

PAPER – 2 : STRATEGIC FINANCIAL MANAGEMENT

Question No.1 is compulsory.

Attempt any **four** out of the remaining **five** questions.

Wherever appropriate, suitable assumptions should be made and indicated in the answer by the candidate.

Working notes should form part of the answer.

Answer 1 :

a.	Day	Sensex	Value of one futures contract	Balance in margin a/c	Margin call
	16/2	4330	216500	20000	–
	19/2	4350	217500	21000	–
	20/2	4359	217950	21450	–
	21/2	4302	215100	18600	–
	22/2	4262	213100	16600	–
	23/2	4122	206100	9600 + 10400 = 20000	10400
	26/2	4112	205600	19500	–
	27/2	4069	203450	17350	–
	28/2	4247	212350	26250	–

Note : You can do the presentation as we had done in class

b. i. Maximum exchange ratio acceptable to the shareholders of C Ltd.

Market Price of share of C Ltd. (₹ 4.8 x 8)	₹ 38.40
No. of Equity Shares	20 Million
Market Capitalisation of C Ltd. (₹ 38.40 x 20 Million)	₹ 768 Million
Combined Earnings (₹ 96 + ₹ 30) Million	₹ 126 Million
Combined Market Capitalisation (₹ 126 Million x 7)	₹ 882 Million
Market Capitalisation of C Ltd. (₹ 38.40 x 20 Million)	₹ 768 Million
Balance for D Ltd.	₹ 114 Million

Let D be the no. of equity shares to be issued to D Ltd. then,

$$\frac{\text{₹ 114 Million}}{\left(\frac{126 \text{ Million}}{D + 20}\right) \times 7} = D$$

D = 2.96875 Million Shares

Exchange Ratio = 2.96875 / 14 = 0.212:1

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ii. **Minimum exchange ratio acceptable to the shareholders of D Ltd.**

Market Price of share of D Ltd.	₹ 15.00
No. of Equity Shares	14 Million
Market Capitalisation of D Ltd. (₹ 15.00 x 14 Million)	₹ 210 Million
Combined Earnings (₹ 96 + ₹ 30) Million	₹ 126 Million
Combined Market Capitalisation (₹ 126 Million x 9)	₹ 1134 Million
Balance for C Ltd.	₹ 924 Million

Let D be the no. of equity shares to be issued to D Ltd. then,

$$\frac{\text{₹ 210 Million}}{\left(\frac{126 \text{ Million}}{D + 20}\right) \times 9} = D$$

$$D = 4.54545 \text{ Million Shares}$$

$$\text{Exchange Ratio} = 4.54545 / 14 = 0.325:1$$

Note : You can do the presentation as we had done in class

c. a. Semi-annual YTM = $14/2 = 7\%$
 Straight value = $6 \times \text{PVIFA}(7, 20) + 120 \times \text{PVIF}(7, 20)$
 = $6 \times 10.594 + 120 \times 0.258 = 94.52$

b. The yield to call can be calculated by solving the following equation for 'r':
 Semi-annual YTC = $(i+(F-P)/n)/(F+P/2)$,
 Where, i = 6, F = 105, P = 115, n = 6
 We get semi-annual YTC = 3.94%.
 Therefore, annual YTC = $3.94 \times 2 = 7.88\%$

c. Premium over conversion value = $\frac{\text{Bond Price} - \text{Conversion value}}{\text{Conversion value}} = \frac{115 - (22 \times 5)}{22 \times 5} = 4.54\%$

d. Final settlement amount shall be computed by using formula:

$$= \frac{(N)(RR - FR)(dtm / DY)}{[1 + RR(dt / DY)]} \quad \text{- !!! (god knows what shit they write)}$$

Where,

N = the notional principal amount of the agreement;

RR = Reference Rate for the maturity specified by the contract prevailing on the contract settlement date;

FR = Agreed-upon Forward Rate; and

dtm = maturity of the forward rate, specified in Months

DY = Applicable basis of months

Accordingly,

If actual rate of interest after 6 months happens to be 8.60%

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$$= \frac{(\text{₹ } 50 \text{ crore})(0.086-0.083)(3/12)}{[1 + 0.086(3/12)]}$$

$$= \frac{(\text{₹ } 50 \text{ crore})(0.003)(0.25)}{1.0215} = \frac{3,75,000}{1.0215} = \text{₹ } 3,67,107$$

