

PAPER– 2 : MANAGEMENT ACCOUNTING AND FINANCIAL ANALYSIS

QUESTIONS

Capital Budgeting with Risk

1. The management proposes to upgrade the technical features of the product to face the challenge from the competitors. One machine of cost Rs.3.0 lakh is required to take care of the same.

- (1) With the improvement in the product features net cash flow with adjustment of tax and depreciation is expected as given below (Rs in lakhs) :

Probability	Year 1	Year 2	Year 3	Year 4	Year 5	Salvage Value
p =0.3	2.0	2.6	2.8	2.6	1.8	0.7
p =0.5	2.4	3.0	3.5	2.7	1.6	0.8
p =0.2	1.9	2.8	2.8	2.2	1.4	0.9

- (ii) Required rate of return is 12%

- (iii) If the CV > 0.90, expected rate of return is to be increased by 1% for each 2% variation in CV.

Suggest the management with detailed calculation whether the project to be accepted.

2. Mr. Chander Shekhar own a small piece of an unused zinc mine that will cost Rs.1,00,000 to start again. If he opens the mine, he expects to be able to extract 1,000 kgs of zinc a year for 3 year. After that the deposit will be exhausted. The prize of zinc is currently Rs.500 per kg. and each year chances that the price is likely to rise or fall by Rs.50 is equally likely. The cost of extration per kg. of zinc is Rs.460.

Assuming hurdle rate as 10 % determine whether Mr. Shekhar should open the mine now or post pone his decision one year in the hope of rise of the price of zinc.

Lease viability

3. XYZ Leasing Co. has given offer to sell or lease its bus.

Sale offer at Rs.16 lakhs or annual lease of Rs.4 lakhs for 8 years.

Find out the following :

- (i) Internal rate of return of leasing, assuming nil tax rate.
- (ii) How much annual lease to be charged to earn 20% compound interest.

4. The Mupin Hair Oil Company has a huge carried forward losses from previous years and not expected to pay taxes for another 10 years. The company therefore, proposing to lease Rs.1,00,000 of a new machinery.

As per the terms of lease agreement total number of eight equal annual installments to be paid in the beginning of the each year.

The lessor can write off machinery over 7 years as per following Modified Accelerated Cost Recovery System (MACRS) rates:

Tax Depreciation Schedules MACRS						
Year(s)	3-year	5-year	7-year	10-year	15-year	20-year
1	33.33	20.00	14.29	10.00	5.00	3.75
2	44.45	32.00	24.49	18.00	9.50	7.22
3	14.81	19.20	17.49	14.40	8.55	6.68
4	7.41	11.52	12.49	11.52	7.70	6.18
5		11.52	8.93	9.22	6.93	5.71
6		5.76	8.93	7.37	6.23	5.28
7			8.93	6.55	5.90	4.89
8			4.45	6.55	5.90	4.52
9				6.55	5.90	4.46
10				6.55	5.90	4.46
11				3.29	5.90	4.46
12					5.90	4.46
13					5.90	4.46
14					5.90	4.46
15					5.90	4.46
16					2.99	4.46
17-20						4.46
21						2.25

There is no salvage value at the end of the machinery's economic life. The tax rate is 35% and interest rate is 10% in knowing the minimum payment the lessor is likely to accept. The Managing Director of the Mupin Hair Oil Company should be willing to make and the minimum payment the lessor likely to accept.

Please also find the rent if lessor was obliged to use straight line method of depreciation.

$$PVA_{6.5\%,7} = 4.2149$$

Economic Value Added

- Calculate Economic Value Added (EVA) with the help of following information of a Company :

- (i) Financial leverage = 1.6
- (ii) Capital Structure : Equity Capital : 270 lakhs, Reserve & Surplus : Rs.130 lakhs
10% Debenture Rs.600 lakhs
- (iii) Cost of Equity = 16%
- (iv) Income tax rate is 30%

Bond Valuation

6. The following data is available for a bond :

Face value : Rs 1000

Coupon rate : 16%

Year to Maturity = 6

Redemption Value Rs 1000

Yield to maturity 17%

- (i) What is the current market price, duration and validity of the bond?
- (ii) If increase in required yield is by 75 basis points, what is expected market price ?

Buy Back of shares

7. Following information are available in respect of dividend, market price and market condition after one year.

Market Condition	Probability	Market Price (Rs)	Dividend per share (Rs)
Good	0.35	117	9
Normal	0.50	112	6
Bad	0.15	97	4

The existing market price of equity share is Rs 108 which is cum 10% bonus debenture of Rs 8 each per share.

M/S F finance Company had offered for buy back of debenture at face value.

- (i) Find out the expected return and volatility of returns of the equity shares.
- (ii) Advise whether buy-back offer to be accepted or not.

Buy back of shares

8. ABC Co has a cash surplus of Rs 100 lakhs and likes to distribute 30% of it to the share holders. The company decides to buy back shares. No of shares outstanding is 10 lakhs and current EPS is Rs 4 per share. According to company's estimate, after repurchase share price will be 10% higher than buy back price.

- (i) If the market capitalization of the company is 200 lakhs after buy back, at what price buy back should be made?
- (ii) How many shares are to be re-purchased?
- (iii) Effect of repurchase on EPS?

