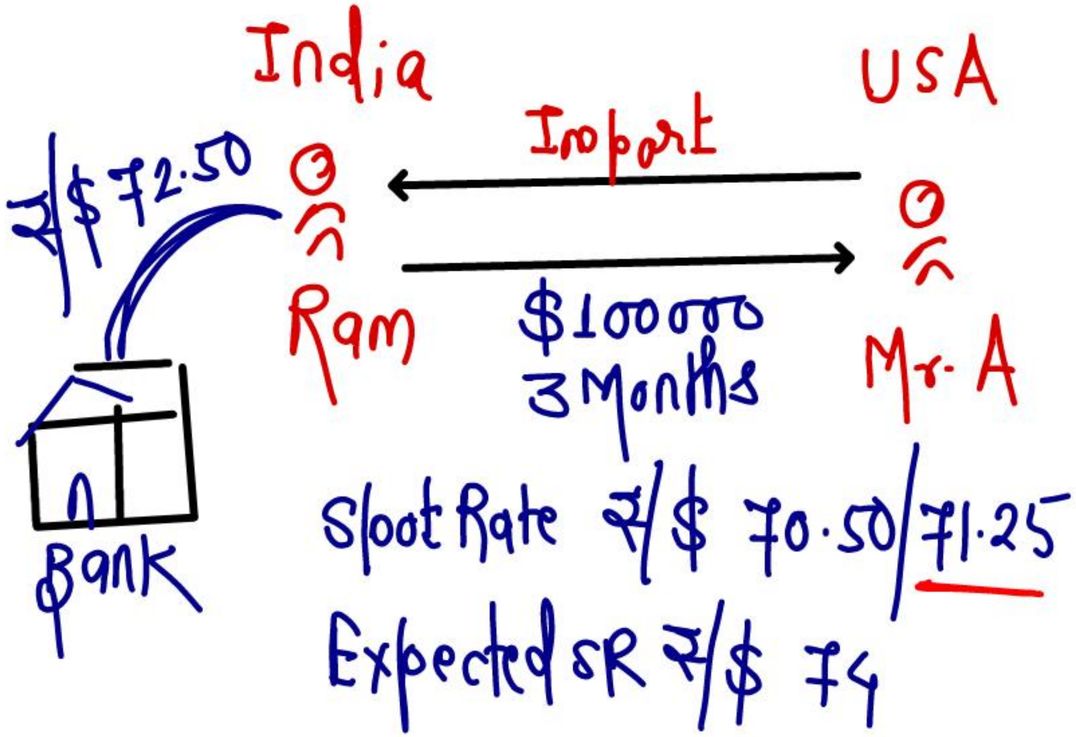
Import proceeds = $100000

(i) Calculate expected loss.

(ii) Whether Ram should enter into forward contract ?

(iii) If yes, saving in loss due to the forward contract ?

(Page No. 05)



① Expected Loss

If Buy $ at SR ($100000 × 71.75) = ₹7125000

If Buy $ at Expected SR ($100000 × 74) = ₹7400000

Expected Loss ₹275000

② Since Expected SR is more than FR hence Ram should enter into forward contract.

③ Savings in Loss due to Hedging

If Buy $ at Expected SR [Hedging is not done]	7400000
If Buy $ at FR ($100000 × 7200) [Hedging is done]	7200000
Saving in Loss =	₹150000

EXAMPLE – 35

Spot Rate

₹/£ = 90.00/90.50

Expected Spot Rate

₹/£ = 87.50

3 Months Forward Rate (Bank)

₹/£ = 89.00

£ receivable = £50000

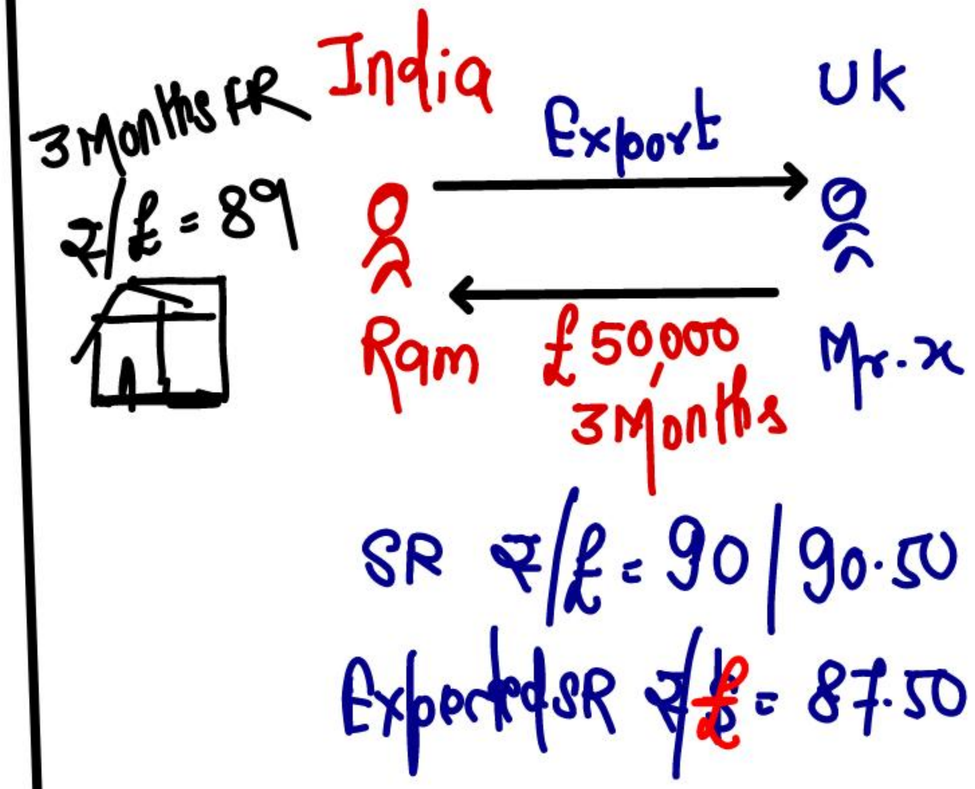
(i) Calculate expected loss. ₹ 125000

(ii) Whether Ram should enter into forward contract? Yes

(iii) If yes, saving in loss due to forward contract.

₹ 75000

(Page No. 06)



EXAMPLE – 36

Spot Rate $/₹ = 0.01428

3 Months Expected Spot Rate

$/₹ = 0.01333

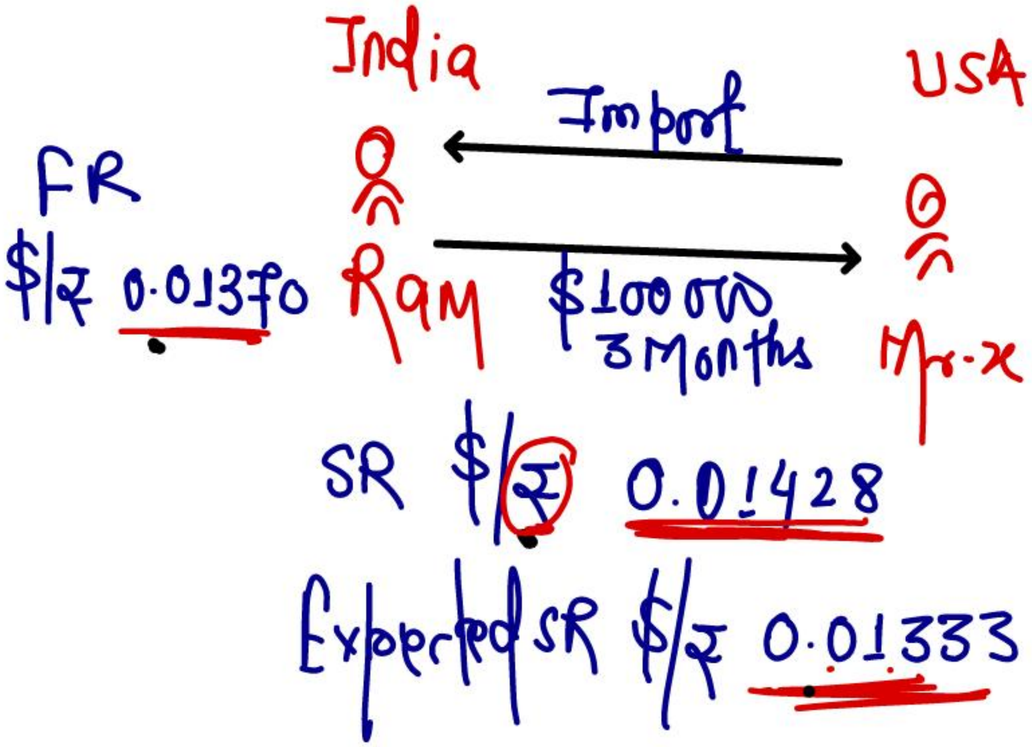
3 Months Forward Rate

$/₹ = 0.01370

i. Whether importer should enter into forward contract.

ii. If yes, calculate savings in loss due to forward contract.

$ Payable = $100000 (Page No. 06)



① Expected Loss

If Buy $ at SR = $\frac{\$100000}{0.01428}$ = ₹7002801

If Buy $ at Expected SR = $\frac{\$100000}{0.01333}$ = ₹7501875

Expected Loss = 499075

② Yes, Importer should enter into forward contract because FR is more than Expected SR.

③ Savings in Loss due to forward contract

If Hedging is not done (Expected SR) ₹7501875

If Hedging is done ($\frac{\$100000}{0.01370}$) ₹7299270

Savings : 202605

$ premium

SR = ₹/$ 82.50

3 Months FR ₹/$ 83.25

$$\frac{83.25 - 82.50}{82.50} \times 100 \times \frac{12}{3}$$

☞ forward premium or discount

$$\text{premium/(discount)} = \frac{F - S}{S} \times 100 \times \frac{12}{\text{period}}$$

EXAMPLE – 37

Spot Rate	₹/$	= 70.25/70.85
2 Months FR	₹/$	= 71.45/71.75
6 Months FR	₹/$	= 69.25/69.95

Calculate forward premium/(Discount) in $.

	Bid	Ask	(Page No. 07)
2 Month	10.25%	7.62%	premium in $
3 Month	2.85%	2.54%	Disc. in $

EXAMPLE – 38 (Imp)

Spot Rate ₹/$ = 70.45

3 Months FR ₹/$ = 71.25

Calculate Premium/Discount in

(i) $ (ii) ₹

(Page No. 07)

Premium in $

$$\text{Premium in \$} = \frac{F-S}{S} \times 100$$

$$= \frac{71.25-70.45}{70.45} \times 100 \times \frac{12}{3} = 4.54\%$$

Disc. in ₹

$$\frac{\text{Disc. in ₹}}{\text{Disc. in ₹}} = \frac{\frac{1}{71.25} - \frac{1}{70.45}}{\frac{1}{70.45}}$$

$$= \left(\frac{1}{71.25} - \frac{1}{70.45}\right) \times \frac{70.45}{1}$$

$$= \frac{70.45}{71.25} - \frac{70.45}{70.45}$$

$$= \frac{70.45}{71.25} - 1$$

$$\boxed{\frac{S-F}{F} \times 100} = \frac{70.45-71.25}{71.25} \times 100 \times \frac{12}{3} = 4.49\% \text{ Disc. in ₹}$$

EXAMPLE – 39

$/£ = 1.5825 Spot

$/£ = 1.5975 3 Months FR

Calculate premium/discount in $.

(Page No. 07)

$$\frac{S-F}{S} \times 100 \times \frac{12}{3}$$

= 3.755% p.a. disc. in $

3 Calculation of forward Rate with the help of Swap points

Swap points basically "paisa" (पैसा अंक) premium or discount.

If Swap points are Low/High (10/15) then Swap points are added to spot Rate

If Swap points are High/Low (25/10) then Swap points are Substracted from spot Rate

EXAMPLE – 40

Spot Rate ₹/$ = 60.25/45

1 Months swap = 10/15

2 Months swap = 25/15

Calculate 1 Month & 2 Months FR.

(Page No. 07)

SR	₹ 60.25	60.45
(+) 1 Month	+ 00.10	00.15
1M FR	60.35	60.60

SR	60.25	60.45
(-) Swap	0.25	0.15
	60.00	60.30

EXAMPLE – 41

Spot Rate ₹/$ = 70.4525/71.2525

1 Month Swap = 30/60

3 Months Swap = 40/70 paisa

$\frac{40}{100}$

Calculate 1 Month & 3 Month FR

$\frac{40}{100} = 0.4$

(Page No. 07)

1 Month FR

	SR		
		70.4525	71.2525
(+) 1 Month Swap		0.0030	0.0060
		70.4555	71.2585

3 Months FR

	SR		
		70.4525	71.2525
(+) Swap		0.4000	0.7000
		70.8525	71.9525

EXAMPLE – 42

Spot Rate ₹/$ = 70.75/45

3 Months Swap = 140/125

Calculate 3 Months FR

(Page No.

70.75	71.45
1.40	1.25
69.35	70.20

EXAMPLE – 43

Spot Rate $/£ = 1.5275/1.5325

2 Months Swap = 0.35/0.45 cents

2 Months FR = ?

0.35 / 100

(Page No. 08)

SR	1.5275 / 1.5325
2 Month Swap	0.0035 / 0.0045
FR	1.5310 / 1.5370

QUESTION – 09

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

USD/INR	59.25/59.35 in Mumbai	₹/$
GBP/INR	102.50/103.00 in London	₹/£
GBP/USD	1.70/1.72 in New York	$/£

The arbitrageur has USD 1,00,00,000. Assuming that bank wishes to retain an exchange margin of 0.125%, explain Whether there is any arbitrage gain possible from the quoted spot exchange rates.

$ → £ → ₹ → $ (Page No. 30)

$3663

1.72 + 0.125% = 1.7221

£5806863.71

102.50 − 0.125% = 102.3719

₹ 594459671

59.35 + 0.125% = 59.4242

QUESTION – 11

The following 2-way quotes appear in the foreign exchange market:

	Spot	2-months forward
RS/US $	₹ 46.00/₹ 46.25	₹ 47.00/₹ 47.50

Required:

(i) How many US dollars should a firm sell to get ₹ 25 lakhs after 2 months?

(ii) How many Rupees is the firm required to pay to obtain US $ 2,00,000 in the spot market?

(iii) Assume the firm has US $ 69,000 in current account earning no interest. ROI on Rupee investment is 10% p.a. Should the firm encash the US $ now or 2 months later?

(Study Material & PM)

(Page No. 32)

(i)

US dollars should be sold to get ₹ 2500000

₹/$ 47 = 2500000 / 47

= $53191.49

(ii) Rupees required to buy $200000 at SR

₹/$ 46.25

$200000 × 46.25 =

₹ 9250000

(III) Calculation of Cash Inflows

(I) Encash Now

Sell $69000 at SR

$69000 × 46 = ₹ 3174000

Invest ₹ 3174000 @ 10% P.A. for 2 Months

Cash Inflows

Principal = 3174000

(+) Int $\left(3174000 \times 10\% \times \frac{2}{12}\right)$ = 52900

CI = ₹ 3226900

(II) Encash after 2 Months

Sell $69000 at 2 Months FR

$69000 × 47

= ₹ 3243000

Encash after 2 Months is better due to Higher Cash Inflows.

QUESTION – 12

The following 2-way quotes appear in the foreign exchange market:

	Spot	2-months spread
₹/US $	74.007/74.25	1.00/1.25

(i) You are required to calculate:

(a) 2 months forward rates.

(b) How many US dollars should the firm sell to get ₹ 10 lakhs in the spot market and after 2 months?

(c) How many Rupees is the firm required to pay to obtain US $ 80,000 in the spot market and after 2 months?

(ii) Assume the firm has US $ 27,600 in current account earning no interest. ROI on Rupee investment is 10% p.a. Should the firm encash the US $ now or after 2 months?

(Exam Nov-22)

(Page No. 33)

QUESTION – 13

In March, 2009, the Multinational Industries make the following assessment of dollar rates per British pound to prevail as on 1.9.2009:

$/Pound	Probability
1.60	0.15
1.70	0.20
1.80	0.25
1.90	0.20
2.00	0.20

$/£

(i) What is the expected spot rate for 01/09/2009?

(ii) If, as of March, 2009, the 6-month forward rate is $ 1.80, should the firm sell forward its pound receivables due in September, 2009?

(Study Material & PM)

(Page No. 34)

① Expected spot Rate

Expected SR = (1.60 × 0.15) + (1.70 × 0.20) + (1.80 × 0.25) + (1.90 × 0.20) + (2.00 × 0.20)

$/£ = 1.81

② No firm should not sell its pound receivable at FR because Expected SR is more than FR.

QUESTION – 14 (Imp)

JKL Ltd., an Indian company has an export exposure of JPY 10,000,000 receivable August 31, 2014. Japanese Yen (JPY) is not directly quoted against Indian Rupee.

The current spot rates are:

INR/US $ = ₹ 62.22 ₹/$

JPY/US$ = JPY 102.34 ¥/$

∫ ₹/¥

It is estimated that Japanese Yen will depreciate to 124 level and Indian Rupee to depreciate against US $ to ₹ 65.

₹/$ = 65

¥/$ = 124

₹/¥

Forward rates for August 2014 are

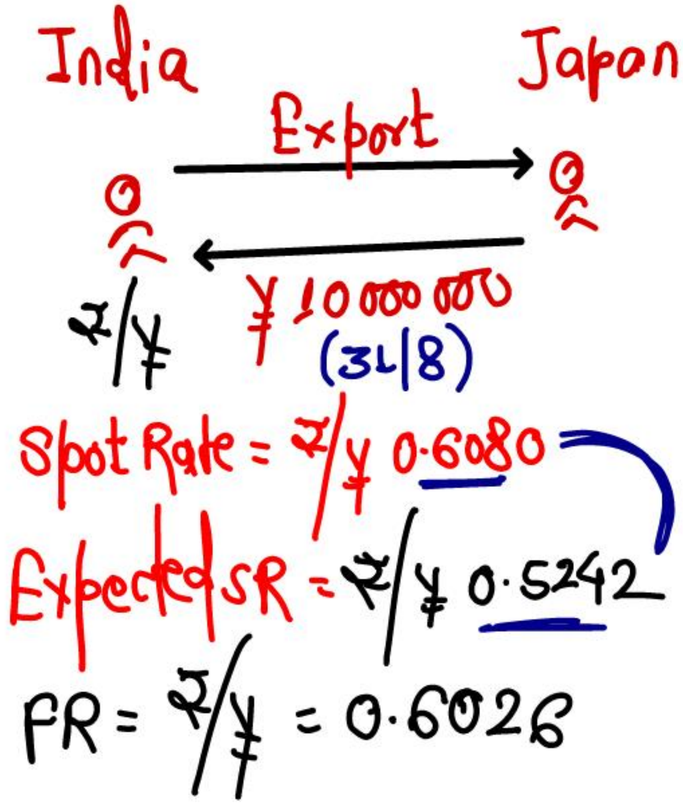
INR/US $ = ₹ 66.50 ₹/$

JPY/US$ = JPY 110.35 ¥/$

₹/¥ =

Required:

(i) Calculate the expected loss, if the hedging is not done. How the position will change, if the firm takes forward cover?



① Expected Loss if Hedging is not done

SR = ₹/¥ = $\frac{₹62.22}{102.34}$ = ₹0.6080

Expected SR ₹/¥ = $\frac{65}{124}$ = ₹0.5242

FR ₹/¥ = $\frac{66.50}{110.35}$ = ₹0.6026

- **Expected Loss** (SR & ESR)

If Sell ¥ at SR = ¥10000000 × 0.6080 = ₹6080000

If Sell ¥ at Expected SR = ¥10000000 × 0.5242 = ₹5242000

Expected Loss = ₹838000

- **Loss if Hedging is done** (SR & FR)

If Sell ¥ at SR = ₹6080000

If Sell ¥ at FR (¥10000000 × 0.6026) = ₹6026000

Loss ₹54000

Savings in Loss (838000 - 54000) = ₹784000

(ii) If the spot rates on August 31, 2014 are:

INR/US $ = ₹ 66.25

JPY/US$ = JPY 110.85

₹/¥ = 0.5977

Is the decision to take forward cover justified?

(Study Material, PM & Exam May – 2014)

(Page No. 35)

(11)

Aug 31, 2014

Spot Rate = ₹/¥ $\frac{66.25}{110.85}$

= 0.5977

Calculation of Loss

If sell ¥ at SR =	6080000
If sell ¥ at SR(3/8) (¥10000000 × 0.5977)	5977000
Loss	103000

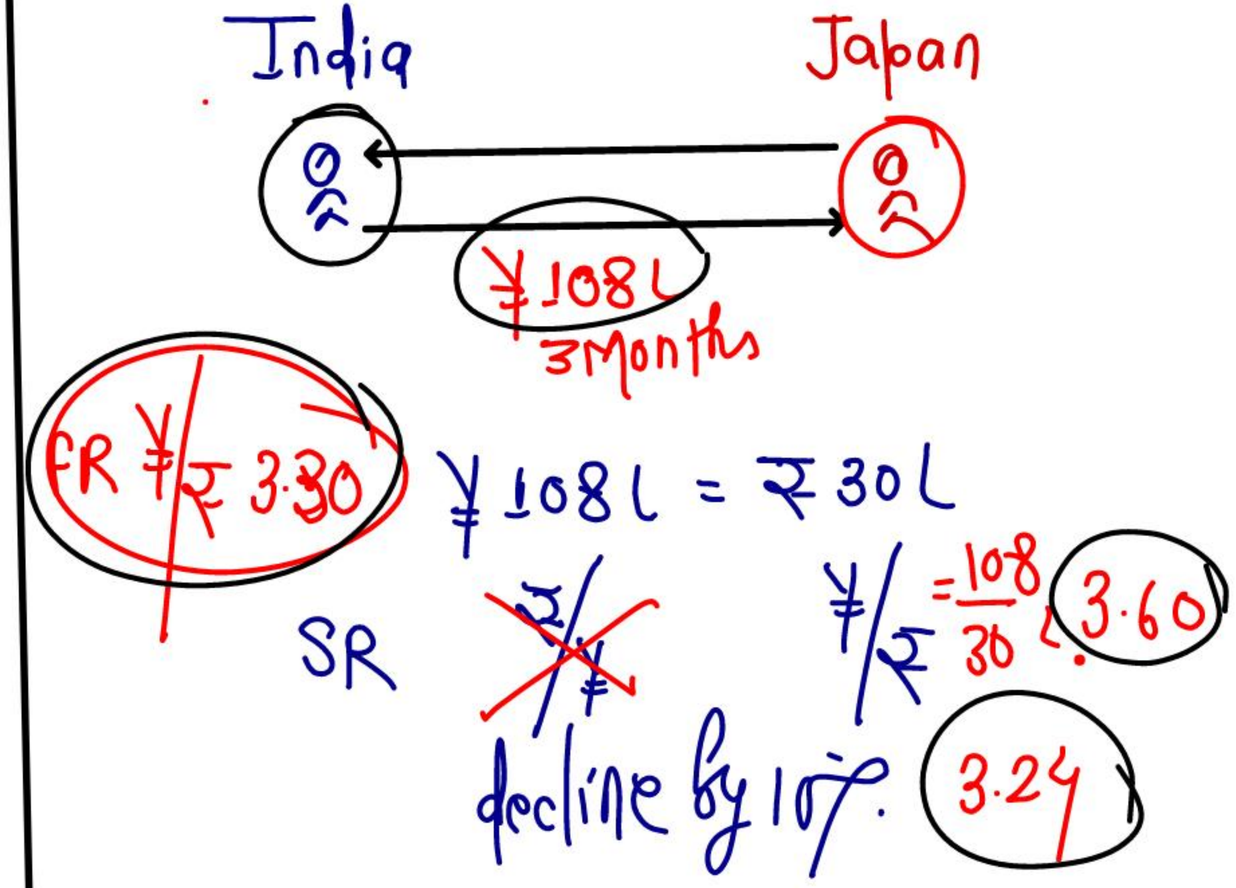
Yes forward Cover is justified due to Lesser Loss.

QUESTION – 15

A company operating in Japan has today effected sales to an Indian company, the payment being due 3 months from the date of invoice. The invoice amount is 108 lakhs yen. At today's spot rate, it is equivalent to ₹ 30 lakhs. It is anticipated that the exchange rate will decline by 10% over the 3 months period and in order to protect the yen payments, the importer proposes to take appropriate action in the foreign exchange market. The 3 months forward rate is presently quoted as 3.3 yen per rupee. You are required to calculate the expected loss and to show how it can be hedged by a forward contract.

(Study Material & PM)

(Page No. 37)



• Expected Loss if hedging is not done

If Buy Yen at SR $\left(\frac{¥108}{3.60}\right)$ = ₹3000000

If Buy Yen at Expected SR = $\left(\frac{¥10800000}{3.24}\right)$ ₹3333333

Expected Loss ₹333333

• Loss if Hedging is done

If Buy ¥en at SR ₹3000000

If Buy yen at FR $\left(\frac{¥10800000}{3.30}\right)$ ₹3272727

Loss ₹272727

Saving in Loss due to FC (333333 - 272727)

= ₹60606

QUESTION – 16

A Japanese Company effected sales to X Ltd., an Indian Company, the payment being due after 3 months. The invoice amount is JPY 216 lakhs, at today's spot rate it is equalent to ₹ 50 lakhs. It is anticipated that exchange rate will decline by 8% over the 3 months period and in order to protect the JPY payments, the importer proposes to take appropriate action in the foreign exchange market. The 3 months forward rate is presently quoted as JPY 4.12 per rupee.

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

(Exam December – 2021)

(Page No. 38)

QUESTION – 17

Humata Ltd. a Japanese Corporation, has sold goods today to Peacock Ltd., an Indian company for an amount of JPY 74 lakhs. The payment will be due in three months from the date of invoice. At today's spot rate, it is equivalent to INR 50 lakhs. It is anticipated that the INR will decline by 10% over the 3 – months period and in order to protect the Yen payments, Peacock decides to take appropriate action in the foreign exchange market. The 3 – months forward rate is presently quoted at JPY/INR 1.44.

You are required to calculate:

(i) The expected loss to the importer and

(ii) Impact of hedging by a forward contract.

(Exam December - 2021)

(Page No. 39)

QUESTION – 18 (IMP)

A company is considering hedging its foreign exchange risk. It has made a purchase on 1st July, 2016 for which it has to make a payment of US$ 60,000 on December 31, 2016. The present exchange rate is 1 US $ = ₹ 65. It can purchase forward 1 $ at ₹ 64. The company will have to make an upfront premium @ 2% of the forward amount purchased. The cost of funds to the company is 12% per annum.

In the following situations, compute the profit/loss the company will make if it hedges its foreign exchange risk with the exchange rate on 31st December, 2016 as:

(i) ₹ 68 per US $.

(ii) ₹ 62 per US $.

(iii) ₹ 70 per US $.

(iv) ₹ 65 per US $.

(Study Material, PM & Exam November – 2016)

(Page No. 40)

Gain = 360000 - 81408 = 278592

Gain = 60000 - 81408 = (21408)

Hedging Cost

Upfront premium ($60000 × 64 × 2%)	76800
Opp. cost (76800 × 12% × 6/12)	4608
Cost of Hedging	₹ 81408

(i) If Exchange Rate ₹ 68

Gain on forward cover (68 - 64) × 60000	240000
(-) Hedging Cost	81408
Net Gain	₹ 158592

(ii) If Exchange Rate ₹ 62

Loss on forward contract (64 - 62) × $60000	120000
(+) Hedging cost	81408
	₹ 201408

QUESTION – 19

TT Ltd. is planning to hedge its foreign exchange risk. It has made a purchase on 1st April 2021 for which it has to make a payment of US $ 1 Lakh on 30/09/2021. The present exchange rate is 1US $ = ₹ 73. It can purchase forward 1US $ at ₹ 74. TT Ltd. will have to make an upfront premium @ 1% of the forward amount purchased. The cost of the funds to the company is 10% p.a. In the following situations, compute the Gain/(Loss) of the TT Ltd. will make if they hedge with exchange rate on 30/09/2021 as:

(i) ₹ 76/US $

(ii) ₹ 70/US $

(iii) ₹ 79/US $

Note: Calculation to be done on monthly basis.

(Exam December – 2021)

(Page No. 42)

QUESTION – 20

ZX Ltd. has made purchases worth USD 80,000 on 1st May 2020 for which it has to make a payment on 1st November 2020. The present exchange rate is INR/USD 75. The company can purchase forward dollars at INR/USD 74. The company will have to make an upfront premium @ 1 per cent of the forward amount purchased. The cost of funds to ZX Ltd. is 10 per cent per annum.

The company can hedge its position with the following expected rate of USD in foreign exchange market on 1st May 2020:

	Exchange Rate	Probability
(i)	INR/USD 77	0.15
(ii)	INR/USD 71	0.25
(iii)	INR/USD 79	0.20
(iv)	INR/USD 74	0.40

You are required to advise the company for a suitable cover for risk.

(Exam November – 2020)

(Page No. 43)

QUESTION – 21

Digital Exporter are holding an Export bill in United States Dollar (USD) 5,00,000 due after 60 days. They are worried about the falling USD value, which is currently at ₹ 75.60 per USD. The concerned Export Consignment has been priced on an Exchange rate of ₹ 75.50 per USD. The Firm's Bankers have quoted a 60-days forward rate of ₹ 75.20

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Calculate:

(i) Rate of discount quoted by the Bank, assuming 365 days in a year.

(ii) The probable loss of operating profit if the forward sale is agreed to.

(Exam November - 2018)

(Page No. 44)

QUESTION – 22

Excel Exporters are holding an Export bill in United States Dollar (USD) 1,00,000 due 60 days hence. They are worried about the falling USD value which is currently at ₹ 45.60 per USD. The concerned Export Consignment has been priced on an Exchange rate of ₹ 45.50 per USD. The Firm's Bankers have quoted a 60-day forward rate of ₹ 45.20.

Calculate:

(i) Rate of discount quoted by the Bank

(ii) The probable loss of operating profit if the forward sale is agreed to.

(Study Material & PM)

(Page No. 45)

① Rate of discount (1 YEAR = 365 day)

$$\text{premium/(DISC)} = \frac{F - S}{S} \times 100 \times \frac{365}{60}$$

$$= \frac{₹45.20 - 45.60}{45.20} \times 100 \times \frac{365}{60}$$

$$= 5.34\%$$

② Probable Loss of operating profit if Hedging is done

$$\text{Probable Loss} = (45.20 - 45.50) \times \$100000$$

$$= ₹30000$$

QUESTION – 26

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

Cost and Sales information:

	Japan	USA	Europe
Variable cost per unit	₹225	₹395	₹510
Export sale 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/₹	US$/₹	Euro/₹
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

Advise AKC Ltd. by calculating average contribution to sales ratio whether it should hedge its foreign currency risk or not.

(Study Material, PM & Exam Nov – 2019)

(Page No. 48)

Contribution to Sales Ratio

	Japan	USA	Europe	Total
Recapt in 90 days	¥7800000	$102300	€95920	
Selling price per unit	¥650	$10.23	€11.99	
No. of units	12000 units	10000 units	8000 units	
VC per unit	₹225	₹395	510	
Variable cost	₹2700000	₹3950000	4080000	10730000
Sales if Hedging is done (forward)	¥7800000 / 2.427	$102300 / 0.0216	€95920 / 0.0178	13338719
	₹3213844	₹4736111	₹5388764	
Contribution (Sales - VC)				₹2608719
Contribution to Sales Ratio				2608719 / 13338719 x100 = 19.557%
Sales if Hedging is not done	¥7800000 / 2.459	$102360 / 0.02156	€95920 / 0.0179	
	₹3172021	₹4744898	₹5358659	13275578
Contribution				2545578
Contribution to Sales Ratio				2545578 / 13275578 x100 = 19.17%

Since Contribution to Sales Ratio is higher in forward cover hence it is better to Hedge

QUESTION – 27

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	1.4660
~~6 Months~~	~~10/15~~	
SPOT	GBP/USD 1.7645/60	GBP/USD 1.7640/50
3 Months	25/20	1.7690
~~6 Months~~	~~25/25~~	

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?

(Study Material & PM)

(Page No. 49)

① CHF Amt to buy £1000000

first Buy $ from Bank A at CHF/$ 1.4655

thereafter Buy £ from Bank B at $/£ 1.7650

CHF/£ = 1.4655 × 1.7650

= 2.5866

CHF for £1000000

£1000000 × 2.5866 =

CHF 2586600

(ii) Calculation of 3 months Swap

CHF/£

Spot Rate

CHF/$	1.4650/1.4655
$/£	1.7645/1.7660

CHF/£ Bid = 1.4650 × 1.7645
= 2.5850

Ask = 1.4655 × 1.7660
= 2.5881

3 months FR

CHF/$	1.4655/1.4665
$/£	1.7620/1.7640

CHF/£ 2.5822/2.5869

Swap points

	3 months FR	SR
	2.5822/2.5869	2.5850/2.5881
	-0.0028/-0.0012	

Swap 28/12

QUESTION – 30

The current spot exchange rate is $1.35/£ and the three-month forward rate is $1.30/£. According to your analysis of the exchange rate, you are quite confident that the spot exchange rate will be $1.32/£ after 3 months.

(i) Suppose you want to speculate in the forward market then what course of action would be required and what is the expected dollar Profit (Loss) from this speculation?

(ii) What would be your Profit (Loss) in Dollar terms on the position taken as per your speculation if the spot exchange rate turns out to be $1.26/£.

Assume that you would like to buy or sell £1,000,000.

(RTP November - 2020)

(Page No. 52)

(i) We Expect that Expected price of £ is more than forward Rate. In this situation we buy £ at FR ($1.30) & Sell at Expected SR ($1.32)

Gain = ($1.32 − $1.30) × £1000000

= $20000

(ii) If Rate of £ is $1.26

Loss (1.26 − 1.30) × £1000000

= $40000

QUESTION – 29

In International Monetary Market an international forward bid for December, 15 on pound sterling is $ 1.2816 at the same time that the price of IMM sterling future for delivery on December, 15 is $ 1.2806. The contract size of pound sterling is £ 62,500. How could the dealer use arbitrage in profit from this situation and how much profit is earned?

H.W

($1.2816 - $1.2806) × £6250 = $62.50

(Study Material)

(Page No. 52)

QUESTION – 28

An importer customer of your bank wishes to book a forward contract with your bank on 3rd September for sale to him of SGD 5,00,000 to be delivered on 30th October.

The spot rates on 3rd September are USD 49.3700/3800 and USD/SGD 1.7058/68. The swap points are:

USD/₹		USD/SGD	
Spot/September	0300/0400	1st Month Forward	48/49
Spot/October	1100/1300	2nd Month Forward	96/97
Spot/November	1900/2200	3rd Month Forward	138/140
Spot/December	2700/3100		
Spot/January	3500/4000		

Calculate the rate to be quoted to the importer by assuming an exchange margin of 5 paisa.

(Study Material, PM & Exam May – 2018)

(Page No. 51)

FEDAI

2 Months FR

SGD/$

Spot	1.7058 / 1.7068
2 Month Swap	0.0096 / 0.0097
SGD/$	1.7154 / 1.7165

₹/$

Spot	49.3700 / 49.3800
(+) Swap	0.1100 / 0.1300
₹/$	49.4800 / 49.5100

- First Buy $ from ₹

₹/$	49.5100
(+) Margin	0.0500
₹/$	49.5600

- Thereafter Buy SGD from $

SGD/$	1.7154

$$₹/SGD = 49.5600 \times \frac{1}{1.7154} = ₹\ 28.8912$$

QUESTION – 31

On April 3, 2016, a Bank quotes the following:

Spot exchange Rate (US $ 1)	INR 66.2525	INR 67.5945
2 months' swap points	70	90
3 months' swap points	160	186

In a spot transaction, delivery is made after two days.

Assume spot date as April 5, 2016.

Assume 1 swap point = 0.0001,

You are required to:

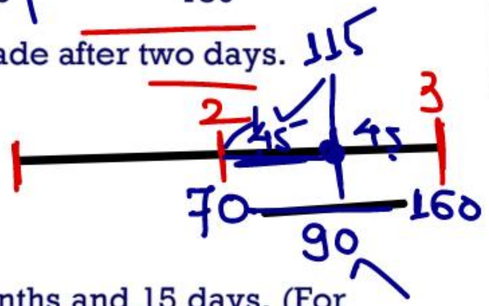
(i) Ascertain swap points for 2 months and 15 days. (For June 20, 2016),

(ii) Determine foreign exchange rate for June 20, 2016, and

(iii) Compute the annual rate of premium/discount of US$ on INR, on an average rate.

