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SUGGESTED SOLUTION

CA FINAL NOV'19

SUBJECT- SFM

Test Code – FNJ 7231

BRANCH - () (Date :)

Head Office : Shraddha, 3rd Floor, Near Chinai College, Andheri (E), Mumbai – 69.

Tel : (022) 26836666

ANSWER-1

To determine the centre of investment by bank except New York (in whose currency the surplus is available) Arbitrage Profit for remaining two centres shall be computed as follows:

(a) If investment is made at London

Convert US$ 5,00,000 at Spot Rate (5,00,000/1.5390)		= £ 3,24,886
Add: £ Interest for 3 months on £ 324,886 @ 5%		= £ 4,061
		= £ 3,28,947
Less: Amount Invested	$ 5,00,000	
Interest accrued thereon	$ 5,000	
	$ 5,05,000	
Equivalent amount of £ required to pay the above sum ($ 5,05,000/1.5430)		= £ 3,27,285
Arbitrage Profit		= £ 1,662

(3 MARKS)

(b) If investment is made at New York

Gain $ 5,00,000 (8% - 4%) x 3/12	= $ 5,000
Equivalent amount in £ 3 months ($ 5,000/ 1.5475)	£ 3,231

(1 MARK)

(c) If investment is made at Frankfurt

Convert US$ 500,000 at Spot Rate (Cross Rate) 1.8260/1.5390	= € 1.1865
Euro equivalent US$ 500,000	= € 5,93,250
Add: Interest for 3 months @ 3%	= € 4,449
	= € 5,97,699
3 month Forward Rate of selling € (1/1.8150)	= £ 0.5510
Sell € in Forward Market € 5,97,699 x £ 0.5510	= £ 3,29,332
Less: Amounted invested and interest thereon	= £ 3,27,285
Arbitrage Profit	= £ 2,047

Recommendation: Since out of three options the maximum profit is in case investment is made in New York. Hence it shall be opted and arbitrage gain would be £3,231.

(4 MARKS)

ANSWER-2

ANSWER-A

On January 28, 2017 the importer customer requested to remit SGD 25 lakhs. To consider sell rate for the bank:

US $	=	Rs.45.90
Pound 1	=	US$ 1.7850
Pound 1	=	SGD 3.1575
Therefore, SGD 1	=	$\frac{Rs.45.90 * 1.7850}{SGD\ 3.1575}$
SGD 1	=	Rs.25.9482
Add: Exchange margin (0.125%)	=	Rs. 0.0324
		Rs. 25.9806

On February 4, 2017 the rates are

US $	=	Rs. 45.97
Pound 1	=	US$ 1.7775
Pound 1	=	SGD 3.1380
Therefore, SGD 1	=	$\frac{Rs.45.97 * 1.7775}{SGD\ 3.1380}$
SGD 1	=	Rs. 26.0394
Add: Exchange margin (0.125%)	=	Rs. 0.0325
		Rs. 26.0719

Hence, loss to the importer

= SGD 25,00,000 (Rs. 26.0719 – Rs. 25.9806) = Rs. 2,28,250

(6 MARKS)

ANSWER-B

Forward Rate = $\frac{2.50(1+0.075)}{(1+0.060)}$ = Can$ 2.535/£

(i) If spot rate decline by 2%

Spot Rate = Can$ 2.50 x 1.02 = Can$ 2.55/£

	£
£ receipt as per Forward Rate (Can $ 5,00,000/ Can$ 2.535)	1,97,239
£ receipt as per Spot Rate (Can $ 5,00,000/ Can$ 2.55)	1,96,078
Gain due to forward contract	1,161

(ii) If spot rate gains by 4%

Spot Rate = Can$ 2.50 x 0.96 = Can$ 2.40/£

	£
£ receipt as per Forward Rate (Can $ 5,00,000/ Can$ 2.535)	1,97,239
£ receipt as per Spot Rate (Can $ 5,00,000/ Can$ 2.40)	2,08,333
Loss due to forward contract	11,094

(iii) If spot rate remains unchanged

	£
£ receipt as per Forward Rate (Can $ 5,00,000/ Can$ 2.535)	1,97,239
£ receipt as per Spot Rate (Can $ 5,00,000/ Can$ 2.50)	2,00,000
Loss due to forward contract	2,761

(3*2 = 6 MARKS)

ANSWER-3

In the given case, the exchange rates are indirect. These can be converted into direct rates as follows:

Spot rate

GBP = $\frac{1}{\text{USD1.5617}}$ to $\frac{1}{\text{USD1.5673}}$

USD = GBP 0.64033 - GBP 0.63804

6 months' forward rate

GBP = $\frac{1}{\text{USD1.5455}}$ to $\frac{1}{\text{USD1.5609}}$

USD = GBP 0.64704 - GBP 0.64066

Payoff in 3 alternatives

i. Forward Cover

Amount payable USD 3,64,897

Forward rate GBP 0.64704

Payable in GBP GBP 2,36,103

ii. Money market Cover

Amount payable USD 3,64,897

PV @ 4.5% for 6 months i.e. $\frac{1}{1.0225}$ = 0.9779951

Spot rate purchase	GBP 0.64033	
Borrow GBP 3,56,867 x 0.64033		GBP 2,28,512
Interest for 6 months @ 7 %		7,998
		-
Payable after 6 months		GBP 2,36,510

(4 MARKS)

iii. Currency options

Amount payable	USD 3,64,897
Unit in Options contract	GBP 12,500
Value in USD at strike rate of 1.70 (GBP 12,500 x 1.70)	USD 21,250
Number of contracts USD 3,64,897/ USD 21,250	17.17
Exposure covered USD 21,250 x 17 USD	3,61,250
Exposure to be covered by Forward (USD 3,64,897 – USD 3,61,250) USD	3,647
Options premium 17 x GBP 12,500 x 0.096 USD	20,400
Premium in GBP (USD 20,400 x 0.64033)	GBP 13,063
Total payment in currency option	
Payment under option (17 x 12,500)	GBP 2,12,500
Premium payable	GBP 13,063
Payment for forward cover (USD 3,647 x 0.64704)	GBP 2,360
	GBP 2,27,923

Thus total payment in:

(i)	Forward Cover	2,36,103 GBP
(ii)	Money Market	2,36,510 GBP
(iii)	Currency Option	2,27,923 GBP

The company should take currency option for hedging the risk.