Dividend Policy

9. A Company with growth rate of 7% pays dividend Rs.2.50 per share. The risk free rate is 9% and the market return is 13%. The Company has a beta factor of 1.50 which is likely to increase to 1.75 due to some unavoidable development. Calculate present value of share and likely value due to that development.

Financial Services

10. ABC Ltd is considering appointment of a factor. The following information is available :
- (i) Annual sales which are all in credit is 120,00,000.
 - (ii) Variable cost is 80% of selling price.
 - (iii) Cost of borrowing is 15% per annum.
 - (iv) Current average collection period for debtors is 90 days.
 - (v) Annual bad debt is 1% of sundry debtors.
 - (vi) Saving administration cost Rs 1,00,000
 - (vii) Annual charge for factoring is 2.5% of turnover.
 - (viii) Factor has agreed to pay money due after 60 days and loss of account of bad debt will be the responsibility of the factor.

Should the company enter into the agreement ?

11. X Ltd. has a credit sales of Rs.3 crores and its average collection period is 90 days. The past experience indicates that bad-debt losses are 1.1% on sales, which will be responsibilities of the factor. The expenditure incurred by the firm in administering its receivable collection efforts are Rs.6,00,000. A factor is prepared to buy the firm's receivables by charging 2% Commission. The factor will pay advance on receivables to the firm at an interest rate of 18% p.a. after withholding 10% as reserve and 2% commission. Calculate the effective cost of factoring to the firm, taking one year = 360 days.

Portfolio Management

12. Following information is available for shares of A and B :

	A	B	Market
Expected Return %	22	24	

Std Div	40	38	20
Beta	0.86	1.24	
C or AB		0.72	

- (i) Investment in which share is better ?
- (ii) In investment of 70% in A and 30% in B, what are expected return and variance of the portfolio ?
- (iii) What is the value of risk free interest rate ?
- (iv) What is the market portfolio expected return ?

13. Details of portfolio held by your client which yields average return of 15% are given below:

Shares	Cost (Rs)	Dividend/ Interest	Market Price	Beta
A	40,000	6000	42000	0.7
B	30,000	4500	32000	0.9
C	15,000	2250	16000	0.8
D	10,000	2000	9000	1.15
Govt. Bond	50,000	4800	52000	1

Find out expected return of each investment using CAPM and average return of the portfolio.

14. ABC Company Ltd. invested on 1.4.2006 in certain equity shares as below:

Name of Co.	No. of shares	Cost (Rs.)
S Ltd.	500 (Rs.100 each)	1,00,000
T Ltd.	750 (Rs.10 each)	2,25,000

Following information of S Ltd and T Ltd is also available. According to the investment advisor, dividend likely to be paid for 2007-08 and market price as on 31.03.2008 will have the following probabilities :

	S Ltd	T Ltd
Dividend paid for 2006-07	10%	35%
Market Price of share as on 31.03.2007	Rs.220	Rs.290
Dividend likely to be paid for 2007-08	20%	35%
Probabilities of Market Price as on 31.03.2008	Price	Price
0.2	Rs.230	Rs.300
0.4	Rs.240	Rs.310
0.4	Rs.250	Rs.330

You are required to:

- (i) Calculate the average return from the portfolio for the year 2006-07 and 2007-08 ;
- (ii) Calculate the risk of the two investments on the basis of the above projection.

Mutual Fund

15. A Mutual Fund having 1000 units has shown its NAV of Rs.9.75 and Rs.10.35 at the beginning and at the end of the year respectively. The Mutual Fund has given two options:
- (i) Pay Rs.0.85 per unit as dividend and Rs.0.60 per unit as a capital gain, or
 - (ii) These distributions are to be reinvested at an average NAV of Rs.9.75 per unit.

What difference it would make in terms of return available and which option is preferable?

Derivative Market

16. A 3 month future contract on NIFTY is available at a time when Nifty is quoting 9000 points. Continuously compounded risk free rate is 10%. Continuously Compounded yield on the NIFTY Stock is 2% per annum. One Future Contract equals to 1000 Nifty. How much will you pay for NIFTY Futures. If Nifty Forward trades at 9125, what action would follow ?
17. The portfolio composition of Mr. X is given below :
- | | |
|------------------------|-------------|
| Equity | Rs.8,00,000 |
| Cash & Cash Equivalent | Rs.2,00,000 |
- Beta of equity portfolio = 0.69
- The current NSE index future value is 930 with multiple of 200.
- If Mr. X wants to achieve an overall portfolio beta of 1.10, then how many number of futures contract he should go short ?

Capital Market

18. Capital structure of Moon Ltd., as at 31.3.2008 was as under:

	(Rs. in lakhs)
Equity share capital	80
8% Preference share capital	40
12% Debentures	60
Reserves	30

Moon has been regularly paying equity dividend of 10%.

Moon Ltd., earns a profit of Rs. 30 lakhs annually on an average before deduction of income-tax, which works out to 35%, and interest on debentures.

Normal return on equity shares of companies similarly placed is 10% provided:

- (a) Profit after tax covers fixed interest and fixed dividends at least 3 times.
- (b) Capital gearing ratio is 0.80
- (c) Yield on share is calculated at 50% of profits distributed and at 5% on undistributed profits.