(Study Material, PM & Exam November – 2016)

(Page No. 53)



₹/$

1 Swap points

	Bid	Ask
3 Month Swap	160	186
(-) 2 Months Swap	70	90
Swap for 1 Month	90	96
Swap for 1/2 Month	$\frac{90}{2} = 45$	$\frac{96}{2} = 48$
(+) 2 Month Swap	70	90
2 Months & 15 days	115	138

(2) forward Rate for 20 June 2016

	Bid	Ask
SR	66.2525	67.5945
(+) Swap	0.0115	0.0138
FR	66.2640	67.6083

(iii) premium or disc of $

$$\text{premium/(Disc)} = \frac{F - S}{\text{Avg Rate}} \times 100 \times \frac{12}{2.5}$$

$$\text{Avg Bid Rate} = \frac{66.2525 + 66.2640}{2} = 66.2582$$

$$\text{Avg Ask Rate} = \frac{67.5945 + 67.6083}{2} = 67.6014$$

$$\text{Bid Rate} = \frac{66.2640 - 66.2525}{66.2582} \times 100 \times \frac{12}{2.5} = 0.0833\%$$

$$\text{Ask Rate} = \frac{67.6083 - 67.5945}{67.6014} \times 100 \times \frac{12}{2.5} = 0.0980\%$$

QUESTION – 10

Citi Bank quotes JPY/ USD 105.00 - 106.50 and Honk Kong Bank quotes USD/JPY 0.0090-0.0093.

(a) Are these quotes identical if not then how they are different?

(b) Is there a possibility of arbitrage?

(c) If there is an arbitrage opportunity, then show how would you make profit from the given quotation in both cases if you are having JPY 1,00,000 or US$ 1,000.

(RTP November - 2020)

(Page No. 31)

¥/$

City Bank

¥/$ 105.00/106.50

Honk kong Bank

$/¥ 0.0090/0.0093

No these quotes are not identical.

City Bank quotes ¥/$

- Direct quotes for Yen
- & Indirect Quotes for $

Honk kong Bank Quotes $/¥

- Direct quotes for $
- & Indirect quotes for ¥

(ii) City Bank

¥/$ ~~105~~/106.50

$/¥ 0.0094/0.0095

Hk Bank

$/¥ 0.0090/0.0093

¥/$ 107.53/111.11

Arbitrage

Case 1 If you are having ¥en 100000

- Buy $ from city Bank $\frac{¥100000}{106.50} = \$938.967$
- Sell $ in Hk Bank = $\frac{\$938.967}{0.0093} = ¥100964.19$

Arbitrage Gain = ¥1000964.19 − ¥100000 = ¥964.19

Case-2 If you are having $1000

- Buy ¥ from from Hk Bank $\frac{\$1000}{0.0093} = ¥107526.88$
- Sell ¥ in city Bank = $\frac{¥107526.88}{106.50} = \$1009.64$

Gain = $1009.64 − $1000 = $9.64

QUESTION – 02

Mr. Mammen, an Indian investor invests in a listed bond in USA. If the price of the bond at the beginning of the year is USD 100 and it is USD 103 at the end of the year. The coupon rate is 3% payable annually. $3

Find the return on investment in terms of home country currency if:

(i) USD is Flat. 6%

(ii) USD appreciates during the year by 3%. 9.18%

(iii) USD depreciates during the year by 3%. 2.82%

(iv) Indian Rupee appreciates during the year by 5%.

(v) Will your answer differ if Mr. Mammen invests in the bond just before the interest payable.

(RTP May – 2022 & Exam July - 2021)

(Page No. 23)

4. Cover deal

EXAMPLE – 46

You sold to your customer HK $ 10,00,000 at ₹ 7.25 & Covered yourself in below market.

Local

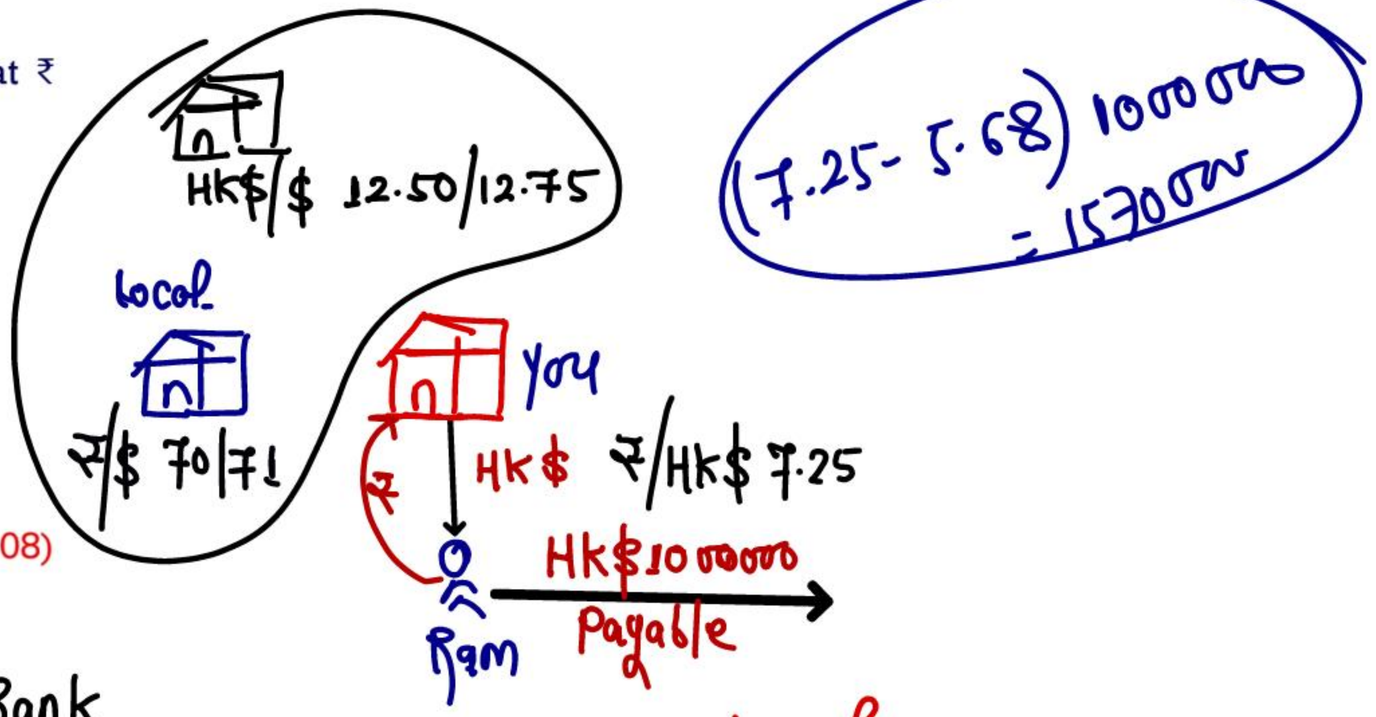
₹/$ = 70/71

International

HK$/$ = 12.50/12.75

(i) Calculate cover rate. ✓

(ii) Calculate profit/loss.



(7.25 - 5.68) 1000000
= 153000

(Page No. 08)

- Cover Rate
- First Buy $ from Local Bank
  ₹/$ 71
- Afterthat Buy HK$ from International Bank
  HK$/$ 12.50

Cover Rate ₹/HK$ = $\frac{71}{12.50}$ = ₹5.68

- Profit or Loss

Sell HK$ (HK$1000000 × 7.25) = ₹7250000

Buy HK$ (HK$1000000 × 5.68) = ₹5680000

Profit ₹1570000

QUESTION – 32

You sold Hong Kong Dollar 1,00,00,000 value spot to your customer at ₹ 5.70 & covered yourself in London market on the same day, when the exchange rates were

US$ 1	= H.K.$ 7.5880	7.5920

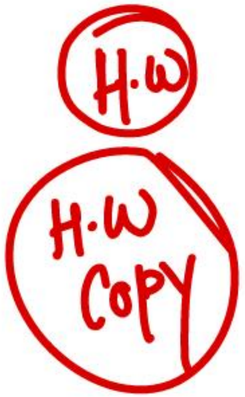
Local inter bank market rates for US$ were

Spot US$ 1	= ₹ 42.70	42.85

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

(Study Material & PM)

(Page No. 54)



QUESTION – 33

A Bank sold Hong Kong Dollars 40,00,000 value spot to its customer at ₹ 7.15 and covered itself in London Market on the same day, when the exchange rates were;

US$	= HK$ 7.9250	7.9290

Local inter-bank market rates for US$ were

Spot US$ 1	= ₹ 55.00	55.20

You are required to calculate rate and ascertain the gain or loss in the transaction. Ignore brokerage.

You have to show the calculations for exchange rate up to four decimal points.

H·W HW Copy

(Exam May – 2013)

(Page No. 55)

QUESTION – 34

English Bank Ltd. sold Hong Kong Dollar 10 Crores value spot to its customer at ₹ 9.70 and covered itself in the London market on the same day, when the exchange rates were US $ 1 = HK $ 7.7506 – 7.7546. Local inter-bank market rates for US $ were Spot US $ 1 = ₹ 74.70 – 74.85. Calculate the cover rate and ascertain the profit or loss on the transaction. Ignore brokerage.

Figures are to be rounded off to 4 decimals.

HW
HW copy

(Exam November - 2020)

(Page No. 56)

QUESTION – 35

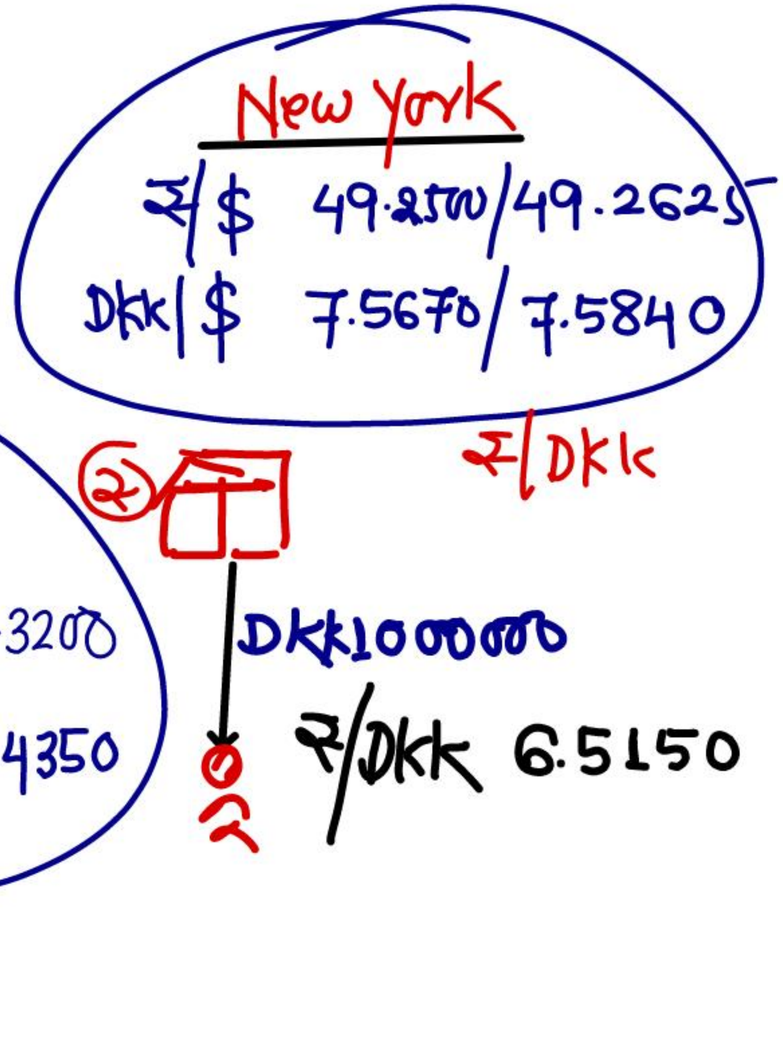
You, a foreign exchange dealer of your bank, are informed that your bank has sold a T.T. on Copenhagen for Danish Kroner 10,00,000 at the rate of Danish Kroner 1 = ₹ 6.5150. You are required to cover the transaction either in London or New York market. The rates on that date are as under:

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.

(Study Material, PM & Exam November – 2013)

(Page No. 57)



option 2 Cover from New York

- First Buy $ from ₹

  ₹/$ 49.2625

- Thereafter Buy Dkk from $

  Dkk/$ 7.5670

$$₹/Dkk = 49.2625 \times \frac{1}{7.5670} = ₹6.5102$$

Sell Dkk to customer =	₹6515000
Buy Dkk from New York (Dkk 1000000 × 6.5102)	₹6510200
profit	4800

Cover from London Market is better due to Higher Gain.

option 1 Cover from London Market

- first Buy £ at ₹/£ 74.3200
- Thereafter Sell £ & Buy DKK

DKK/£ 11.4200

$$₹/DKK = 74.3200 \times \frac{1}{11.4200} = 6.5079$$

profit/Loss

Sell DKK to Customer (DKK 10000000 × 6.5150) = 65150000

Buy DKK from London (DKK 10000000 × 6.5079) = 65079000

profit = ₹71000

5. Exchange Rate Determinants (Imp)

1. Interest Rate parity (IRP) [Interest Rate] [most Imp]
2. purchasing Power parity (PPP) [Inflation Rate] [1]
3. International fisher Effect (IFE) [x]

1 Interest Rate parity

1. Exchange Rate between two country's currency depends on Interest Rates of their countries.

2. As per IRP, Currency of a country having Lower Rate of Interest will be stronger than currency of a country having higher Rate of Intt.

3. As per IRP, Theoretical forward Rate is calculated as under

$$f = S_{(2)} \times \frac{1+r_2}{1+r_1}$$

Eg

₹/$ 80 (SR)

₹/$ (1YEARFR)

India 10%

USA 8%

We have ₹ 8000000

India : ₹ 80000000 (1.10) = 88000000

USA = $\frac{₹80000000}{80}$ = $1000000 × 1.08

= $108000 × 83 ?

= ₹8964000

88000000

Calculate forward Rate at which Indifference between Investment in India & Investment in USA

India (10%)	USA (8%)

₹80000000 × 1.10 = $\frac{₹80000000 \times 1.08}{₹80} \times f$

$1 × 1.10 = $\frac{1 \times 1.08}{S} \times f$

$f = S \times \frac{1.10}{1.08}$

USA (8%) $

India (10%) ₹

SR $1 = ₹80

$1 (1.08) = ₹80 (1.10)

$1 = ₹80 × $\frac{1.10}{1.08}$ ₹

Suppose

₹/$ SR ₹ 80.25

Intt. Rates

India = 12% P.a.

USA = 10% P.a.

Calculate 6 Months FR using IRP.

IRP

$$F = S \times \frac{1+r}{1+r}$$

$$= ₹80.25 \times \frac{1.06}{1.05}$$

$$= ₹81.01$$

EXAMPLE – 47

Spot Rate ₹/$ = 70.25

Rate of Interest

India = 12% p.a.

USA = 8% p.a.

Calculate 3 months forward rate if

(i) Nothing is mentioned in question.

(ii) Rate of interest compounded annually or effective.

(iii) Rate of interest compounded continuously.

(Page No. 09)

0.01
÷4096
+ 1
X = 12 times

(i)

$$f = ₹70.25 \times \frac{1.03}{1.02}$$

$$= ₹70.94$$

(ii)

$$f = ₹70.25 \times \frac{(1.12)^{3/12}}{(1.08)^{3/12}}$$

$$= ₹70.89$$

(iii)

$$f = ₹70.25 \times \frac{e^{0.12 \times \frac{3}{12}}}{e^{0.08 \times 3/12}}$$

$$= ₹70.25 \times \frac{e^{0.03}}{e^{0.02}}$$

$$= ₹70.25 \times e^{(0.03-0.02)}$$

$$= ₹70.25 \times e^{0.01}$$

$$= ₹70.25 \times 1.0101$$

$$= ₹70.96$$

EXAMPLE – 48

Spot Rate ₹/£ = 57.45

Rate of Interest

India = 10% p.a. Effective

UK = 8% p.a. Effective

Calculate 7 months FR

Power

$$f = ₹57.45 \times \frac{(1.10)^{7/12}}{(1.08)^{7/12}}$$

= ₹ 58.07

(Page No. 09)

1.10 ÷ 1.08 = √ 12 times

−1 X 7/12 + 1

X = 12 X 57.45

EXAMPLE – 49

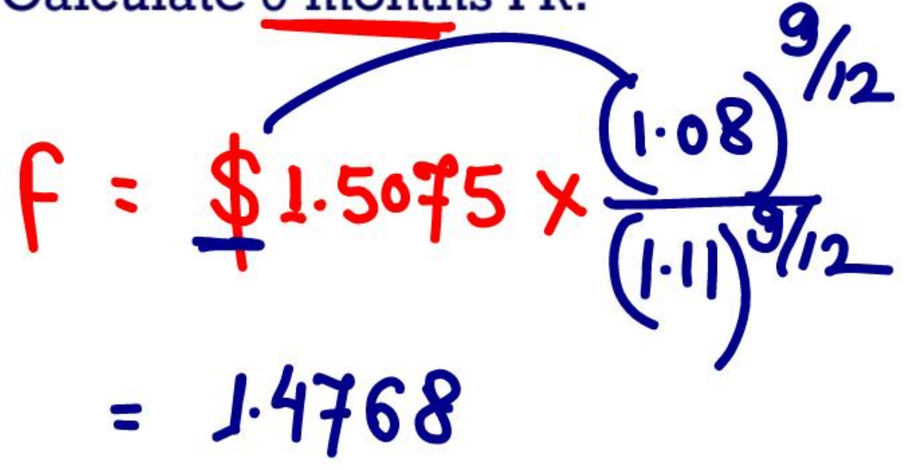
Spot Rate $/£ = 1.5075

Rate of Interest

US = 8% p.a. Effective

UK = 11% p.a. Effective

Calculate 9 months FR.



= 1.4768

(Page No. 09)

EXAMPLE – 50

Spot Rate ¥/₹ = 0.3045

Interest Rate

Japan = 4% p.a. Compounded Quarterly

India = 10% p.a. Compounded Quarterly

Calculate 5 months FR

Compounded Annually

Effective

Japan : $(1.01)^4 = 1.0406$

India : $(1.025)^4 = 1.1038$

(Page No. 09)

$$F = ¥0.3045 \times \frac{(1.0406)^{5/12}}{(1.1038)^{5/12}}$$

$$= ¥0.2971$$

EXAMPLE – 51

Spot Rate €/£ = 1.2545

6 Months FR

€/£ = 1.2775

Rate of interest

Europe = 8% p.a.

UK = ?

(Page No. 10)

$$f = S \times \frac{1+r_A}{1+r_B}$$

$$€1.2775 = €1.2545 \times \frac{1.04}{1+r}$$

$$r = \left[\left(\frac{1.2545 \times 1.04}{1.2775}\right) - 1\right] \times \frac{12}{6} \times 100$$

$$= 4.25\% \text{ p.a.}$$

EXAMPLE – 52

3 Months FR

₹/$ = ₹ 72.50

Rate of Interest

India = 10% p.a. Compounded Continuously

US = 8% p.a. Compounded Continuously

Spot Rate = ?

(Page No. 10)

$$F = S \times \frac{e^{rt}}{e^{rt}}$$

$$₹72.50 = S \times \frac{e^{0.10 \times \frac{3}{12}}}{e^{0.08 \times 3/12}}$$

$$₹72.50 = S \times \frac{e^{0.025}}{e^{0.02}}$$

$$₹72.50 = S \times e^{0.005}$$

$$S = \frac{72.50}{e^{0.005}} = \frac{72.50}{1.00501} = 72.14$$

EXAMPLE – 53

Spot Rate ₹/£ = ₹ 90.45

3 Months FR

₹/£ = ₹ 92.75

Interest Rate

India = 12% Compounded Annually

UK = ?

Effective Rate

(Page No. 10)

$$₹92.75 = ₹90.45 \times \frac{(1.12)^{3/12}}{(1+r)^{3/12}}$$

$$(1+r)^{3/12} = \frac{₹90.45 \times (1.12)^{3/12}}{92.75}$$

$$(1+r)^{3/12} = 1.00323$$

$$1+r = (1.00323)^{12/3}$$

$$r = [1.0130 - 1] \times 100 = 13\% \text{ P.a.}$$

10.43 % p.a.

EXAMPLE – 54

Spot Rate ₹/$ = ₹ 74.25

9 Months FR

₹/$ = ₹ 75.50

Rate of interest

India = ?

USA = 8% p.a. Effective.

(Page No. 10)

$$₹75.50 = ₹74.25 \times \frac{(1+r)^{9/12}}{(1.08)^{9/12}}$$

$$\frac{₹75.50 \times (1.08)^{9/12}}{74.25} = (1+r)^{9/12}$$

$$1.07725 = (1+r)^{9/12}$$

$$(1.07795)^{12/9} = 1+r$$

$$1.1043 = 1+r$$

$$r = 10.43\% \text{ p.a.}$$

EXAMPLE – 55 (Imp)

Spot Rate ₹/$ = 71.50

Rate of interest

India = 12% p.a.

USA = 10% p.a.

(i) Calculate 1 year FR

(ii) Calculate premium/discount in $

(iii) Calculate premium/ discount in ₹

Assuming IRP hold good.

$f = S \times \frac{1+r}{1+r}$

$\left(\frac{f}{S}\right) = \frac{1+r}{1+r}$

$\frac{72.80}{71.50} = \frac{1.12}{1.0}$

$= 1.0182 = 1.0182$

$= 1.82\%$ $= 1.82\%$ p.a.

(Page No. 11)

1 YEAR FR

$f = S \times \frac{1+r}{1+r}$

$= ₹71.50 \times \frac{1.12}{1.10}$

$= ₹72.80$

premium in $

$\text{premium} = \frac{f-S}{S} \times 100$

$= \frac{72.80 - 71.50}{71.50} \times 100$

$= 1.82\%$

Discount in ₹

$\text{Disc. in ₹} = \frac{S-f}{f} \times 100$

$\frac{71.50 - 72.80}{72.80} \times 100 = 1.79\%$ Disc. in ₹

Suppose

Rate of Intt

USA = 15% p.q. ($)

India = 20% p.q. (₹)

Calculate premium in $:

$$\text{premium in \$} = \left[\frac{1.20}{1.15} - 1\right] \times 100 =$$

$$= 4.35\% \text{ p.q.}$$

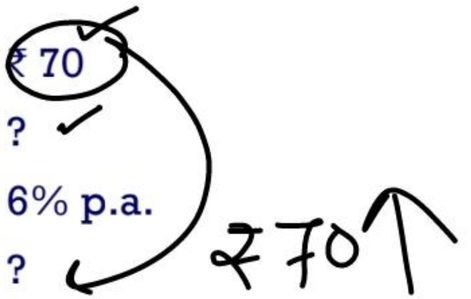
EXAMPLE – 56

Spot Rate ₹/$ = ₹ 70

6 Months FR = ?

Discount in (₹) = 6% p.a.

FR = ?



(Page No. 11)

$$\text{Disc. in ₹} = \frac{S-f}{f} \times 100 \times \frac{12}{6}$$

$$-0.03 = \frac{70-f}{f}$$

$$-0.03f = 70 - f$$

$$0.97f = 70$$

$$f = \frac{70}{0.97} = ₹72.16$$

QUESTION – 36

On April 1, 3 months interest rate in the UK £ and US $ are 7.5% and 3.5% per annum respectively. The UK £/US $ spot rate is 0.7570. What would be the forward rate for US $ for delivery on 30th June?

(Study Material & PM)

(Page No. 58)

UK 7.5% p.a

US 3.5% p.a

SR £/$ 0.7570

3 FR

3 Month FR using IRP

$$F = S \times \frac{1+r}{1+r}$$

$$F = £0.7570 \times \frac{1.01875}{1.00875}$$

$$= £0.7645$$

QUESTION – 37

On 1st April, 3 months interest rate in the US and Germany are 6.5 per cent and 4.5 per cent per annum respectively. The $/DM spot rate is 0.6560. What would be the forward rate for DM for delivery on 30th June?

(Practice Manual)

(Page No. 58)

QUESTION – 38

The following table shows interest rates for the United States Dollar and French Franc. The spot exchange rate is 7.05 Franc per Dollar. Complete the missing entries:

	3 Months	6 Months	1 Year
Dollar interest rate (annually compounded)	11 ½ %	12 ¼ %	?
Franc interest rate (annually compounded)	19 ½ %	?	20%
Forward Franc per Dollar	?	?	7.5200
Forward discount per Franc percent per year	?	6.3%	

(Practice Manual)
(Page No. 59)

QUESTION – 39 (Imp)

The US dollar is selling in India at ₹ 55.50. If the interest rate for 6 months borrowing in India is 10% per annum and the corresponding rate in USA is 4%.

(i) Do you expect that US dollar will be at a premium or at discount in the Indian Forex Market?

(ii) What will be the expected 6-months forward rate for US dollar in India? and

(iii) What will be the rate of forward premium or discount?

(Study Material & PM)

(Page No. 61)

SR ₹/$ 55.50

India = 10% P.A.

USA = 4% P.A.

① Rate of Intt in USA is less than Rate of Intt in India, hence $ will be at premium as per IRP.

② 6 Months FR using IRP

$$F = S \times \frac{1+r_A}{1+r_B}$$

$$F = ₹55.50 \times \frac{1.05}{1.02} = ₹57.13$$

③ premium in $

$$\text{premium in \$} = \frac{F-S}{S} \times 100 \times \frac{12}{6}$$

$$= \frac{57.13-55.50}{55.50} \times 100 \times \frac{12}{6}$$

$$= 5.87\% \text{ premium in \$}$$

QUESTION – 40

The USD Dollar is selling in India at ₹ 72.50. If the interest rate for a 3 – months borrowing in India is 6% per annum and the corresponding rate in USA is 2.75%.

(i) Do you expect that US dollar will be at a premium or at discount in the Indian Forex Market?

(ii) What will be the expected 3 – months forward rate for US dollar in India?

(iii) What will be the rate of forward premium of discount?

H.W.

H.W Copy

(Exam November - 2019)

(Page No. 62)

QUESTION – 41

If the present interest rate for 6 months borrowings in India is 9% per annum and the corresponding rate in USA is 2% per annum, and the US$ is selling in India at ₹ 64.50/$.

Then:

(i) Will US$ be at a premium or at a discount in the Indian forward market?

(ii) Find out the expected 6-months forward rate for US$ in India.

(iii) Find out the rate of forward premium/discount.

H.W
H.W Copy

(Exam November – 2017)
(Page No. 64)

QUESTION – 38

The following table shows interest rates for the United States Dollar and French Franc. The spot exchange rate is 7.05 Franc per Dollar. Complete the missing entries:

ff/$ 7.05	3 Months	6 Months	1 Year
Dollar interest rate (annually compounded)	11 ½ %	12 ¼ %	?
Franc interest rate (annually compounded)	19 ½ %	?	20%
Forward Franc per Dollar	?	?	7.5200
Forward discount per Franc percent per year	?	6.3%	?

(Practice Manual)

(Page No. 59)

ff/$ 7.05

3 Months

$$f = S \times \frac{1+r_2}{1+r_1}$$

ICAI

$$f = ff\,7.05 \times \frac{1+(0.195 \times \frac{3}{12})}{1+(0.115 \times 3/12)}$$

$$= ff\,7.05 \times \frac{1.04875}{1.02875}$$

$$= ff\,7.19$$

Conceptual

$$ff\,7.05 \times \frac{(1.195)^{3/12}}{(1.115)^{3/12}}$$

$$= ff\,7.17$$

② Discount per ff

$$\text{Disc.} = \frac{S-f}{f} \times 100 \times \frac{12}{3}$$

$$= \frac{7.05-7.19}{7.19} \times 100 \times \frac{12}{3} = 7.79\%$$

Disc. in ff

6 Months

① Forward Rate

$$\text{Disc. in ff} = \frac{S-f}{f}$$

$$-0.0315 = \frac{7.05-f}{f}$$

$$-0.0315f = 7.05 - f$$

$$= \frac{7.05}{0.9685}$$

$$= \text{ff } 7.28$$

⑪ ff Int Rate

$$f = S \times \frac{1+r}{1+r}$$

$$7.28 = 7.05 \times \frac{1+r}{1.06125}$$

$$r = \left[\left(\frac{7.28 \times 1.06125}{7.05}\right) - 1\right] \times 100 \times \frac{12}{6}$$

$$= 19.17\% \text{ p.a.}$$

1 YEAR

① Dollar Int Rates

$$F = S \times \frac{1+r}{1+r}$$

$$7.52 = 7.05 \times \frac{1.20}{1+r}$$

$$r = \left[\frac{7.05 \times 1.20}{7.52}\right] - 1$$

$$= 12.5\% \text{ p.a.}$$

⑪ Disc. in ff

$$\text{Disc.} = \frac{S-f}{f} \times 100$$

$$= \frac{7.05 - 7.52}{7.52} \times 100$$

$$= 6.25\% \text{ p.a.}$$

Disc. in ff

Covered Interest Arbitrage (CIA) (Most Imp)

If forward premium is not equal to Interest Rate difference, then there is a possibility of Covered Interest Arbitrage [IRP]

$$\frac{f}{s} = \frac{1+r}{1+r}$$

EXAMPLE – 57

Spot Rate ₹/$ = ₹ 60

1 Year FR ₹/$ = ₹ 61.50

Interest Rates

India = 12% p.a.

USA = 8% p.a.

Calculate arbitrage gain if you can borrow ₹ 60,00,000 or $ 1,00,000.

(Page No. 11)

- Premium in $

$$\frac{F - S}{S} \times 100 = \frac{61.50 - 60}{60} \times 100$$

$$= 2.5\% \text{ p.a.}$$

- Negative Intt Rate difference

$$12 - 8 = 4\% \text{ p.a.}$$

Action

Since Negative Intt Rate difference is more than Premium in $, hence Invest in India & Borrow from US

Today

- Borrow $100000 from US @ 8% P.A. for 1 YEAR
- Convert $100000 into ₹ at SR

  $100000 × ₹60 = ₹6000000
- Invest ₹6000000 in India @12% P.A. for 1 YEAR
- forward cover

After 1 YEAR

Cash Inflows = ₹6000000 (1.12) = ₹6720000

Convert ₹6720000 into $ at ₹61.50

Cash Inflows ($) = $\frac{6720000}{61.50}$ = $109268.29

Cash Outflows = $100000 × 1.08 = $108000.00

Arbitrage Gain = $1268.29

Arbitrage Gain (₹) = $1268.29 × 61.50

= ₹78000

EXAMPLE – 58

Spot Rate ₹/$ = ₹ 60

1 Year FR ₹/$ = ₹ 63.25

Rate of Interest

India = 12% p.a.

USA = 8% p.a.

You can borrow ₹ 60,00,000 or $ 1,00,000. Calculate arbitrage.

(H.W) Arbitrage Gain = ?

(Page No. 11)

EXAMPLE – 59

Spot Rate $/£ = 1.2575

6 Months FR

$/£ = 1.2650

Rate of Interest

USA = 5% p.a.

UK = 4% p.a.

You can borrow £ 1,00,000 or $ 1,25,750. Calculate arbitrage.

(Page No. 12)

premium in £

$$\text{premium} = \frac{F - S}{S} \times 100 \times \frac{12}{6}$$

$$= \frac{1.2650 - 1.2575}{1.2575} \times 100 \times \frac{12}{6}$$

$$= 1.19\% \text{ premium in £}$$

Negative Intt Rate difference

Intt Rate diff. = 5 − 4 = 1%

Action

Since premium in £ is more than Negative Rate of Intt, hence Invest in £ & Borrow $

process

Today

- Borrow $125750 from US @ 5% p.a. for 6 months
- Convert $ into £ at SR $\frac{\$125750}{1.2575} = £100000$
- Invest £100000 in UK @ 4% p.a. for 6 months.

After 6 months

Cash Inflows in £ $(£100000 \times 1.02) = £102000$

Convert £102000 at FR

C.I. in $ $(£102000 \times 1.2650) = \$129030$

C.O. in $ $(\$125750 \times 1.025) = \$128893.75$

Arbitrage Gain = $\$136.25$

Arbitrage Gain (£) = $\frac{\$136.25}{1.2650} = £107.71$

Imp

Eg ₹/$ 80.25 SR

1 YEAR FR ₹/$ 78.45

Intt Rate

USA = 10% P.a.

India = 8% P.a.

premium in ₹ $= \frac{S-F}{F} \times 100$

$= \frac{80.25-78.45}{78.45} \times 100$

$= 2.29\%$

Intt Rate diff = $10-8 = 2\%$

Invest in ₹

QUESTION – 42

Spot rate 1 US $ = ₹ 48.0123

180 days Forward rate for 1 US $ = ₹ 48.8190

Annualized interest rate for 6 months – Rupee = 12%

Annualized interest rate for 6 months – US $ = 8%

Is there any arbitrage possibility? If yes how an arbitrageur can take advantage of the situation, if he is willing to borrow ₹ 40,00,000 or US $83,312.

H.W (H.W Copy)

(Study Material & PM)

(Page No. 65)

QUESTION – 43

Given the following information:

Exchange rate – Canadian dollar 0.665 per DM (spot) C$/DM 0.665

Canadian dollar 0.670 per DM (3 months) C$/DM 0.670

Interest rates – DM 7% p.a.

Canadian Dollar – 9% p.a.

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

(Study Material, PM & Exam May - 2011)

(Page No. 66)

Premium in DM

$$\text{premium} = \frac{F-S}{S} \times 100 \times \frac{12}{3}$$

$$= \frac{0.670 - 0.665}{0.665} \times 100 \times \frac{12}{3}$$

$$= 3\% \text{ p.a.}$$

Negative Intt. Rate difference

Intt Rate diff = 9 − 7 = 2%.

Action

Since premium in DM is more than Intt Rate difference, hence Invest in DM & Borrow from C$

Process [Assume Can $1000]

Today

- Borrow Can $1000 @ 9% P.A. for 3 Months
- Convert Can $ into DM at SR $\frac{\text{Can \$1000}}{0.665} = \text{DM } 1503.76$
- Invest DM 1503.76 @ 7% P.A. for 3 Months

After 3 Months

- Cash Inflows in DM $(1503.76 \times 1.0175) = 1530.07$
- Convert DM 1530.07 into Can $ at FR

$$\text{Cash Inflow (Can \$)} = (1530.07 \times 0.670) = \text{Can \$1025.15}$$

$$\text{Cash outflows} = \text{Can \$1000} \times 1.0225 = \text{Can \$1022.50}$$

$$\text{Arbitrage Gain} = \text{Can \$2.65}$$

$$\text{Arbitrage gain (DM)} = \frac{\text{Can \$2.65}}{0.670} = \text{DM } 3.955$$

QUESTION – 44

Mercy is a Forex Dealer with XYZ Bank. She notices following information relating to Canadian Dollar (CAD) and German Deutschmark (DEM):

Exchange rate – CAD 0.775 per DEM (Spot)

CAD 0.780 per DEM (3 months)

Interest rates – DEM 7% p.a.

CAD 9% p.a.

(i) Assuming that there is no transaction cost determine does the Interest Rate Parity holds in above quotations.

(ii) If yes, then explain the steps that would be required to make an arbitrage profit if Mercy is authorized to work with CAD 1 Million for the same purpose. Also determine the profit that would be made in CAD.

Note: Ignore the decimal points in the amounts.

(MTP: Oct - 2019)

(Page No. 67)

QUESTION – 45

Given the following information:

Exchange rate – Canadian dollar 0.666 per DM (Spot)

Canadian dollar 0.0671 per DM (3 Months)

Interest rates – DM 7.5% p.a.

Canadian Dollar – 9.5% p.a.

To take the possible arbitrage gains, what operation would be carried out?

(Exam May – 2016 & 2018)

(Page No. 69)

QUESTION – 46

Given the following information:

Exchange rate – Canadian Dollar 0.666 per DM (Spot)

Canadian Dollar 0.671 per DM (3 Months)

Interest rates – DM 8% p.a.

Canadian Dollar 10% p.a.

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

(Exam November – 2010)

(Page No. 70)

QUESTION – 48

Spot rate 1 US$ = ₹ 68.50 ₹/$

USD premium on a six month forward is 3% The annualized interest in US is 4% and 9% in India.

Is there any arbitrage possibility? If yes, how a trader can take advantage of the situation if he is willing to borrow USD 3 million. or Equivalent ₹

(Exam November 2018)

(Page No. 73)

6 months FR

6 Months FR = 68.50 × 1.03

= ₹ 70.555

premium in $ = $3 \times \frac{12}{6}$

= 6% p.a.

Negative Intt Rate difference

= 9 - 4 = 5% p.a.

Invest in US & Borrow from India

Arbitrage process

Today

- Borrow $3000000 equivalent ₹ ($3000000 × 68.50) ₹ 205500000 from India @ 9% p.a. for 6 months.
- Convert ₹ into $ at SR i.e. $3000000
- Invest $3000000 in US @ 4% p.a. for 6 Months

After 6 Months.