Thus, **banker will pay** a sum of ₹ 3,67,107 to P Ltd. and actual interest rate for P Ltd. shall be as follows:

!!! Note : The firm will invest this amount.... so they should have taken future value of this amount. i.e. $367107 \times 1.0215 = 3,75,000$

Interest on loan @ 8.60% for 3 months	₹ 1,07,50,000	
Less: Amount Received from the bank	₹ 3,67,107	→ 3,75,000
Net Amount	₹ 1,03,82,893	→ 1,03,75,000
Effective Interest Rate (₹ 1,03,82,893/ ₹ 50 crore x 12/3 x 100)	8.31%	→ 8.3%

If actual rate of interest after 6 months happens to be 7.80%

$$= \frac{(\text{₹ } 50 \text{ crore})(0.0780-0.0830)(3/12)}{[1 + 0.0780(3/12)]}$$

$$= \frac{(\text{₹ } 50 \text{ crore})(-0.005)(0.25)}{1.0195} = \frac{-6,25,000}{1.0195} = -\text{₹ } 6,13,046$$

Thus P Ltd. will pay banker a sum of ₹ 6,13,046 and actual interest rate for P Ltd. shall be as follows:

Note : !!! The firm will borrow this amount..... so they should have taken future value of this amount. i.e. $6,13,046 \times 1.0195 = 6,25,000$

Interest on loan @7.80% for 3 months	₹ 97,50,000	
Add: Amount paid to bank	₹ 6,13,046	→ 6,25,000
Net Amount	₹ 1,03,63,046	→ 1,03,75,000
Effective Interest Rate (₹ 1,03,63,046/50 crore x 12/3 x 100)	8.29%	→ 8.3%

Answer 2 :

a. i. Calculation of Bond Duration

Bond A

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value x time (years)
1	10	0.917	9.17	0.086	0.086
2	10	0.842	8.42	0.079	0.158
3	10	0.772	7.72	0.073	0.219
4	10	0.708	7.08	0.067	0.268

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5	10	0.650	6.50	0.061	0.305
6	10	0.596	5.96	0.056	0.336
7	10	0.547	5.47	0.051	0.357
8	10	0.502	5.02	0.047	0.376
9	10	0.460	4.60	0.043	0.387
10	110	0.4224	46.46	0.437	4.370
			106.40	1.000	6.862

Duration of the bond is 6.862 years or 6.86 year

Bond B

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value x time (years)
1	11	0.917	10.087	0.091	0.091
2	11	0.842	9.262	0.083	0.166
3	11	0.772	8.492	0.076	0.228
4	11	0.708	7.788	0.070	0.280
5	11	0.650	7.150	0.064	0.320
6	11	0.596	6.556	0.059	0.354
7	11	0.547	6.017	0.054	0.378
8	111	0.502	55.772	0.502	4.016
			111.224	1.000	5.833

Duration of the bond B is 5.833 years or 5.84 years

Bond C

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value x time (years)
1	9	0.917	8.253	0.082	0.082
2	9	0.842	7.578	0.076	0.152
3	9	0.772	6.948	0.069	0.207
4	9	0.708	6.372	0.064	0.256
5	109	0.650	70.850	0.709	3.545
			100.00	1.000	4.242

Duration of the bond C is 4.242 years or 4.24 years

ii. **Amount of Investment required in Bond B and C**

Period required to be immunized	6.000 Year
Less: Period covered from Bond A	3.087 Year
To be immunized from B and C	2.913 Year

Let proportion of investment in Bond B and C is b and c respectively then

$$b + c = 0.55 \quad (1)$$

$$5.883b + 4.242c = 2.913 \quad (2)$$

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On solving these equations, the value of b and c comes 0.3534 or 0.3621 and 0.1966 or 0.1879 respectively and accordingly, the % of investment of B and C is 35.34% or 36.21% and 19.66 % or 18.79% respectively.

iii. With revised yield the Revised Duration of Bond stands

$$0.45 \times 7.15 + 0.36 \times 6.03 + 0.19 \times 4.27 = 6.20 \text{ year}$$

No portfolio is not immunized as the duration of the portfolio has been increased from 6 years to 6.20 years.

iv. New percentage of B and C bonds that are needed to immunize the portfolio.

