

Answer 1(a)

(i)

$$R_1 = \frac{D_1 + P_1}{P_0} - 1 = \frac{(0.90 + 0.75) + 9.1}{8.50} - 1 = 26.47\%$$

(ii) If Distribution amount (0.90+0.75) is reinvested in the mutual fund itself then $P_0 = 8.75$, $P_1 = 9.1$ & $D_1 = 0$.

$$R_1 = \frac{D_1 + P_1}{P_0} - 1 = \frac{0 + 9.1}{8.75} - 1 = 4\%$$

Here holder period return is 4%. If the investor can get more than 4% during this period from any other investment then he should invest this amount there. Otherwise distribution amount should be reinvested in the mutual fund itself.

Answer 1(b)**USING BINOMIAL PRICING MODEL:**

Step 1: Calculate Delta

$$\Delta = \frac{uV_c - dV_c}{uV_s - dV_s} = \frac{1300 - 0}{27300 - 24700} = 0.5$$

Here $uV_c = \max(uV_s - E, 0) = 27300 - 26000 = 1300$

$dV_c = \max(dV_s - E, 0) = 24700 - 26000 = 0$

Step 2: Calculate value of perfectly hedged portfolio

$$M = dV_s \times \Delta$$

$$M = 24700 \times 0.5 = 12,350$$

Step 3: Calculate the value of call option

$$V_c = V_s \times \Delta - \frac{M}{e^{rt}} = 26000 \times 0.5 - \frac{12350}{1.03} = 1010$$

Comment: Current premium for option is justified

Answer1(c)

(i) Under the given circumstances, the USD is expected to quote at a premium in India as the interest rate is higher in India. Here approximate forward premium on USD = $r^H - r^F = 9\% - 2\% = 7\%$ p.a.

(ii) Calculation, of the forward rate:

$$\frac{1 + r^H}{1 + r^F} = \frac{F}{S} \Rightarrow \frac{1 + .09/2}{1 + .02/2} = \frac{F}{64.5} \Rightarrow F = 66.74$$

(iii) forward premium

$$\text{Forward Premium} = \frac{F - S}{S} \times 100 = \frac{66.74 - 64.5}{64.5} \times 100 = 3.47\%$$

Answer1(d)

According to Purchasing Power Parity forward rate may be calculated as follows:

(i) After one year:

$$\frac{1 + i^H}{1 + i^F} = \frac{F}{S} \Rightarrow \frac{1 + .065}{1 + .03} = \frac{F}{43.4} \Rightarrow F = 44.87$$

(ii) After three years:

$$\frac{(1+i^H)^3}{(1+i^F)^3} = \frac{F}{S} \Rightarrow \left(\frac{1.065}{1.03}\right)^3 = \frac{F}{43.4} \Rightarrow F = 47.98$$

Answer 2(a)

We should quote a lease rent at which NPV of cash flows discounted @10% is zero.

Step 1: Cash flow for Cost of Asset: -60 Lakhs

Step 2: Cash flows for after tax lease rent: (let us assume that lease rent for first, second & third year are respectively 3X, 2X and X.

Year	Rent	After tax= Rent x .65	Deprn.	TB on Deprn. = Dep x 0.35
1	3x	1.95x	15.00	5.25
2	2x	1.30x	11.25	3.94
3	1x	0.65x	8.44	2.95
		3.335x	= PV @10%=	10.25

Step 3: Cash flow for tax benefit on capital loss:

Written down Value at the end of 3rd year = Capital Loss = 25.31

Tax Benefit = 25.31 x 35% = 8.86

Present Value = 8.86 x 0.751 = 6.66

Step 5: Calculation of lease rent:

-60 - 3.335X + 10.25 + 6.66 = 0

By Solving X = Rs. 12.92

Rent for Year 1 12.92 x 3 = 38.76 lakhs

Year 2 12.92x 2 = 25.84 lakhs

Year 3 12.92x 1 = 12.92 lakhs

Answer 2(b)

Calculation of NPV: (Fig. ₹ In Lakhs)

Year	PVF@9%	Cost of Plant	Recurring Cost	Savings
0	1	-1000	-	-
1	0.917	-	-400	1200
2	0.842	-	-500	1400
Present Value=		-1000	-787.81	2279.27

Net Present Value = -1,000 - 787.81 + 2279.27 = ₹ 491.46

Sensitivity Analysis:

(1) With respect to Cost of Plant:

to bring down the NPV to zero it should reduce by ₹ 491.46 means Cost of plant should increase by ₹ 491.46. Therefore:

% change = ₹ 491.46/ ₹ 1000 = 49.15%

(2) With respect to Recurring Cost:

to bring down the NPV to zero present value of recurring cost should increase by ₹ 491.46.