Cash Inflows in $ = $3000000 (1.02) = $3060000

Convert $ into ₹ at 6 Months FR

Cash Inflows in ₹ ($3060000 × 70.555) = 215898300

Cash outflows (205500000 (1.043) = 214747500

Arbitrage Gain = ₹ 1150800

$ 16310.68

QUESTION – 49

Following are the rates quoted at Bombay for British pound:

BP/₹ ₹/£	52.60/70	Interest Rates	India	London
3 Months forward	20/70	3 Months	8%	5%
6 Months forward	50/75	6 Months	10%	8%

Verify whether there is any scope for covered interest arbitrage if you borrow rupees.

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H-10

p.a.

3 Months

- Borrow ₹ 100000 from India @ 8% p.a. for 3 months
- Convert ₹ into £ at SR
  ₹/£ 52.70
  $\frac{₹\ 100000}{52.70}$ = £ 1897.53
- Invest £ 1897.53 in London @ 5% p.a. for 3 months.

After 3 Months

Cash Inflows in £ $(1897.53 \times 1.0125) = £1921.25$

Convert £ into ₹ at 3 months FR

₹/£ = ₹52.80

Cash Inflows in ₹ = $(1921.25 \times 52.80) = ₹101442$

Cash outflows in ₹ = $(100000 \times 1.02) = ₹102000$

Loss ₹558

There is no possibility of Arbitrage if Rupees Borrow.

QUESTION – 47 (Monday)

(i) Interest rates for 3 months in USA and Canada are as follows:

Currency	Borrow	Invest ~~Interest~~
US $	4%	2.5%
Canadian $	4.5%	3.5 %

(ii) Can $/ US $ spot 1.235 ---- 1.240 (C$/$)

3 months forward 1.25 5---- 1.260

Advice, the currency in which borrowing and lending for 3 months needs to be done for the US company. Take 3 months = 90/360 days.

(Exam Jan-2021)

(Page No. 71)

QUESTION – 54

Your Company has to make o US $1 million payment in three months' time. The dollars are available now. You decide to invest them for three months and you are given the following information:

(a) The US deposit rate is 8% per annum

(b) The sterling deposit rate is 10% per annum

(c) The spot exchange rate is $1.80/pound

(d) The three month forward rate is $1.78/pound.

(i) Where should your company invest for better results?

(ii) Assuming that the interest rates and the spot exchange rate remain as above, what forward rate would yield an equilibrium situation?

(iii) Assuming that the US interest rate and the spot and forward rate remain as in the original question. Where would you invest if the sterling deposit rate were 14% per annum?

(iv) With the originally stated spot and forward rates and the same dollar deposit rate, what is the equilibrium sterling deposit rate?

(Page No. 79)

(i)

Option 1 Investment in US

Cash Inflows = $1000000 (1.02) = $1020000

Option 2 Invest in UK

- Convert $ into £ at SR

$$\frac{\$1000000}{1.80} = £555555.56$$

- Invest £ @ 10% p.a. for 3 Months

Cash Inflows (£) : £555555.56 × 1.025

= £569444.45

Convert £ into $ at FR

£569444.45 × 1.78 = $1013611.21

Invest in USA is better due to Higher CI

(11) Calculation FR as per IRP

$$f = s \times \frac{1+r_d}{1+r_f}$$

$$= \$1.80 \times \frac{1.02}{1.025} = \$1.79$$

(iii)

(i) Invest in US = $1020000

(ii) Invest in UK = $1023500

Investment in UK is better

(iv) £ Int Rate using IRP

$$f = s \times \frac{1+r}{1+r}$$

$$1.78 = 1.80 \times \frac{1.02}{1+r}$$

$$r = \left(\left(\frac{1.80 \times 1.02}{1.78}\right) - 1\right) \times 100 \times \frac{12}{3} = 12.58\% \text{ p.a.}$$

2. Purchasing Power Parity (PPP)

- As per PPP, Exchange Rates depend on demand of Goods & Services of their countries.
- Suppose 1 pen = ₹800 (India)
  1 pen = $10 (USA)

As per PPP, Exchange Rate should be

$10 = ₹800

$1 = ₹80

Suppose Actual Exchange Rate

$1 = ₹70

then there is a possibility of Arbitrage

Buy pen from USA ($10 × 70)

= ₹700 & sell in India at ₹800

Gain = ₹100

This process will continue till

$1 = ₹80

₹/$ 80

3. If Inflation Rate

India = 12% P.Q.

USA = 10% P.Q.

- Calculate price of pen after 1 YEAR in India & USA
- Calculate 1 YEAR Exchange Rate

price of pen $10 × 1.10 = 800 × 1.12

India = ₹800 (1.12) = ₹896

USA = $10 (1.10) = $11

$$₹/\$ = \frac{₹896}{\$11} = 81.45$$

As per PPP, Currency of a country having Low Rate of Inflation will be stronger than Currency of a country having higher Rate of Inflation

As per PPP, Expected SR is calculated as under

$$E(S) = S \times \frac{1+i}{1+i}$$

$$= ₹80 \times \frac{1.12}{1.10}$$

$$= ₹81.45$$

EXAMPLE – 60

SR ₹/$ ₹50.00

Inflation Rate

India = 10% p.a.

USA = 8% p.a.

Calculate 1 & 2 year Exchange Rate.

$$E(S) = S \times \frac{1+i}{1+i}$$

(Page No. 12)

1 YEAR

$$E(S) = ₹50 \times \frac{1.10}{1.08} = ₹50.93$$

2 YEAR

$$E(S) = ₹50.93 \times \frac{1.10}{1.08} = ₹51.87$$

$$50 \times \frac{(1.10)^2}{(1.08)^2}$$

$$= ₹51.87$$

QUESTION – 50

The rate of inflation in India is 8% per annum and in the U.S.A. it is 4%. The current spot rate for USD in India is ₹ 46. What will be the expected rate after 1 year and after 4 years applying the Purchasing Power Parity Theory.

(Study Material, PM & Exam May - 2010)

(Page No. 75)

H.W

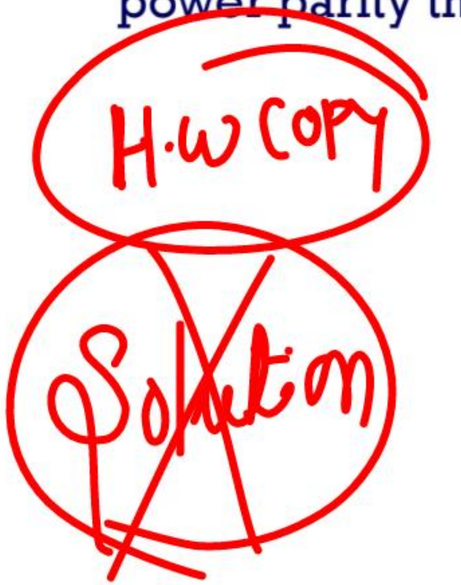
C.W. COPY

YEAR 1 $46 \times \frac{1.08}{1.04} = 47.77$

4 $46 \times \left(\frac{1.08}{1.04}\right)^4$

QUESTION – 51

The rate of inflation in USA is likely to be 3% per annum and in India it is likely to be 6.5%. The current spot rate of US $ in India is ₹ 43.40. Find the expected rate of US $ in India after one year and 3 years from now using purchasing power parity theory.



(PM & Exam November – 2017)

(Page No. 75)

QUESTION – 47

(i) Interest rates for 3 months in USA and Canada are as follows:

Currency	Borrow	~~Interest~~ Invest
US $	4%	2.5%
Canadian $	4.5%	3.5 %

(ii) Can $/ US $ spot 1.235 ---- 1.240 C$/$

3 months forward 1.25 5---- 1.260

Advice, the currency in which borrowing and lending for 3 months needs to be done for the US company. Take 3 months = 90/360 days.

(Exam Jan-2021)

(Page No. 71)

Borrowing Assume $1000

Borrowing from US

Borrow $1000 @ 4% p.a. for 3 months

Cash outflows = $1000 × 1.01

= $1010

Borrowing from Canada

Can$ required to buy $1000 at SR Can$/$ 1.240

$1000 × 1.240 = Can$1240 C.O.

Borrow from Canada is better due to Lower C.O.

Borrow can$1240 from Canada @ 4.5% for 3 months

Cash outflows (can$) 1240 × 1.01125

= Can$1253.95

Cash outflows ($) Can$/$ 1.255

$\frac{1253.95}{1.255}$ = $999.16

Lending

① Lending in USA

Invest $1000 @ 2.5% p.a. for 90 days

Cash Inflows = $1000 × 1.00625 = **$1006.25**

② Lending in Canada

- Buy can $ from $1000 at SR Can$/$ 1.285

  $1000 × 1.235 = can $1235

- Invest can $1235 @ 3.5% p.a. for 90 days

  Cash Inflows (can$) 1235 × 1.00875 = Can$1245.81

  Cash Inflow ($) Can$/$ = 1.260

  $\frac{1245.81}{1.260}$ = **$ 988.74**

Lending in US is better due to Higher Cash Inflows.

QUESTION – 24

ABC Co. have taken a 6 month loan from their foreign collaborators for US Dollars 2 millions. Interest payable on maturity is at LIBOR plus 1.0%. Current 6-month LIBOR is 2%.

Enquiries regarding exchange rates with their bank elicit the following information:

Spot USD 1	₹ 48.5275
6 months forward	₹ 48.4575

(i) What would be their total commitment in Rupees, if they enter into a forward contract?

(ii) Will you advise them to do so? Explain giving reasons.

(Study Material & PM)

(Page No. 46)

(i) Total Cash Outflow (₹)

Borrow = $2000000

InH = LIBOR + 1

= 2 + 1 = 3% p.a.

Cash outflows ($)

$2000000 × 1.015

= $2030000

Cash outflow (₹)

$2030000 × 48.4575

= ₹ 98368725

(ii) If Expected SR is more than FR
then forward Cover is better &
if Expected SR is less than FR
then No hedging is better.

If No Idea about Expected SR
then it is better to Hedge Risk

QUESTION – 25

XYZ has taken a six-month loan from its foreign collaborator for USD 2 millions. Interest is payable on maturity @ LIBOR plus 1%. The following information is available:

Spot Rate	INR/USD	68.5275
6 months Forward rate	INR/USD	68.4575
6 months LIBOR for USD	2%	
6 months LIBOR for INR	6%	

You are required to :

(i) Calculate Rupee requirements if forward cover is taken.

(ii) Advise the company on the forward cover.

What will be your opinion if spot rate of INR/USD is 68.4275 ?

(Exam Jan-2021)

(Page No. 47)

3. International fisher Effect

As per IFE, Real Rate of Interest will be equal in two countries but nominal Rate of Interest may not be equal due to Inflation.

Hence Expected SR(fR) shall be Same as per IRP & as per PPP.

EXAMPLE – 61

Real Rate of Interest = 10%

Inflation Rate = 5%

Calculate Nominal Rate of Interest

(Page No. 12)

EXAMPLE – 62

Real Rate of Interest = 8% p.a.

Inflation Rate = 6% p.a.

Nominal Rate = ?

(Page No. 12)

14.48%

EXAMPLE – 63

Nominal Rate of Interest = 15.5%

Inflation rate = 5%

Real Rate of Interest = ?

(Page No. 13)

EXAMPLE – 64

Suppose

	India	USA
Real Rate	3%	3%
Inflation Rate	8%	5% [PPP]
Nominal Rate	11.24%	8.15% [IRP]

SR = ₹/$ = ₹70

Calculate:

(i) FR as per Interest Rate Parity.

(ii) FR as per Purchasing Power Parity.

(Page No. 13)

SR ₹/$ 70

India

REAL 3%.

Infla 8%.

11.24%.

USA

3%.

5% (PPP)

8.15% [IRP]

IRP

$$f = S \times \frac{1+r}{1+r}$$

$$= 70 \times \frac{1.1124}{1.0815} = ₹72$$

PPP

$$70 \times \frac{1.08}{1.05} = ₹72$$

6. Currency Exposure

1 Transaction Exposure

- Direct Exposure
- faced by firm having f. currency payable or Receivable
- Easy to Hedge

2. Translation Exposure or Accounting Exposure

- Notional Exposure
- faced by firm having f. Branch or f. sub.
- Need not to be Hedged

3. Economic Exposure or operating Exposure

- Indirect Exposure
- faced by All firm
- Can't be Hedged

Methods of Hedging

Internal Hedging

1. Leading & Laggings
2. Invoicing
3. Netting

External Hedging

1. forward Cover
2. Money Market Cover
3. future Hedging
4. optim Hedging

1 Leading & Laggings

Lead means payment now & Lag means delay payment.

- Lead the payable if foreign currency ~~is~~ will appreciate.
- Lag the Receivable if F.C. will appreciate
- Lead the Receivable if FC will depreciate
- Lag the payable if FC will depreciate.

EXAMPLE – 65

Ram purchased goods from USA

Payable = $ 1,00,000 After 3 months

SR ₹/$ = 70/71

3 month FR ₹/$ = 72/73

Cash discount = 1% of immediate payment

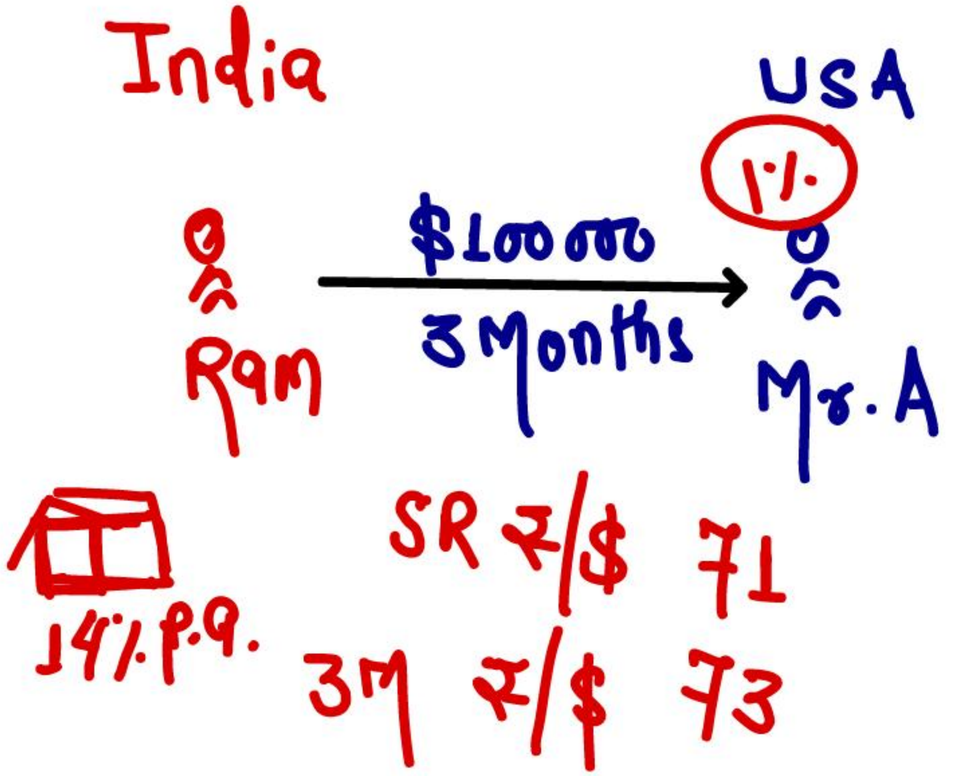
₹ Loan = 14% p.a.

Which option is better

(i) Forward cover.

(ii) Leading.

(Page No. 13)



Option 1 Forward Cover

Buy $100000 at 3 months FR
($100000 × 73) = ₹ 7300000

Option 2 Lead payment

$ payable after discount ($100000 × 99%) = $99000

Buy $99000 at SR ($99000 × 71) = ₹ 7029000

Borrow ₹ 7029000 @ 14% P.a. for 3 months

Cash outflows 7029000 × 1.035 = ₹ 7275015

Lead payment is better due to Lower Cash outflows.

EXAMPLE – 66

Ram purchased goods from USA

Payable = $ 1,00,000

SR ₹/$ = ₹ 70/71

6 months FR ₹/$ = ₹ 68/69

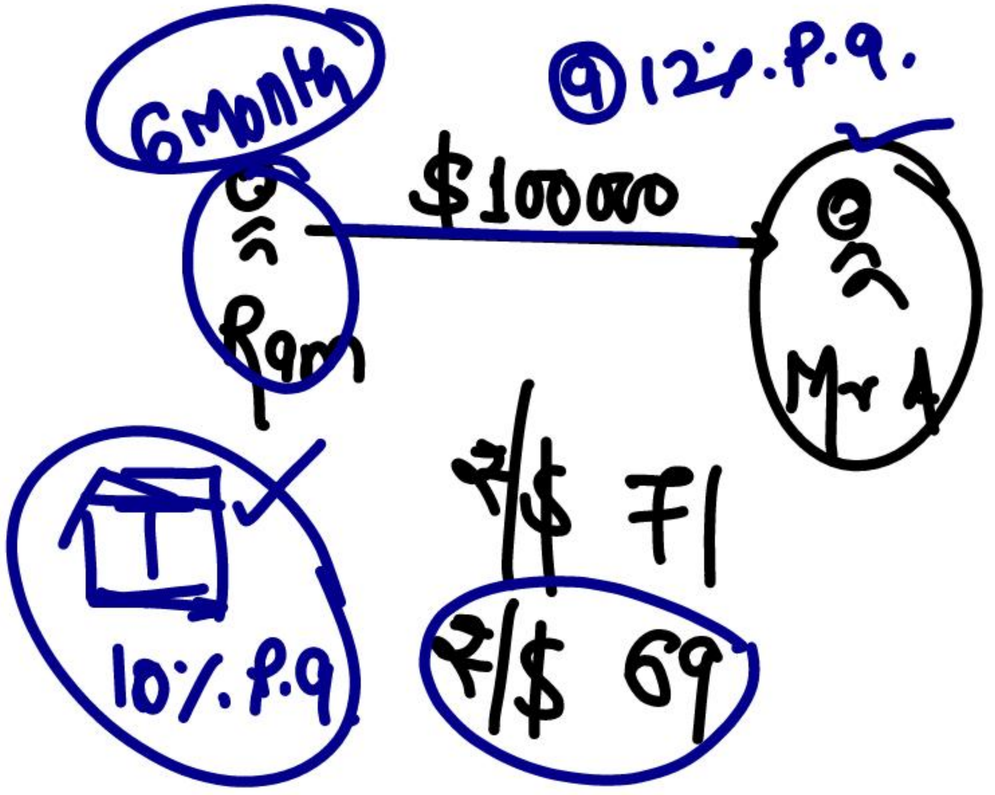
₹ Loan = 10% p.a.

Which option is better

(i) Pay immediately without any interest.

(ii) Pay after 6 months @ 12% p.a.

(Page No. 14)



option 1 pay immediately

Buy $100000 at SR ($100000 × 71) = ₹7100000

Borrow ₹7100000 @ 10% p.a. for 6 months

Cash outflows (7100000 × 1.05) = **₹7455000**

option 2 pay after 6 months

$ payable with Interest ($100000 × 1.06) = $106000

Buy $106000 at 6 month FR

$106000 × 69 = **₹7314000**

Pay after 6 months is better due to Lower Cash outflows

EXAMPLE – 67

We export to USA & export proceeds $ 1,00,000 after 6 months. We can hedged with the help of following two alternatives.

(i) Invoicing in home currency at current Exchange rate

(ii) Forward cover

SR ₹/$ = ₹ 70/₹ 72

6 months FR ₹/$ = ₹ 68/₹ 70

Which option is better?

(Page No. 14)

Option 1 Invoicing in Home Currency

Cash Inflow ($100000 × 70) = ₹ 7000000

Option 2 Forward Cover

Sell $ 100000 at 6 month FR

$100000 × 68 = ₹ 6800000

Invoicing is better due to Higher CI.

QUESTION – 55

An Indian importer has to settle an import bill for $ 1,30,000. The exporter has given the Indian exporter two options:

(i) Pay immediately without any interest charges.

(ii) Pay after three months with interest at 5 percent per annum.

The importer's bank charges 15 percent per annum on overdrafts. The exchange rates in the market are as follows:

Spot rate (₹ /$) : 48.35 /48.36

3-Months forward rate (₹/$) : 48.81 /48.83

The importer seeks your advice. Give your advice.

(Study Material PM & Exam November -2011)

(Page No. 82)

option 1 Pay immediately

Buy $130000 at SR

$130000 × 48·36 = 6286800

Borrow ₹6286800 @ 15% p.a. for 3 months

Cash Outflows = 6286800 (1.0375)

= ₹6522555

option 2 pay after 3 Months

$ payable = $130000 × 1·0125

= $131625

Buy $ at FR

$131625 × 48·83 = ₹6427249

option 2 is better due to Lower CO

QUESTION – 56

Z Ltd. importing goods worth USD 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 a 30 days loan at 10% per annum and their quote for foreign exchange is as follows:

	₹
Spot 1 USD	56.50
60 days forward for 1 USD	57.10
90 days forward for 1 USD	57.50

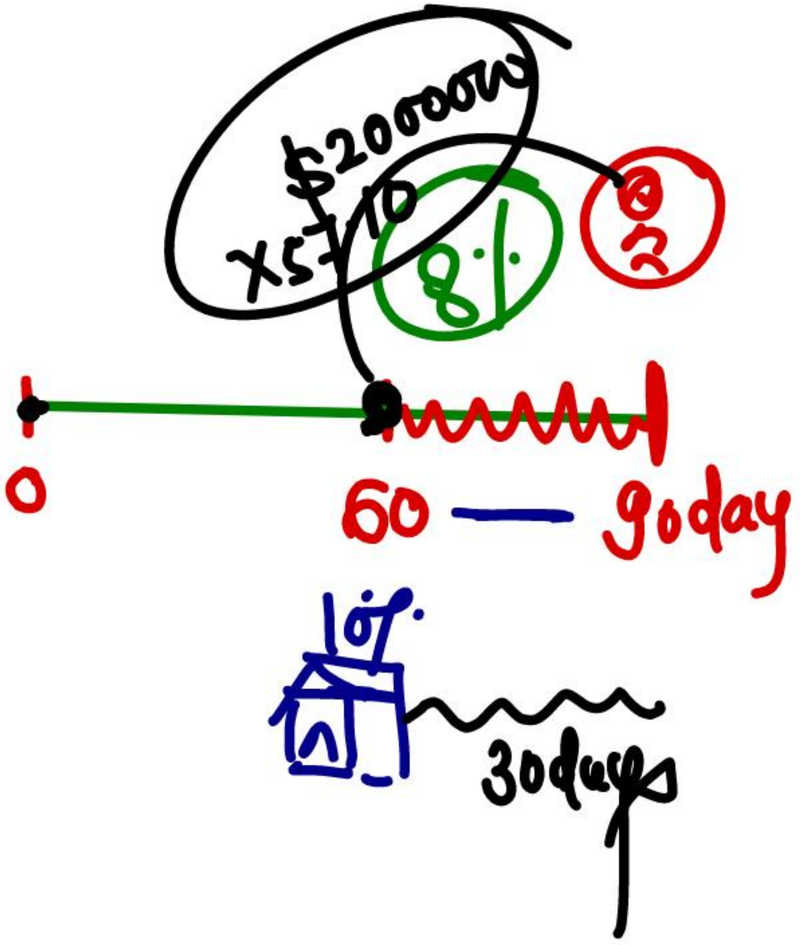
You are required to evaluate the following options:

(i) Pay the supplier in 60 days or

(ii) Avail the supplier's offer of 90 days credit.

(Study Material & PM)

(Page No. 83)



option 1 pay the Supplier in 60days

Buy $2000000 at 60days FR $2000000 × 57.10 = ₹ 114200000

Borrow ₹ 114200000 @ 10% p.a. for 30days

Cash outflow = (₹ 114200000 + ₹ 951667) = **₹ 115151667**

option 2 pay the Supplier in 90days

$ payable with Interest [$2000000 + $13333) = $2013333

Buy $ at 90day FR

$2013333 × ₹ 57.50 = **₹ 115766648**

option 1 is better due to Lower Cash outflows

QUESTION – 57

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?

(i) Pay the supplier on 60th day and avail bank loan for 30 days.

(ii) Avail the supplier's offer of 90 days credit.

(Study Material, PM, MTP April – 2022 & Exam May - 2015)

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H.W.

QUESTION – 58

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 Gibralter Limited.

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

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

The rates are as follows:

Mumbai ₹ /$ spot : 60.25-60.55

3 months swap points : 35/25

(Study Material, PM & Exam November – 2014)

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QUESTION – 61

An Indian Exporter is to receive € 200000 after 1 month. The customer is requesting a total period of 3 months. The Indian exporter is planning to allow additional 2 months to the foreign party at an interest of 6% p.a.

1 month FR € 1 = ₹ 56.70 – 57.20

3 month FR € 1 = ₹ 57.80 – 58.45

The rate of interest is Indian deposit rate is 14% p.a. for ₹ deposit made for 2 months.

Advise the exporter as to whether he should receive at the end of 1 month or at end of 3 month.

(Page No. 87)

EXAMPLE – 68

Payable = $ 3,00,000

Receivable = $ 2,00,000

Exchange Rate (3 months FR)

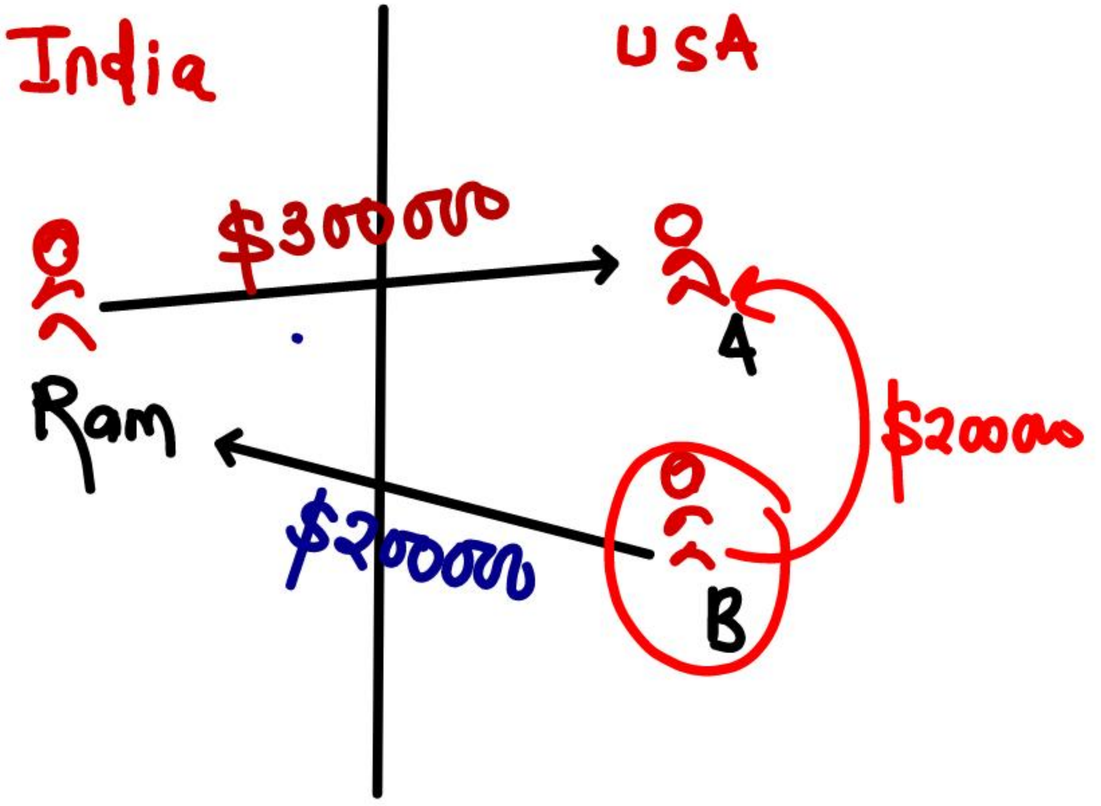
₹/$ = 70.50/71.75

Calculate cash flows at the end of 3rd month

(i) Without Netting.

(ii) With Netting.

(Page No. 14)



Cash Flows

Without Netting

Buy $ 300000 at ₹ 71.75 = (21525000)

Sell $ 200000 at ₹ 70.50 = 14100000

Net Cash Outflows = ₹ 7425000

With Netting

Buy Net $ payable i.e. $100000 at FR

$100000 × 71.75 = ₹ 7175000

Netting is better due to Lower C.O.

Money Market Cover

(I) Money Market Hedge for Importer

(II) Money Market Hedge for Exporter

EXAMPLE – 69

Import from USA & $ 1,03,000 payable after 3 months.

Interest Rate

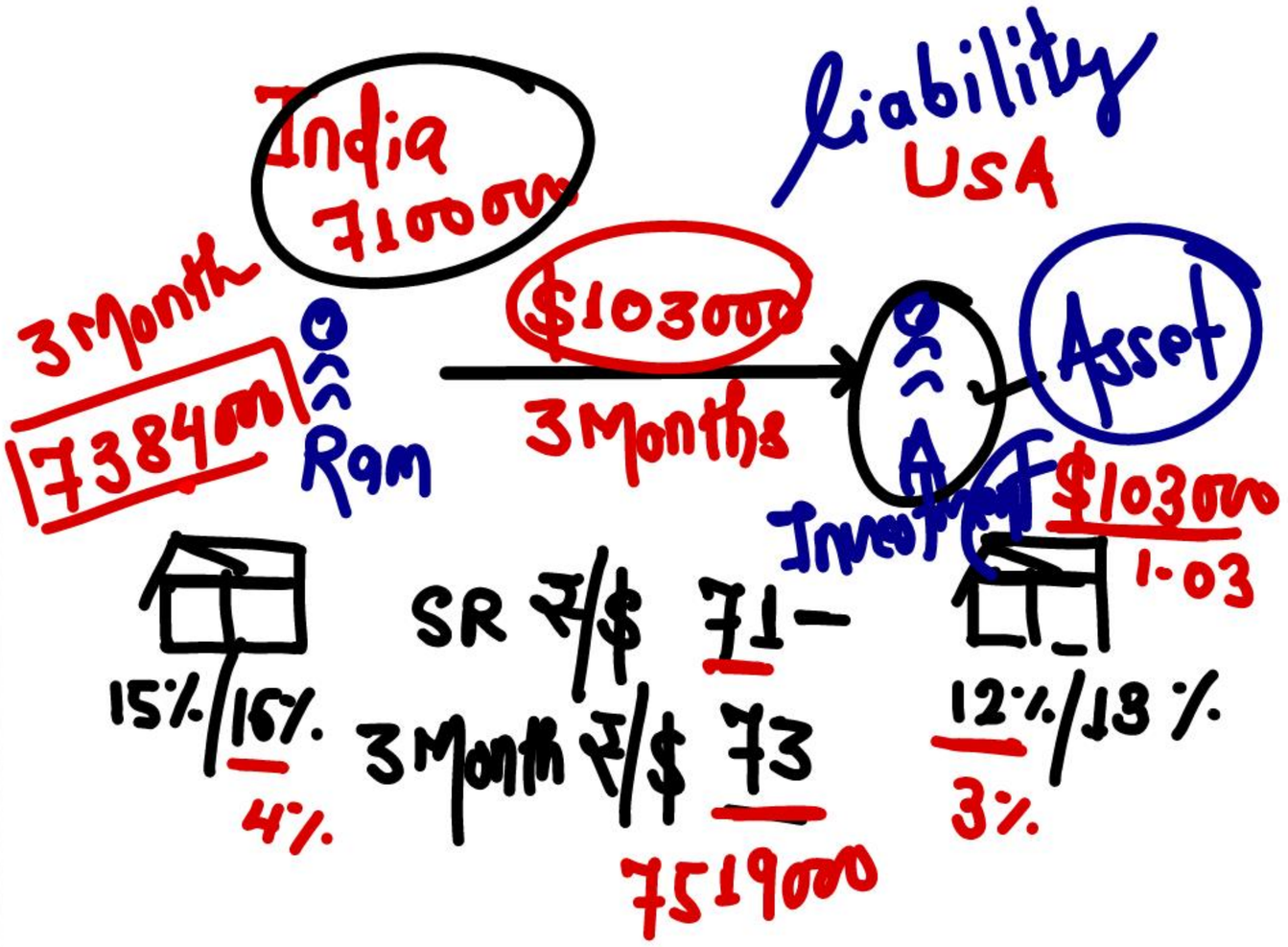
India	= 15%/16%
USA	= 12%/13%
SR ₹/$	= 70/71
3 months FR ₹/$	= 72/73

Which option is better

(i) Money market cover.

(ii) Forward cover

(Page No. 15)



Option 1 Money Market Cover

Step 1 Calculation of Amount to be invested in US money market @ 12% P.A. for 3 months

$$\text{Amt} = \frac{\$103000}{1.03} = \$100000$$

Step 2 Rupees required to buy $100000 at SR

$\$100000 \times ₹71 = ₹7100000$

Step 3 Borrow ₹7100000 from Indian money market @ 16% P.A. for 3 months

Cash outflows = $7100000(1.04) = ₹7384000$

option 2 forward Cover

Cash outflows: $ 103000 × ₹73

= ₹7519000

Money Market is better due to Lower Cash outflows

EXAMPLE – 70

Export to USA & $ 1,06,000 receivable after 6 months

Interest Rate

India = 8%/10%

USA = 10%/12%

SR ₹/$ = 70/71

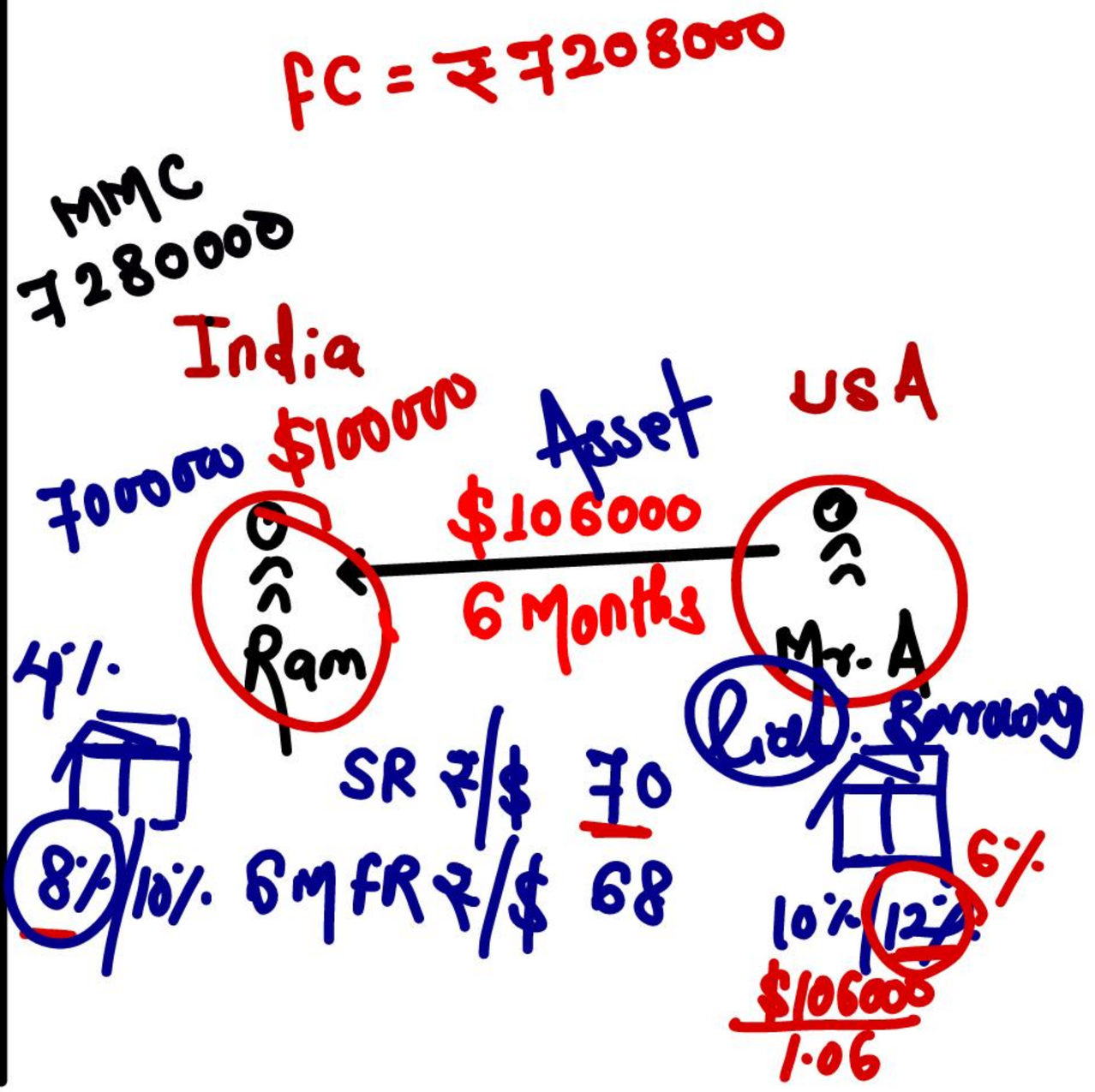
6 months FR ₹/$ = 68/69

Which option is better

(i) Money market cover.