Period required to be immunized	6.0000 Year
Less: Period covered from Bond A	3.2175 Year
To be immunized from B and C	2.7825 Year

b. Net Cost under each of the Options is as follows:

i. Loan from German Bank

$$\text{Cost} = 5\% + 0.25\% = 5.25\%$$

ii. Loan from US Parent Bank

Effective Rate of Interest $\left(\frac{4\%}{1 - 0.08} \right)$	4.35%
Premium on US\$ $\left(\frac{1.05}{1.04} - 1 \right)$	0.96%
Net Cost	5.31%

we could have applied multiplicative model to calculate net cost. i.e.
 $\{(1.0435 \times 1.0096) - 1\} \times 100 = 5.36\%$

iii. Loan from Swiss Bank

Effective Rate of Interest $\left(\frac{3\%}{1 - 0.08} \right)$	3.26%
Premium on US\$ $\left(\frac{1.05}{1.03} - 1 \right)$	1.94%
Net Cost	5.20%

we could have applied multiplicative model to calculate net cost. i.e.
 $\{(1.0326 \times 1.0194) - 1\} \times 100 = 5.26\%$

Thus, loan from Swiss Bank is the best option as the Total Outflow including Interest is Less i.e. €105200

c. The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. Question concerning right distribution of resources may take a difficult shape if we take into consideration the rightness not for the current stakeholders but for the future stakeholders also. To take an illustration, let us refer to fuel industry where resources are limited in quantity and a judicial use of resources is needed to

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cater to the need of the future customers along with the need of the present customers. One may have noticed the save fuel campaign, a demarketing campaign that deviates from the usual approach of sales growth strategy and preaches for conservation of fuel for their use across generation. This is an example of stable growth strategy adopted by the oil industry as a whole under resource constraints and the long run objective of survival over years. Incremental growth strategy, profit strategy and pause strategy are other variants of stable growth strategy.

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development.

The sustainable growth rate (SGR), concept by Robert C. Higgins, of a firm is the maximum rate of growth in sales that can be achieved, given the firm's profitability, asset utilization, and desired dividend payout and debt(financial leverage) ratios. The sustainable growth rate is a measure of how much a firm can grow without borrowing more money. After the firm has passed this rate, it must borrow funds from another source to facilitate growth. Variables typically include the net profit margin on new and existing revenues; the asset turnover ratio, which is the ratio of sales revenues to total assets; the assets to beginning of period equity ratio; and the retention rate, which is defined as the fraction of earnings retained in the business.

$$\text{SGR} = \text{ROE} \times (1 - \text{Dividend payment ratio})$$

Sustainable growth models assume that the business wants to:

1. maintain a target capital structure without issuing new equity;
2. maintain a target dividend payment ratio; and 3) increase sales as rapidly as market conditions allow. Since the asset to beginning of period equity ratio is constant and the firm's only source of new equity is retained earnings, sales and assets cannot grow any faster than the retained earnings plus the additional debt that the retained earnings can support. The sustainable growth rate is consistent with the observed evidence that most corporations are reluctant to issue new equity. If, however, the firm is willing to issue additional equity, there is in principle no financial constraint on its growth rate.

Answer : 3

a. a. Value of investment in dollar = $\frac{1000}{44.50} = \$22.472$ million

Value of income from the unit by the end of one year

$$= \frac{1000}{10.00} \times 1.20 \left(1 + \frac{0.10}{2}\right) = \text{Rs.}126 \text{ million}$$

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$$\begin{aligned} \text{Total inflow at the end of year} &= \frac{1000}{10.00} \times 11.00 + 126 \\ &= \text{Rs.1226 million} \end{aligned}$$

$$\text{Value of total inflow in dollar at the end of year} = \frac{1226}{46.85} = \$26.169 \text{ million}$$

$$\text{Nominal return} = \frac{26.169 - 22.472}{22.472} = 16.45\%$$

$$\begin{aligned} \text{b. Real return} &= \left(\frac{1 + \text{Nominal return}}{1 + \text{Inflation rate in US}} \right) - 1 \\ &= \frac{1 + 0.1645}{1 + 0.03} - 1 = 13.06\% \end{aligned}$$