Therefore:

$$\% \text{ change} = \frac{\text{₹ } 491.46}{\text{₹ } 787.81} = 62.38\%$$

(3) With respect to Savings:

to bring down the NPV to zero present value of savings should reduce by ₹ 491.46. Therefore:

$$\% \text{ change} = \frac{\text{₹ } 491.46}{\text{₹ } 2279.27} = 21.56\%$$

Conclusion: Savings are the most sensitive factor to affect acceptability of the proposal.

Answer 3(a)

Receive :

$$1cr \times \left(1 + \frac{x}{100} \times \frac{7}{365}\right)$$

Pay

$$\begin{aligned} &= 1cr \times \left(1 + \frac{.0875}{365}\right) \left(1 + \frac{.0915}{365}\right) \left(1 + \frac{.0912}{365}\right) \left(1 + \frac{.0895}{365}\right) \left(1 + \frac{.0898}{365}\right) \left(1 + \frac{.0915}{365}\right) \\ &= 1.0017295 \end{aligned}$$

$$\text{Net} = 1cr \times \left(1 + \frac{x}{100} \times \frac{7}{365}\right) - 1.0017295 = 417$$

$$X = 9.24\%$$

Answer 3(b)

In this question number of units are increasing hence it appears to be a dividend reinvestment scheme.

Step 1: Calculations as on 31st March, 2015

$$\text{Annualized Return} = \left(\frac{D_1 + P_1}{P_0} - 1\right) \times 100 \times \frac{12}{n}$$

$$153.33\% = \left(\frac{0 + P_1}{10000} - 1\right) \times 100 \times \frac{12}{9}$$

$$P_1 = 21.5$$

Step 2: Calculations as on 31st March, 2016

Since Dividend was reinvested by Mr. Vijay, additional units allotted = $\frac{1000}{21.5} = 46.51$ units

$$\text{Units as on 31-03-2015} = 1000 + 46.51 = 1046.51$$

$$\text{less units on 31-03-2016} = \underline{1129.61}$$

$$\text{Additional unit allotted} = 83.1$$

Let "X" be the NAV as on 31-03-2016

$$1046.51 \times 2 / X = 83.1$$

$$X = 25.19$$

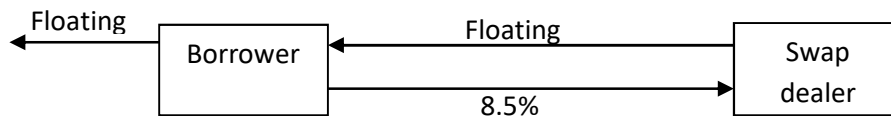
Step 3: Calculations as on 31st March, 2017

$$73.52\% = \left(\frac{0 + 1129.61 \times \text{NAV}}{10000} - 1 \right) \times 100 \times \frac{12}{33}$$

NAV = 26.75

Answer 4(a)

(i) Borrower should enter into IRP where he pays fixed 8.5% p.a. & receives floating rate



(ii) Borrower pays premium = ₹ 40 × 75% = ₹ 30000

YEAR	SWAP		
	RECEIPT	PAYMENT@8.5%	NET
1	408000	340000	+68000
2	460000	340000	+120000
3	370000	340000	+30000
4	360000	340000	+20000

Answer 4(b)

1) Exchange Ratio = 12/15 = 0.8

2) Post merger EPS

$$\frac{\text{Earning of east} + \text{Earning of fost}}{\text{Shares of east} + \text{Shares to be issued to fost}} = \frac{2,00,000 + 60,000}{40,000 + 10,000 \times 0.8} = 5.42$$

3) No dilution of EPS for Fost co. Ltd.:

Let us assume that the exchange ratio is "E".