(ii) Forward cover.

(Page No. 15)



option 1 Money Market Cover

Step 1 Borrowing Amount from US money Market @ 12% p.a. for 6 Months

$$\frac{\$106000}{1.06} = \$100000$$

Step 2 Sell $100000 at SR

$100000 × 70 = ₹7000000

Step 3 Invest ₹7000000 in Indian money market @ 8% p.a. for 6 months

Cash Inflows = 7000000 × 1.04 = ₹7280000

option 2 Forward Cover

Cash Inflows = $106000 × 68 = ₹7208000

MMC is better due to Higher Cash Inflows.

- If payable है means Liability है तो Asset creat करना होगा means Investment.
- If Receivables है means Asset है तो Liab. creat करना होगा means Borrowing.

QUESTION – 63

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	($/£) 1.5865 – 1.5905
3-month Forward Rate	($/£) 1.6100 – 1.6140

Rates 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.

(Study Material & PM)

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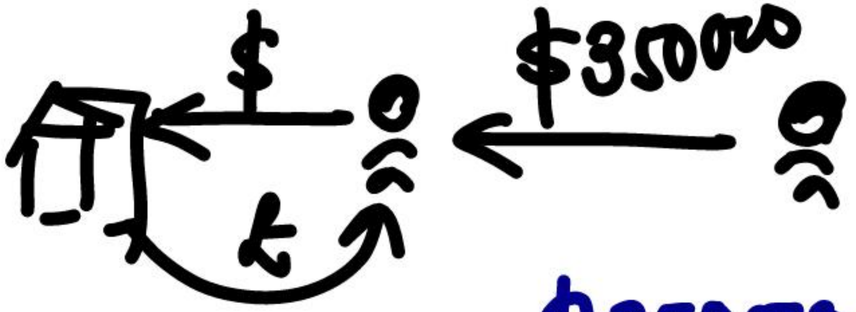
Option 1 Forward Cover



Cash Inflows = $\frac{\$350000}{1.6140}$

= £216852.54

option 2 Money Market Cover

Step 1 Borrowing Amount from US money market @ 9% P.a. for 3 Months

$$\frac{\$350000}{1.0225} = \$342298.29$$

Step 2 Sell $342298.29 at SR

$$\frac{\$342298.29}{1.5905} = £215214.27$$

step 3 Invest £215214.27 in UK Money Market @ 5% P.a. for 3 Months

Cash Inflows = £215214.27 (1.0125)

= £217904.45

MMC is better due to higher Cash Inflows.

QUESTION – 64

ABC Ltd. has imported specialty computer equipment worth US $ 2,50,000 from a company in US. The amount due for the imports is payable after 3 months, the treasury manager of ABC Ltd. has collected the following market quotes:

Exchange rates:

Spot ₹ /$ 47.15/47.30

Forward 3 months swap 55/60

Interest rates (p.a.):

Dollar (3 months) 6%/ 6.50%.

Rupee (3 months) 10.00%/11.00%

The supplier of the equipment has offered a discount of $5,000 if the payable is settled at the current date. The manager is reviewing the following alternative to settle the payable:

(a) Cover through forward market.

(b) Cover through money market.

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(c) Avail the cash discount of $ 5,000 by taking a bridge loan at 9% p.a. from a Financial Institution.

You are required to suggest the best alternative to settle the payable.

(Page No. 91)

$245000
X47.30
= 11588500
X1.0225
= 11849941

QUESTION – 62

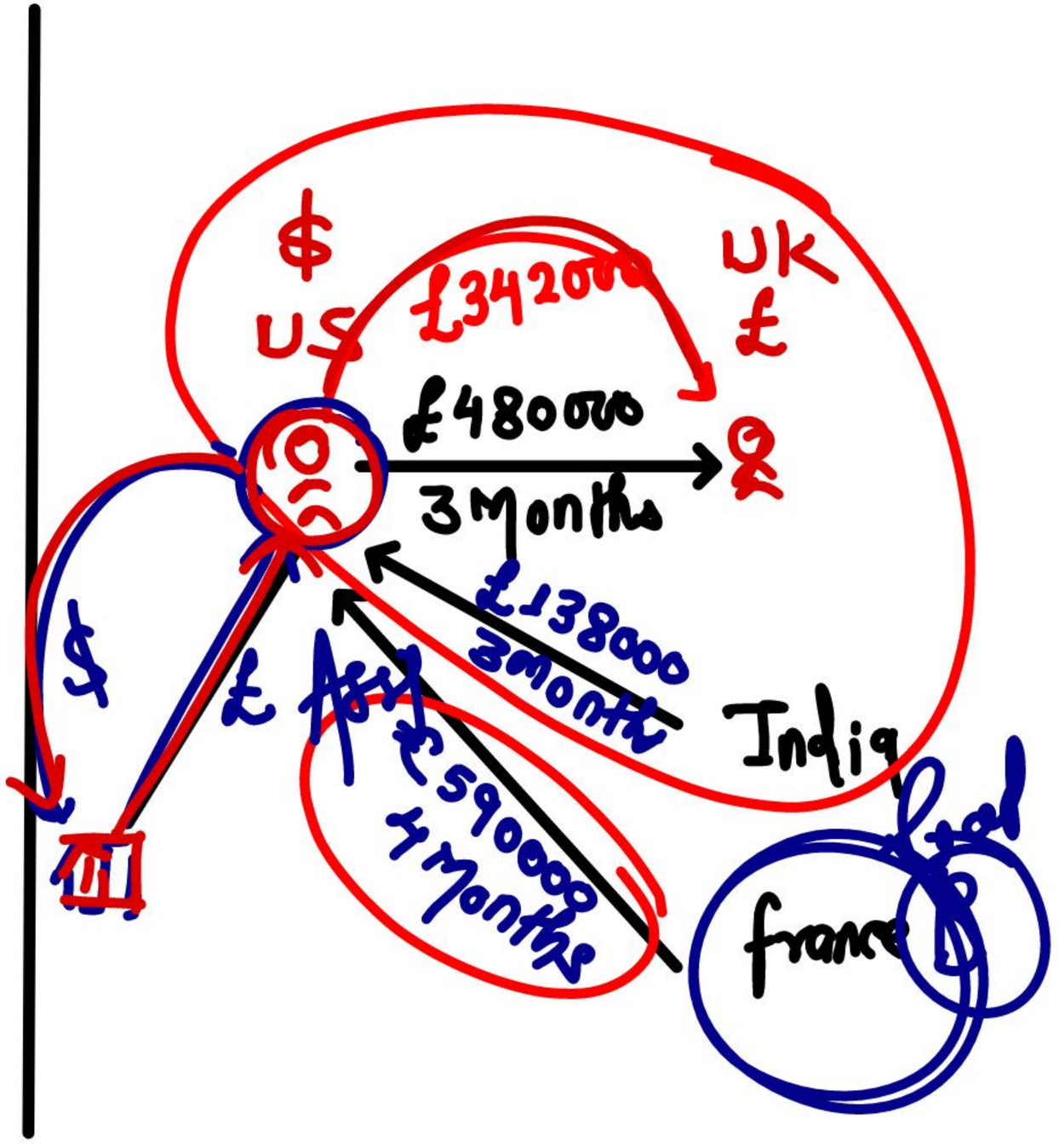
Columbus Surgicals Inc. is based in US, has recently imported surgical raw materials from the UK and has been invoiced for £ 480,000, payable in 3 months. It has also exported surgical goods to India and France.

The Indian customer has been invoiced for £ 138,000, payable in 3 months, and the French customer has been invoiced for € 590,000, payable in 4 months.

Current spot and forward rates are as follows:

£ / US$	
Spot:	0.9830 – 0.9850
Three months forward:	0.9520 – 0.9545

US$ / €	
Spot:	1.8890 – 1.8920
Four months forward:	1.9510 – 1.9540



Current money market rates are as follows:

UK:	10.0% – 12.0% p.a.
France:	14.0% – 16.0% p.a.
USA:	11.5% – 13.0% p.a.

You as Treasury Manager are required to show how the company can hedge its foreign exchange exposure using Forward markets and Money markets hedge and suggest which the best hedging technique is.

(Study Material & PM)

(Page No. 88)

Receivable

option 1 forward Cover

Sell € 590000 at 4 Month FR

€590000 × 1.9510 = $1151090

option 2 Money Market Cover

step 1 Borrowing Amount from france Money Market @ 16% p.a. for 4 Months

$$\frac{€590000}{1.0533} = €560144.31$$

step 2 Sell € at SR

€560144.31 × 1.8890 = $1058112.60

step 3 Invest $1058112.60 in US Money Market @ 11.5% for 4 Months

Cash Inflows = $1058112.60 × 1.0383

= $1098638.31

Forward Cover is better due to Higher CI.

payable

Since company has payable £480000 & Receivable £138000 at same time, hence Netting is possible & We hedge only for (£480000 - £138000) = £342000

option 1 forward cover

Buy £342000 at 3 month FR

$$\frac{£342000}{0.9520} = \$359248.70$$

option 2 Money Market Cover

step 1 Calculation of Amount to be invested in UK money market @ 10% p.a. for 3 months

$$\frac{£342000}{1.025} = £333658.54$$

step 2 Buy £333658.54 at SR $\frac{£333658.54}{0.9830} = \$339428.83$

step 3 Borrow $339428.83 from US money market @ 13% p.a. for 3 months

Cash outflows = $339428.83 × 1.0325

= $350460.27

MMC is better due to Lower Cash outflows.

QUESTION – 65

An Indian exporting firm, Rohit and Bros., would be covering itself against a likely depreciation of pound sterling. The following data is given:

Receivables of Rohit and Bros	:	£500,000
Spot rate	:	₹ 56.00/£
Payment date	:	3-months
3 months interest rate		
	:	India 12 per cent per annum
	:	UK 5 per cent per annum

What should the exporter do?

(Study Material & PM)

(Page No. 93)

On this situation, Exporter should Hedge the Receivables with the help of MMC.

Step 1 Amt to be borrowed from UK money market @ 5% p.a. for 3 month

$$\frac{£500000}{1.0125} = £493827.16$$

Step 2 Sell £ at sR $£493827.16 \times 56 = ₹27654321$

Step 3 Invest ₹27654321 in Indian Money market @ 12% p.a. for 3 months

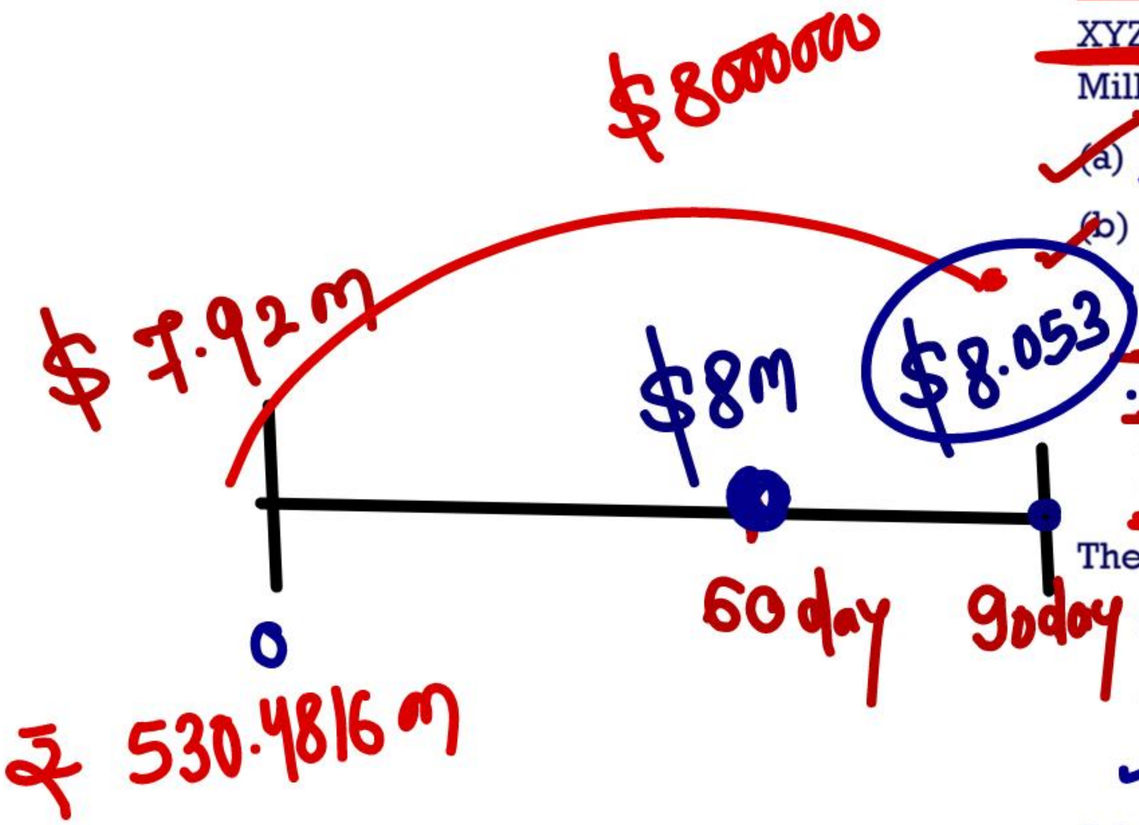
$27654321 \times 1.03 = ₹28483951$

IRP

$$\left(₹56 \times \frac{1.03}{1.0125}\right) \times £500000$$

FR

FC = mmC



QUESTION – 83

XYZ Ltd. has imported goods to the extent of US$ 8 Million. The payment terms are as under:

(a) 1% discount if full amount is paid immediately; or

(b) 60 days interest free credit. However, in case of a further delay up to 30 days, interest at the rate of 8% p.a. will be charged for additional days after 60 days. M/s XYZ Ltd. has ₹ 25 Lakh available and for remaining it has an offer from bank for a loan up to 90 days @ 9.0% p.a.

The quotes for foreign exchange are as follows:

Spot Rate INR/ US$ (buying)	₹ 66.98
60 days Forward Rate INR/ US$ (buying)	₹ 67.16
90 days Forward Rate INR/ US$ (buying)	₹ 68.03

Advise which one of the following options would be better for XYZ Ltd.

(i) Pay immediately after utilizing cash available and for balance amount take 90 days loan from bank.

(ii) Pay the supplier on 60th day and avail bank's loan (after utilizing cash) for 30 days.

(iii) Avail supplier offer of 90 days credit and utilize cash available.

Further presume that the cash available with XYZ Ltd. will fetch a return of 4% p.a. in India till it is utilized.

Assume year has 360 days. Ignore Taxation.

Compute your working upto four decimals and cash flows in Crore.

(RTP November 2021)

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option 1 pay immediately

$ payable after disc. ($8 × 99%) = $7.92m

Buy $ at SR $7.92 × 66.98 = ₹53.0482 cr.

(-) Cash Available = 0.2500 cr.

₹52.7982 cr.

Borrow ₹52.7982 cr. @ 9% p.a. for 90 days

Cash outflows = ₹52.7982 × 1.0225

= ₹53.9862 cr.

Option 2 pay the Supplier in 60 day

$ payable in 60 days = $0.8 crores

Buy $0.8 cr. at 60 days fr

$0.80 × ₹67.16 = ₹53.7280 cr.

(-) Available Cash with INH

0.2500 cr (1.0067) = ₹0.2517 cr.

53.4763 cr.

Borrow ₹53.4763 cr. @ 9% p.a. for 30 days

Cash outflows = ₹53.4763 × 1.0075

= ₹53.8774 cr.

Option 3 pay in 90 days

$ payable with Intt @ 8% P.a. for 30 days

$0.8 × 1.0067 = $0.8053 cr.

Buy $0.8053 cr. at 90 days f.R

$0.8053 × ₹68.03 = ₹54.7846 cr.

(-) Cash with Intt (90 days)

0.2500 (1.01) = ₹0.2525 cr.

₹54.5321 cr.

Option 2 is better due to Lower Cash Outflows.

Future Hedging
or
Currency future

- Currency future means future contract on currency. It is Exchange Traded
- There are two types of Contract
  1. Contract to buy → Long position
  2. Contract to sell → Short position

EXAMPLE – 71

$ Payable = $ 1,00,000 After 3 months

SR ₹/$ = 60

3 months FR ₹/$ = 61.50

Currency future

3 months future rate ₹/$ = 61

On settlement date ₹/$ in forward market is ₹ 62 & in future market is ₹ 63.

Calculate cash outflows.

(i) Currency future.

(ii) Forward contract.

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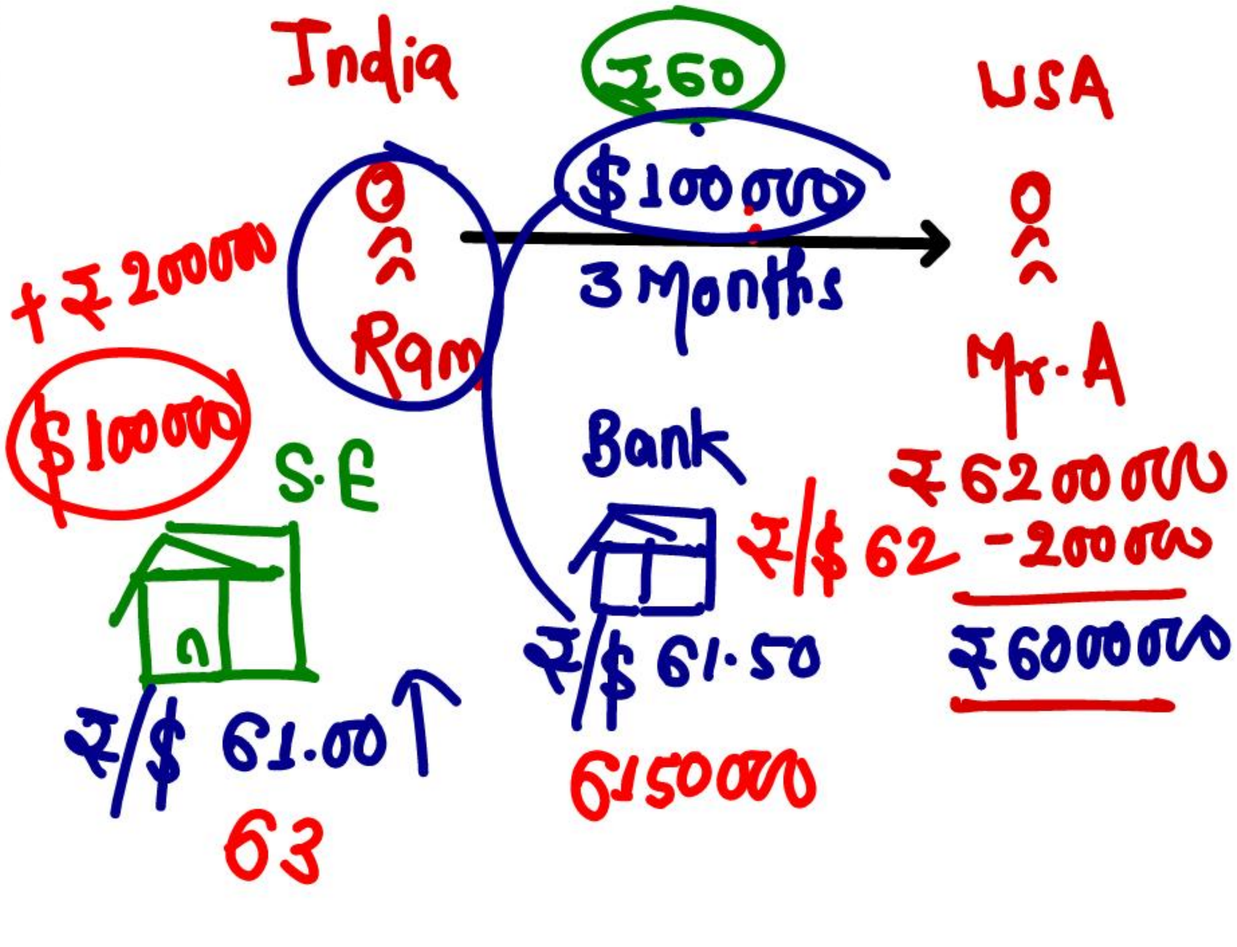

option 1 Currency future [जिस बात का डर, उसी में betting]

Step 1 Since $ payable & we afraid from $ rising, hence we should take Long position on $ at ₹61 [Buy future]

Step 2 No. of Contracts

Step 3 Gain or Loss on future

on Maturity currency future Rate ₹/$ ₹63, hence

Gain on Long position = (₹63 − ₹61) × $100000 = ₹200000

Step 4 Cash Outflows

Buy $ at 3 Months SR ($100000 × 62)	= ₹6200000
(-) Gain on currency future	= ₹200000
Cash outflows =	₹6000000

option 2 forward Cover

Buy $100000 at 3 Months FR

Cash outflows

$100000 × 61.50

= ₹6150000

future hedging is better due to Lower Cash outflows.

EXAMPLE – 72

$ Payables after 3 months = $ 1,00,000

SR ₹/$ = ₹70.50

1 months FR ₹/$ = ₹71.25

3 months FR ₹/$ = ₹72.75

Current future

Contract size = $ 9,000

1 months Future rate = ₹71.50

3 months Future rate = ₹71.75

	1 month	3 months
Rate of Interest	8% p.a.	10% p.a.
Initial margin	₹ 15,000	₹ 20,000

Per contract

On due date (Settlement Date) spot rate

₹/$ ₹ 73.00 & Currency future rate is ₹ 74.25 Which option is better ?

(i) Currency future

(ii) Forward Cover

option L Currency future

Step 1 Since $ payable & we afraid from $ rising hence we Should take Long position on 3 Month future at ₹ 71.75

Step 2 No. of Contracts

$$\text{No.} = \frac{\$100000}{\$9000} = 11.11$$

i.e. 11 Contracts Long

Step 3 Cash Outflows

- **Gain or Loss on currency future**

on Settlement date currency future Rate is ₹ 74.25, hence Gain on Long position

Variation Margin = (74.25 − 71.75) × $9000 × 11
= ₹ 247500

Buy $ 100000 at 3 month SR $100000 × 73	=	₹ 7300000
(−) Variation Margin	=	247500
(+) opp. Cost on Initial Margin (11 × 20000 × 10% × 3/12)	=	5500
Cash outflows	=	₹ 7058000

option 2 forward Cover

Cash Outflows

= $100000 × 72.75

= ₹ 7275000

Currency future is better due to Lower Cash outflows.

EXAMPLE – 73

$ Payables = $ 1,00,000 (3 Months)

SR $/₹ = 0.0142

1 months FR $/₹ = 0.0140

3 months FR $/₹ = 0.0137

Current future

1 month future rate $/₹ = 0.0142

3 months future rate$/₹ = 0.0138

Contract size = ₹ 6,52,000

	1 month	**3 months**
Rate of Interest	8% p.a.	10% p.a.
Initial margin	₹1000	₹1500

On settlement date, spot rate

$/₹ is 0.0137 & Currency future rate is 0.0132

Which option is better ?

(i) Currency future

(ii) Forward Cover

option 1 Currency future

Step 1 Since $ payable & we afraid from $ rising but we take position on ₹ & we should take short position on 3 month future $/₹ 0.0138

Step 2 No. of Contracts

Exposure in ₹ = $\frac{\$100000}{0.0138}$ = ₹7246377

No. = $\frac{7246377}{652000}$ = 11.11

= 11 Contracts short

Step 3 Cash Outflows

$/₹ 0.0138↓

Gain/Loss on Currency future

On due date Currency future Rate $/₹ 0.0132

then Gain on short position

$$(\$0.0138 - \$0.0132) \times ₹652000 \times 11 = \$4303.20$$

$ payable after 3 months	$100000
(-) Variation margin	$4303.20
	$95696.80

Buy $95696.80 at 3 Months SR

$$\frac{\$95696.80}{0.0137} = ₹6985168$$

(+) Opp. Cost $\left(1500 \times 11 \times 10\% \times \frac{3}{12}\right)$ = ₹412.50

Cash outflows = ₹6985580

option 2 forward Cover

Cash outflows

$$\frac{\$100000}{0.0137} \text{ [3 Months FR)}$$

= ₹72992270

Currency future is better due to Lower Cash outflows.

QUESTION – 67

EFD Ltd. is an export business house. The company prepares invoice in customers' currency. Its debtors of US$. 10,000,000 is due on April 1, 2015.

Market information as at January 1, 2015 is:

Exchange rates US$/INR

Spot	0.016667
1-month forward	0.016529
3-months forward	0.016129

Currency Futures US$/INR

Contract size:	₹ 24,816,975
1-month	0.016519
3-month	0.016118

	Initial Margin	Interest rates in India
1-Month	₹ 17,500	6.5%
3-Months	₹ 22,500	7%

On April 1, 2015 the spot rate US$/INR is 0.016136 and currency future rate is 0.016134.

Which of the following methods would be most advantageous to EFD Ltd?

(i) Using forward contract

(ii) Using currency futures

(iii) Not hedging the currency risk

(Study Material, PM, MTP April – 2022 & Exam May - 2015)

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QUESTION – 68

XYZ Ltd. is an export oriented business house based in Mumbai. The Company invoices in customers' currency. Its receipt of US $ 1,00,000 is due on September 1, 2009.

Market information as at June 1, 2009 is:

Exchange Rates US $/₹

Spot	0.02140
1 Month Forward	0.02136
3 Months Forward	0.02127

Currency Futures US $/₹

Contract size	₹4,72,000
June	0.02126
September	0.02118

	Initial Margin	Interest Rates in India
June	₹ 10,000	7.50%
September	₹ 15,000	8.00%

On September 1, 2009 the spot rate US $Re. is 0.02133 and currency future rate is 0.02134. Comment which of the following methods would be most advantageous for XYZ Ltd.

option 1 forward Cover

$$\text{Cash Inflows} = \frac{\$100000}{0.02127} = ₹4701457$$

option 2 Currency future

step 1 Since $ receivable & we afraid from from $ falling but we have to take position on ₹ hence we should take Long position on 3month future $/₹ 0.02118

Step 2 No. of Contracts

Exposure in ₹ = $\frac{\$100000}{0.02118}$ = ₹ 4721435

No. = $\frac{4721435}{472000}$ = 10 Contracts Long

Step 3 Cash Inflows

0.02118 ↑

Gain or Loss on Currency future

On due date, currency future Rate \$/₹ 0.02134, hence Gain on Long position

Variation Margin = (\$0.02134 − \$0.02118) × 10 × ₹472000
= \$755.20

\$ receivable = \$100000
(+) Variation margin = \$755.20
\$100755.20

Sell \$100755.20 @ 3 months SR = $\frac{\$100755.20}{0.02133}$ = ₹4723638
(−) opp. Cost (15000 × 10 × 8% × 3/12) = 3000
CI ₹4720638

option 3 No Hedging

Cash Inflow = $\frac{\$100000}{0.02133}$
= ₹4688232

Currency future is the best due to the highest CI.

(a) Using forward contract

(b) Using currency futures

(c) Not hedging currency risks.

It may be assumed that variation in margin would be settled on the maturity of the futures contract.

(Practice Manual)

(Page No. 97)

QUESTION – 69

Doom Ltd. is an export business house. The company prepares invoice in customers' currency. Its debtors of US$ 48, 00,000 is due on April 1, 2020.

Market information as at January 1, 2020 is:

Exchange Rate US$/INR		Currency Futures US$/INR	
Spot	0.014285	Contract Size ₹ 2,88,16,368	
1–month forward	0.014184	1 – month	0.014178
3–months forward	0.013889	3 – month	0.013881

	Initial Margin	Interest Rate in India
1 – Month	₹ 27,500	5.5%
3 – Months	₹ 32,500	9%

On April 1, 2020 the spot rate US$/INR is 0.013894 and currency future rate is 0.013893. Recommend as to which of the following methods would be most advantageous to Doom Ltd.

(i) Using forward contract

(ii) Using currency futures

(iii) Not hedging the currency risk

Note: Round off calculation upto zero decimal points.

(RTP May - 2021) (Page No. 98)

QUESTION – 70

JKL Ltd. is an export business house. The company prepares invoice in customer's currency.

Its debtors of US$. 2,00,00,000 is due on April 1,2017.

Market information as at January 1, 2017 is :

Exchange Rate US$/INR		Currency Futures US$/INR	
Spot	0.016667	Contract Size: 31,021,218	
1 – month forward	0.016529	1 – month	0.016519
3 – months forward	0.016129	3 – month	0.016118

	Initial Margin	Interest rates in India
1 – Month	₹ 32,500	7%
3 – Months	₹ 50,000	8%

On April 1, 2017 the spot rate US$/INR is 0.016136 and currency future rate is 0.016134.

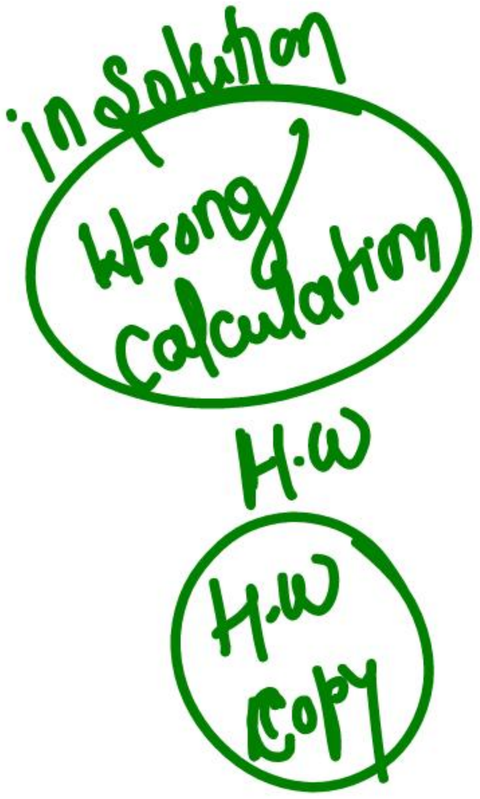
Which of the following methods would be most advantageous to JKL Ltd.?

(i) Using forward contract

(ii) Using currency futures

(iii) Not hedging the currency risk

(Exam November – 2017) (Page No. 100)



QUESTION - 71

DSE Ltd. is an export oriented business in Kolkata. DSE Ltd. invoices in customer currency. Its receipts of US $ 3,00,000 is due on July 1st, 2019.

Market information as at April 1st, 2019

Exchange Rate		Currency Futures		Contract Size = ₹ 6,40,000/-
US $/₹		US $/₹		
Spot	0.0154	April	0.0155	
1 Month Forward	0.0150	July	0.0151	
3 Months Forward	0.0147			

Initial Margin		Interest Rates in India
April	₹ 13,000	9%
July	₹ 24,000	8.5%

On July, the spot rate US $/₹ is 0.0146 and currency future rate is 0.0147 comment which of the following methods would be most advantageous for DSE Ltd.

(i) Using forward contract.

(ii) Using currency futures.

(iii) Not hedging currency risks.

It may be assumed that variation in margin would be settled on the maturity of the futures contract.

(Exam May - 2019)

(Page No. 101)

QUESTION – 75

ABC Technologic is expecting to receive a sum of US$ 4,00,000 after 3 months. The company decided to go for future contract to hedge against the risk. The standard size of future contract available in the market is $1000. As on date spot and futures $ contract are quoting at ₹ 44.00 &₹ 45.00 respectively. Suppose after 3 months the company closes out its position futures are quoting at ₹ 44.50 and spot rate is also quoting at ₹ 44.50. You are required to calculate effective realization for the company while selling the receivable. Also calculate how company has been benefitted by using the future option.

(Study Material & PM)

(Page No. 109)

Question – 01 (b)

Export Ltd., an export oriented unit invoices in the currency of the importer. It is expecting a receipt of USD 2,40,000 on 1st August, 2022 for the goods exported on 1st May, 2022.

The following information is available as on 1st May, 2022:

Exchange Rates		Currency Futures		Contract Size
USD/INR		USD/INR		
Spot	0.0125	May	0.0126	₹ 6,40,000/-
1 Month Forward	0.0124	July	0.0125	
3 Months Forward	0.0123			

Initial Margin		Interest Rates in India
May	₹ 15,000	9%
August	₹ 26,000	8.5%

On 1st August, 2022 the spot rate USD/INR is 0.0126 and currency future rate is 0.0125.

Suggest a suitable approach to Export Ltd. that would be most advantageous out of the following methods.

(i) Forward Contract.

(ii) Currency Futures.

(iii) No hedge.

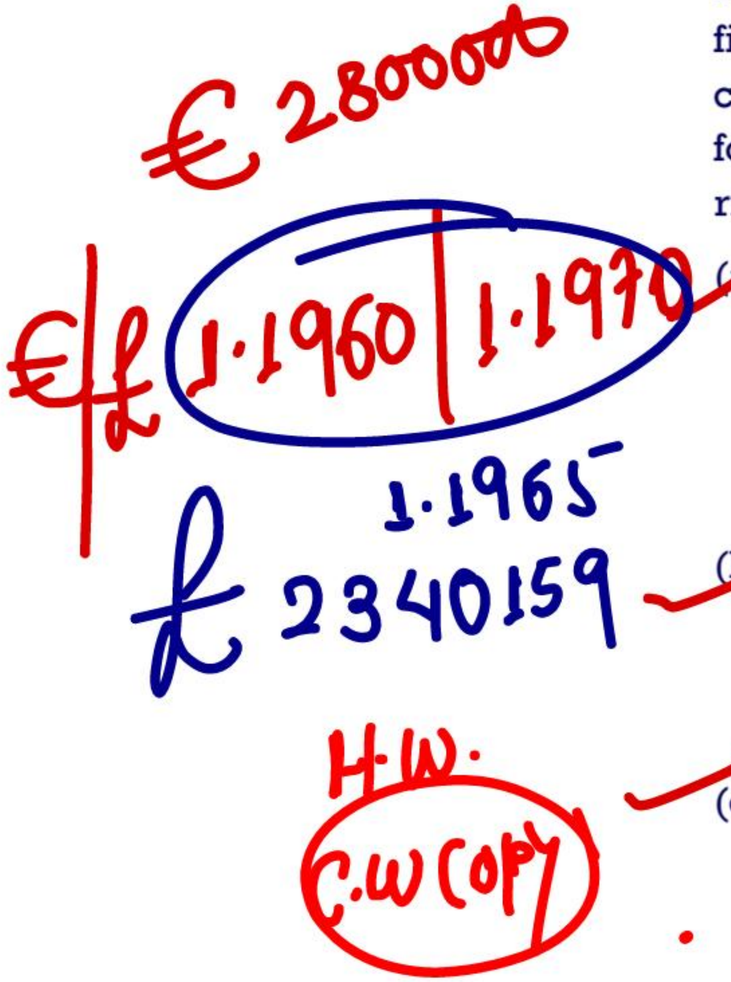
Assume that the variation in margin would be settled on the maturity of the futures contract.

(Exam May - 2023)

(Question Paper Que. 01 (b))

QUESTION – 72

Zaz plc, a UK Company is in the process of negotiating an order amounting €2.8 million with a large German retailer on 6 month's credit. If successful, this will be first time for Zaz has exported goods into the highly competitive German Market. The Zaz is considering following 3 alternatives for managing the transaction risk before the order is finalized.



(a) Mr. Peter the Marketing head has suggested that in order to remove transaction risk completely Zaz should invoice the German firm in Sterling using the current €/£ average spot rate to calculate the invoice amount.

(b) Mr. Wilson, CE is doubtful about Mr. Peter's proposal and suggested an alternative of invoicing the German firm in € and using a forward exchange contract to hedge the transaction risk.

(c) Ms. Karen, CFO is agreed with the proposal of Mr. Wilson to invoice the German first in €, but she is of opinion that Zaz should use sufficient 6 month sterling further contracts (to the nearest whole number) to hedge the transaction risk.

Following data is available

Spot Rate	€ 1.1960 – €1.1970/£
6 months forward points	0.60 – 0.55 Euro Cents.
6 month further contract is currently trading at	€ 1.1943/£
6 month future contract size is	£62,500
After 6 month Spot rate and future rate	€ 1.1873/£

You are required to

(a) Calculate (to the nearest £) the £ receipt for Zaz plc, under each of 3 above proposals.

(b) In your opinion which alternative you consider to be most appropriate.