Compute yield on Equity Share.

Merger & Acquisition

19. X Ltd is considering merger with Y Ltd. to form XY LTD for better advantages in the market. Following are other information :

Particulars	X Ltd.	Y Ltd.
Number of shares outstanding	4,00,000	2,00,000
Earning after taxes	8,00,000	3,00,000
Market Price per share	Rs 30	Rs 15

- (i) What is the pre-merger earnings per share (EPS) and P/E ratios of both the companies?
 - (ii) If the exchange ratio is market price of share, what will be the post-merger EPS ?
 - (iii) What should be the exchange ratio, if X Ltd.'s pre-merger and post-merger EPS are to be the same?
20. X Ltd., is studying the possible acquisition of Y Ltd., by way of merger. The following data are available in respect of the companies:

Particulars	X. Ltd.	Y. Ltd.
Earnings after tax (Rs.)	88,00,000	20,00,000
No. of equity shares	15,00,000	4,00,000
Market value per share (Rs.)	200	150

- (i) If the merger goes through by exchange of equity and the exchange ratio is based on the current market price, what is the new earning per share for X. Ltd.?
 - (ii) Y. Ltd. wants to be sure that the earnings available to its shareholders will not be diminished by the merger. What should be the exchange ratio in that case?
21. For a Take over bid, the following information is provided relating to the acquiring company A Ltd and the target Company T Ltd

	A Ltd.	T Ltd
No. of shares (Face Value Rs. 10 each) - lakhs	5	2
Reserves and Surplus (Rs Lakhs)	30	32
P/E ratio	8	10
Market capitalization (Rs lakhs)	200	100
Promoter's Holding (No. of shares in lakhs)	2.5	1

Board of Directors of both the Companies have decided that for swap ratio is to be based weights of 40%, 25% and 35% respectively for Earning, Book Value and Market Price of share of each company.

You are required to calculate

- (i) Swap ratio
- (ii) Promoter's holding % after acquisition.
- (iii) EPS of A Ltd after acquisition
- (iv) Management of A Ltd. expects a surge in share price in the market by 10%, what will be capital gain in acquisition.

Foreign Exchange Markets

22. A Ltd. is planning to import a multi-purpose machine from France at a cost of 100 lakhs Francs. It can avail loans at 18% interest per annum with quarterly charge. However, there is an offer from Paris branch of an India based bank extending credit of 180 days at 2% per quarter against opening of an irrevocable letter of credit.

Other Information:

Present exchange rate Re. 1.00 = 0.017 francs

180 days' forward rate Re. 1.00 = 0.016 francs

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

Advise whether the offer from the foreign branch should be accepted?

23. A company operating in USA has invoiced sales to an Indian company, the payment being due three months from the date of invoice. The invoice amount is \$ 14,000 and at current spot rate of \$ 0.0243 per Re.1. It is anticipated that the exchange rate will decline by 4% over the three months period and in order to protect the dollar proceeds, the importer proposes to take appropriate action through foreign exchange market. The three month forward rate is quoted as \$ 0.0236 per Re. 1.

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

24. ABC Ltd. has an export exposure of 10 million yen (JPY), value 30th September 2007. Yen is not directly quoted against Rupee. The current spot rates are USD/INR = 42.79

and USD/JPY = 132.82.

It is estimated that Yen will depreciate to 145 and Rupee to depreciate against dollar to 44 by one year.

Forward rate for September 2008 USD/Yen = 138 and USD/INR = 43

You are required :

- (i) To estimate the expected loss if hedging is not done.
- (ii) To determine the change in position if forward cover is made
- (iii) To determine whether forward cover is justified if the spot rate on 30th September, 2008 was eventually USD/Yen = 141.79 and USD/INR = 43.82

25. A dealer sold 1 lakh Hong Kong Dollar @ Rs.6.37 and covered himself in London Market on the same day when the existing rate were :

US\$ 1 = HK\$ 7.5780 7.5810

Local Bank Rate for US\$ were :

Spot rate US \$1 = Rs.47.20 Rs.47.40

Calculate cover rate & ascertain profit or loss in the deal.

SUGGESTED ANSWER/HINTS

1.

	Probability	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	salvage	NPV
	0.3		2.0	2.6	2.8	2.6	1.8	0.7	
	0.5		2.4	3.0	3.5	2.7	1.6	0.8	
	0.2		1.9	2.8	2.8	2.2	1.4	0.9	
Overall cash flow		-3.00	2.18	2.84	3.15	2.57	1.62	0.79	
PV @ 12 %		1	0.893	0.797	0.712	0.636	0.567	0.567	
PV of Cash flow		-3	1.946	2.264	2.242	1.633	0.919	0.448	6.453
Cash flow at prob 0.3		-3	0.6	0.78	0.84	0.78	0.54	0.21	
Cash flow at prob 0.5		-3	1.2	1.5	1.75	1.35	0.8	0.4	
Cash flow at prob 0.2		-3	0.38	0.56	0.56	0.44	0.28	0.18	
PV of CF @ Prob 0.3		-3	0.536	0.622	0.598	0.496	0.306	0.119	-0.323
PV of CF @ Prob 0.5		-3	1.071	1.196	1.246	0.858	0.454	0.227	2.052
PV of CF @ Prob 0.2		-3	0.339	0.446	0.399	0.280	0.159	0.102	-1.275
Variance =			0.3 (-0.323-6.453) ² + 0.5 (2.052-6.453) ² + 0.2 (-1.275 - 6.453) ² =						35.410
SD =									5.951
CV =5.951/6.453									0.922
As CV is approx 92%, required return % = (12+1) = 13%									

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	salvage	NPV
Overall cash flow	-3.00	2.18	2.84	3.15	2.57	1.62	0.79	
PV factor @13%	1	0.885	0.783	0.693	0.613	0.543	0.543	
PV of Cash Flow	-3	1.929	2.224	2.183	1.576	0.879	0.429	6.221

Hence the project should be accepted.