Note: Even interest on Option Premium can also be considered in the above solution.

(4 MARKS)

ANSWER-4

ANSWER-A

Bank will buy from customer at the agreed rate of Rs. 65.40. In addition to the same if bank will charge/ pay swap difference and interest on outlay funds.

(i) Swap Difference

Bank Sells at Spot Rate on 30 November 2015	Rs. 65.22
Bank Buys at Forward Rate of 31 December 2015 (65.27 + 0.15)	Rs. 65.42
Swap Loss per US$	Rs. 00.20
Swap loss for US$ 1,00,000	Rs. 20,000

(ii) Interest on Outlay Funds

On 30th November Bank sells at	Rs. 65.22
It buys from customer at	Rs. 65.40
Outlay of Funds per US$	Rs. 00.18

Interest on Outlay fund for US$ 1,00,000 for 31 days Rs. 275.00

(US$100000 x 00.18 x 31/365 x 18%)

(iii) Charges for early delivery

Swap loss	Rs. 20,000.00
Interest on Outlay fund for US$ 1,00,000 for 31 days	Rs. 275.00
	Rs. 20,275.00

(iv) Net Inflow to Mr. X

Amount received on sale (Rs. 65.40 x 1,00,000)	Rs. 65,40,000
Less: Charges for early delivery payable to bank	(Rs. 20,275)
	Rs. 65,19,725

(5 MARKS)

ANSWER-B

In this case, DM is at a premium against the Can$.

Premium = [(0.671 – 0.666) /0.666] x (12/3) x 100 = 3.00 per cent

Interest rate differential = 9.5% - 7.5% = 2 per cent.

Since the interest rate differential is smaller than the premium, it will be profitable to place money in Deutschmarks the currency whose 3-months interest is lower.

The following operations are carried out:

(i) Borrow Can$ 1000 at 9.5 per cent for 3- months;

(ii) Change this sum into DM at the spot rate to obtain DM = (1000/0.666) = 1501.50

(iii) Place DM 1501.50 in the money market for 3 months to obtain a sum of

DM Principal:	1501.50
Add: Interest @ 7.5% for 3 months =	28.15 Total
	1529.65

(iv) Sell DM at 3-months forward to obtain Can$= (1529.65x0.671) = 1026.40

(v) Refund the debt taken in Can$ with the interest due on it, i.e.,

	Can$
Principal	1000.00
Add: Interest @ 9.5% for 3 months	23.75
Total	1023.75

Net arbitrage gain = 1026.40 – 1023.75 = Can$ 2.65

Note: The students may use any quantity of currency to arrive at the arbitrage gain since no specific amount is mentioned in the question.

(5 MARKS)

ANSWER-5

ANSWER-A

Receipts using a forward contract (1,00,000/.0.02127)	= Rs. 47,01,457
Receipts using currency futures	
The number of contracts needed is (1,00,000 / 0.02118)/4, 72,000 = 10	
Initial margin payable is 10 × Rs. 15,000 = Rs. 1,50,000	
On September 1 Close at 0.02134	
Receipts = US$ 1,00,000/ 0.02133	= 46,88,233
Variation Margin = [(0.02134 – 0.02118) × 10 × 472000/-]/0.02133	
OR (0.00016 × 10 × 472000)/ 0.02133 = 755.2/0.02133	35,406
	47,23,639
Less : Interest Cost – 1,50,000 × 0.08 × 3/12	Rs. 3,000
Net Receipts	Rs. 47,20,639
Receipts under different methods of hedging	
Forward contract	Rs. 47,01,457
Futures	Rs. 47,20,639
No hedge	
US$ 1,00,000/ 0.02133	Rs. 46,88,233
The most advantageous option would have been to hedge with futures.	

(6 MARKS)

ANSWER-B

Identify : Foreign currency is an asset. Amount $ 3,50,000.

Create : $ Liability.

Borrow : In $. The borrowing rate is 9% per annum or 2.25% per quarter.

Amount to be borrowed : 3,50,000/1.0225 = $ 3,42,298.29

Convert : Sell $ and buy £. The relevant rate is the Ask rate, namely, 1.5905 per £,

(**Note:** This is an indirect quote). Amount of £s received on conversion is 2,15,214.27 (3,42,298.29/1.5905).

Invest : £ 2,15,214.27 will be invested at 5% for 3 months and get £ 2,17,904.45

Settle : The liability of $ 3,42,298.29 at interest of 2.25 per cent quarter matures to $ 3,50,000 receivable from customer.

Using forward rate, amount receivable is = 3,50,000/ 1.6140 = £ 2,16,852.54

Amount received through money market hedge = £ 2,17,904.45

Gain = 2,17,904.45 – 2,16,852.54 = £ 1,051.91

So, money market hedge is beneficial for the exporter

(6 MARKS)