(Study Material & PM)

(Page No. 102)

QUESTION – 73

Nitrogen Ltd, a UK company is in the process of negotiating an order amounting to €4 million with a large German retailer on 6 months credit. If successful, this will be the first time that Nitrogen Ltd has exported goods into the highly competitive German market. The following three alternatives are being considered for managing the transaction risk before the order is finalized.

(i) Invoice the German firm in Sterling using the current exchange rate to calculate the invoice amount.

(ii) Alternative of invoicing the German firm in € and using a forward foreign exchange contract to hedge the transaction risk.

(iii) Invoice the German first in € and use sufficient 6 months sterling future contracts (to the nearly whole number) to hedge the transaction risk.

Following data is available:

Spot Rate	€ 1.1750 - €1.1770/£
6 months forward premium	0.55-0.60 Euro Cents
6 months future contract is currently trading at	€1.1760/£
6 months future contract size is	£62500

Alternative 1 Invoicing

€ Receivables = £4000000

Invoicing in £ using SR

$$\text{Cash Inflows} = \frac{€4000000}{1.1770}$$

$$= £3398471$$

Alternative 2 forward cover

6M FR SR 1.1770

(+) 6M Swap 0.0060

1.1830

$$\text{Cash Inflows} = \frac{€4000000}{1.1830} = £3381234$$

Alternative 3 Currency future

- Since € receivable & we afraid from € falling but we have to take position on £ hence we should take Long position on €/£ at 1.1760

- **No. of Contracts**

Export Exposure = €4000000

$$\text{Export Exposure (£)} = \frac{€4000000}{1.1760} = £3401360$$

$$\text{No. of contracts} = \frac{£3401360}{£62500}$$

$$= 54.42$$

54 contracts Long

- **Cash In flows**

Gain or Loss on Currency future 1.1760T

On maturity €/£ 1.1785 hence Gain on Long position

Variation Margin $(€1.1785 - 1.1760) \times £62500 \times 5$

$= €8437.50$

€ Receivable =	€4000000
(+) Variation margin =	€8437.50
	€4008437.50

Sell € at 6 months SR $\frac{€4008437.50}{1.1785}$

$= £3401305$

Currency future is the best due to Higher Cash Inflows.

Spot rate and 6 months future rate €1.1785/£

Required:

(a) Calculate to the neares £ the receipt for Nitrogen Ltd, under each of the three proposals.

(b) In your opinion, which alternative would you consider to be the most appropriate and the reason thereof.

(Study Material, PM & Exam November – 2011)

(Page No. 105)

QUESTION – 74

Telereal Trillium, a UK Company is in the process of negotiating an order amounting €5.5 million with a large German retailer on 6 month's credit. If successful, this will be first time for Telereal Trillium has exported goods into the highly competitive German Market. The Telereal Trillium is considering following 3 alternatives for managing the transaction risk before the order is finalized.

(i) Mr. Grand, the Marketing head has suggested that in order to remove transaction risk completely Telereal Trillium should invoice the German firm in Sterling using the current €/£ average spot rate to calculate the invoice amount.

(ii) Mr. John, CE is doubtful about Mr. Grand's proposal and suggested an alternative of invoicing the German firm in € and using a forward exchange contract to hedge the transaction risk.

(iii) Ms. Royce, CFO is agreed with the proposal of Mr. John to invoice the German first in €, but she is of opinion that Telereal Trillium should use sufficient 6 month sterling future contracts (to the nearest whole number) to hedge the transaction risk.

Following data is available

Spot Rate	€ 1.1980 - €1.1990/£
6 months forward points	0.60 – 0.55 Euro Cents.
6 month future contract is currently trading at €	1.1943/£
6 month future contract size is	£70,500
After 6 month Spot rate and future rate	€ 1.1873/£

You are required to

(a) Advise the alternative you consider to be most appropriate.

(b) Interpret the proposal of Mr. Grand from non-financial point of view.

Note: Calculate (to the nearest £) the £ receipt.

(RTP May - 2021)

(Page No. 107)

Currency option [option Hedging]

There are two options

1. Call option
   - price Rise (Right to buy)
2. Put option
   - price fall (Right to sell)

EXAMPLE – 74

[Type - A]

$ Payables = $1,00,000 in 3 months

SR ₹/$ = ₹70.50

3 months FR = ₹72.75

3 months currency option

Strike price = ₹ 70.25

Premium Call option = ₹ 0.45 per $

Put option = ₹ 0.20 per $

Rate of Interest = 12% p.a.

Price of $ on Maturity

Price	**Probability**
70.10	0.3
71.50	0.2
72.25	0.5

Which option is better?

(i) Currency option.

(ii) Forward contract.

Since $ payable & afraid from $ rising, hence we Buy Call option at EP 70.25 & paid premium ₹0.45 per $

Calculation of Cash outflows

£ 70.25 ↑

Market price	Action	Cost per $	Premium	Total Cost per $	£ payable on $100000	prob.	Pay. x P
70.10	Lapsed	70.10	0.45	70.55	7055000	0.3	2116500
71.50	Exercised	70.25	0.45	70.70	7070000	0.2	1414000
72.25	Exercised	70.25	0.45	70.70	7070000	0.5	3535000
						Cash outflo	7065500 ✓
						(+) opp. cost (45000 x 12% x 3/12)	1350
						Total C.O.	7066850

Better

forward Cover : $100000 x 72.75 = 7275000

QUESTION – 76

XYZ Ltd. a US firm will need £ 3,00,000 in 180 days. In this connection, the following information is available:

Spot rate 1 £ = $ 2.00

180 days forward rate of £ as of today = $1.96

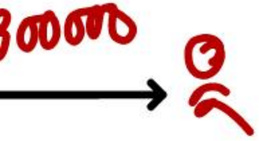
Interest rates are as follows:

	U.K.	US
180 days deposit rate	4.5%	5%
180 days borrowing rate	5%	5.5%

A call option on £ that expires in 180 days has an exercise price of $ 1.97 and a premium of $ 0.04.

XYZ Ltd. has forecasted the spot rates 180 days hence as below:

Future rate	Probability
$ 1.91	25%
$ 1.95	60%
$ 2.05	15%



① Forward Cover

Cash Outflows = £300000 × 1.96
= $588000

② MMC

Step 1 Amount to be invested in UK Money market @ 4.5% for 6 Months

$$\text{Amt} = \frac{£300000}{1.045} = £287081$$

Step 2 Buy £287081 at SR

£287081 × 2 = $574162

step 3 Borrow $574162 from US money market @ 5.5%

Cash outflows = $574162 × 1.055
= $605741

3. option contract

• Buy call option at £ $1.97 & paid premium $0.04

£300000

Market	Action	Cost/£	premium	Total cost per £	payable ($)	prob.	Expected payable
$1.91	Lapsed	$1.91	$0.04	$1.95	$585000	25%	$146250
$1.95	Lapsed	$1.95	$0.04	$1.99	$597000	60%	$358200
$2.05	Exercised	$1.97	$0.04	$2.01	$603000	15%	$90450
						Total	$594900

(+) opp. cost on premium

(£300000 × $0.04) × 5.5% = $660

Cash outflows = $595560

4. No Hedging

Expected SR = (1.91 × 25%) + (1.95 × 60%) + (2.05 × 15%)

= $1.955

£300000 × $1.955 = $586500

No Hedging is the best Strategy due Lower cash outflows.

Which of the following strategies would be most preferable to XYZ Ltd.?

(a) A forward contract;

(b) A money market hedge;

(c) An option contract;

(d) No hedging.

Show calculations in each case

(Study Material, PM & Exam November - 2015)

(Page No. 110)

QUESTION – 77

Sun Limited, an Indian company will need $ 5,00,000 in 90 days. In this connection, following information is given below:

Spot Rate - $ 1 = ₹ 71

90 days forward rate of $ 1 as of today = ₹ 73

Interest Rates are as follows:

Particulars	US	India
90 days Deposit Rate	2.50%	4.00%
90 days Borrowing Rate	4.00%	6.00%

A call option on $ that expires in 90 days has an exercise price of ₹ 74 and a premium of Re. 0.10. Sun Limited has forecasted the spot rates for 90 days as below:

Future Rate	Probability
₹ 72.50	25%
₹ 73.00	50%
₹ 74.50	25%

Which of the following strategic would be the most preferable to Sun Limited :

H.W.

H.W. Copy

(i) A Forward Contract;

(ii) A Money Market Hedge;

(iii) An Option Contract;

(iv) No Hedging.

Show your calculation in each case.

(Exam May – 2019)

(Page No. 112)

EXAMPLE – 75

[Type - B]

$ Payables = $ 100000 (3 Month)

SR ₹/$ = ₹ 70.50/70.85

3 months FR = 72.50/72.75

Currency option

Contract size = $ 9000

Strike price = ₹ 71.00

Premium

Call = ₹ 0.60 per $

Put = ₹ 0.45 per $

$9000 x 11 = $99000

$1000

Which option is better

(i) Currency option.

(ii) Forward cover.

option 1 Currency option

Step 1 Since $ payable & we afraid from $ rising, hence we buy Call option at ₹71 & pay premium ₹0.60 per $.

Step 2 No. of Contracts

$$\text{No.} = \frac{\$100000}{\$9000} = 11.11$$

= 11 Contracts

Step 3 Cash Outflows

- Cover through option

($9000 × 11) = $99000 × ₹71 = ₹7029000

- Uncovered portion hedge by forward cover

($100000 - $99000) = $1000 × ₹72.75 = ₹72750

- premium ($99000 × ₹0.60) = ₹59400

Cash outflows = ₹7161150

Option 2 forward Cover

Cash Outflows

$100000 × ₹72.75

= ₹7275000

Currency option is better due to Lower C.O.

EXAMPLE – 76

$ Receivables = $ 1,00,000 in 3 months

SR $/₹ = $ 0.0142/$ 0.0143

3 months FR $/₹ = $0.0146/$0.0147

Currency Option

Strike price $/₹ $0.0145

Contract size = ₹ 620000

Premium

Call = $ 0.0008 per ₹

Put = $ 0.0005 per ₹

Which option is better?

(i) Currency option.

(ii) Forward cover.

Option 1 Currency option

Step 1 Since $ receivable & we afraid from $ falling but options are available for ₹, hence we buy Call option at E $/₹ 0.0145 & paid premium $0.0008 per ₹

Step 2 No. of Contracts

$ Receivable = $100000

Contract size = ₹620000

Contract size($) = ₹620000 × 0.0145

= $8990

$$\text{No.} = \frac{\$100000}{\$8990} = 11.12$$

11 contracts

Step 3 Cash Inflows

- Option Hedging = ($8990 x 11)
  = $98890 / 0.0145 = ₹6820000 CI
- Forward Cover ($100000 - $98890)
  = $1110 / 0.0147 = ₹75510 CI
- Premium = $0.0008 x (₹6200000 x 11)
  $5456 / 0.0142 = ₹384225 C.O.

₹6511285

Option 2 Forward Cover

CI = $100000 / 0.0147

= ₹6802721

FC is better due to Higher CI

QUESTION – 78

A Ltd. of U.K. has imported some chemical worth of USD 3,64,897 from one of the U.S. suppliers. The amount is payable in six months time. The relevant spot and forward rates are:

Spot rate	USD 1.5617–1.5673
6 months' forward rate	USD 1.5455–1.5609

The borrowing rates in U.K. and U.S. are 7% and 6% respectively and the deposit rates are 5.5% and 4.5% respectively.

Currency options are available under which one option contract is for GBP 12,500. The option premium for GBP at a strike price of USD 1.70/GBP is USD 0.037 (call option) and USD 0.096 (put option) for 6 months period.

The company has 3 choices:

(i) Forward cover

(ii) Money market cover, and

(iii) Currency option

Which of the alternatives is preferable by the company?

(Study Material & PM)

(Page No. 114)

① Forward Cover

Cash Outflows = $\frac{\$364897}{1.5455}$

= £236103

② Money Market Cover

Step 1 Amt to be invested in US money market @ 4.5% p.a. for 6 months

Amt = $\frac{\$364897}{1.0225}$ = $356867

Step 2 Buy $356867 at SR

$\frac{\$356867}{1.5617}$ = £228512

Step 3 Borrow £228512 from UK money market @ 7% for 6 months

Cash Outflows = £228512 × 1.035

= £236510

Option 3 Currency option

Step 1 Buy put option at £ $/£ 1.70 & pay premium $0.096 per £.

Step 2 No. of Contracts

Exposure : $364897

Contract size = £12500

Contract size : £12500 × 1.70 = $21250

$$\text{No.} = \frac{\$364897}{\$21250} = 17.17 \text{ i.e. } 17 \text{ contracts}$$

Step 3 Cash Outflows

- option Hedging = ($21250 × 17) = $\frac{\$361250}{1.70}$ = £212500
- forward cover = ($364897 − $361250)

  = $\frac{\$3647}{1.5455}$ = = £2360
- premium = $0.096 × (£12500 × 17)

  = $\frac{\$20400}{1.5617}$ = £13063

£227923

opp. cost £13063 × 7% × 6/12 £457

Currency option is the best due to Lower C.O.

QUESTION – 79

XYZ, an Indian firm, will need to pay JAPANESE YEN (JY) 5,00,000 on 30th June. In order to hedge the risk involved in foreign currency transaction, the firm is considering two alternative methods i.e. forward market cover and currency option contract.

On 1st April following quotations (JY/INR) are made available:

Spot	3 months forward
1.9516/1.9711.	1.9726/1.9923

The prices for forex currency option on purchase are as follows:

Strike Price	JY 2.125
Call option (June)	JY 0.047
Put option (June)	JY 0.098

For excess or balance of JY covered, the firm would use forward rate as future spot rate. You are required to recommend cheaper hedging alternative for XYZ.

(Study Material, PM & Exam November – 2015)

(Page No. 116)

option 1 forward Cover

Cash Outflows = $\frac{¥50000}{1.9726}$

= ₹253473

option 2 Currency option

step 1 Buy put option at

£ ¥/₹ 2.125 at pay premium

¥0.088 per ₹

Step 2 Cash Outflows

Option Hedging = $\frac{¥500000}{2.125}$ = ₹235294

Premium

¥0.098 × ₹235294

= $\frac{¥23059}{1.9516}$ = ₹11815

Cash Outflows = ₹247109

Currency option is better due to lower C.O.

QUESTION – 80

An American firm is under obligation to pay interests of Can$ 1010000 and Can$ 705000 on 31st July and 30th September respectively. The Firm is risk averse and its policy is to hedge the risks involved in all foreign currency transactions. The Finance Manager of the firm is thinking of hedging the risk considering two methods i.e. fixed forward or option contracts.

It is now June 30. Following quotations regarding rates of exchange, US$ per Can$, from the firm's bank were obtained: $/Can$

Spot	1 Month Forward	3 Months Forward
0.9284-0.9288	0.9301	0.9356

Price for a Can$ /US$ option on a U.S. stock exchange (cents per Can$, payable on purchase of the option, contract size Can$ 50000) are as follows:

Strike Price	Calls		Puts	
(USD/Can$)	July	Sept.	July	Sept.
0.93	1.56	2.56	0.88	1.75
0.94	1.02	NA	NA	NA
0.95	0.65	1.64	1.92	2.34

According to the suggestion of finance manager if options are to be used, one month option should be bought at a strike price of 94 cents and three month option at a strike price of 95 cents and for the remainder uncovered by the options the firm would bear the risk itself. For this, it would use forward rate as the best estimate of spot. Transaction costs are ignored.

Recommend, which of the above two methods would be appropriate for the American firm to hedge its foreign exchange risk on the two interest payments.

(Study Material, PM, MTP March – 2022 & Exam Nov - 2013)

Option 1 Currency option

July

- Buy 1 month Call option at £ $/can$ 0.94 & pay premium $0.0102 per can$
- No. of Contracts = $\frac{\text{Can\$1010000}}{\text{Can\$50000}}$ = 20 Contracts
- Cash Outflows

Option Hedging (can$50000×20)
= can$1000000 × 0.94 = $940000

Uncovered = (can$1010000 − can$1000000)
= can$10000 × 0.9301 = $9301

Premium = $0.0102 × can$1000000 = $10200

Cash outflows = $959501

Sep Buy 3 month Call option at £ $/can$ 0.95 & pay premium $0.0164

No. = $\frac{705000}{5000}$ = 14 contracts

Cash outflows

Option Hedging = (can$50000 × 14)
= can$700000 × 0.95 = $665000

Uncovered = CD$8000 × 0.9356 = $4678

Premium = $0.0164 × 700000 = $11480

$681158

option 2 forward cover

July Cash outflows = Can $1010000 × 0.9301
= $939401

Sep. Cash outflows = Can $705000 × 0.9356
= $659598

It is better to Hedge using FC for both july & sep due to Lower C.O.

QUESTION – 81

On 19th April following are the spot rates

Spot EURO/USD 1.20000 USD/INR 44.8000

Following are the quotes of European Options:

Currency Pair	Call/Put	Strike Price	Premium	Expiry date
EUR/USD	Call	1.2000	$ 0.035	July 19
EUR/USD	Put	1.2000	$ 0.04	July 19
USD/INR	Call	44.8000	₹ 0.12	Sep. 19
USD/INR	Put	44.8000	₹ 0.04	Sep. 19

(i) A trader sells an at-the-money spot straddle expiring at three months (July 19). Calculate gain or loss if three months later the spot rate is EUR/USD 1.2900.

(ii) Which strategy gives a profit to the dealer if five months later (Sep. 19) expected spot rate is USD/INR 45.00. Also calculate profit for a transaction USD 1.5 million.

(Practice Manual)

① Trader sells straddles. It means write 1 call & 1 put at same EP i.e. $/€ 1.2000 & Rcd premium ($0.035 + $0.04) $0.075

on Maturity $/€ 1.2900, hence Call option will Exercise

Gross Payoff (1.2900 − 1.2000) = ($0.090)

(+) premium $0.075

Net Loss $0.015

(ii) If We Expect price of $ rise

Strategy 1 Buy call at EP ₹ 44.8000 & pay premium ₹ 0.12 per $

On Maturity, price ₹ 45

Gross payoff (₹ 45 - 44.8000)	= 0.20
(-) premium	= 0.12
Gain per $	₹ 0.08
(x) Contract size	$ 1500000
Gain	= ₹ 120000

Strategy 2 Write put at £ 44.8000 & Recd premium ₹ 0.04 per $

On Maturity price ₹ 45, put Lapsed

Gain = ₹ 0.04 × $ 1500000 = ₹ 60000

QUESTION – 82

XP Pharma Ltd., has acquired an export order for ₹ 10 million for formulations to a European company. The Company has also planned to import bulk drugs worth ₹ 5 million from a company in UK. The proceeds of exports will be realized in 3 months from now and the payments for imports will be due after 6 months from now. The invoicing of these exports and imports can be done in any currency i.e. Dollar, Euro or Pounds sterling at company's choice. The following market quotes are available.

	Spot Rate	Annualized Premium
₹/$	67.10/67.20	$ - 7%
₹ /Euro	63.15/63.20	Euro - 6%
₹ /Pound	88.65/88.75	Pound - 5%

Advice XP Pharma Ltd. about invoicing in which currency.

(Calculation should be upto three decimal places).

(Exam July – 2021)

(Page No. 4.20)

7. Cancellation & Extension of forward Contract

(I) Cancellation of forward Contract

(II) Extension of forward Contract

(III) Early delivery

(iV) Automatic Cancellation.

1 Cancellation of forward Contract

forward Contract can be cancelled by taking opposite contract.

- Cancellation on Maturity → Take SR
- Cancellation Before Maturity → Take FR

Calculate Gain or Loss to customer

EXAMPLE – 77

Ram had entered into forward to contract buy $ 1,00,000 on due date 01/04/2022 at ₹ 75.00 On maturity date 01/04/2022 contract cancelled.

Inter-bank (SR) ₹/$ = ₹ 72.00/72.25

Margin = 0.10%

Calculate cancellation charges.

(Page No. 19)

Selling Rate = ₹75.00

Buying Rate (72-0.10%) 71.93

Loss to customer 3.07

(x) contract size $100000

Loss = ₹307000

EXAMPLE – 78

Ram had entered into forward contract to sell $ 1,00,000 at ₹ 75.50 after 3 months on maturity, Contract cancelled.

Inter-bank rates (SR) ₹/$ = 72.50/72.25 (Ask / Bid)

Margin = 0.08%

Calculate amount payable to or recoverable from customer.

(Page No. 19)

Buying Rate = 75.50

Selling Rate

(72.50 + 0.08%) 72.56

Gain to Customer 2.94

(X) Contract $100000

Gain ₹ 294000

EXAMPLE – 79 Selling

Selling contract of bank for $ 1,00,000 after 3 months @ 72.50 on 31/03/2022

Exchange rate on cancellation date: 31/01/2022

Inter-bank SR = ₹ 70.25/45

1 month swap = 20/25

2 months swap = 35/40 (31/03/2022)

3 months swap = 65/80

Margin = 0.10%

Calculate amount payable are recoverable from customer.

(Page No. 19)

31/01/22 — 31/3/22

Selling Rate = 72.50

(–) Buying Rate

70.25
+ 0.35
70.60

(–) 0.1% → 70.53

Loss to customer → 1.97

(x) Contract size → $100000

₹ 197000

EXAMPLE – 80

- Selling contract of bank @ ₹ 75.50 on maturity customer request to bank for extension of forward contract for 1 month.
- Exchange rate on due date.

Inter-bank SR = 72.75/95

1 month swap = 45/25

2 month swap = 35/20

Contract size = $ 1,00,000

Margin = 0.08%

(i) Calculate extension charges.

(ii) New forward rate.

Selling

New FR 72.95
(-) Swap 0.25
72.70
(+) Margin 0.08%
₹ 72.76

(Page No. 20)

On Extension,

"Original Contract shall be cancelled & New Contract shall be booked"

Selling Rate 75.50
Buying Rate (72.75 - 0.08%) 72.69
Loss to customer 2.81
(x) contract size $100000
Extension charge ₹ 281000

EXAMPLE – 81 Selling

- Selling contract of bank of $ 1,00,000 at 3 months FR @ ₹ 74.75 due date 31/03/2022
- Contract extend on 28/02/2022 for 3 months

Exchange Rate : 28/02/2022

Inter-bank rate SR = ₹ 72.50/80 ✓

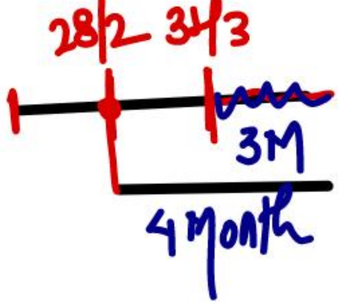
1 months swap = 40/30

2 months swap = 50/60

3 months swap = 75/85

4 months swap = 70/60

Margin = 0.10%



(1) Calculate extension charges.

(2) Calculate New FR.

(1)

Selling Rate 74.75

Buying Rate

(72.50 − 0.40) − 0.10% = 72.03

Loss to Customer 2.72

(X) Contract size $100000

Extension charges ₹272000

NEW FR

72.80

− 0.60

72.20

(+) Margin 0.10% ₹72.27

81.7994

81.8000

82.7525

82.7500

83.5250

25	50	75	100

83.4247 = 83.4250

QUESTION – 84

An importer requests his bank to extend the forward contract for US$ 20,000 which is due for maturity on 30th October, 2010, for a further period of 3 months. He agrees to pay the required margin money for such extension of the contract.

Contracted Rate – US$ 1= ₹ 42.32

The US Dollar quoted on 30-10-2010:-

Spot – 41.5000/41.5200

3 months' Premium – 0.87% / 0.93%

Margin money for buying and selling rate is 0.075% and 0.20% respectively.

Compute:

(i) The cost to the importer in respect of the extension of the forward contract, and

(ii) The rate of new forward contract.

(Study Material, PM & Exam May – 2017)

(Page No. 124)

(i) Extension charges

Selling Rate	= ₹ 42.32
(–) Buying Rate (41.5000 – 0.0750)	41.47
	0.85
Loss to Customer	
(x) Contract size	$ 20000
Extension charges	₹ 17000

(ii) New FR

Selling Rate	= ₹ 41.99
(41.52 + 0.93%) + 0.20%	

QUESTION – 85

A bank entered into a forward sale contract with a customer for US dollar 500,000 due Sep. 15, at the rate of US dollar 1 = ₹ 34.60. On Sep. 15, customer requests the bank to cancel the contract.

What will be the cancellation charge if the following is the spot rate in the interbank market?

US dollar 1 = ₹ 34.5000 – 34.5225

Exchange margin to be loaded by the bank is 0.080%

Loss : ₹ 65000

(Page No. 125)

QUESTION – 86

A bank booked a forward purchase contract for US dollar 250,000 with o customer at the rate of US dollar 1 = ₹ 34.50 due Oct. 30th 2005. On the due date customer requests the bank to cancel the contract.

The rates ruling in the interbank market on Oct. 30, 2005 are as under:

Spot US dollar 1: ₹ 34.9025 – 35.2050

What will be the cancellation charges of the bank if Banks load 0.150% for their exchange margin?

₹ 19000

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QUESTION – 87

On 15th January 2015 you as a banker booked a forward contract for US$ 2,50,000 for your import customer deliverable on 15th March 2015 at ₹ 65.3450. On due date customer request you to cancel the contract. On this date quotation for US$ in the inter-bank market is as follows:

Spot	₹ 65.2900/2975 per US$
Spot/April	3,000/3,100
Spot/May	6,000/6,100

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.

(Page No. 126)

Selling Rate ₹65.3450

Buying Rate ₹65.2250

(65.2900 - 0.10%)

65.2247

Loss to Customer ₹0.12

(X) Contract size $250000

₹30000

(+) Flat charge ₹100

Cancellation charges = ₹30100

Buying 47.2500

Selling 47.5200

QUESTION – 88

You as a banker has entered into a 3 month's forward contract with your customer to purchase AUD 1,00,000 at the rate of ₹ 47.2500. However after 2 month's your customer comes to you and requests cancellation of the contract. On this date quotation for AUD in the market is as follows:

H.W

Spot	₹ 47.3000/3,500 per AUD
1 month forward	₹ 47.4500/5,200 per AUD

Determine the cancellation charges payable by the customer.

27000

AFM

(Page No. 127)

QUESTION – 89

A customer with whom the bank had entered into 3 months forward purchase contract for Swiss Francs 1,00,000 at the rate of ₹ 36.25 comes to the bank after two months and requests cancellation of the contract. On this date, the rates are:

Spot	CHF 1 = ₹ 36.30	36.35
One month forward	36.45	36.52

Determine the amount of profit or loss to the customer due to cancellation of the contract.

H·W Book 7

(Page No. 127)

QUESTION – 90

A customer with whom the Bank had entered into 3 months' forward purchase contract for Swiss Francs 10,000 at the rate of ₹ 27.25 comes to the bank after 2 months and requests cancellation of the contract. On this date, the rates, prevailing, are:

Spot	CHF 1 =	₹ 27.30	27.35
One month forward		₹ 27.45	27.52

What is the loss/gain to the customer on cancellation?

H.W. Book से

(Study Material & PM)

(Page No. 128)

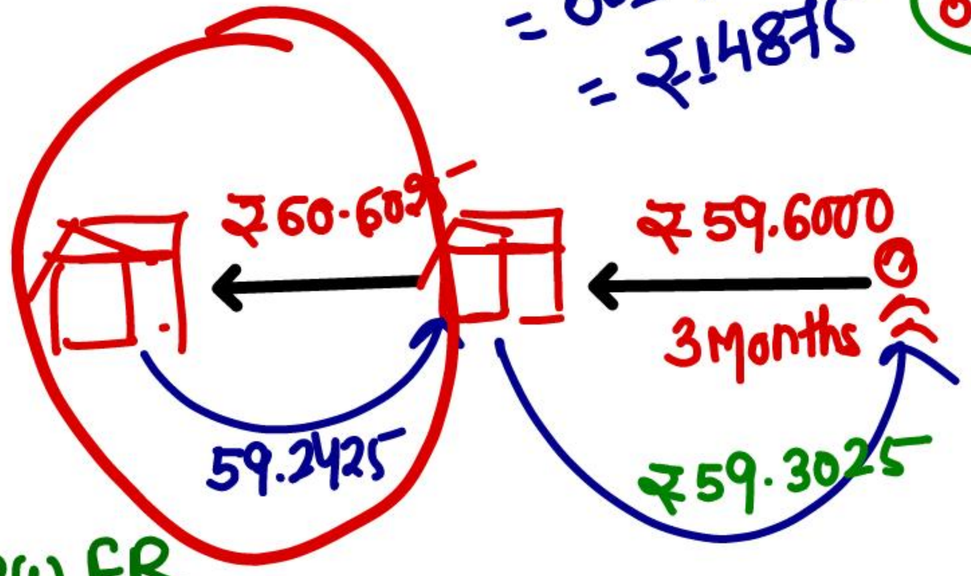
QUESTION – 91

Suppose you as a banker entered into a forward purchase contract for US$ 50,000 on 5th March with an export customer for 3 months at the rate of ₹ 59.6000. On the same day you also covered yourself in the market at ₹ 60.6025. However on 5th May your customer comes to you and requests extension of the contract to 5th July. On this date (5th May) quotation for US$ in the market is as follows:

Spot	₹ 59.1300/1400 per US$
Spot/5th June	₹ 59.2300/2425 per US$
Spot/5th July	₹ 59.6300/6425 per US$

Assuming a margin 0.10% on buying and selling, determine the extension charges payable by the customer and the new rate quoted to the customer.

(Page No. 129)



Gain
= 0.2975 × $50000
= ₹14875

05/6

New FR

59.6300
− 0.10%
59.5704
59.6700

59.2425 + 0.10%
= 59.3017
= 59.3025

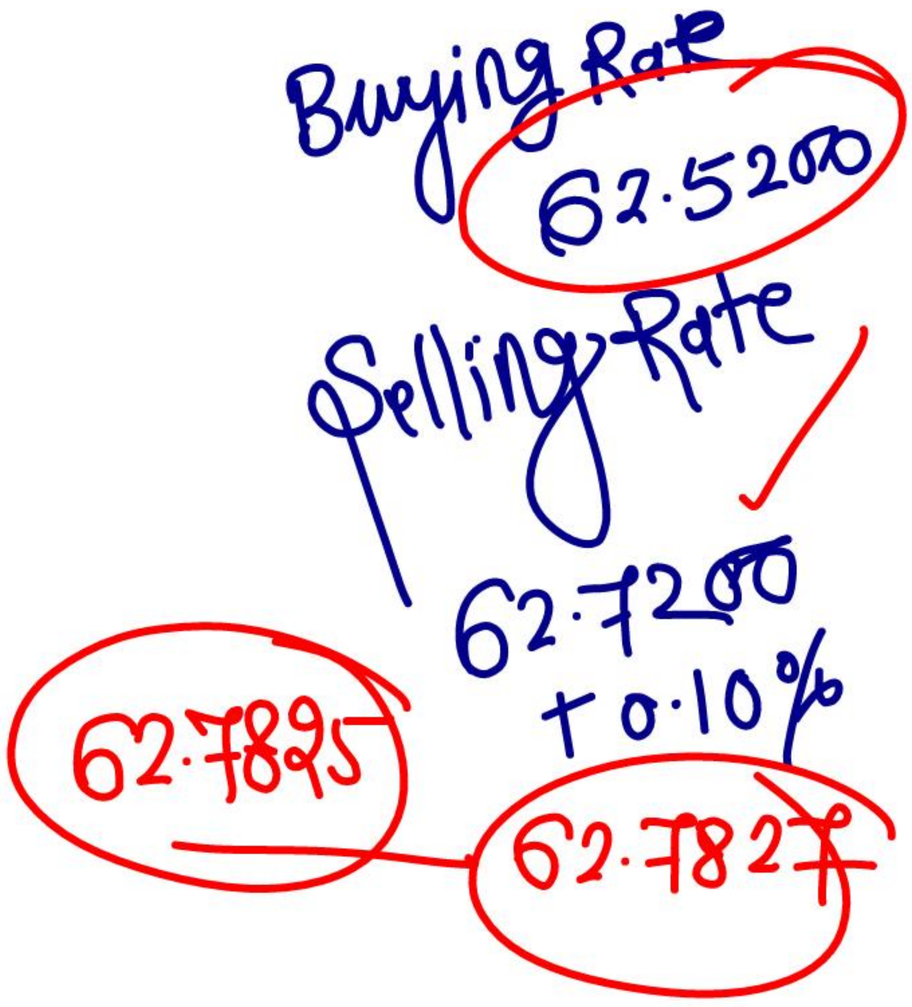
QUESTION – 92

Suppose you are a banker and one of your export customer has booked a US$ 1,00,000 forward sale contract for 2 months with you at the rate of ₹ 62.5200 and simultaneously you covered yourself in the interbank market at 62.5300. However on due date, after 2 months you customer comes to you and requests for cancellation of the contract and also requests for extension of the contract by one month. On this date quotation for US$ in the market was as follows:

Spot	₹ 62.7200/62.6800
1 month forward	₹ 62.6400/62.7400

Determine the extension charges payable by the customer assuming exchange margin of 0.10% on buying as well as selling.

(Page No. 130)



QUESTION – 93

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

In Singapore market, Swiss Francs were quoted against dollars as under:

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

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

Spot	USD 1 = ₹	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.

(Study Material, PM & Exam November – 2015)

(Page No. 131)

Calculation of 1 Month Selling Rate of Bank it means ₹/$F Buying Rate of Customer

- first Customer Buy $ at 1 Month FR

₹/$	₹49.4455
(+) 1 Month Swap	0.4200
	49.8655
(+) Margin	0.1%
₹/$	49.9154

₹/$ 49.9154

Sf/$ 1.5150

$$₹/Sf = 49.9154 \times \frac{1}{1.5150} = ₹32.9475$$

Cancellation charges

Buying Rate	₹32.4000
Selling Rate	₹32.9475
Loss to customer	0.5475
(x) Contract size	Sf 100000
Cancellation charges	₹54750

QUESTION – 94

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 ₹ 48.90.

The market rates for Rupee and Dollar are as under:

Spot	₹ 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 :

(A)To cover payables in the forward market and

(B)To lag the receivables by one month 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 Funds is 12%. Which option is preferable?

(Study Material, PM & Exam May – 2012)

(Page No. 132)

option 1 Take forward Cover for payable

Buy $ at 3 month FR = ₹ 49.15
(48.70 + 0.45)

$700000 × 49.15 = ₹ 34405000

Sell $ 450000

$450000 × 48.90 = 22005000

Int $\left(22005000 \times 12\% \times \frac{1}{12}\right)$ = 220050

Net C.O. after 3 months = 12179950

option 2 Lag the Receivable by 1 Month

Cancellation charges

Buying Rate	48.90
Selling Rate (48.70 + 0.30)	49.00
Loss to customer	0.10
(X) contract size	$450000
Cancellation charges	₹45000

Book forward contract for Net payable
($700000 − $450000)
= $250000 at
3 Month FR
(48.70 + 0.45) = ₹49.15

Cash outflows
$250000 × 49.15 = 12287500
Cancellation charges = 45000
12332500

option 1 is better due to lower C.O.

QUESTION – 100

On 19th January, Bank A entered into forward contract with a customer for a forward sale of US $ 7,000, delivery 20th March at ₹ 46.67. On the same day, it covered its position by buying forward from the market due 19th March, at the rate of ₹ 46.655. On 19th February, the customer approaches the bank and requests for early delivery of US $. Rates prevailing in the interbank markets on that date are as under:

Spot(₹/$)	46.5725/5800
March	46.3550/3650

Interest on outflow of funds is 16 % and on inflow of funds is 12 %.