2. (i) Assume Mr. Shekhar opens the mine at $t = 0$. Taking into account the distribution of possible future prices of zinc over the next 3 years, we have:

$$\begin{aligned}
 NPV = & -100,000 + \frac{1,000 \times [(0.5 \times 550) + (0.5 \times 450) - 460]}{1.10} \\
 & + \frac{1,000 \times [(0.5^2) \times (600 + 500 + 500 + 400) - 460]}{1.10^2} \\
 & + \frac{1,000 \times [(0.5^3) \times (650 + 550 + 550 + 550 + 450 + 450 + 450 + 350) - 460]}{1.10^3} = -Rs.526
 \end{aligned}$$

Because this NPV is negative, Mr. Shekhar should not open the mine at $t = 0$.

Further, we know that it does not make sense to plan to open the mine at any price less than or equal to Rs.500 per Kg.

- (ii) Assume we wait until $t = 1$ and then open the mine if the price is Rs.550. At that point:

$$NPV = -Rs.100,000 + \sum_{t=1}^3 \frac{1,000 \times (Rs.550 - Rs.460)}{1.10^t} = Rs.123,740$$

Since it is equally likely that the price will rise or fall by Rs.50 from its level at the start of the year, then, at $t = 1$, if the price reaches Rs.550, the expected price for all future periods is then Rs.550.

Or we can also calculate as follows:

$$\begin{aligned}
 NPV = & -100,000 + \frac{1,000 \times [(0.5 \times 600) + (0.5 \times 500) - 460]}{1.10} \\
 & + \frac{1,000 \times [(0.5^2) \times (600 + 500 + 500 + 400) - 460]}{1.10^2} \\
 & + \frac{1,000 \times [(0.5^3) \times (700 + 600 + 600 + 600 + 500 + 500 + 500 + 400) - 460]}{1.10^3} = Rs.1,23,740
 \end{aligned}$$

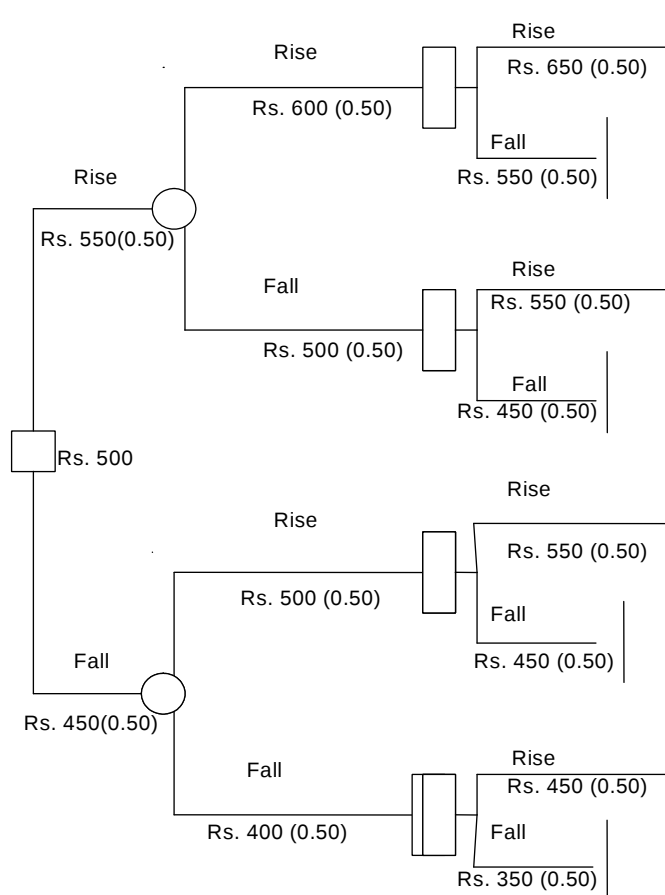
The NPV, at $t = 0$, of this NPV at $t = 1$ is: $Rs.123,740/1.10 = Rs.112,491$

If the price rises to Rs.550 at t = 1, we should open the mine at that time.