Change in EPS = Pre merger EPS – Post merger EPS × Exchange Ratio

$$0 = \frac{2,00,000 + 60,000}{40,000 + 10,000 \times E} \times E - 6$$

$$E = 1.2$$

Answer 5(a)

(i) Using forward contract: US\$ 20m ÷ .016129 = ₹ 1240.00m

(ii) Using currency futures:

Long ₹	.016118
Short ₹	.016134
Receive	\$.000016 × 40* × 31.021218
	= \$.019854
Sell	(\$20m + \$.019854) ÷ .016136 = ₹ 1240.69 (Best)

*No. of lots: 1240.8487/31.021 = 40 lots

(iii) Not hedging the currency risk: US\$ 20m ÷ .016136 = ₹ 1239.46m



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About Faculty

CA Tarun Mahajan is a commerce graduate from Vikram university. His academic excellence was well displayed since school days, he used to stand first in school and this came to light with his All India 10th Rank in CA Foundation. He completed CA in year 1999.

Using his academic excellence and quest for sharing his knowledge he took up teaching since the date he became CA. He has been teaching finance to CA Final, CA IPCC, CS Professional and CFA students, QT to CA Final students and law to CA IPCC students for last 18 years and taught more than 35,000 students.

He acquired Diploma in Information Systems Audit from ICAI in year 2005. He was well settled in his profession but his curious learning attitude led him to pursue CFA from CFAI (USA) during year 2006-08. He was the first to acquire CFA charter in whole Madhya Pradesh and there were less than 400 CFAs in the whole country at that time.

He not only teaches exam point of view but also connects the subject from real life, so that students get sustainable knowledge and not temporary cramming. His deep love for the subject helps him make FM (financial management), LM (life management). His mantra for success is "follow the excellence and success will follow you".

Answer 5(b)

No. of shares issued: ₹ 175 lakhs/12.5 = 1.4 lakhs

$$\text{New EPS} = \frac{25 \times 101 + 501}{101 + 1.41} = 26.32$$

New MPS = 26.32 × P/E i.e. 5 = ₹ 131.6

*P/E = MPS/ EPS = 125/25 = 5times

Answer 6(a)

L	K	$(L - \bar{L})^2$	$(K - \bar{K})^2$	$(L - \bar{L})(K - \bar{K})$
10	11	1	9	3
4	-6	25	196	70
5	13	16	25	-20
11	8	4	0	0
15	14	36	36	36
45	40	82	266	89

$$\bar{L} = \frac{45}{5} = 9, \quad \bar{K} = \frac{40}{5} = 8,$$

$$\sigma_L = \sqrt{\frac{\sum(L - \bar{L})^2}{n}} = \sqrt{\frac{82}{5}} = 4.05, \quad \sigma_M = \sqrt{\frac{\sum(M - \bar{M})^2}{n}} = \sqrt{\frac{266}{5}} = 7.29$$

$$Cov(L, M) = \frac{\sum(M - \bar{M})(L - \bar{L})}{n} = \frac{89}{5} = 17.8$$

$$r = \frac{Cov(L, M)}{\sigma_L \sigma_M} = \frac{17.8}{4.05 \times 7.29} = 0.60$$

Note: Question has not given information of weight to be assigned hence we have assume equal investment in each security.

(i) Return of the portfolio:

$$R_p = 9 \times 0.50 + 8 \times 0.50 = 8.5 \%$$

(ii) Risk of portfolio is as under:

$$\sigma_p = \sqrt{(\sigma_1 \times w_1)^2 + (\sigma_2 \times w_2)^2 + 2\sigma_1\sigma_2w_1w_2r_{12}}$$

$$= \sqrt{(4.05 \times 0.5)^2 + (7.29 \times 0.5)^2 + 2 \times 4.05 \times 7.29 \times 0.5 \times 0.5 \times .60} = 5.12$$

Answer 6(b)

(i) Let us assume that number of days required to earn 6% return = X

$$\frac{30,00,000 \times \frac{10}{100} \times \frac{x}{360} - 45000}{30,00,000} = 0.06$$

$$X = 270 \text{ days} = 9 \text{ months}$$

(ii) Let us assume that number of days required to break even = X

$$30,00,000 \times 10\% \times \frac{x}{360} - 45000 = 0$$

$$X = 54 \text{ days}$$