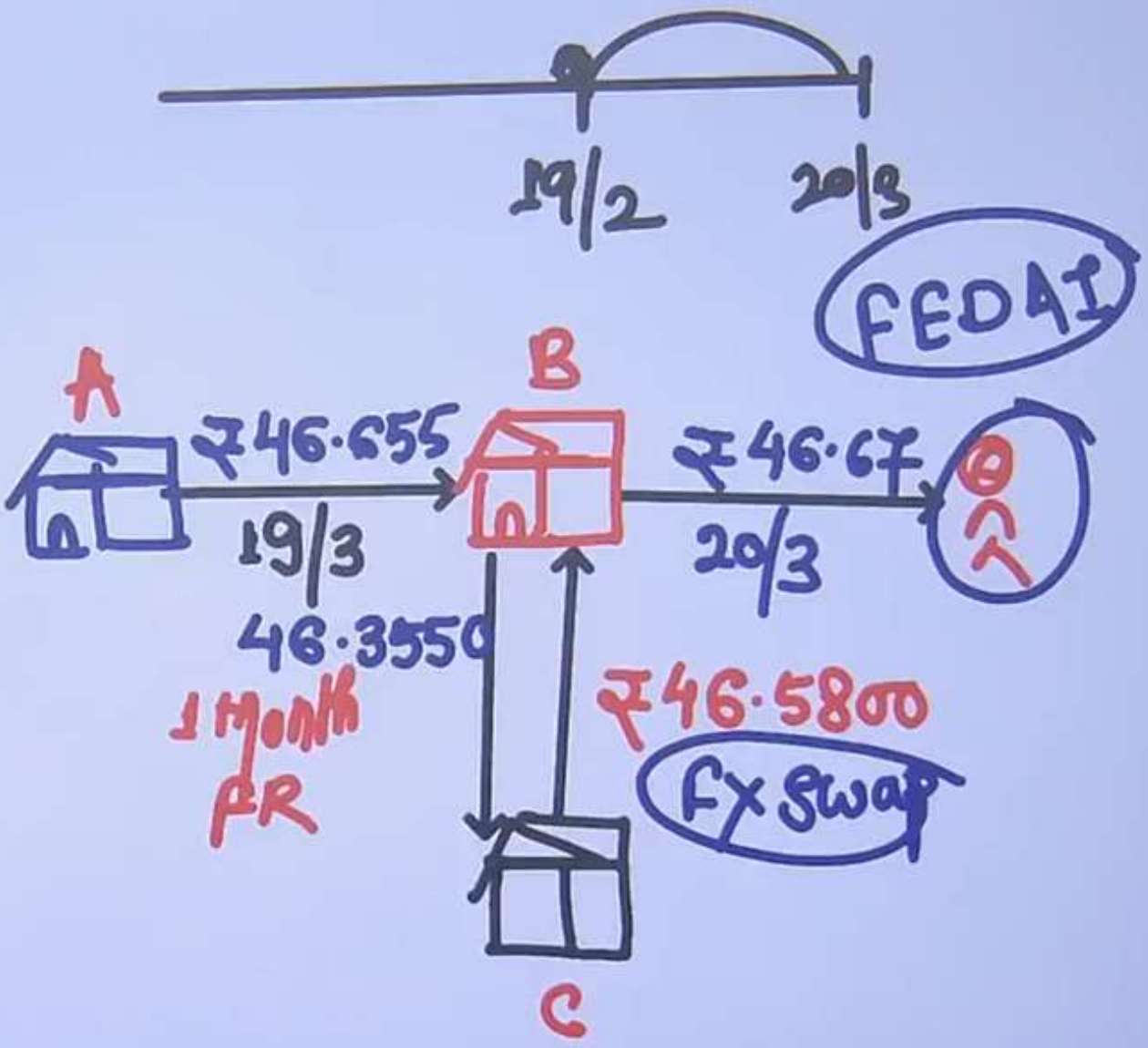
Flat charges for early delivery are ₹ 100.

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

Note: Calculation should be made on months basis than on days basis.

(Exam November – 2018)

(Page No. 144)


19/2
20/3
FEDAI
A
B
₹46.655
19/3
46.3550
1 MONK
PR
₹46.67
20/3
₹46.5800
FX Swap
C

Swap Gain/Loss

On 19/2 Bank enters into Buy-Sell Swap. Bank Buy $ at ₹ 46.5800 & Sell $ at 1 Month forward at ₹ 46.3550

Buy	46.5800
Sell	46.3550
Swap Loss	0.225

(x) Contract size $7000

Swap Loss : ₹ 1575

Calculation of Net Cash Flow (19/2)

Cash Inflows ($7000 × 46.67) = ₹326690

Cash Outflows ($7000 × 46.5800) = ₹326060

Net Cash Inflow ₹630

Intt on Inflows of fund = ₹630 × 12% × 1/2

= ₹6.30

Total Amount Recd from customer

Sell $ ($7000 × 46.67) = ₹326690

(+) Swap Loss = ₹1575

(−) Intt on Inflow of fund = (₹6.30)

₹328258.70 + 100

328358.70

QUESTION – 101

On 1st October, 2020 Mr. Guru, and exporter, enters into a forward contract with the Bank to sell USD 1,00,000 on 31st December 2020 at INR/USD 75.40. However, at the request of the importer, Mr. Guru received the amount on 30th November, 2020. Mr. Guru requested the bank take delivery of the remittance on 30th November, 2020 i.e. before due date.

The inter-bank rate on 30th November, 2020 was as follows:

Spot INR/USD 75.22 - 75.27

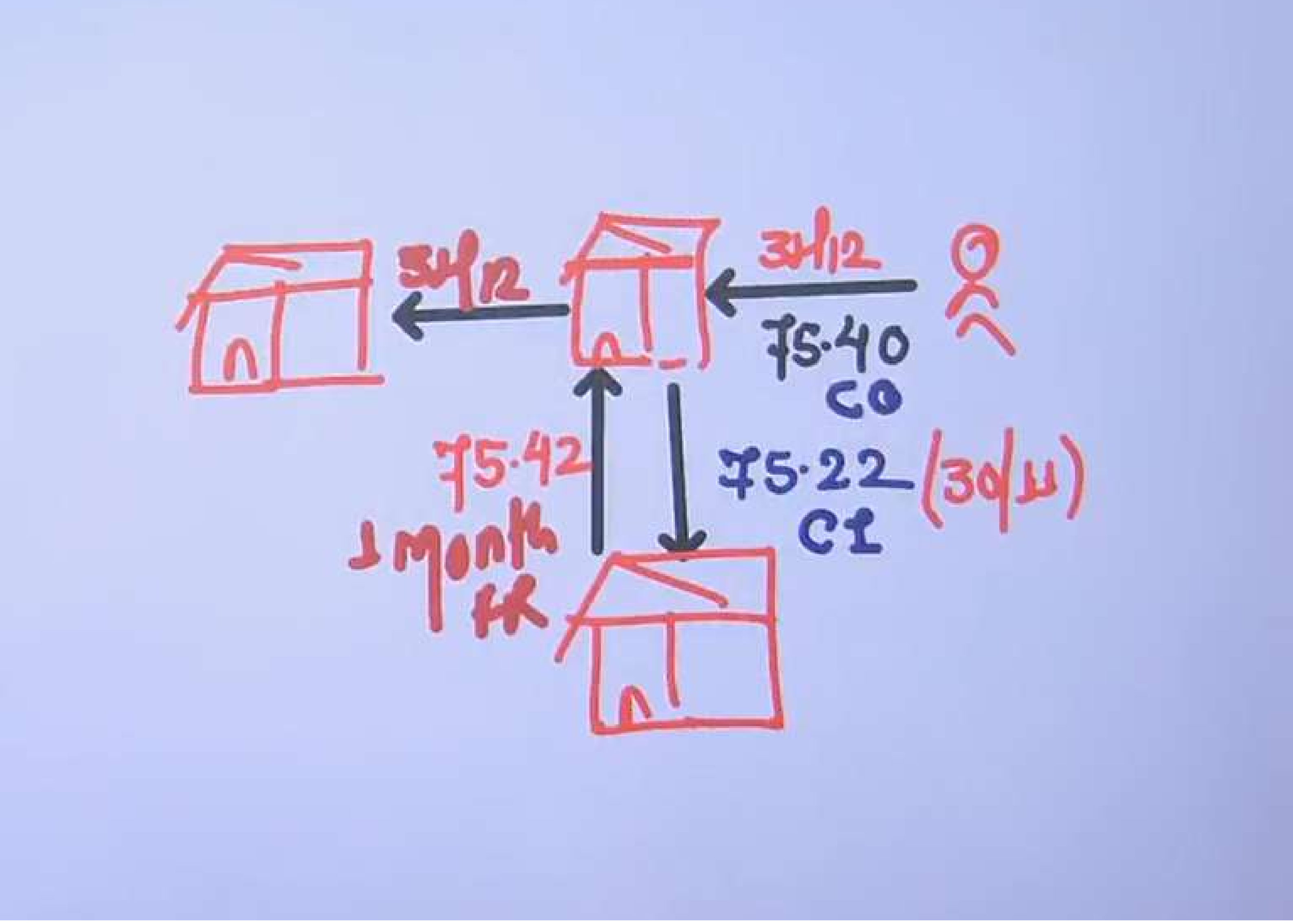
One Month Premium 10/15

Assume 365 days in a year.

(i) If bank agrees to take early delivery then what will be net inflow to Mr. Guru assuming that the prevailing prime lending rate is 18% per annum.

(ii) If Mr. Guru can deploy these funds in USD, he gets return at the rate of 3% per annum. Which is better? Why?

(Exam July – 2021)



31/12
31/12
₹5.40
C0
₹5.42
₹5.22
(30/11)
C1
1 Month
FR

Option : Early delivery

Swap Loss/Gain

On 30/11, Bank entered into Sell-Buy swap in which Bank sells at spot ₹75.22 & Buy 1 Month forward 75.42

Sell	75.22
Buy	75.42
Loss to Bank	0.20
(x) Contract size	$10000
Swap Loss	₹2000

Intt on CashFlows

Cash Outflows (₹100000 × 75.40) = ₹7540000

Cash Inflows (₹100000 × 75.22) ₹7522000

Net Cash outflows 18000

Intt = $18000 \times 18\% \times \frac{31}{365}$

= ₹275.18

Cash Inflows for Exporter

Sell $ ($100000 × 75.40) = 7540000

(−) Swap Loss = 20000

(−) Intt = 275.18

Net CI = 7519724.82

option 2 Invest $

Invest $100 000 @ 3% f.p. for 31 days

Intt ($100000 × 3% × 31/365) = $254.79

Sell $100 000 at 75.40	=	7540000
Sell $254.79 at 75.32	=	19191
CI		7559191

option 2 is better due to higher CI.

QUESTION – 95

An importer booked a forward contract with his bank on 10th April for USD 2,00,000 due on 10th June @ ₹64.4000. The bank covered its position in the market at ₹ 64.2800.

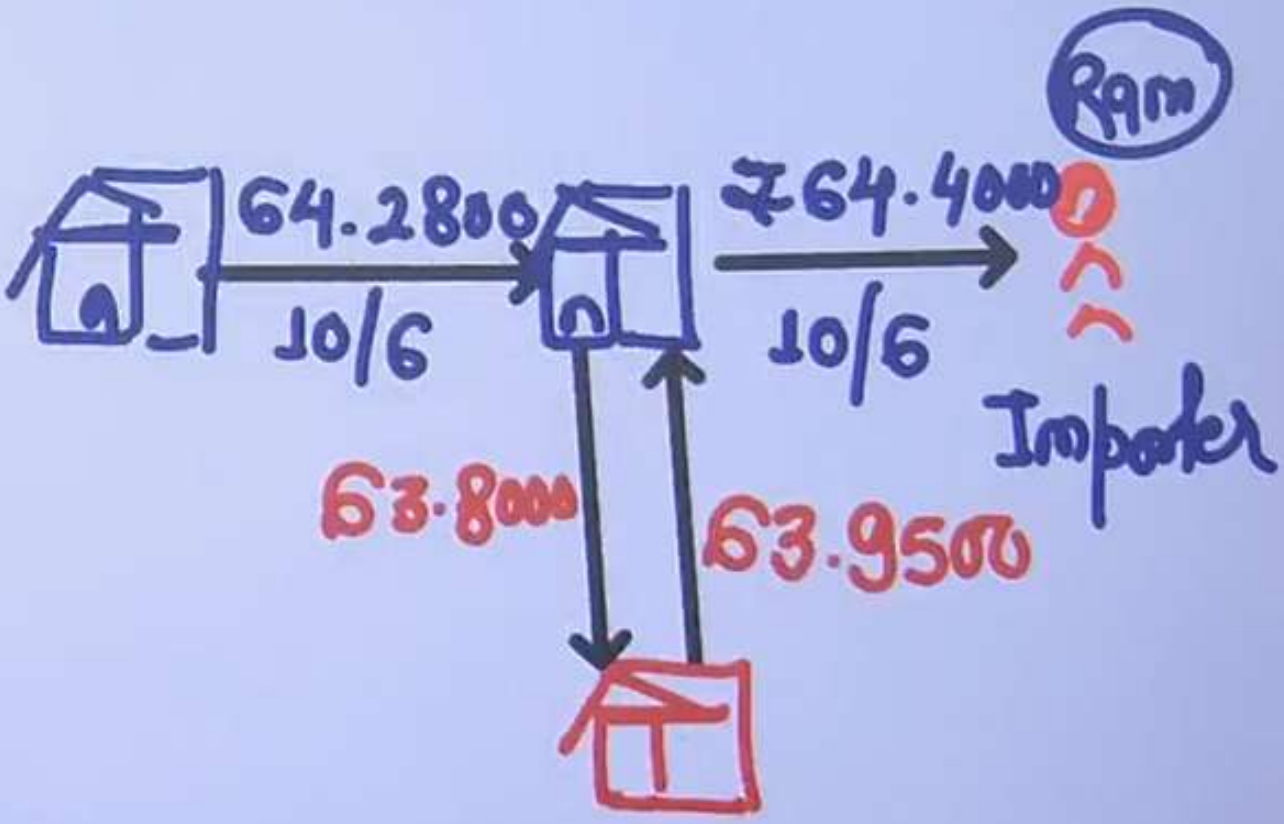
The exchange rates for dollar in the interbank market on 10th June and 13th June were:

	10th June	13th June
Spot	USD 1= ₹ 63.8000/8200	₹ 63.6800/7200
Spot/June	₹ 63.9200/9500	₹ 63.8000/8500
July	₹ 64.0500/0900	₹ 63.9300/9900
August	₹ 64.3000/3500	₹ 64.1800/2500
September	₹ 64.6000/6600	₹ 64.4800/5600

Exchange Margin 0.10% and interest on outlay of funds @ 12%. The importer requested on 13th June for extension of contract with due date on 10th August.

Rates rounded to 4 decimal in multiples of 0.0025.


10/6
13/6
Bul Gate


Ram
64.2800
10/6
64.4000
10/6
Importer
63.8000
63.9500

On 10th June, Bank Swaps by selling spot and buying one month forward.

Calculate:

(i) Cancellation rate
(ii) Amount payable on $ 2,00,000
(iii) Swap loss
(iv) Interest on outlay of funds, if any
(v) New contract rate
(vi) Total Cost

(Page No. 134)

① Cancellation Rate

13 June SR	₹63.6800
(–) Margin	0.10%
	63.6163
Rounded off	63.6175

② Amt payable on $200000

Selling Rate =	₹64.4000
Buying Rate =	₹63.6175
Gain to Bank	₹0.7825
(x) Contract size	$200000
Amt payable	₹156500 profit

③ Swap Loss/Gain

On 10/6, Bank Sell spot at ₹ 63.8000 & Buy forword 63.9500

Sell	₹ 63.8000	अगर Swap Gain होता तो customer को transfer नही करते।
Buy	₹ 63.9500	
Swap Loss	₹ 0.15	
(X) Contract size	$ 200000	
Swap Loss	₹ 30000	

(iv) Interest on outlay of fund

Cash Outflows (64.2800 × $200000) = 12856000

Cash Inflows (63.8000 × $200000) = 12760000

Net Cash Outlay ₹96000

Intt $96000 \times 12\% \times \frac{3}{365} = ₹94.68$

अगर Intt on outflow होता तो
Customer को Inf. नही करते

(V) New Contracted Rate

Aug Rate Available on 13/6

spot/Aug	₹64.2500
(+) Margin	0.1%
	64.3142
Rounded off	64.3150

(VI) Total Cost

Cancellation charges : 156500

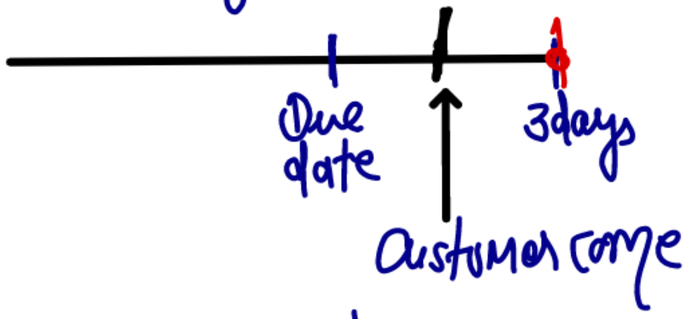
$\frac{1}{10}$ of Loss = ₹30000

Intt on outlay of fund = ₹94.68

Total Cost 186594.68

Overdue forward Contract

Case 1 If Customer does not come till due date but come within 3 days from due date



There are 3 possibilities

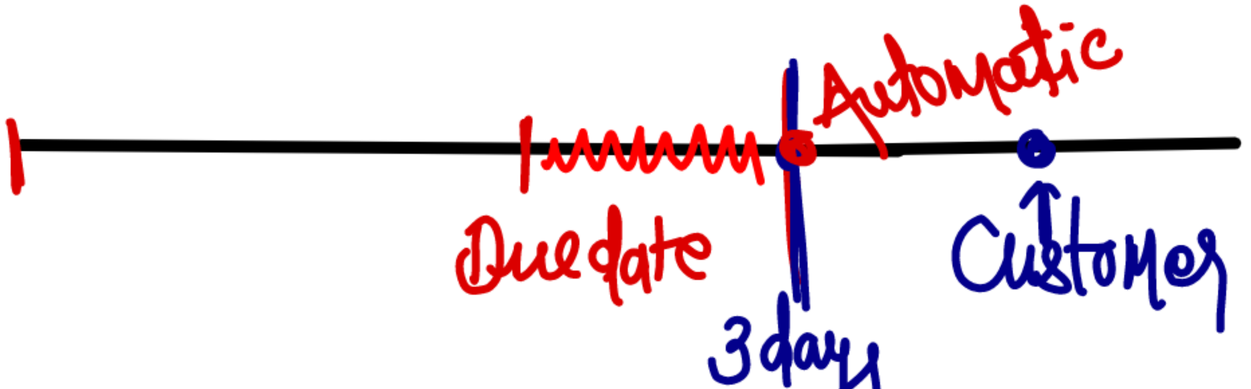
1. Cancel the contract
2. Execute the contract
3. Extend the contract

In Any situation, original forward Contract will be Cancelled & following Amt will be recovered by Bank from customer

1. Swap Loss
2. Cancellation charges
3. Intt on outlay of fund from due date to Cancellation date

Above amount shall not be T/F to customer

Case 2



Such Contract Automatically Cancelled on 3rd day from due date

- Swap Loss
- Cancellation charges
- Intt [3 days]

QUESTION – 96

On 10th July, an importer entered into a forward contract with bank for US $ 50,000 due on 10th September at an exchange rate of ₹66.8400. The bank covered its position in the interbank market at ₹ 66.6800.

How the bank would react if the customer requests on 13th September:

(i) To cancel the contract?

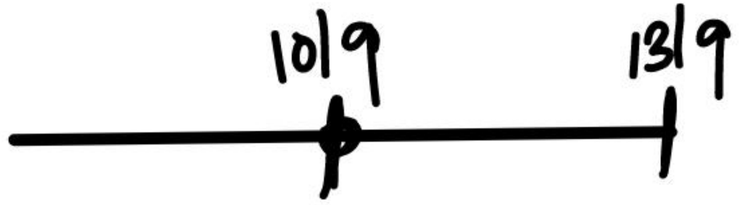
(ii) To execute the contract?

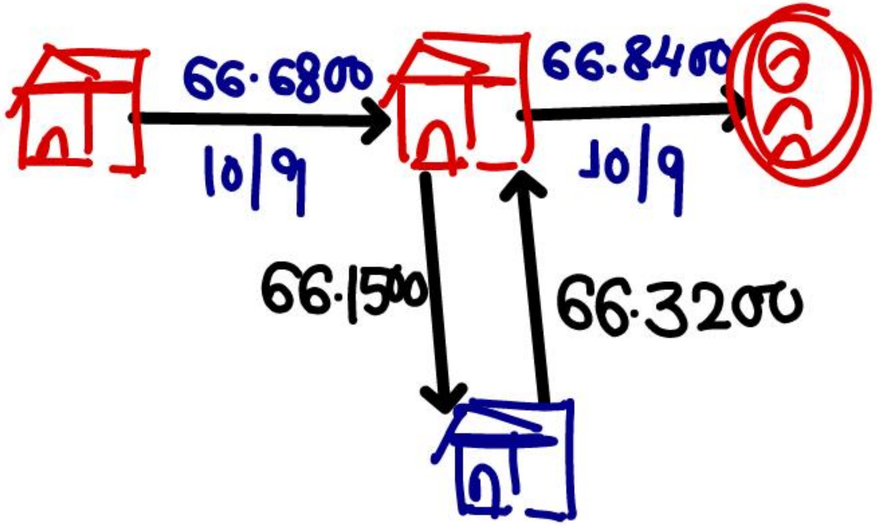
(iii) To extend the contract with due date to fall on 10th November?

The exchange rates for US$ in the interbank market were as below:

	10th September	13th September
Spot	US$1=66.1500/1700	65.9600/9900
Spot/September	66.2800/3200	66.1200/1800
Spot/October	66.4100/4300	66.2500/3300
Spot/November	66.5600/6100	66.4000/4900

Exchange margin was 0.1% on buying and selling.





Interest on outlay of funds was 12% p.a.

You are required to show the calculations to:

(i) Cancel the Contract,

(ii) Execute the Contract, and

(iii) Extend the Contract as above.

(Page No. 136)

Cancellation charges

Contract Cancelled on 13/9

Selling Rate	66.8400
(-) Buying Rate (65.9600 - 0.1%)	65.8950
Gain to Bank	0.945
(x) Contract size	$50000
Cancellation charges	₹47250

(i) Cancel the contract

Swap Loss

On 10/9 Sell-Buy Swap

Sell	66.1500
Buy	66.3200
Swap Loss	0.1700
(x) Contract size	$50000
Swap Loss	₹8500

Intt on Outlay of fund

Due date

Cash outflow ($50000 × 66.6800) = ₹3334000

Cash Inflows ($50000 × 66.1500) = ₹3307500

Net Cash outflow = 26500

Intt. on Net outflows $\left(26500 \times 12\% \times \frac{3}{365}\right)$ = ₹26.14

On Cancellation, Total Amt recoverable from Customer

Cancellation charges = 47250

(+) Swap Loss = 8500

(+) Intt = 26.14

Total Cost = 55776.14

(ii) Execute the Contract

Original Contract Cancelled & Buy $50000 at SR

Total Amt

Cost of Cancellation = 55776.14

(+) Buy $50000

($50000 × 66.0550) 3302750

[65.9900 to 0.1%)

3358526.14

(iii) Extend the Contract

forward contract Cancelled & Book New forward contract

Cost of Cancellation = 55776.14

New FR 66.4900 to 0.1% = 66.5575

QUESTION – 98

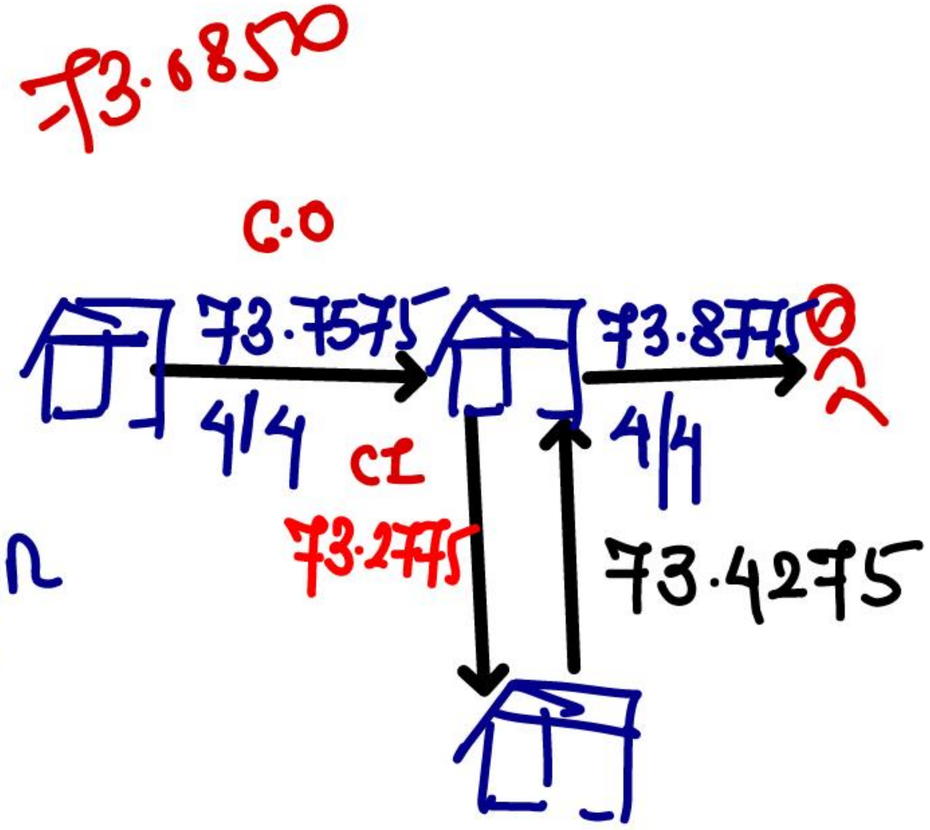
Z has to remit USD $1,00,000 for her daughter's education on 4th April 2021. Accordingly, she has booked a forward contract with his bank on 4th January 2021 @ ₹ 73.8775. The Bank has covered its position in the market @ ₹ 73.7575.

The exchange rates for USD $ in the interbank market on 4th , 7th and 14th April 2021 were:

	4th April ₹	7th April ₹	14th April ₹
Spot USD 1=	73.2775/73.2975	73.1575/73.1975	73.1375/73.1775
Spot/March	73.3975/73.4275	73.2775/73.3275	73.2575/73.3075
April	73.5275/73.5675	73.4075/73.4650	73.3875/73.4475
May	73.7775/73.8250	73.6575/73.7275	73.6375/73.7050
June	74.0700/74.1325	73.9575/74.0675	73.9500/74.0525

+ Margin

Exchange margin of 0.10 percent and interest outlay of funds @ 12 percent are applicable. The remitter, due to rescheduling of the semester, has requested on 14th April 2021 for extension of contract with due date on 14th June 2021.



Calculate:

(i) Cancellation Rate; ₹3.0850

(ii) Amount Payable on $ 100,000; ₹9250

(iii) Swap loss; ₹15000

(iv) Interest on outlay of funds, if any; 47.34

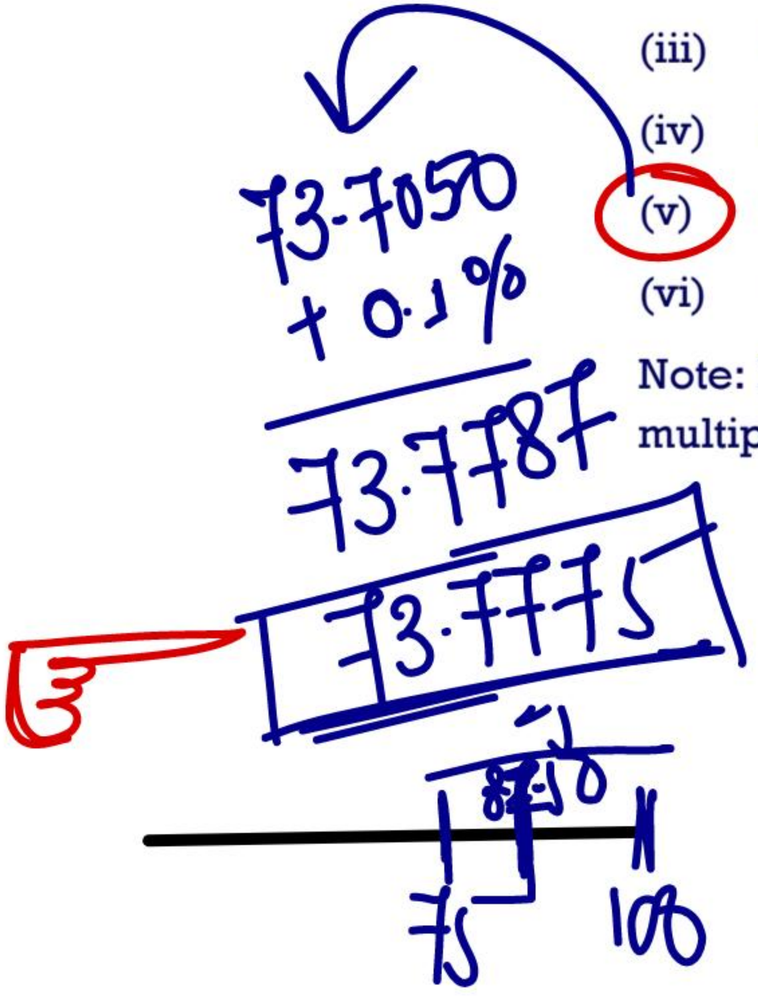
(v) New Contract Rate; and

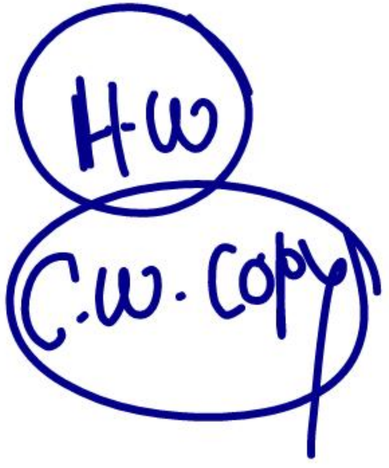
(vi) Total Cost ₹94297.34

Note: Rates must be rounded to 4 decimal places in multiples of 0.0025 and assume 365 days in a year.

(MTP: Oct – 2021)

(Page No. 141)





8. foreign Currency A/c

1. Nostro A/c
   "Our A/c with you"
2. Vostro A/c
   "your A/c with us"
3. LORO A/c
   "Their A/c with you"

On Nostro A/c, we prepare Two statements

(1) Cash position (Nostro A/c)

(2.) Exchange position

Following statements are prepared in Nostro A/c

1. Cash position (Nostro A/c)
2. Exchange position

EXAMPLE – 82

(i) Amount credited in NOSTRO A/C = $ 1,00,000

(ii) Spot sell $ 20,000 or remitted by TT

(iii) Forward selling contract cancelled $ 10,000

(iv) Spot buy $ 8,000 or T.T. purchased $ 8,000

(v) Forward buy $ 2,000

(vi) Bills purchased $ 7,000

(vii) Draft issued $ 3,000

(viii) Draft cancelled $ 3,000

(Page No. 21)

prepare
① Cash position
② Exchange position

Cash position (Nostro A/c)

	Cr.	Dr.
Amt credit	$100000	–
spot sell	–	$20000
spot Buy	$8000	–
	108000	$20000
Closing Balance	–	88000

88000 Cr.

Exchange position

	Long	short
Buy $	$100000	–
Spot sell	–	$20000
forward sell	–	$20000
forward Contract Cancel	$10000	–
Spot Buy	$8000	–
forward Buy	$2000	–
Bill purchased	$7000	–
DD Issued	–	$3000
Draft cancelled	$3000	–
	$130000	43000
Overbought position	–	87000

We want to Spot Buy maintain $90000 in Nostro A/c & overbought position $20000

In order to maintain $90000 in Nostro A/c we should buy spot $2000. Due to this Transaction overbought position will be $89000

To Maintain overbought position $2000 we should forward sell $69000

	Cash position	Exchange position
① Remitted by TT	Dr.	Short
② forward sell	—	Short
③ TT purchased	Cr.	Long
④ Draft cancelled	—	Long
⑤ Bill purchased	—	Long
⑥ forward purchase contract cancelled	—	Short

QUESTION – 102

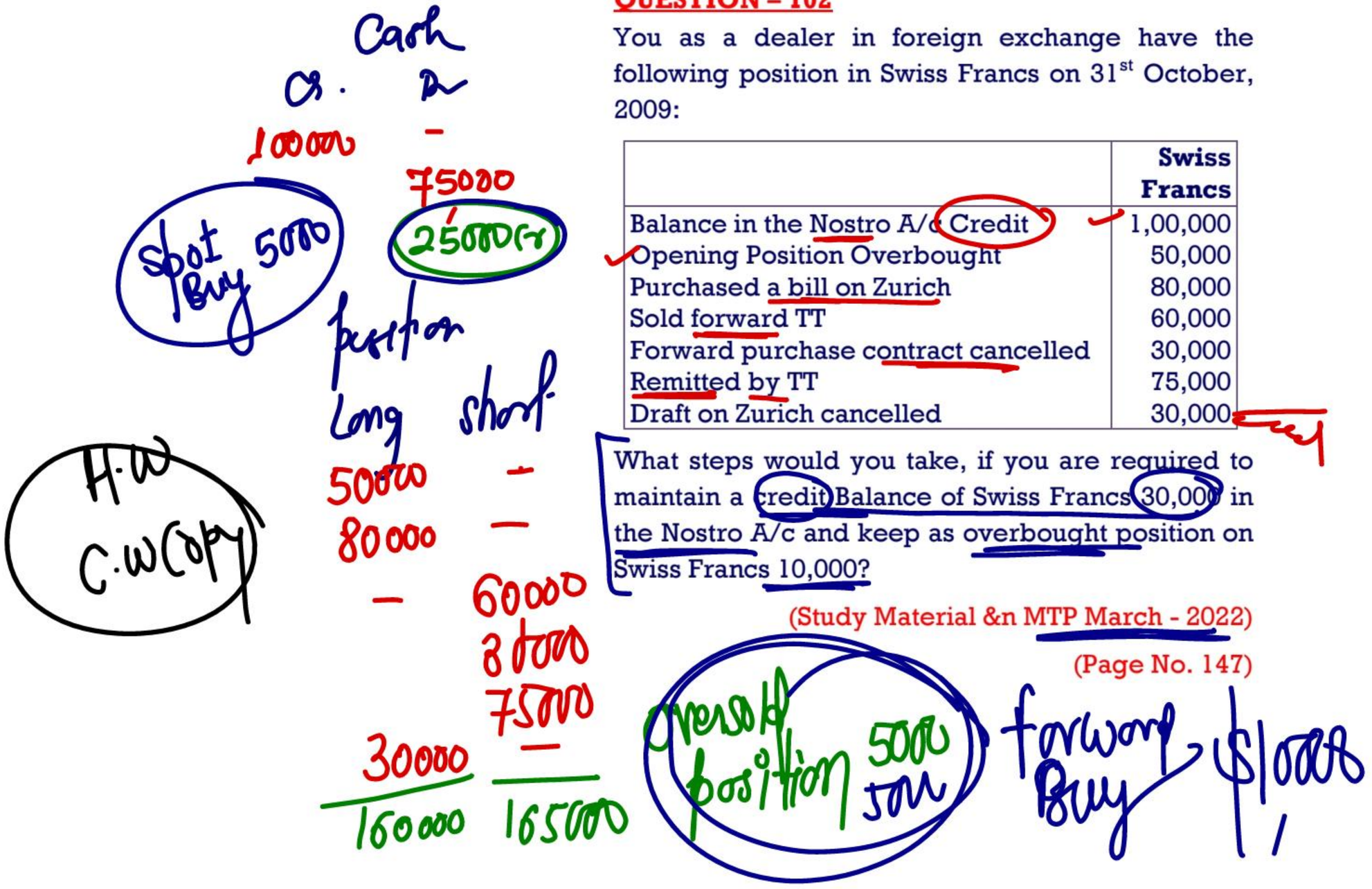
You as a dealer in foreign exchange have the following position in Swiss Francs on 31st October, 2009:

	Swiss Francs
Balance in the Nostro A/c 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 Swiss Francs 30,000 in the Nostro A/c and keep as overbought position on Swiss Francs 10,000?

(Study Material &n MTP March - 2022)

(Page No. 147)



QUESTION – 103

A dealer in foreign exchange has the following position in Swiss Francs on 31st January, 2018 ;

	(Swiss Francs)
Balance in the Nostro A/c Credit	1,00,000
Opening Position Overbought	50,000
Purchased a bill on Zurich	70,000
Sold forward TT	49,000
Forward purchase contract cancelled	41,000
Remitted by TT	75,000
Draft on Zurich cancelled	40,000

Examine what steps would the dealer take, if he is required to maintain a credit balance of Swiss Francs 30,000 in the Nostro A/c and keep as overbought position on Swiss Francs 10,000 ?

(Exam November – 2018)

(Page No. 148)

QUESTION – 104

Suppose you are a dealer of ABC bank and on 20/10/2014 you found that balance in your Nostro account with XYZ bank in London is £ 65,000 and you had overbought £ 35,000. During the day following transaction have taken place:

	£
DD purchased	12,500
Purchased a bill on London	40,000
Sold forward TT	30,000
Forward purchase contract cancelled	15,000
Remitted by TT	37,500
Draft on London cancelled	15,000

What steps would you take, if you are required to maintain a credit balance of £ 15,000 in the Nostro A/c and keep as overbought position on £ 7,500?

(Study Material)

(Page No. 149)

QUESTION – 105

ABN-Amro Bank, Amsterdam, wants to purchase ₹ 15 million against US$ for funding their Nostro account with Canara Bank, New Delhi. Assuming the inter-bank, rates of US$ is ₹ 51.3625/3700, what would be the rate Canara Bank would quote to ABN-Amro Bank? Further, if the deal is struck, what would be the equivalent US$ amount.