c. Let the invested amount be Rs.1000

Value of income received from the investment by the end of the year

$$= \frac{\text{Rs.1000}}{\text{Rs.10.00}} \times 1.20 \left(1 + \frac{0.10}{2} \right) = \text{Rs.126}$$

$$\therefore \text{Total inflow at the end of the year} = \left(\frac{1000 \times 11}{10} \right) + 126 = 1226$$

$$\text{Nominal Return} = \frac{1226 - 1000}{1000} = 22.6\%$$

$$\text{Real Return} = \frac{1 + 0.226}{1 + 0.08} - 1 = 13.52\%$$

b. Sun has comparative advantage in PLR based funds, Zenith has in fixed rate and Taurus has comparative advantage in T-bill rate based funds.

$$\text{Effective cost without the SWAP} = [14\% + (\text{T-bill} + 3\%) + (\text{PLR} + 4\%)]$$

$$\text{Effective Cost with the SWAP} = [12\% + (\text{T-bill} + 5\%) + (\text{PLR} + 2\%)]$$

$$\begin{aligned} \text{Total gain from swap} &= [14\% + (\text{T-bill} + 3\%) + (\text{PLR} + 4\%)] - [12\% + (\text{T-bill} + 5\%) + (\text{PLR} + 2\%)] \\ &= 2\% \end{aligned}$$

So the bank's share will be 0.5%, remaining 1.50% will be shared equally by three companies.

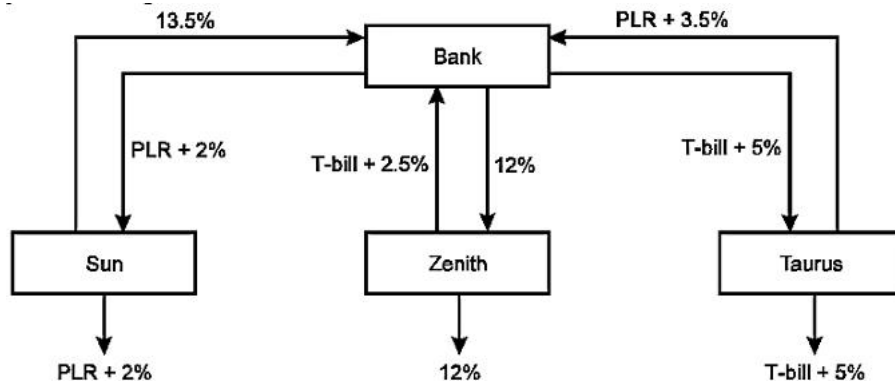
$$\text{Effective cost of Sun} = 14 - 0.5\% = 13.5\%$$

$$\text{Effective cost of Zenith} = \text{T} + 3 - 0.5\% = \text{T} + 2.5\%$$

$$\text{Effective cost of Taurus} = \text{PLR} + 4 - 0.5\% = \text{PLR} + 3.5\%$$

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Swap can be arranged as follows:



Sun borrows from the market at PLR + 2% and lends to Bank at PLR + 2% and borrows from Bank at fixed 13.5%.

Zenith borrows from the market at fixed 12% and lends to Bank at 12% and borrows from Bank at T-bill + 2.5%.

Taurus borrows from the market at T-bill + 5% and lends to Bank at T-bill + 5% and borrows from Bank at PLR + 3.5%.

Answer : 4

a. Working Notes:

Computation of Earning Per Share (EPS)

Particulars		Amount (₹)
Margin of Division A	(₹ 50 crore x 10% x 5%)	25,00,000
Margin of Division B	(₹ 20 crore x 30% x 8%)	48,00,000
Margin of Division C	(₹ 8.5 crore x 2% x 10%)	1,70,000
		74,70,000
No. of Equity Shares		3,00,000
EPS		₹ 24.90

i. Market Price based on One Year Forecast

Expected Market Price at the end of the year = ₹ 24.90 x 10 = ₹ 249

PV of the Expected Price = ₹ 249 x 0.847 = ₹ 210.90

I would NOT like to purchase the share as the expected market price of shares is less than its current price of ₹ 250.

ii. If Earning is expected to grow @ 15%

Year	EPS (₹)	Dividend (₹)	PVF@18%	PV (₹)
1	28.64	---	0.847	---
2	32.93	---	0.718	---
3	37.87	11.36	0.609	6.92
4	43.55	13.07	0.516	6.74
5	50.08	15.02	0.437	6.56
				20.22