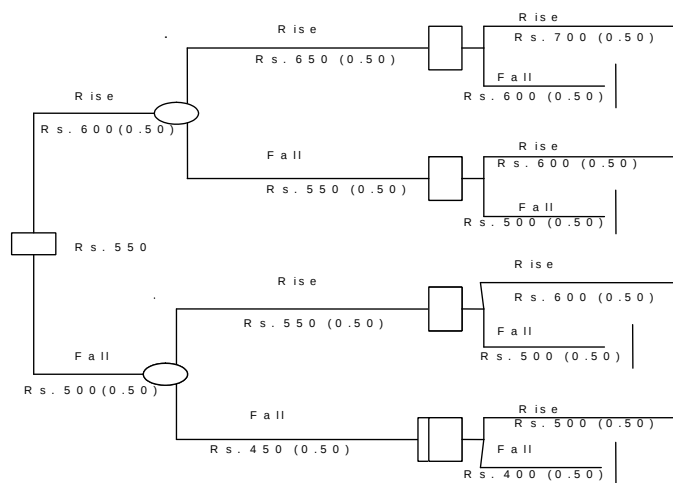
The expected NPV of this strategy is: $(0.50 \times \text{Rs.}112,491) + (0.50 \times \text{Rs.}0) = \text{Rs.}56,245$

Diagram:

Decision Tree if Mr. Shekhar opens the mine now



Decision Tree if Mr. Shekhar opens mine one year hence



3. (i) To find internal rate of return, cash flow on sale and lease should be made equal.
 On sale, present value of cash flow = 16
 On lease, discounted cash flow over 8 years = sum of discounting factors x 4
 i.e. sum of discounting factors over 8 years = $16/4 = 4$
 PV factor in 8 years @ 18% = 4.0776
 PV factor in 8 years @ 19% = 3.9544
 By interpolation, IRR = $18 + (4.076 - 4.000)/(4.0776 - 3.9544) = 18.33\%$
- (ii) PV factor at 20% in 8 years = 3.837
 To earn 20% return, lease rent = $16,00,000 / 3.837 = \text{Rs. } 4,17,000$
4. (a) The Lupin Hair Oil Company should take the lease as long as the NPV of the purchasing is greater than or equal to zero. If P is the annual lease payment, then the net present value of the lease to the company is:

$$\text{NPV} = 1,00,000 - P \times \left(1 + \frac{1}{1.10} + \dots + \frac{1}{1.10^7} \right)$$

Setting NPV equal to zero and solving for P, we find the company's maximum lease payment is Rs. 17,040.

The NPV to the lessor has three components:

- ◆ Cost of machinery = -1,00,000
- ◆ PV of after-tax lease payments, discounted at the after-tax interest rate of:

$$[(1 - 0.35) \times 0.10] = .065 = 6.5\%:$$

$$P \times (1 - 0.35) \times \left(1 + \frac{1}{1.065} + \Lambda + \frac{1}{1.065^7} \right) = P \times 4.2149$$

- ◆ PV of the tax benefits on depreciation discounted at the after-tax rate of 6.50% (we may assume depreciation expense begins at year 1):

$$(0.35 \times 1,00,000) \left(\frac{.1429}{1.065} + \frac{.2449}{1.065^2} + \frac{.1749}{1.065^3} + \frac{.1249}{1.065^4} + \frac{.0893}{1.065^5} + \frac{.0892}{1.065^6} + \frac{.0893}{1.065^7} + \frac{.0445}{1.065^8} \right) = 28,092$$

To find the minimum rental the lessor would accept, we sum these three components, set this total NPV equal to zero, then solve for P:

$$-\text{Rs. } 1,00,000 + (P \times 4.2149) + \text{Rs. } 28,092 = 0$$

Thus, P is equal to Rs. 17,060, which is the minimum lease payment the lessor will accept.

- (b) If the lessor is obliged to use straight-line depreciation, this has no effect on the company's maximum lease payment. The lessor's PV of the depreciation tax shield becomes:

$$PV = (0.35) \times (100,000 / 8) \times \left(\frac{1}{1.065} + \Lambda + \frac{1}{1.065^8} \right) = 26,638$$

Thus, the lessor's minimum acceptable lease payment becomes Rs.17,410.

5. Financial Leverage = PBIT / PBT = 1.6

or PBIT = 1.6 (PBIT – Interest)

or 0.6 PBIT = 1.6 x Interest

or 0.6 PBIT = 1.6 x 60

or PBIT = 160

Net Operating Profit after Tax (NOPAT) = PBIT – Tax = 160 (1 -0.30) = 112

Weighted Average cost of capital (WACC)

= 0.16 x (400/1000) + 0.10 (1 - 0.30) x (600/1000) = 0.16 x 0.4 + 0.07 x 0.6 = 10.6

EVA = NOPAT – WACC x Total capital = 112 – 0.106 x 1000 = Rs.6.0 lakhs

6. $YTM = \frac{\text{Coupon interest} + (\text{Discount or Premium}/\text{years left})}{(\text{Face value} + \text{Market Value})/2}$

Let Market Price = X

$$\text{or } 0.17 = \frac{160 + (1000 - X) / 6}{(1000 + X) / 2}$$

$$\text{or } 85 + 0.085 X = 160 + 166.67 - 0.167 X$$

$$\text{or } 0.252 X = 241.67$$

$$\text{or } X = 959$$

Current Market price of the bond = Rs 959

For duration of the bond, we have to see the future cash flow and discount them.