(Study Material & PM)

(Page No. 151)

H-W

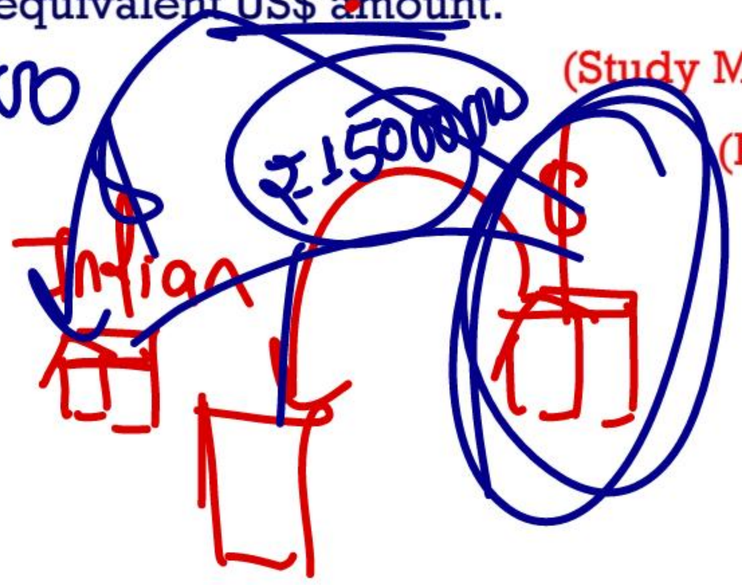
H-W Copy

₹/$ 51.3695/51.3700

₹ 15000000

51.3695

= 292041.86



QUESTION – 106

XYZ Bank, Amsterdam, wants to purchase ₹ 25 million against £ for funding their Nostro account and they have credited LORO account with Bank of London, London.

Calculate the amount of £'s credited. Ongoing inter-bank rates are per $, ₹ 61.3625/3700 & per £, $ 1.5260/70.

(Study Material & PM)

(Page No. 151)

₹/$ 61.3625

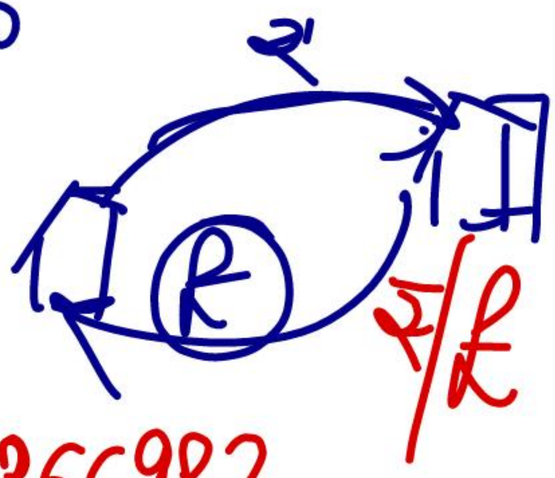
$/£ 1.5260

₹/£ = 61.3625 × 1.5260

= 93.6392

₹/$ 61.3625/61.3700

$/£ 1.5260/1.5270



$\frac{₹\ 25000000}{93.6392} = £\ 266982$

QUESTION – 107

Sun Ltd. is planning to import equipment from Japan at a cost of 3,400 lakh yen. The company may avail loans at 18 percent 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 percent per annum against opening of an irrecoverable letter of credit.

Additional information:

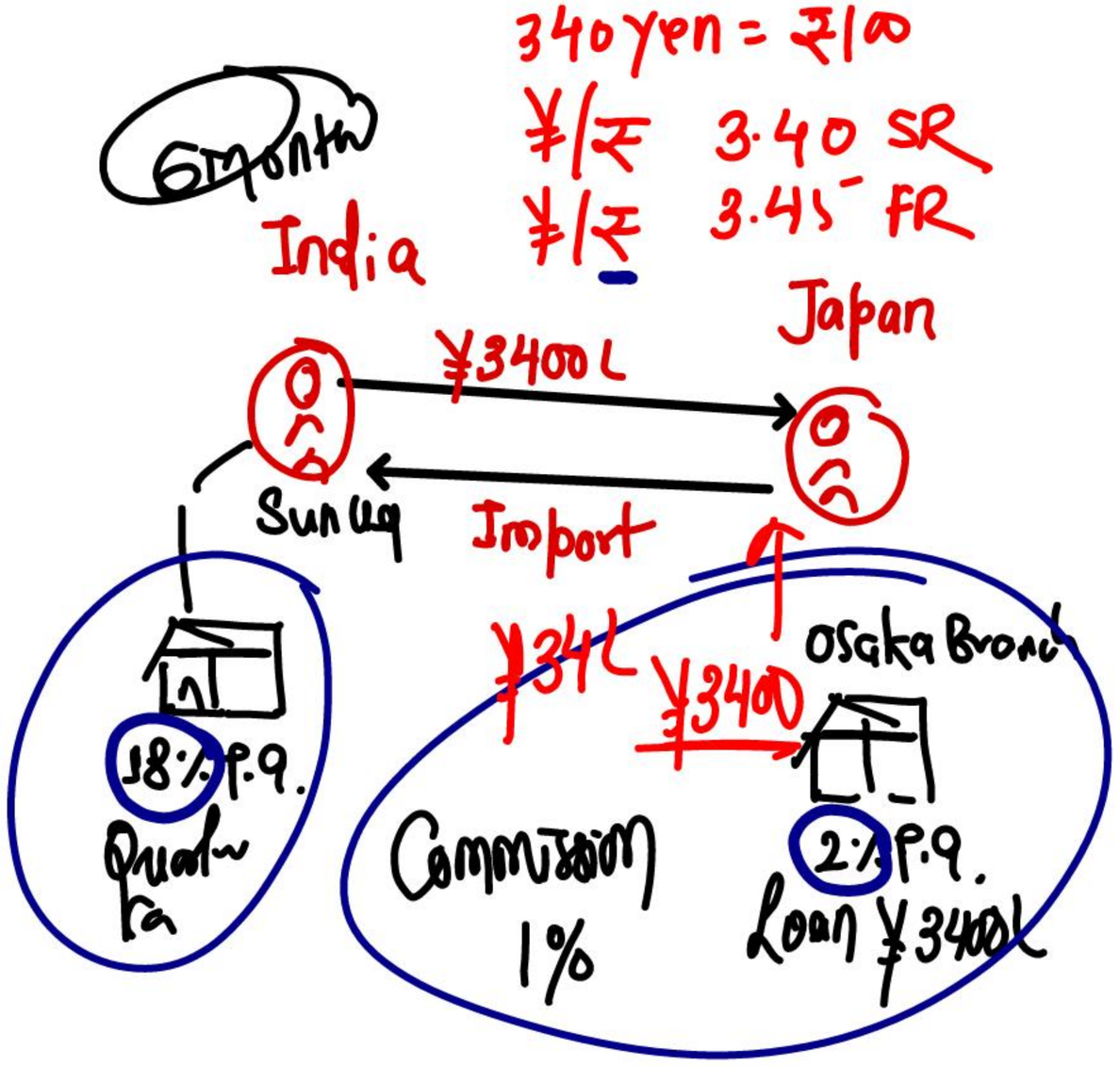
Present exchange rate	₹ 100 = 340 yen
180 day's forward rate	₹ 100 = 345 yen

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

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

(Study Material, PM & Exam January – 2021)

(Page No. 152)



option 1 Loan from Indian Bank

- Rupees required to buy ¥3400 Lacs at SR

¥/₹ 3.40 $\quad \frac{¥3400 \text{ Lac}}{3.40} = ₹1000$ L

- Borrow ₹1000 L @ 18% P.a. for 6 months

Cash Outflows = $1000(1.045)^2 = ₹1092.025$ Lacs.

option 2 Loan from Japan

- Borrow ¥3400 Lacs @ 2% P.a. for 6 Months
- Cash outflow in ¥ after 6 months

¥3400 Lacs $(1.01) = ¥3434$ Lacs

- Buy ¥3434 Lacs at 180 days FR

¥/₹ = 3.45 $\quad \frac{¥3434}{3.45} =$ **₹995.36 Lacs**

Commission

[Commission, आज Calculate होगा Loan Amt पर]

¥3400L × 1% = ¥34 Lacs

[SR पर convert होगा]

¥/₹ 3.40 $= \frac{¥34}{3.40} = ₹10$ L

Commission with Int

$10(1.045)^2 =$ **10.92**

Cash outflows = 995.36 + 10.92

= 1006.28 L

Loan from Japan is better due to Lower C.O.

QUESTION – 108

M/s. Daksh Ltd is planning to import multipurpose machine from USA at a cost of $15000. The company can avail loans at 19% Interest per annum with quarterly rests with which it can import the machine.

However, there is an offer from New York branch of an Indian based bank extending credit of 180 days at 2% per annum against opening of an irrevocable letter of credit.

Other Information:

Spot rate US$ 1 = ₹ 75

180 days forward rate US $ 1 = ₹ 77

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

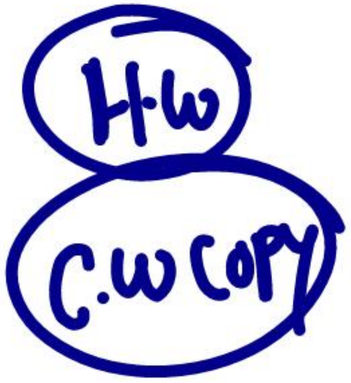
(i) Justify why the offer from the foreign branch should be accepted?

(ii) Based on the present market condition company is not interested to take the risk of currency fluctuations and wanted to hedge with an additional expenses of ₹ 30,000, if so, what is your advise to the company?

Assume 360 days in the year.

(Exam May-2022)

(Page No. 154)



QUESTION – 113

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 proposes 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 centres 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 dollars and Euro are as under:

London on New York

Spot	1.5350/90
1 month	15/18
2 months	30/35
3 months	80/85

$/£

UK (£)

$500000

3 Months

Cost = 4% p.a.

$500000 × 1.01

$505000

UK (£)

5%

£1663

NY ($)

8%

Frankfurt (€)

3%

London on Frankfurt

Spot	1.8260/90
1 month	60/55
2 months	95/90
3 months	145/140

€/£

1.8290

At which centre, will be investment be made & what will be the net gain (to the nearest pound) to the bank on the invested funds?

(Study Material, PM, RTP Nov – 2021 & Exam Nov - 2013)

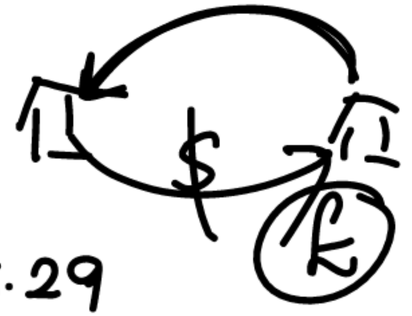
(Page No. 161)

1.8290
−0.0140
1.8150

1.8430

option 1 Invest in UK

- Buy £ at SR from $ $/£ 1.5390



$$\frac{\$500000}{1.5390} = £324886.29$$

- Invest £324886.29 in UK @ 5% p.a. for 3 months

Cash Inflows (£) = £324886.29 (1.0125) = £328947.37

- Buy $505000 at 3 months FR $/£ = 1.5430
  (1.5350 + 0.0080)

$$\frac{\$505000}{1.5430} = £327284.51$$

Gain = £1663

Option 2 Investment in New York

Invest $500000 in NY @ 8% p.a. for 3 months

Cash Inflows ($) 500000 × 1.02 = $510000

Repayment = $505000

Gain $5000

Sell $5000 at 3 months FR (1.5390 + 0.0085) $/£ 1.5475

$$\frac{\$5000}{1.5475} = £3231$$

Option 3 Invest in frankfurt

- Buy £ from $ at SR $/£ 1.5390

$$\frac{\$505000}{1.5390} = £324886.29$$

- Buy € from £ at SR €/£ = 1.8260

£324886.29 × 1.8260 = €593242.36

- Invest € @ 3% P.a. for 3 Months

Cash Inflows (€) €593242.36 × 1.0075 = €597691.68

- Buy £ from € at 3 Months FR €/£ = 1.8150
  (1.8290 − 0.0140)

$$\frac{€597691.68}{1.8150} = £329306.71$$

- Buy $505000 at 3 Months FR £327284.57

Gain £2022

Investment in NY is the best due to Highest Gain.

QUESTION – 114

KGF Bank's Sydney branch has surplus funds of USD $ 7,00,000 for a period of 2 months. Cost of funds to the bank is 6% p.a. They propose to invest these funds in Sydney, New York or Tokyo and obtain the best yield, without any exchange risk to the bank. The Following rates of interest are available at the three centers for investment of domestic funds there for a period of 2 Months.

Sydney	7.5% p.a.
New York	8% p.a.
Tokyo	4% p.a.

The market rates in Australia for US Dollars and Yen are as under:

Sydney on New York:

Spot	0.7100/0.7300
1 Months	10/20
2 Months	25/30

Sydney on Tokyo:

Spot	79.0900/79.2000
1 Months	40/30
2 Months	55/50

At which centre, will the investment be made & what will be the net gain to the bank on the invested funds?

(Exam May-2019)

(Page No. 163)

QUESTION – 115

KGF Bank's Sydney branch has surplus of USD $ 7,00,000 for a period of 2 months. Cost of funds to the bank is 6% p.a. They propose to invest these funds in Sydney. New York or Tokyo and obtain the best yield, without any exchange risk to the bank. The following rates of interest are available at the three centers for investment of domestic funds there for a period of 2 Months.

Sydney	----------	7.5% p.a.
New York	----------	8% p.a.
Tokyo	----------	4% p.a.

The market rates in Australia for US Dollars and Yen are as under:

A$ $ $/A$

Sydney on New York.

Spot	0.7100/0.7300
1 Month	10/20
2 Months	25/30

Sydney on Tokyo:

Spot	79.0900/79.2000
1 Month	40/30
2 Months	55/50

At which center, will the investment be made & what will be the net gain to the bank on the invested funds?

(Exam May - 2019)

(Page No. 165)

QUESTION – 116

Suppose you are a treasurer of XYZ plc in the UK. XYZ have two overseas subsidiaries, one based in Amsterdam and one in Switzerland. The Dutch subsidiary has surplus Euros in the amount of 725,000 which it does not need for the next three months but which will be needed at the end of that period (91 days). The Swiss subsidiary has a surplus of Swiss Francs in the amount of 998,077 that, again, it will need on day 91. The XYZ plc in UK has a net balance of £75,000 that is not needed for the foreseeable future.

Given the rates below, what is the advantage of swapping Euros and Swiss Francs into Sterling?

Spot Rate	(€) £0.6858– 0.6869	£/€
91 day Pts	0.0037 0.0040	
Spot Rate(£)	CHF 2.3295– 2.3326	CHf/£
91 day Pts	0.0242 0.0228	

UK(£) Amsterdam Switzer

£75000 €725000 CHF998077

Interest rates for the Deposits

Amount of Currency	91 Days Interest Rate % p.a.		
	£	€	CHF
0 – 1,00,000	1	¼	0
1,00,001 – 5,00,000	2	1 ½	¼
5,00,001 – 10,00,000	4	2	½
Over 10,00,000	5.375	3	1

(Practice Manual)

(Page No. 167)

option 1 Without Swapping (1YEAR = 360days)

Sub..	Amt	Intt	Total	91days Rate	£
UK	£75000	75000 × 1% × 91/360 £189.58	£75189.58	—	75189.58
Amsterdam	€725000	725000 × 2% × 91/360 €3665.28	€728665.28	£/€ 0.6895	502414.71
Swiss	CHf 998077	998077 × 0.5% × 91/360 CHf 1261.46	CHf 999338.46	CHF/£ 2.3098	432651.51
				Total Cash Balance	£1010255.80

option 2 Swapping

£ available in UK Company £75000

Convert €725000 in £ at SR

£/€ 0.6858 (€725000 × 0.6858) £497205

Convert CHF 998077 in £ at SR

CHF/£ = 2.3326 (CHF998077 / 2.3326) £427881.76

Total £ Available for Investment = £1000086.76

Invest £ @ 5.375% for 91 day

INT (1000086.76 × 5.375% × 91/360) £1358 7.98

£1013674.74

Advantage from Swapping

Swapping £1013674.74

without Swap £1010255.80

Advantage = £3418.94

QUESTION – 118

Suppose you are a treasurer of XYZ plc in the UK. XYZ have two overseas subsidiaries, one is based in Amsterdam and another in Switzerland. The surplus position of funds in hand is as follows which it does not need for the next three months but will be needed at the end of that period (91 days).

Holding Company	£ 150,000
Swiss Subsidiary	CHF 1,996,154
Dutch Subsidiary	€ 1,450,000

Exchange Rate as on date are as follows:

Spot Rate (€)	£0.6858 - 0.6869
91 day Pts	0.0037 0.0040
Spot Rate (£)	CHF 2.3295 – 2.3326
91 day Pts	0.0242 0.0228

91-Day Interest rates on p.a. basis on the Deposits in Money Market are as follows:

Amount of Currency	£	€	CHF
0 – 200,000	1.00	0.25	Nil
200,001 – 1,000,000	2.00	1.50	0.25
1,000,001 – 2,000,000	4.00	2.00	0.50
Over 2,000,000	5.38	3.00	1.00

You have been approached by your banker wherein the above-mentioned surplus was lying, requesting you to swap the surplus lying with other two subsidiaries and place them in deposit with them.

Determine the minimum interest rate per annum (upto 3 decimal points) that should be offered by the bank to your organization so that your organization is ready to undertake such swap arrangement.

Note: Consider 360 days a year.

(RTP November - 2020)

(Page No. 169)

QUESTION – 170

The Treasury desk of a global bank incorporated in UK wants to invest GBP 200 Million on 1st January, 2019 for a period of 6 months and has the following options:

(1) The equity trading desk in Japan wants to invest the entire GBP 200 million in high dividend yielding Japanese securities that would earn a dividend income of JPY 1,182 million. The dividends are declared and paid on 29th June. Post dividend, the securities are expected to quote at a 2% discount. The desk also plans to earn JPY 10 million on a stock borrow lending activity because of this investment. The securities are to be sold on June 29th with a T+1 settlement and the amount remitted back to the Treasury in London.

(2) The fixed income desk of US proposed to invest the amount in 6 months G-Secs that provides a return of 5% p.a.

The exchange rates are as follows:

Currency Pair	**1st January, 2019 (Spot)**	**30th Jun, 2019 (Forward)**
GBP – JPY	148.0002	150.0000
GBP – USD	1.28000	1.30331

As a treasure, advise the bank on the best investment option. What would be your decision from a risk perspective? You may ignore taxation.

(Exam November – 2018)

(Page No. 170)

QUESTION – 119

ICL an Indian MNC is executing a plant in Sri Lanka. It has raised ₹ 400 billion. Half of the amount will be required after six months' time. ICL is looking an opportunity to invest this amount on 1st April, 2020 for a period of six months. It is considering two underlying proposals:

Market	Japan	US
Nature of Investment	Index Fund (JPY)	Treasury Bills (USD)
Dividend (in billions)	25	-
Income from stock lending (in billions)	11.9276	-
Discount on initial investment at the end	2%	-
Interest	-	5 per cent per annum
Exchange Rate (1st April, 2020)	JPY/INR 1.58	USD/INR 0.014
Exchange Rate (30th September, 2020)	JPY/INR 1.57	USD/INR 0.013

You, as an Investment Manager, is required to suggest the best course of option.

(Exam November – 2020)

(Page No. 172)

Question – 04 (b)

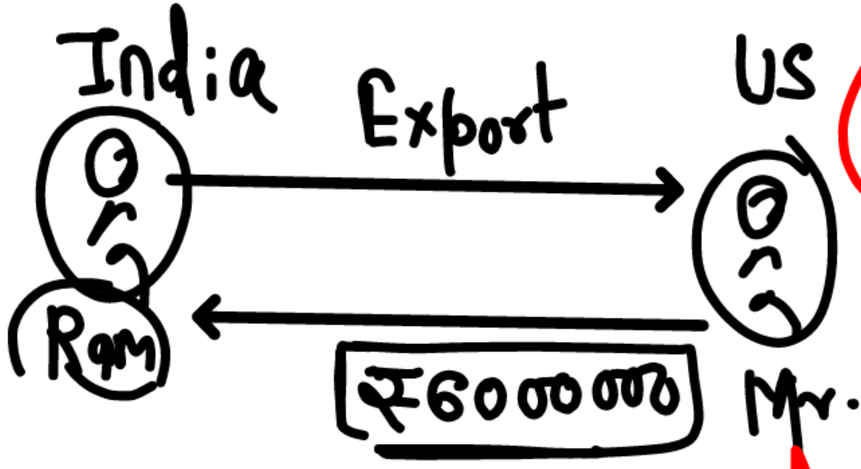
Hopeful Ltd., an Indian MNC is executing a plant in Nepal. It has raised ₹ 400 Billion. Half of the amount will be required after six months time. Hopeful Ltd. is looking for an opportunity to invest this amount for a period of six months. It is considering following two options:

Market	UK	Europe
Nature of Investment	Index Fund (GBP)	Treasury Bills (Euro)
Dividend (GBP in Billions)	0.1369	-
Income from stock lending (GBP in Billions)	0.0007	-
Discount on the investment value at the end	2%	-
Interest	-	7.8 percent per annum
Exchange Rate (Spot)	GBP/INR 0.0099	EUR/INR 0.011
Exchange Rate (6 month Forward)	GBP/INR 0.0100	EUR/ INR 0.011

As an investment manager advise the best option to invest.

(Exam May – 2023)

Transaction Exposure
&
Economic Exposure [operating Exposure]



5000 Unit × ₹1200

SR

2500 Unit

₹/$ = 60

₹300

$100000

25% ↓

₹/$ = 80

$7500

Price Elasticity of demand = |2|

QUESTION – 122

M/s Omega Electronics Ltd. exports air conditioners to Germany by importing all the components from Singapore. The company is exporting 2,400 units at a price of Euro 500 per unit. The cost of imported components is S$ 800 per unit. The fixed cost and other variables cost per unit are ₹ 1,000 and ₹ 1,500 respectively. The cash flows in Foreign currencies are due in six months. The current exchange rates are as follows:

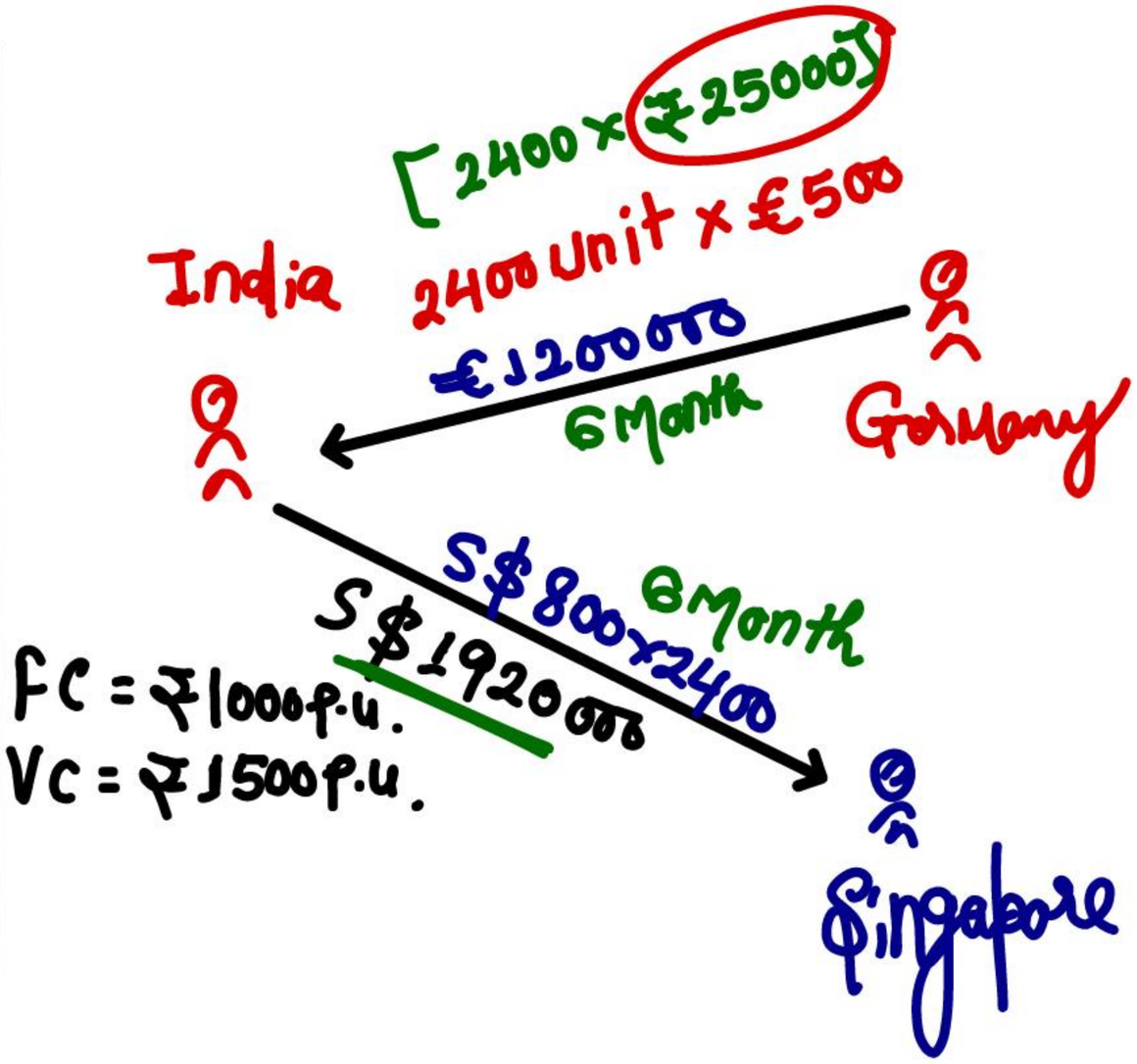
₹/Euro	51.50/55
₹/S$	27.20/25

After six months the exchange rates turn out as follows:

₹/Euro	52.00/05
₹/S$	27.70/75

(A) You are required to calculate loss/gain due to transaction exposure.

(B) Based on the following additional information calculate the loss/gain due to transaction and



Calculation of profit on 2417 Units at 6 Months Rate

	Sales	= 2417 × ₹25000	= ₹6042500
(−)	Import cost	= 2417 × $800 × 27.75	= ₹5365740
(−)	FC	=	= ₹240000
(−)	VC (2417 × 150)		= ₹362550
	profit		₹74210

Loss due to operating Exposure

1872000 − 742100 = ₹1129900

1 Profit/Loss due to Transaction Exposure

	At Current Rate	At 6 Months Rate
Sales	2400 units × €500 × ₹51.5 = ₹6180000	2400 × €500 × 52 ₹ 6240000
(-) Import Cost	2400 × S$800 × 27.25 = 5232000	2400 × S$800 × 27.75 5328000
(-) FC	2400 × 1000 = 2400000	2400 × 1000 = 2400000
(-) VC	2400 × 1500 = 3600000	2400 × 1500 = 3600000
Profit	3480000	3120000

Loss due to Transaction Exposure

= 3480000 - 3120000

= ₹ 360000

2. Profit or Loss due to Transaction & operating Exposure

- Transaction Exposure

	Current Exchange	Revised 6 Months Rate
Sales	(₹25000 × 2400) 60000000	(25000 × 2400) 60000000
Imported cost	S$1920000 × 27.15 52128000	S$1920000 × 27.75 53280000
FC	2400000	2400000
VC	3600000	3600000
	₹1872000	₹720000

Loss due to Transaction Exposure

= ₹1872000 − ₹720000

= ₹1152000

operating exposure if the contracted price of air conditioners is ₹ 25,000 :

(i) the current exchange rate changes to

₹/Euro	51.75/80
₹/S$	27.10/15

27.15

(ii) Price elasticity of demand is estimated to be 1.5

(iii) Payments and receipts are to be settled at the end of six months.

(Study Material & PM)

(Page No. 176)

Operating Exposure

price per unit = ₹25000

price (€) at previous SR = $\frac{₹25000}{51.50}$ = €485.44

price per unit as per Revised SR = $\frac{₹25000}{51.75}$ = €483.09

% decrease in price = $\frac{€485.44 - €483.09}{€485.44} \times 100$

= 0.48%

price Elasticity of demand = 1.5

% increase in quantity = 0.48 × 1.5

= 0.72%

Total No. of units = 2400 unit + 0.72%

= 2417 units

QUESTION – 120

AMK Ltd. an Indian 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

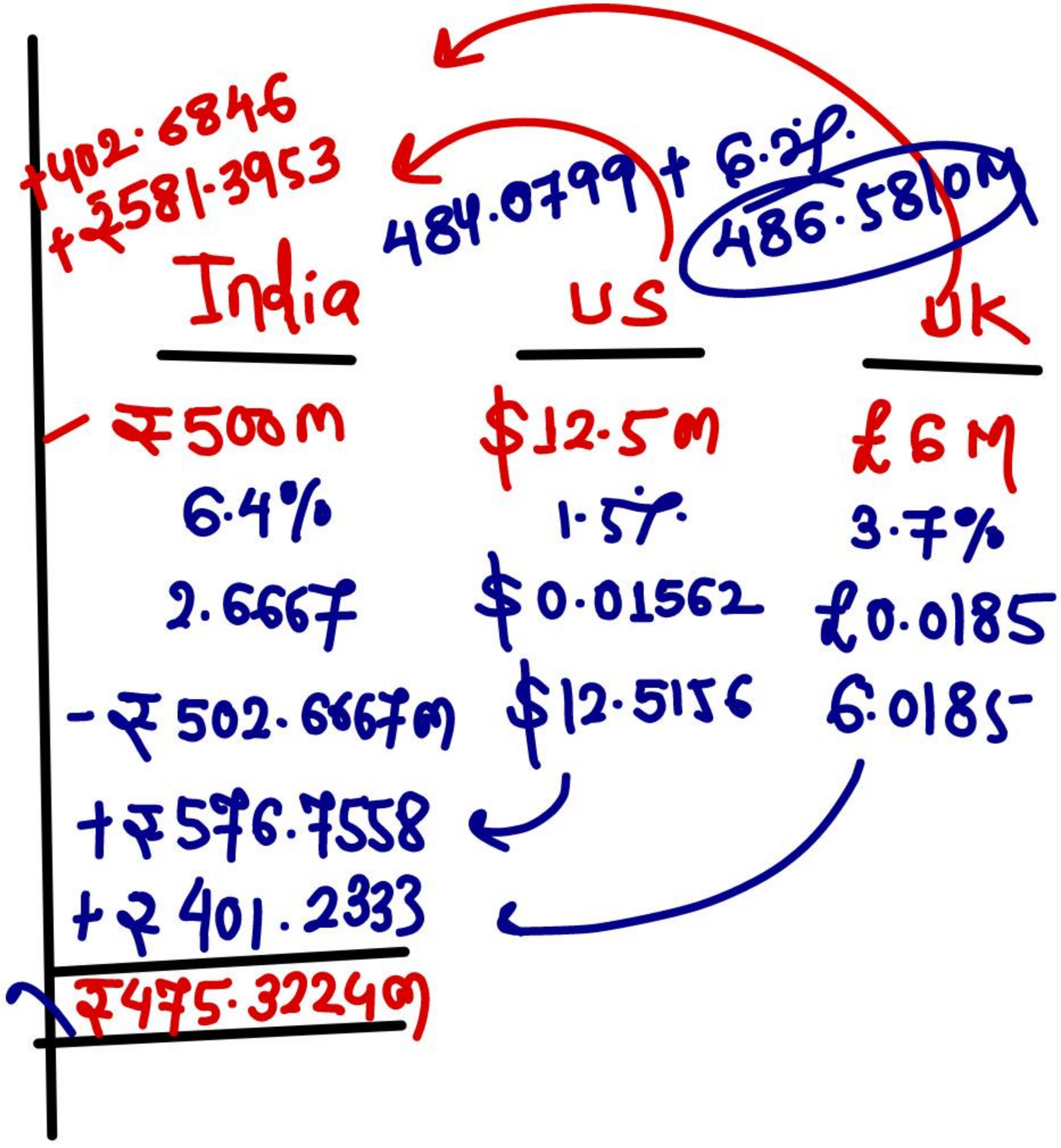
Following exchange rate information is obtained:

	$/₹	£/₹
Spot	0.0215	0.0149
30 days forward	0.0217	0.0150

Annual borrowing/deposit rates (Simple) are available.

₹	6.4%/6.2%
$	1.6%/1.5%
£	3.9%/3.7%

HW
C.W COPY



The Indian operation is forecasting a cash deficit of ₹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 ₹ for each company under each of the following scenarios ignoring transaction costs and taxes:

(a) Each company invests/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?

(Practice Manual)

(Page No. 173)

Non deliverable forward Contract (NDF)

↓

Off-shore Market [Out of India]

↓

Settled in $

QUESTION – 129 (Imp)

On 1st February 2020, XYZ Ltd. a laptop manufacturer imported a particular type of Memory Chips from SKH Semiconductor of South Korea. The payment is due in one month from the date of Invoice, amounting to 1190 Million South Korean Won (SKW). Following Spot Exchange Rates (1st February) are quoted in two different markets:

USD/ INR 75.00/ 75.50 in Mumbai ₹/$

USD/ SKW 1190.00/ 1190.75 in New York Skw/$

Since hedging of Foreign Exchange Risk was part of company's strategic policy and no contract for hedging in SKW was available at any in-shore market, it approached an off-shore Non Deliverable Forward (NDF) Market for hedging the same risk.

In NDF Market a dealer quoted one-month USD/ SKW at 1190.00/1190.50 for notional amount of USD 100,000 to be settled at reference rate declared by Bank of Korea. Skw/$

After 1 month (1st March 2020) the dealer agreed for SKW 1185/ USD as rate for settlement and on the

If Buy Skw 1190 Millions Today

₹/$ = 75.50

Skw/$ = 1190

$₹/Skw = 75.50 \times \frac{1}{1190}$

$= 0.0634$

Skw 1190 x 0.0634

$= ₹75.446\ M$

$= ₹754.46\ Lacs$

same day the Spot Rates in the above markets were as follows:

USD/ INR 75.50/ 75.75 in Mumbai

USD/ SKW 1188.00/ 1188.50 in New York

₹/$
SKW/$

Analyze the position of company under each of the following cases, comparing with Spot Position of 1st February:

(i) Do Nothing.