!!!
ICAI solution as done here is wrong. EPS 24.9 is of year 1.

$$\text{Share Price after 5 years} = \frac{15.02(1.15)}{0.18 - 0.15} = ₹ 575.77$$

$$\text{PV of the Market Price after 5 years} = ₹ 575.77 \times 0.437 = ₹ 251.61$$

$$\text{Total PV of Inflows} = ₹ 20.22 + ₹ 251.61 = ₹ 271.83$$

Thus, the maximum price I would be willing to pay for the share shall be ₹ 271.83.

- b. i. Personal earnings of Mr. Alex = $R_1 = 15\%$
Mutual Fund earnings = R_2

$$R_2 = \frac{1}{1 - \text{Initial expenses}(\%)} R_1 + \text{Recurring expenses}(\%)$$

$$= \frac{1}{1 - 0.06} \times 15\% + 2\%$$

$$= 17.96\%$$

$$\text{Mutual Fund earnings} = 17.96\%$$

- ii. Net financial benefit to Mr. Alex if he invests his portfolio in Fund:

Present Income of Mr. Alex

	₹ Lakhs
Annual Professional Income (A)	40.00
Portfolio Value	50.00
Income on his Portfolio @ 15% (B)	7.50
Total Income (A) + (B)	47.50

Expected Income of Mr. Alex after investing the Portfolio in Multi -cap Fund:

	₹ Lakhs
Annual Professional Income (A)	40.00
Additional Professional Income (B)	4.00
Portfolio Value	50.00
Income on his Portfolio @ 13% (C)	6.50
Total Income (A) + (B) + (C)	50.50

It is advisable to invest in Multi-cap Mutual Funds and devote the time on profession. He will get

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net benefit of ₹ 3 Lakhs (₹50.50 - ₹47.50)

!!! Note : It is surprising to find that ICAI has not used the information about initial expense and recurring expense while solving the 2nd part of the solution, anyways what can we do if they are acting stupidly.

c. The financial risk can be evaluated from different point of views as follows:

i. **From stakeholder’s point of view:** Major stakeholders of a business are equity shareholders and they view financial gearing i.e. ratio of debt in capital structure of company as risk since in event of winding up of a company they will be least prioritized.

Even for a lender, existing gearing is also a risk since company having high gearing faces more risk in default of payment of interest and principal repayment.

ii. **From Company’s point of view:** From company’s point of view if a company borrows excessively or lend to someone who defaults, then it can be forced to go into liquidation.

iii. **From Government’s point of view:** From Government’s point of view, the financial risk can be viewed as failure of any bank or (like Lehman Brothers) down grading of any financial institution leading to spread of distrust among society at large. Even this risk also includes willful defaulters. This can also be extended to sovereign debt crisis.

Answer : 5

a.

Trading Day	Change in Price Jan 2000(X)	Change in Price Jan 2001 (Y)	$X - \bar{X}$	$Y - \bar{Y}$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$	$(X - \bar{X})(Y - \bar{Y})$
2	3	-8	1.25	2.5	1.5625	6.25	3.125
3	0	-20	-1.75	-9.5	3.0625	90.25	16.625
4	6	-12	4.25	-1.5	18.0625	2.25	-6.375
5	0	-44	-1.75	-33.5	3.0625	1122.25	58.625
6	2	-24	0.25	-13.5	0.0625	182.25	-3.375
7	1	38	-0.75	48.5	0.5625	2352.25	-36.375
8	-1	-38	-2.75	-27.5	7.5625	756.25	75.625
9	3	24	1.25	34.5	1.5625	1190.25	43.125
Total	14	-84	0	0	35.5	5702	151

Mean 1.75 -10.5

Variance of X 4.4375 SD of X 2.106537
 Variance of Y 712.75 SD of Y 26.69738
 Covariance between X and Y 18.875
 Correlation between X and Y 0.335621

Conclusion - We know that Markets would be weakly efficient if correlation between past price changes is equal to 0. Here, correlation is 0.3356 not equal to 0. So, we can conclude that the test does not support Weak form Efficiency.