Year	Cash flow	PV @17%	DCF	Proportion	Proportion x Time (years)
1	160	0.855	136.80	0.142	0.142
2	160	0.731	116.96	0.122	0.244
3	160	0.624	99.94	0.104	0.312
4	160	0.534	85.44	0.089	0.356
5	160	0.456	72.96	0.076	0.380
6	1160	0.390	452.40	0.467	2.802
			964.40	1.000	4.236

$$\text{Volatility of the bond} = \text{Duration} / (1 + \text{yield}) = 4.236 / 1.17 = 3.62$$

If increase in required return by 75 basis points,

$$\text{Expected Market Price} = 959 \times (1 - .75 \times 3.62/100) = \text{Rs.}932.96$$

7. Cost of the Share = Present Market price – debenture value = 108 – 8 = Rs 100

Market Condition	Probability (p)	Return (R) = Value Appre + Dividend	R x p	Var (R) = R – mean R	(VAR R) ²	Var R ² x p
Good	0.35	26	9.1	7.75	60.06	21.02
Normal	0.50	18	9	-0.25	0.62	0.31
Bad	0.15	1	0.15	-17.25	297.56	44.63
		Mean R =15	18.25			65.96

Expected Return = 18.25

Variance = 65.96, SD = 8.15

Considering the market return of 18.25%, the debenture of 10% may be bought back and the money may be invested in better project of higher return.

8. Repurchase value = Rs.30 lakhs.

Market capitalization value is Rs.200 lakhs.

Share price after repurchase is 10% higher than buy-back price.

Let buy back price = P

No of shares bought back = 30,00,000/P

Thus, $1.1P \times [10,00,000 - 30,00,000/P] = 200,00,000$

or $11P - 33 = 200$

or $P = 233/11 = 21.18$

Buy-back price = Rs.21.18

No of shares bought back = 30,00,000 / 21.18 = 1,41,643

No of shares after buy-back = 8,58,357

EPS after buy back = 40,00,000 / 858357 = 4.66

Increase in EPS = $\frac{4.66 - 4}{4} = 16.5\%$

9. $K_e = R_f + \beta (K_m - R_f)$

= $0.09 + 1.50 (0.13 - 0.09) = 0.15$

$P_0 = \frac{D_1}{K_e - g} = 2.50 / (0.15 - 0.07) = 2.50 / 0.08 = \text{Rs.}31.25$

Present Value of Share = Rs.31.25

Where, D_1 = Dividend at the end of Year 1

K_e = Cost of Equity

g = growth rate

Now with the development, Beta value will go up to 1.75

$K_e = R_f + \beta (K_m - R_f)$

= $0.09 + 1.75 (0.13 - 0.09) = 0.16$

$P_0 = \frac{D_1}{K_e - g} = 2.50 / (0.16 - 0.07) = 2.50 / 0.09 = \text{Rs.}27.78$

Value of Share due to likely development = Rs.27.78

$$10. \text{ Reduction in the average Debtors} = [\text{Rs.}120,00,000 \times (90-60)] / 365$$

$$= \text{Rs.}9,86,301$$

Saving in interest @ 15% on 9,86,301	=	Rs.1,47,945
Gain on account of saving from bad debt (120,00,000X.80x.01)	=	Rs.96,000
Saving in administration cost	=	<u>Rs.1,00,000</u>
Total Saving		Rs.3,43,945
Annual charges to the paid to the factor @ 2.5% on turnover	=	Rs.3,00,000
Net gain on arranging a factor	=	Rs.43,945
Therefore, company should go for factoring arrangement.		

11.	Rs.
Average level of Receivables = $3,00,00,000 \times 90/360$	75,00,000
Factoring commission = $75,00,000 \times 2/100$	1,50,000
Factoring reserve = $75,00,000 \times 10/100$	7,00,000
Amount available for advance =	66,50,000
Annual Cost of Factoring to the Firm:	
Factoring commission (Rs.1,50,000 $\times$ 360/90)	6,00,000
Interest charges (66,50,000 $\times$ 18%)	11,97,000
Total Cost	17,97,000

Firm's Savings on taking Factoring Service:	Rs.
Cost of credit administration	6,00,000
Cost of Bad Debts 1.1 % of Rs.3,00,00,000	3,30,000
Total Saving	9,30,000

Net cost to the Firm	8,67,000
Effective rate of interest = $8,67,000 / 66,50,000$	13.04%

12. Investment in B is better as expected return is higher and risk is lower.

$$\text{Expected return of the portfolio } R_p = 22 \times 0.70 + 24 \times 0.30 = 22.6 \%$$

$$\sigma_p^2 = (0.7)^2 (40)^2 + (0.3)^2 (38)^2 + 2 \times 0.7 \times 0.3 \times 40 \times 38 \times 0.72 = 1374$$

$$\sigma_p = 37 \%$$

From the given data, we get,

$$r_f + (r_m - r_f) \times 0.86 = 22$$

$$r_f + (r_m - r_f) \times 1.24 = 24$$

$$\text{or } (r_m - r_f) 0.38 = 2$$

$$\text{or } (r_m - r_f) = 5.26$$

Thus, $r_f = 17.5$ and $r_m = 22.76$

Risk free interest = 17.5%

Expected market portfolio return = 22.76%.

13.