(ii) Opting for NDF Contract. Note: Both Rs./ SKW Rate and final payment (to be computed in Rs. Lakh) to be rounded off upto 4 decimal points. (10 Marks)

(MTP April 2021)

(Page No. 186)

option 1 Do Nothing

Buy Skw 1190 m at 1 month

SR

₹/$ 75.75

Skw/$ 1188

$₹/Skw = 75.75 \times \frac{1}{1188}$

$= 0.0638$

Skw 1190 Millions × 0.0638 = 75.922 m

= ₹ 759.22 L

Loss = 759.22 − 754.46 = 4.76 Lakh

option 2 NDF Contract

Step 1 Since skw payable & we afraid from skw rising but we have to take position on $, hence we should take short position (Sell) on $ at Skw/$ 1190

$$\text{Amt of short position } (\$) = \frac{\text{Skw } 1190\text{ m}}{1190} = \$1\text{m}$$

or $1000000

Step 2 Gain or Loss

on Maturity, Skw/$ is 1185, hence Gain on short position

$$(\text{Skw } 1190 - \text{Skw } 1185) \times \$1000000$$

$$= \text{Skw } 5000000$$

$$\text{Gain in } \$ = \frac{\text{Skw } 5000000}{1185} = \$4219.4093$$

Buy Skw 1190m at

1 Month SR = ₹759.22 Lakh

(-) Sell $4219.4093

at 1 month SR ₹3.1856 L

($4219.4093 × 75.50)

C.O. ₹756.0343 L

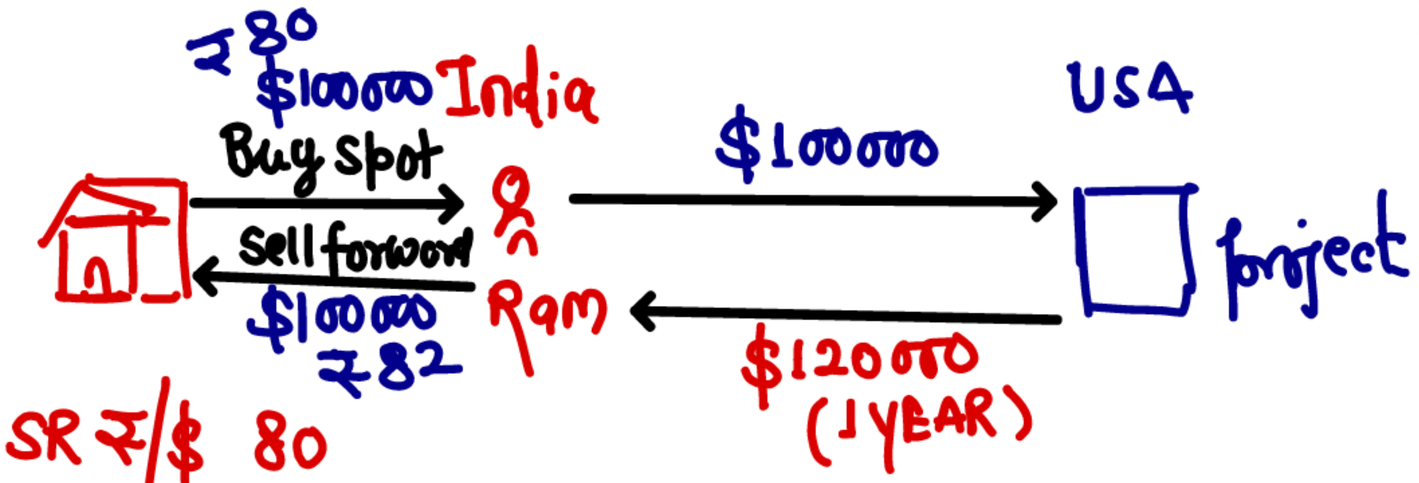
Loss = 756.0343 − 754.46

= 1.5743 L

NDF contract is better due to Less Loss

Fx-Swap

Eg



SR ₹/$ 80

1 YEAR FR 81.75

C.O. = −8000000

C1 (120000 × 81.75) +9810000

1810000

Ram enters into Buy-Sell Swap in which buy $100000 Now & sell $100000 after 1 YEAR at Contracted Rate

Buy $ ($100000 × 80) = (₹8000000)

Sell $ ($100000 × 82) = 8200000

Sell $20000 at 81.75 = 1635000

Gain = ₹1835000

QUESTION – 121

Drilldip Inc. a US based company has a won a contract in India for drilling oil field. The project will require an initial investment of ₹ 500 crore. The oil field along with equipments will be sold to Indian Government for ₹ 740 crore in one year time. Since the Indian Government will pay for the amount in Indian Rupee (₹) the company is worried about exposure due exchange rate volatility.

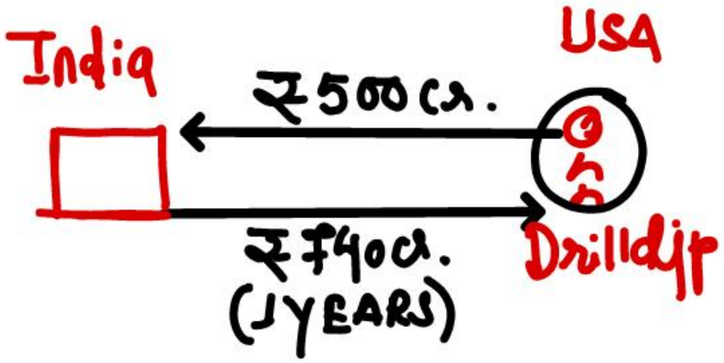
You are required to:

(a) Construct a swap that will help the Drilldip to reduce the exchange rate risk.

(b) Assuming that Indian Government offers a swap at spot rate which is 1US$ = ₹ 50 in one year, then should the company should opt for this option or should it just donothing. The spot rate after one year is expected to be 1US$ = ₹ 54. Further you may also assume that the Drilldip can also take a US$ loan at 8% p.a.

(Study Material & PM)

(Page No. 175)



(a) Drilldip will enter into Buy-Sell Swap, in which Drilldip will buy ₹ 500 cr. Now & Sell ₹ 500 cr. after 1 year

Option 1 Fx-Swap

	$
• Buy ₹500 cr. today $\left(\frac{₹500\,cr}{₹50}\right)$	= (10 cr)
• Sell ₹500 cr. after 1 YEAR $\left(\frac{₹500\,cr}{50}\right)$	= 10 cr.
• Sell ₹240 cr. at 1 YEAR Expected Rate $\left(\frac{₹240}{54}\right)$	= 4.444 cr.
• InH ($10 cr. × 8%)	= (0.8 cr.)
profit	$3.644 cr.

Option 2 Do Nothing

Buy 500 cr. today at SR $\left(\frac{500}{50}\right)$ = (10 cr.)

Sell 740 cr. at Expected SR $\left(\frac{740}{54}\right)$ = 13.704 cr.

InH = (0.8 cr.)

$2.904 cr.

Fx Swap is better

QUESTION – 128

Airlines Company entered into an agreement with Airbus for buying latest plans for a total value of F.F. (French Francs) 1,000 Million payable after 6 months. The current spot exchange rate is INR (Indian Rupees) 6.60/FF. The Airlines Company cannot predict the exchange rate in the future. Can the Airlines Company hedge its Foreign Exchange risk? Explain by examples.

(Practice Manual)

(Page No. 184)

H·W

QUESTION - 108

M/s. Daksh Ltd is planning to import multipurpose machine from USA at a cost of $15000. The company can avail loans at 19% Interest per annum with quarterly rests with which it can import the machine.

However, there is an offer from New York branch of an Indian based bank extending credit of 180 days at 2% per annum against opening of an irrevocable letter of credit.

Other Information:

Spot rate US$ 1 = ₹ 75

180 days forward rate US $ 1 = ₹ 77

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

(i) Justify why the offer from the foreign branch should be accepted?

(ii) Based on the present market condition company is not interested to take the risk of currency fluctuations and wanted to hedge with an additional expenses of ₹ 30,000. If so, what is your advise to the company?

Assume 360 days in the year.

(Exam May-2022)

(Page No. 154)

QUESTION – 82

XP Pharma Ltd., has acquired an export order for ₹ 10 million for formulations to a European company. The Company has also planned to import bulk drugs worth ₹ 5 million from a company in UK. The proceeds of exports will be realized in 3 months from now and the payments for imports will be due after 6 months from now. The invoicing of these exports and imports can be done in any currency i.e. Dollar, Euro or Pounds sterling at company's choice. The following market quotes are available.

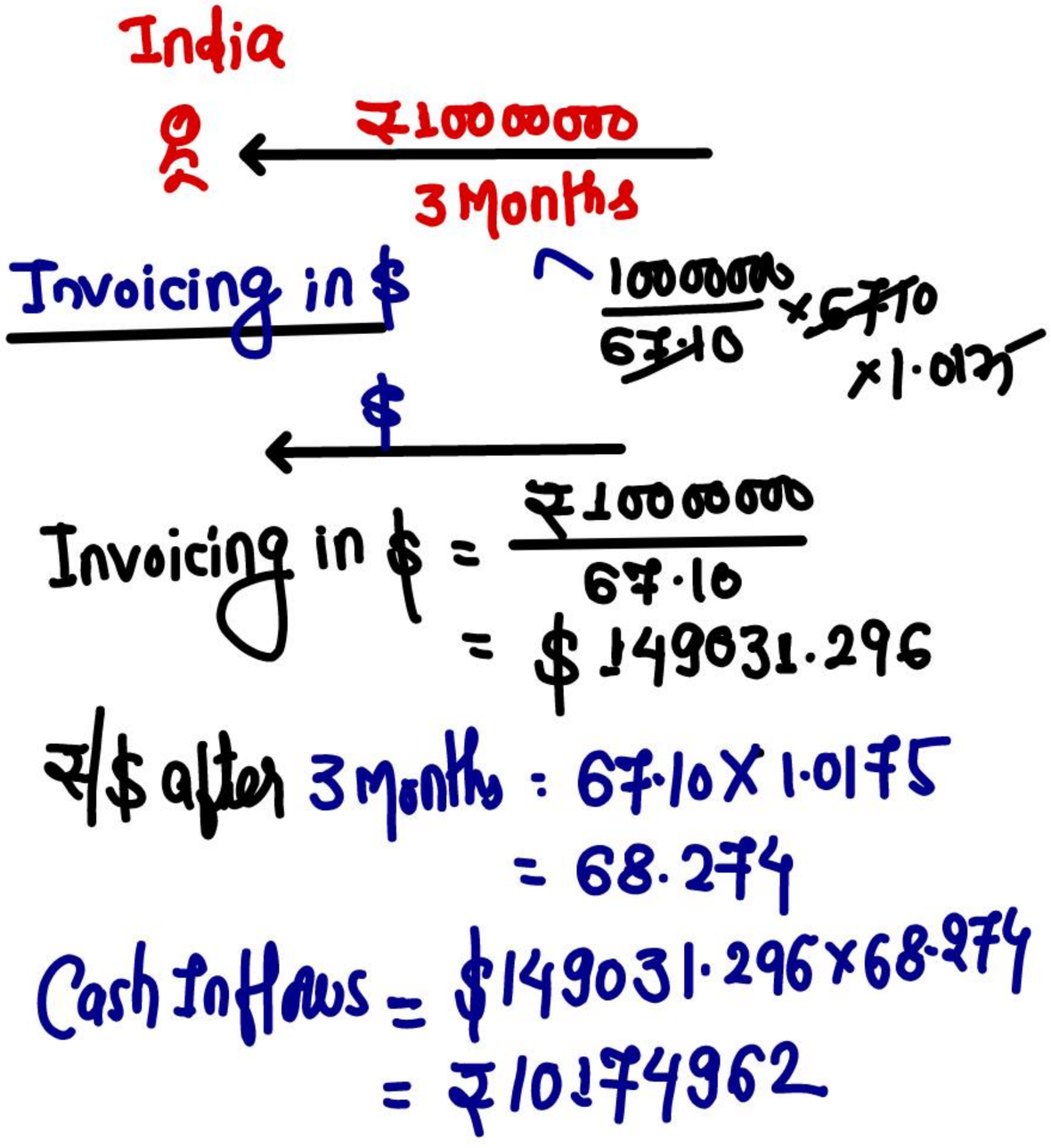
	Spot Rate	Annualized Premium
₹/$	67.10/67.20	$ - 7%
₹ /Euro	63.15/63.20	Euro - 6%
₹ /Pound	88.65/88.75	Pound - 5%

Advice XP Pharma Ltd. about invoicing in which currency.

(Calculation should be upto three decimal places).

(Exam July – 2021)

(Page No. 120)



QUESTION – 123

With relaxation of norms in India for investment in international market upto $ 2,50,000 Mr. X to hedge himself against the risk of declining Indian economy and weakening of Indian Rupee during last few years, decided to diversify in the international Market.

Accordingly, Mr. X invested a sum of ₹ 1.58 crore on 1.1.20 × 1 in standard & poor index. On 1.1.20 × 2 Mr. X sold his investment. The other relevant data is given below:

	1.1.20 × 1	**1.1.20 × 2**
Index of stock market in India	7,395	?
Standard & Poor index	2,028	1,919
Exchange Rate (₹/$)	62.00/62.25	67.25/67.50

You are required to calculate:

(i) The return for a US investor.

(ii) Holding period return to Mr. X.

(iii) The value of index of stock market in India as on 1.1.20 × 2 at which Mr. X would be indifferent between investment in Standard & Poor index and India stock market.

(Page No. 179)

1 Return for US Investor

$$\text{Return} = \frac{1919 - 2028}{2028} \times 100$$

$$= -5.37\%$$

2. HPR of Mr. X

- Buy $: $\frac{₹1580000}{62.25} = \$253815.26$
- Cash Inflow after 1 year in $

$$\frac{\$253815.26}{2028} \times 1919 = \$240173.32$$

- Sell $ ($240173.32 × 67.25) = ₹16151656

$$HPR = \frac{16151656 - 1580000}{1580000} \times 100$$

$$= 2.23\%$$

(iii) Value of Stock Index in India on 1/1/2012 at Indifference Return

$$7395 \times 1.0223 = 7560$$

QUESTION – 125

ABC Ltd. of UK has exported goods worth Can $ 5,00,000 receivable in 6 months. The exporter wants to hedge the receipt in the forward market. The following information is available:

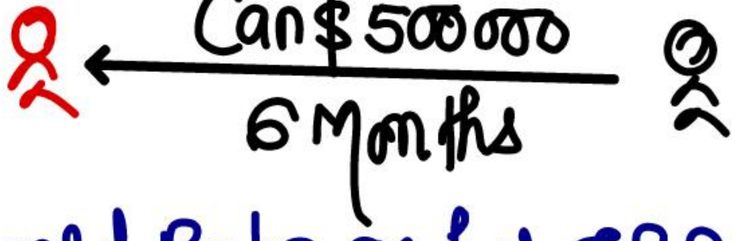
Spot Exchange Rate	Can $ 2.5/£
Interest Rate in UK	12%
Interest Rate In Canada	15%

The forward rates truly reflect the interest rates differential. Find out the gain/loss to UK exporter if Can $ spot rates (i) declines 2%, (ii) gains 4% or (iii) remains unchanged over next 6 months.

(Study Material & PM)

(Page No. 181)

UK(£) Can(Can$)



Forward Rate as per IRP

$$f = S \times \frac{1+r}{1+r}$$

$$= \text{Can\$}2.50 \times \frac{1.075}{1.06}$$

$$= \text{Can\$}2.535$$

If Can $ declines by 2%

Spot Rate after 6 months = Can$2.5 × 1.02 = Can$2.55

Cash Inflows at FR = $\frac{\text{Can\$500000}}{2.535}$ = £197238.66

Cash Inflows at 6 month Rate = $\frac{\text{Can\$500000}}{2.55}$ = £196078.43

Gain due to fc £1161

If Can$ Gains by 4%

spot Rate after 6 Months : Can$2.5 × 0.96 = Can$2.40

QUESTION – 127

Your forex dealer had entered into a cross currency deal and had sold US $ 10,00,000 against EURO at US $ 1 = EURO 1.4400 for spot delivery.

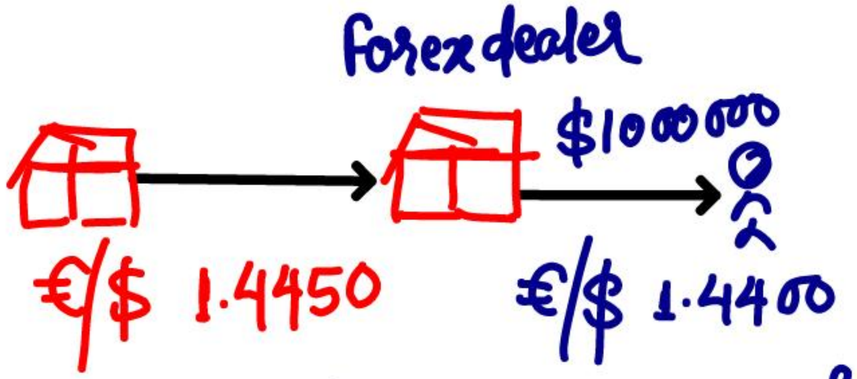
However, later during the day, the market became volatile and the dealer in compliance with his management's guidelines had to square – up the position when the quotations were:

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?

(Study Material & PM)

(Page No. 183)



Calculation of Gain or Loss

Sell $ ($1000000 × 1.4400) = €1440000

Buy $ ($1000000 × 1.4450) = €1445000

Loss €5000

Assume that forex dealer from India

Loss = €5000, hence Buy €5000 from ₹

₹/$ 31.4500

€/$ 1.4400

₹/€ $31.4500 \times \frac{1}{1.4400} = ₹21.84$

Loss(₹) = €5000 × 21.84 = ₹109200

QUESTION – 52

A US investor chose to invest in Sensex for a period of one year. The relevant information is given below.

Size of investment ($)	20,00,000
Spot rate 1 year ago (₹/$)	42.50/60
Spot rate now (₹/$)	43.85/90
Sensex 1 year ago	3,256
Sensex now	3,765
Inflation in US	5%
Inflation in India	9%

(i) Compute the nominal rate of return to the US investor.

(ii) Compute the real depreciation /appreciation of Rupee.

(iii) What should be the exchange rate if relevant purchasing power parity holds good?

(iv) What will be the real return to an Indian investor in Sensex?

(RTP May – 2022 & January – 2021)

(Page No. 76)

1 Nominal Return to US Investor

Sell $ at 1 year ago Rate

$\$20000 \times 42.50 = ₹850000$

Cash Inflows after 1 YEAR (₹)

$$\frac{₹850000}{3256} \times 3765 = ₹98287776$$

$$\text{Buy \$ from ₹} = \frac{₹98287776}{43.90} = \$223890.1$$

$$\text{Nominal Return} = \frac{\$223890.1 - \$20000}{\$20000} \times 100$$

$$= 11.94\%$$

(ii) Real appreciation/depreciation in ₹

Remove the inflation effect

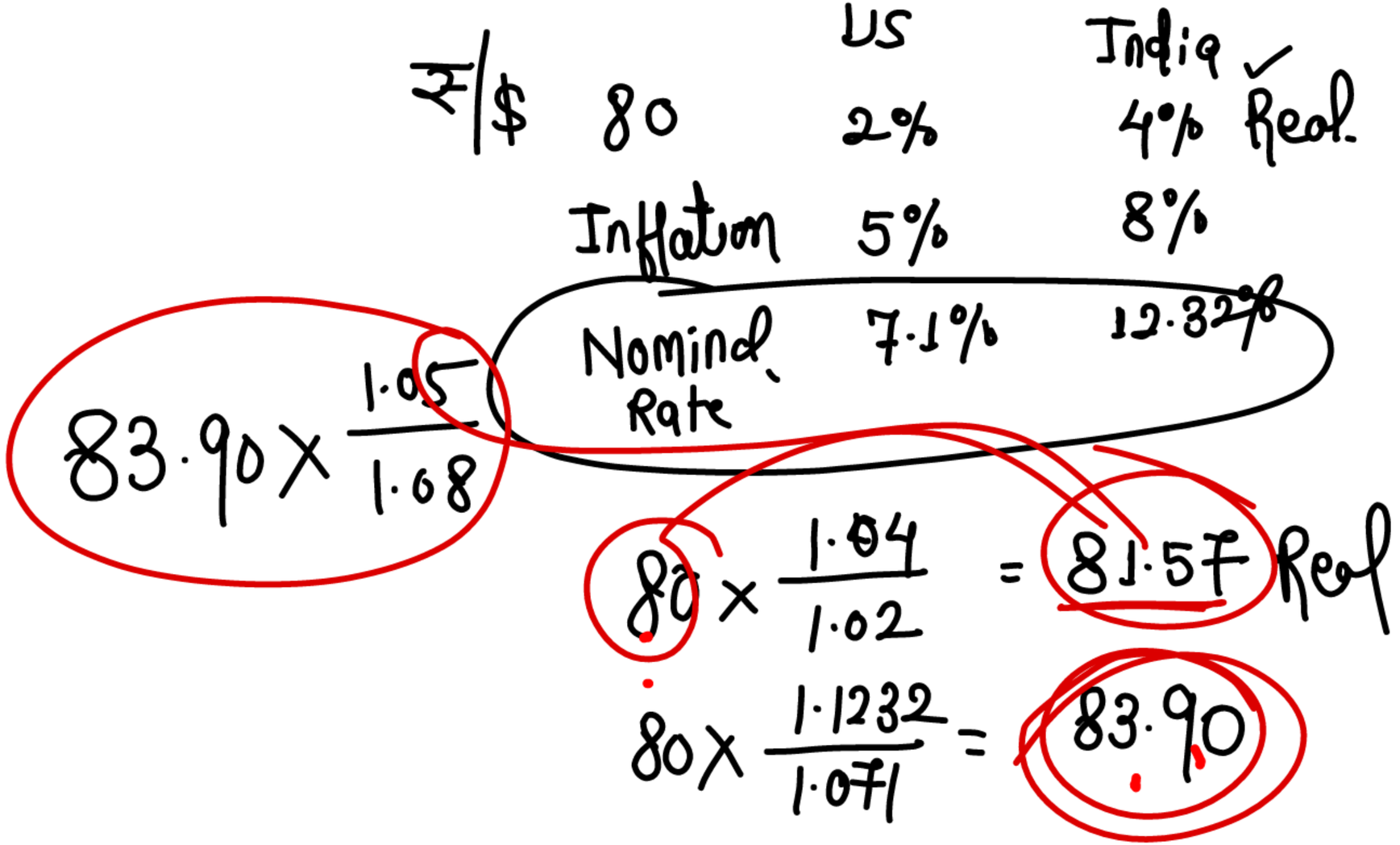
$$\text{Bid Rate} = 43.85 \times \frac{1.05}{1.09} = ₹42.24$$

$$\text{Ask Rate} = 43.90 \times \frac{1.05}{1.09} = ₹42.29$$

Appreciation/Dep. in ₹

$$\text{Bid} = \frac{42.50 - 42.24}{42.24} \times 100 = 0.615\% \text{ Appreciate}$$

$$\text{Ask} = \frac{42.60 - 42.29}{42.29} \times 100 = 0.738\% \text{ premium}$$


₹/$ 80
US
India
2%
4% Real
Inflation
5%
8%
Nominal Rate
7.1%
12.32%
83.90 × 1.05 / 1.08
80 × 1.04 / 1.02 = 81.57 Real
80 × 1.1232 / 1.071 = 83.90

Eg

SR 1 YEAR ago = ₹80

SR Now = ₹83.90

Inflation Rate

India = 8%

USA = 5%

Calculate Real Appreciation/Depreciation in

① $

② ₹

$$₹83.90 \times \frac{1.05}{1.08}$$

$$= ₹81.57$$

(i) $

$$\frac{₹81.57 - 80}{80} \times 100$$

$$= 1.96\%$$

(ii) ₹

$$\frac{₹80 - 81.57}{81.57} \times 100$$

$$-1.92\%$$

(iv) Real Return to Indian Investor

$$\text{Nominal Return} = \frac{3765 - 3256}{3256} \times 100$$

$$= 15.63\%$$

$$\text{Real Return} = \left[\frac{1.1563}{1.09} - 1\right] \times 100$$

$$= 6.08\%$$

(iii) Calculate Exchange Rate using PPP

$$ES = S \times \frac{1+i}{1+i}$$

$$\text{Bid} = 42.50 \times \frac{1.09}{1.05} = ₹ 44.12$$

$$\text{Ask} = 42.60 \times \frac{1.09}{1.05} = ₹ 44.22$$

QUESTION – 124

M/s. Sky products Ltd., of Mumbai, an exporter of sea foods has submitted a 60 days bill for EUR 5,00,000 drawn under an irrevocable Letter of Credit for negotiation. The company has desired to keep 50% of the bill amount under the Exchange Earners Foreign Currency Account (EEFC). The rates for₹/USD and USD/EUR in inter-bank market are quoted as follows:

	₹/ USD	USD/EUR
Spot	67.8000 – 67.8100	1.0775 – 1.8000
1 month forward	10/11 Paise	0.20/0.25 Cents
2 months forward	21/22 Paise	0.40/0.45 Cents
3 months forward	32/33 Paise	0.70/0.75 Cents

Transit Period is 20 days. Interest on post shipment credit is 8% p.a.

Exchange Margin is 0.1%. Assume 365 days in a year.

You are required to calculate:

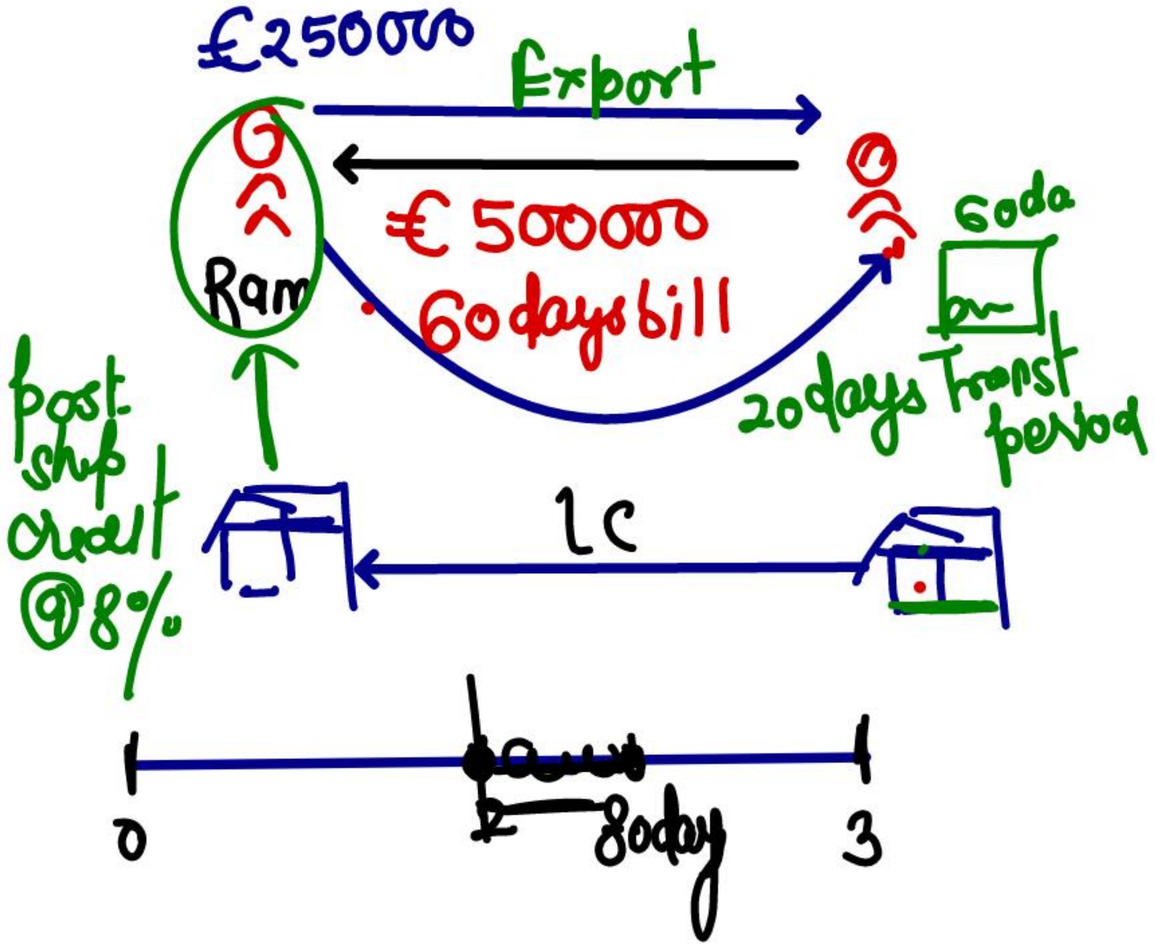
(i) Exchange rate quoted to the company

(ii) Cash inflow to the company

(iii)Interest amount to be paid to bank by the company.

(Exam January – 2021)

(Page No. 180)



① Exchange Rate quoted to Company

60 days FR

$/€	1.0775
(+) 2 Month Swap	0.0040
$/€	1.0815

₹/$	67.8000
(+) 2 Month Swap	0.2100
	₹68.0100
(-) Margin	− 0.1%
₹/$	67.9420

₹/€ = 67.9420 × 1.0815

= ₹73.4793

(II)

CI = €250000 × 73.4793

= ₹18369825

(III) Int. on post shipment credit

₹18369825 × 8% × 80/365

₹322101

QUESTION – 112

A German subsidiary of an US based MNC has to mobilize 1,00,000 Euro's working capital for the next 12 months. It has the following options:

Loan from German Bank : @ 5% p.a.

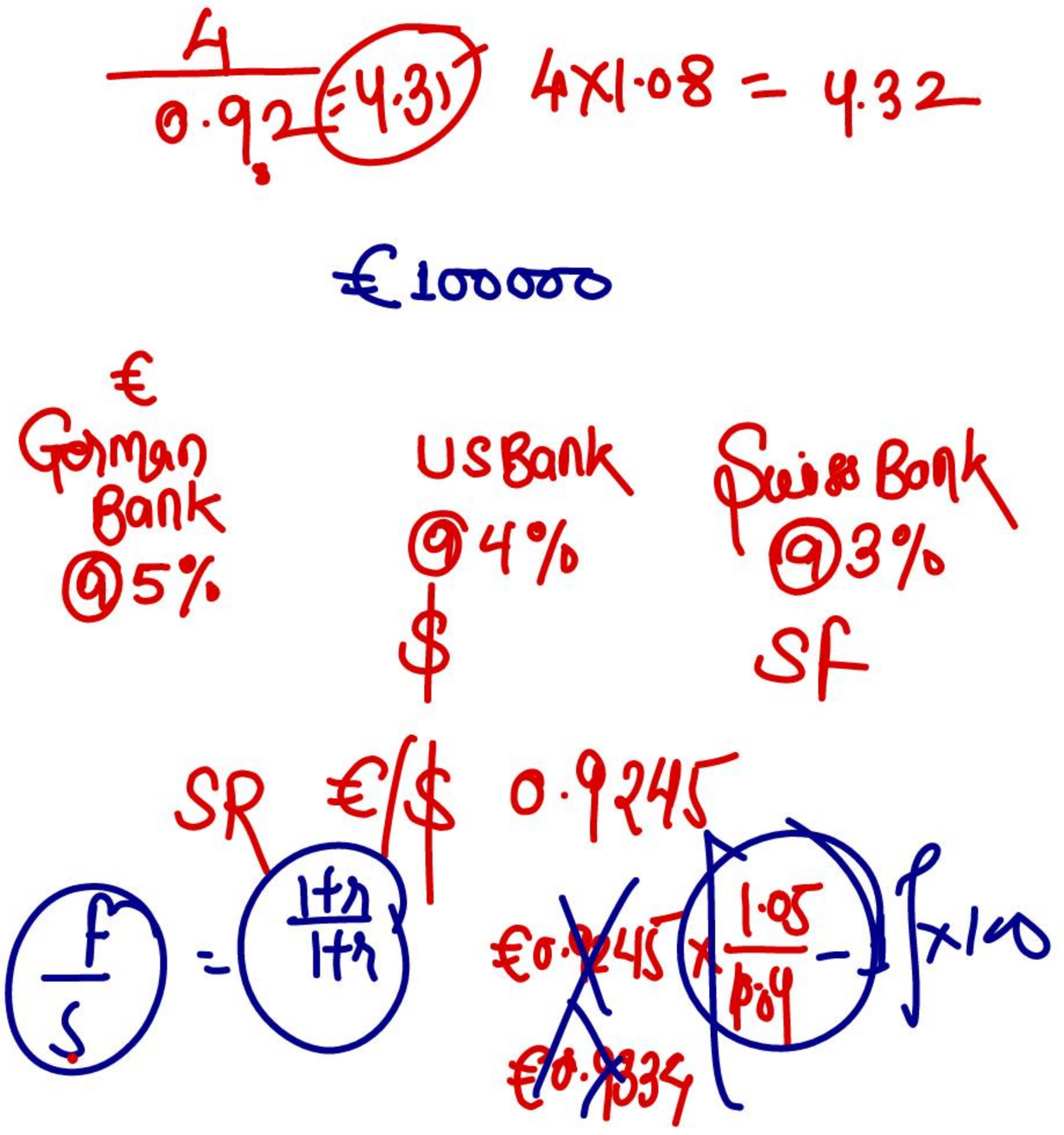
Loan from US Parent Bank : @ 4% p.a.

Loan from Swiss Bank : @ 3% p.a.

Banks in Germany charge an additional 0.25% p.a. towards loan servicing. Loans from outside Germany attract withholding tax of 8% on interest payments. If the interest rates given above are market determined, examine which loan is the most attractive using interest rate differential.

(Exam November - 2019)

(Page No. 160)



Calculation of Cost of Loan

- Borrow from German Bank (5% + 0.25%) = 5.25%

- Borrow from US Bank

$$\text{Intt} = \frac{4\%}{1-0.08} = 4.35\%$$

$$\text{premium in \$} = \left[\frac{1.05}{1.04} - 1\right] \times 100 = 0.96\%$$

5.31%

- Borrow from Swiss Bank

$$\text{Intt} = \frac{3}{1-0.08} = 3.26\%$$

$$\text{premium in Sf} = \left[\frac{1.05}{1.03} - 1\right] \times 100 = 1.94$$

5.20%

Borrow from Swiss Bank is better due to Lower Cash outflows

€100000 × 1.052

= €105200

QUESTION – 126

Following are the details of cash inflows and outflows in foreign currency denominations of MNP Co. an Indian export firm, which have no foreign subsidiaries:

Currency	Inflow	Outflow	Spot Rate	Forward Rate
US $	4,00,00,000	2,00,00,000	48.01	48.82
French Franc (FFr)	2,00,00,000	80,00,000	7.45	8.12
U.K. £	3,00,00,000	2,00,00,000	75.57	75.98
Japanese Yen	1,50,00,000	2,50,00,000	3.20	2.40

(i) Determine the net exposure of each foreign currency in terms of Rupees.

(ii) Are any of the exposure positions offsetting to some extent?

(Study Material & PM)

(Page No. 182)

QUESTION – 59

India Imports Co., purchased USD 1,00,000 worth of machines from a firm in New York, USA. The value of the rupee in terms of the Dollar has been decreasing. The firm in New York offers 2/10, net 90 term. The spot rate for the USD in ₹ 55; the 90 days forward rate is ₹ 56.

(i) Compute the Rupee cost of paying the account within the 10 days.

(ii) Compute the Rupee cost of buying a forward contract to liquidate the account in 10 days.

(iii) The differential between part a and part b 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.

(Page No. 86)

QUESTION – 66

H Ltd. is an Indian firm exporting handicrafts to North America. All the exports are invoiced in US$. The firm is considering the use of money market or forward market to cover the receivable of $ 50,000 expected to be realized in 3 months time and has the following information from its banker:

	Exchange Rates
Spot	₹/$ 72.65/73
3 – months forward	₹/$ 72.95/73.40

The borrowing rates in US and India are 6% and 12% p.a. and the deposit rates are 4% and 9% p.a. respectively.

(i) Which option is better for H Ltd?

(ii) Assume the H Ltd. anticipates the spot exchange rate in 3 – months time to be equal to the current 3 – months forward rate. After 3 – months the spot exchange rate turned out to be ₹/$: 73/73.42.

What is the foreign exchange exposure and risk of H Ltd.?

(Exam November - 2019)

(Page No. 94)

QUESTION – 109

XYZ has taken a six-month loan from its foreign collaborator for USD 2 millions. Interest is payable on maturity @ LIBOR plus 1%. The following information is available:

Spot Rate	INR/USD	68.5275
6 months Forward rate	INR/USD	68.4575
6 months LIBOR for USD		2%
6 months LIBOR for INR		6%

You are required to :

(i) Calculate Rupee requirements if forward cover is taken.

(ii) Advise the company on the forward cover.

What will be your opinion if spot rate of INR/USD is 68.4275 ?

(Exam January – 2021)

(Page No. 155)

QUESTION – 110

K Ltd. currently operates from 4 different building and wants to consolidate its operations into one building which is expected to cost ₹ 90 crores. The Board of K Ltd, had approved the above plan and to fund the above cost, agreed to avail an External Commercial Borrowing (ECB) of GBP 10 m from G Bank Ltd. on the following condition:

- The Loan will be availed on 1st April, 2019 with interest payable on half yearly rest.
- Average Loan Maturity life will be 3.4 years with an overall tenure of 5 years.
- Upfront Fee of 1.20%.
- Interest Cost is GBP 6 months LIBOR + Margin of 2.50%
- The 6 month LIBOR is expected to be 1.05%.

K Ltd. also entered into a GBP – INR hedge at 1 GBP = INR 90 to cover the exposure on account of the above ECB Loan and the cost of the hedge is coming to 4.00% p.a.

As a finance manger, given the above information and taking the

1 GBP = INR 90:

(i) Calculate the overall cost both in percentage and rupee terms on an annual basis.

(ii) What is the cost of hedging in rupee terms ?

(iii) If K Ltd. wants to pursue an aggressive approach, what would be the net gain/loss for K Ltd. if the INR depreciate/appreciates against GBP by 10% at the end of the 5 years assuming that the loan is repaid in GBP at the end of 5 years ?

Ignore time value and taxes and calculate to two decimals.

(Exam May – 2019)

(Page No. 156)

QUESTION – 111

An Indian company obtains the following quotes (₹/$)

Spot ;	35.90/36.10
3 Months forward rate:	36.00/36.25
6 Months forward rate:	36.10/36.40

The company needs $ funds for six months, Determine whether the company should borrow in $ or ₹. Interest rates are:

3 Months interest rate:	₹: 12%, $: 6%
6 Months interest rate:	₹: 11.50%, $: 5.5%

Also determine what should be the rate of interest after 3 – months to make the company indifferent between 3-months borrowings end 6- months borrowings in the case of:

(i) Rupee borrowing

(ii) Dollar borrowing

Note: For the purpose of calculation you can take the units of dollar and rupee as 100 each.

(Exam November – 2018)

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