- b. Volatility (standard deviation) of the daily change in the investment in each share in terms of rupees-
1% of ₹ 200 lakh = ₹ 2 lakh

The variance of the portfolio's daily change –

$$V = 2^2 + 2^2 + 2 \times 0.3 \times 2 \times 2 = 10.4 \text{ lakh}$$

Standard Deviation of the portfolio's daily change = $\sqrt{10.4} = ₹ 3.2249$ lakhs

The standard deviation of the 10-day change

$$= ₹ 3.2249 \text{ lakhs} \times \sqrt{10} = ₹ 10.1981 \text{ lakhs}$$

Therefore, the 10-days 99% VAR = $2.33 \times ₹ 10.1981 \text{ lakhs} = ₹ 23.7616 \text{ lakhs}$

c. **Problems in Securitization**

Following are main problems faced in growth of Securitization of instruments especially in Indian context:

1. **Stamp Duty** :Stamp Duty is one of the obstacle in India. Under Transfer of Property Act, 1882, a mortgage debt stamp duty which even goes upto 12% in some states of India and this impeded the growth of securitization in India. It should be noted that since pass through certificate does not evidence any debt only able to receivable, they are exempted from stamp duty.

Moreover, in India, recognizing the special nature of securitized instruments in some states has reduced the stamp duty on them.

2. **Taxation**

Taxation is another area of concern in India. In the absence of any specific provision relating to securitized instruments in Income Tax Act experts' opinion differ a lot. Some are of opinion that SPV as a trustee is liable to be taxed in a representative capacity then others are of view that instead of SPV, investors will be taxed on their share of income. Clarity is also required on the issues of capital gain implications on passing payments to the investors.

3. **Accounting**

Accounting and reporting of securitized assets in the books of originator is another area of concern. Although securitization is slated to be an off-balance sheet instrument but in true sense receivables are removed from originator's balance sheet. Problem arises especially when assets are transferred without recourse.

4. **Lack of standardization**

Every originator following his own format for documentation and administration having lack of standardization is another obstacle in the growth of securitization.

5. **Inadequate Debt Market**

Lack of existence of a well-developed debt market in India is another obstacle that hinders the growth of secondary market of securitized or asset backed securities.

6. **Ineffective Foreclosure laws**

For many years efforts are on for effective foreclosure but still foreclosure laws are not supportive to lending institutions and this makes securitized instruments especially mortgaged backed

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securities less attractive as lenders face difficulty in transfer of property in event of default by the borrower.

Answer : 6

- a. i. Mr.Kapoor’s position in the two securities is +1.50 in security X and -0.5 in security Y.
Hence the portfolio sensitivities to the two factors:-
b prop. 1 = $1.50 \times 0.75 + (-0.50 \times 1.50) = 0.375$
b prop. 2 = $1.50 \times 0.60 + (-0.50 \times 1.10) = 0.35$
- ii. Mr. Kapoor’s current position:
Security X ₹ 3,00,000 / ₹ 1,00,000 = 3
Security Y -₹ 1,00,000 / ₹ 1,00,000 = -1
Risk free asset -₹ 100000 / ₹ 100000 = -1
b prop. 1 = $3.0 \times 0.75 + (-1 \times 1.50) + (-1 \times 0) = 0.75$
b prop. 2 = $3.0 \times 0.60 + (-1 \times 1.10) + (-1 \times 0) = 0.70$
- iii. Expected Return = Risk Free Rate of Return + Risk Premium
Let λ_1 and λ_2 are the Value Factor 1 and Factor 2 respectively.
Accordingly
 $15 = 10 + 0.75 \lambda_1 + 0.60 \lambda_2$
 $20 = 10 + 1.50 \lambda_1 + 1.10 \lambda_2$
On solving equation, the value of λ_1 and λ_2 comes 6.67 and 0 respectively.
Accordingly, the expected risk premium for the factor 2 shall be Zero and whatever be the risk the same shall be on account of factor 1.