Shares	Cost (Rs)	Dividend (Rs)	Market Value (Rs)	Capital Gain (Rs.)	
A	40,000	6000	42000	2,000	0.7
B	30,000	4500	32000	2,000	0.9
C	15,000	2250	16000	1,000	0.8
D	10,000	2000	9000	-1,000	1.15
Govt. bond	50,000	4800	52000	2,000	1.0
Total	145,000	19,550	151,000	6,000	4.55

$$\begin{aligned} \text{Expected Return} &= \frac{-\text{Dividend} + \text{Capital Appreciation}}{\text{Investment}} \\ &= 25550/145000 = 17.62 \% \end{aligned}$$

Average beta = 0.91

Avg. Return = Risk free return + Avg. Beta (Expected Return – Risk free Return)

$$0.15 = R_f + 0.91 (0.1762 - R_f)$$

$$0.09 R_f = 0.1603 - 0.15$$

$$R_f = 11.49 \%$$

Expected Rate of Return of Individual security = $K_e = R_f + \beta (K_m - R_f)$

A	$11.49 + 0.7 (17.62 - 11.49) =$	15.78
B	$11.49 + 0.9 (17.62 - 11.49) =$	17.00
C	$11.49 + 0.8 (17.62 - 11.49) =$	16.39

D	$11.49 + 1.15 (17.62 - 11.49) =$	18.54
Govt. bond	$11.49 + 1.0 (17.62 - 11.49) =$	17.62
Expected return of the Portfolio = 17.07%		

14. Calculation of return on portfolio for 2006-07 Rs./Share

	S Ltd	T Ltd
Dividend received during the year	10	3.5
Capital gain/loss by 31.03.06	20	-10
Return	30	-6.5
Cost of investment	200	300
Return %	15	-2.17
Weight of the portfolio	30.8	69.2
Weighted Average Return of the portfolio	3.12	
Calculation of return on portfolio for 2007-08	S Ltd	T Ltd
Dividend to be paid for the year	20	3.5
Capital gain ($230 \times 0.2 + 240 \times 0.4 + 250 \times 0.4 - 200$)	22	
($300 \times 0.2 + 310 \times 0.4 + 330 \times 0.4 - 300$)		26
Return	42	29.5
Cost of investment (Market value as on 31.03.2007)	220	290
Return %	19.09	10.17
Weight of the portfolio	33.6	66.4
Weighted Average Return of the portfolio	13.17	

Calculation of Standard deviation:

Expected market value	Expected gain	Expected dividend	Expected yield	Deviations	Square of deviation	Prob. factor	Sq. of d x prob.
For S Ltd							
230	0	20	20	-10	100	0.2	20
240	10	20	30	0	0	0.4	0
250	20	20	40	10	100	0.4	40
Standard deviation = 7.75							60
For T Ltd							
300	0	3.5	3.5	-20	400	0.2	80

310	20	3.5	23.5	0	0	0.4	0
330	40	3.5	43.5	20	400	0.4	160
							240

Standard deviation = 15.49

Share of company T Ltd. is more risky as the S.D. is more than company S Ltd.

15. (i) Returns for the year : All changes on a Per -Unit Basis

Change in Price : Rs 10.35 - 9.75 = Re. 0.60

Dividends received: Re. 0.85

Capital gains distribution Re.0.60

Total reward Rs. 2.05

Holding period reward : 2.05 / 9.75 = 21.03 %

- (ii) When dividends and capital gains distributions are re-invested into additional units of fund

Dividend + Capital Gains per unit = Re.0.85 + Re 0.60 = Rs. 1.45

Total received from 1000 units = Rs.1.45 x 1000 = Rs. 1450

Additional Units Acquired = 1450 / 9.75 = 148.72 units

Total No.of Units = 1000 units + 148.72 = 1148.72 units

Value of 1148.72 units held at the end of the year = 1148.72 x Rs.10.35 = Rs.11889.25

Price Paid for 1000 Units at the beginning of the year = 1000 units x Rs.9.75 = Rs.9750

Holding Period Reward = Rs. (11889.25 – 9750) = Rs.2139.25

Holding Period Reward % = 2139.25 / 9750 = 21.94 %

16. Fair Future Price (FFP) = $S_0 \times e^{(r-y)t} = 9000 \times e^{(0.10-0.02) \times 0.25} = 9000 \times e^{0.02} = \text{Rs.}9181.80$
Since, actual forward price is 9125 is less than FFP, the NIFTY forward may be bought.

17. Let F_e , b_e , F_c , b_c , F_f , b_f , F_p & b_p are the fund and beta values of equity, cash, index futures and portfolio respectively.

Let n = No of future contracts

Beta for cash = 0

Then we have,

$F_e \times b_e + F_c \times b_c + F_f \times b_f = F_p \times b_p$

or $8,00,000 \times 0.69 + 2,00,000 \times 0 + (930 \times 200 \times n \times 1) = 1.1 \times 10,00,000$

or $5.52 + 0.186n = 11$
or $0.186n = 5.48$
or $n = 29.46$ i.e. 30 future contracts.