Alternatively, the risk premium of Securities X & Y can be calculated as follows:

Security X

Total Return = 15%
Risk Free Return = 10%
Risk Premium = 5%

Security Y

Total Return = 20%
Risk Free Return = 10%
Risk Premium = 10%

b. i. Calculation of Overall Cost

Upfront Fee (GBP 10 M @ 1.20%)	₹ 1,20,000
Interest Payment (GBP 10 M x 3.55% x 3.4)	₹ 12,07,000
Hedging Cost (GBP 10 M x 4% x 3.4)	₹ 13,60,000
Total	₹ 26,87,000
	Or ₹ 2.687 million

Overall cost in % terms on Annual Basis

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$$= \frac{2.687 \text{ million}}{(1,00,00,000 - 1,20,000)} \times \frac{1}{3.4} = \frac{2.687}{9.88} \times \frac{1}{3.4} \times 100 = 8\%$$

Overall Cost in Rupee terms@ GBP 1

$$= ₹ 90 \times \frac{2.687}{3.4} \times 100 = ₹ 711.26 \text{ lakhs}$$

OR

$$\text{Overall cost in \% terms on Annual Basis} = \frac{2.687 \text{ million}}{(1,00,00,000)} \times \frac{1}{3.4}$$

$$= \frac{2.687}{1.00} \times \frac{1}{3.4} \times 100 = 7.9\%$$

$$\text{Overall Cost in Rupee terms@ GBP 1} = 10,000,000 \times 7.90\% \times 90 = ₹ 71,100,000$$

OR

Calculation of overall cost

Interest & Margin (A)	3.55%
Hedging cost (B)	4%
	7.55%
Onetime fee	1.20%
Average loan maturity	3.4 years
Per annum cost 1.2/3.4 (C)	0.35%
Annual overall cost in % terms (A+B+C)	= 7.9%

$$\text{Overall Cost in Rupee terms@ GBP 1} = 10,000,000 \times 7.90\% \times 90 = ₹ 71,100,000$$

ii. Cost of Hedging in terms of Rupees

$$₹ 13,60,000 \times 90 = ₹ 12,24,00,000 = ₹ 12.24 \text{ crores in Total}$$

OR

$$\text{GBP}10,000,000 \times 90 \times 4\% = ₹ 3,60,00,000 \text{ on Annual Basis}$$

iii. If K Ltd. pursues an aggressive approach then Gain/Loss in INR Depreciation/ Appreciation shall be computed as follows:

a. If INR depreciates by 10%

Re. loss per GBP = 90 x 10%	₹ 9
Total Losses GBP10M	₹ 90 Million
Less: Cost of Hedging	₹ 36 Million
Net Loss	₹ 54 million

b. If INR appreciates by 10%

PAPER – 2 : STRATEGIC FINANCIAL MANAGEMENT

₹ Gains per GBP = ₹ 90 x 10%	= ₹ 9
Total Gain on Repayment of loan	= 90 Million
Add: Saving in Cost of Hedging	= <u>36 Million</u>
Net Gain	= <u>126 Million</u>

- c. i. **To compute perfect hedge we shall compute Hedge Ratio (Δ) as follows:**

$$\Delta = \frac{C_1 - C_2}{S_1 - S_2} = \frac{100 - 0}{650 - 450} = \frac{100}{200} = 0.50$$

The investor should purchase 0.50 share for every 1 call option
Or, the investor should purchase 1 share for every 2 Call Option.

- ii. **How the investor will be able to maintain his position if he purchase 0.50 share for 1 call option written.**

- a. **If price of share goes upto ₹ 650 then value of purchased share will be:**

Sale Proceeds of Investment (0.50 x ₹ 650)	₹ 325
Loss on account of Short Position (₹ 650 – ₹ 550)	<u>₹ 100</u>
	<u>₹ 225</u>

- b. **If price of share comes down to ₹ 450 then value of purchased share will be:**

Sale Proceeds of Investment (0.50 x ₹ 450) ₹ 225

- iii. **The Value of Option, say, P at the beginning of the period shall be computed as follows:**

$$(\text{₹ } 250 - P) 1.05 = \text{₹ } 225$$

$$\text{₹ } 262.50 - 1.05P = \text{₹ } 225$$

$$\text{₹ } 37.5 = 1.05P$$

$$P = \text{₹ } 35.71$$

- iv. **Expected Return on the Option**

$$\text{Expected Option Value} = (\text{₹ } 650 - \text{₹ } 550) \times 0.70 + \text{₹ } 0 \times 0.30 = \text{₹ } 70$$

$$\text{Expected Rate of Return} = \frac{70 - 35.71}{35.71} \times 100 = 96.02\%$$