18. Calculation of Profit after tax (PAT)

	Rs.
Profit before interest and tax (PBIT)	30,00,000
Less: Debenture interest	7,20,000
Profit before tax (PBT)	22,80,000
Less: Tax @ 35%	7,98,000
Profit after tax (PAT)	14,82,000
Less: Preference Dividend = $40,00,000 \times 0.08$ = Rs 3,20,000	
Equity Dividend = Rs. $80,00,000 \times 0.10$ = Rs 8,00,000	11,20,000
Retained earnings (Undistributed profit)	3,62,000

$$\begin{aligned} \text{Interest and Fixed Dividend Coverage} &= \frac{\text{PAT} + \text{Debenture interest}}{\text{Debenture interest} + \text{Preference dividend}} \\ &= (14,82,000 + 7,20,000) / (7,20,000 + 3,20,000) \\ &= 22,02,000 / 10,40,000 = 2.12 \end{aligned}$$

$$\begin{aligned} \text{Capital Gearing Ratio} &= \frac{\text{Fixed interest bearing funds}}{\text{Equity shareholders' funds}} = \\ &= \frac{\text{Preference Share Capital} + \text{Debentures}}{\text{Equity Share Capital} + \text{Reserves}} \\ &= (40,00,000 + 60,00,000) / (80,00,000 + 30,00,000) \\ &= 100/110 = 0.91 \end{aligned}$$

$$\begin{aligned} \text{Yield on equity share} &= 50\% \text{ of Distributed profit} + 5\% \text{ of Undistributed profit} \\ &= \text{Rs } (4,00,000 + 18,100) = \text{Rs } 4,18,100 \end{aligned}$$

$$\text{Yield on Equity share \%} = \text{Rs } 4,18,100 \times 100 / 80,00,000 = 5.27\%$$

19. (i) Pre-merger EPS and P/E ratios of X Ltd. and Y Ltd.

Particulars	X Ltd.	Y Ltd.
EAT	8,00,000	3,00,000
Number of shares outstanding	4,00,000	2,00,000
EPS	Rs.2	Rs.1.5

Market Price per share	30	15
P/E Ratio (times)	15	10

- (ii) Y Ltd will be issues 1 share for each 2 shares.

Post merger, No of Shares of XY Ltd = (4,00,000 + 2,00,000 x $\frac{1}{2}$) = 5,00,000

Post merger EPS = (Rs 11,00,000 /5,00,000) = Rs.2.20

- (iii) To keep Post merger EPS same with pre merger EPS, desired exchange ratio is as follows :

Total number of shares in post-merged company should be = 11,00,000 /2 = 5,50,00

Number of shares required to be issued to Y Ltd = 5,50,000 - 4,00,000 = 1,50,000

Therefore, the exchange ratio is 1,50,000 : 2,00,000 i.e. 0.75 share for one share of Y Ltd.

20. (i) No. of equity shares to be issued by X. Ltd. to Y Ltd.=4,00,000 x 150/200 = 3,00,000 shares

Total no. of shares in X. Ltd. after acquisition of Y Ltd = 15,00,000 + 3,00,000 = 18,00,000

Total earnings after tax [after acquisition] = 88,00,000 + 20,00,000 = 1,08,00,000

Post Acquisition EPS = 1,08,00,000 / 18,00,000 = Rs.6

- (ii) If EPS of Y Ltd not to be affected :

Current EPS of X Ltd = Rs.88,00,00/15,00,000= Rs.5.87

Current EPS of Y Ltd = 20,00,000 / 4,00,000 = Rs.5

Thus, Exchange ratio should be 5.87 : 5

No. of new shares to be issued by X Ltd. to Y. Ltd. = 4,00,000 × 5/5.87= 3,40,909

Total number of shares of M Co. Ltd. after acquisition

= 15,00,000 + 3,40,909= 18,40,909 shares

EPS [after acquisition] = Rs.1,08,00,000 / 18,40,909 = Rs.5.877

Total earnings available to new shareholders of Y Ltd. = 3,40,909 × Rs.5.867 = Rs.20,00,000

21.	A Ltd.	T Ltd.
No. of shares (Lakhs)	5	2
Share Capital (Rs. Lakhs)	50	20

Market capitalization (Rs. Lakhs)	200	100
Market Price per share (Rs.)	40	50
P/E ratio	8	10
EPS (Rs.)	5	5
Profit (Rs. Lakhs)	25	10
Reserves and surplus (Rs. Lakhs)	30	32
Share Capital + Reserve & Surplus	80	52
Book Value per share (Rs)	16	26

Swap ratio :

$$\text{Weight for A Ltd} = 5 \times 0.40 + 16 \times 0.25 + 40 \times 0.35 = 20.0$$

$$\text{Weight for B Ltd} = 5 \times 0.40 + 26 \times 0.25 + 50 \times 0.35 = 26.0$$

Thus, the Swap ratio is 20: 26 = 1:1.3

i.e. for one share of T Ltd, 1.3 shares are to be issued.

i.e. Shares to be issued to shareholders of T Ltd = 2.6 lakhs.

Total shares after merger = (5 + 2.6) = 7.6 lakhs.

Promoter's holding : No of shares = (2.5 + 1.3) = 3.8 lakh

Promoter's holding % = $3.8 / 7.6 = 50\%$.

Market Capitalization of A Ltd (after acquisition) = $\text{Rs.}40 \times 1.1 \times 7.6 \text{ lakhs}$
= 334.40 lakhs

Hence, Capital gain = Rs.34.40 lakhs

22. Option 1 : To finance the purchase by availing loan @ 18%

Present rate : 1 franc = 58.8235 Rs. lakhs

Purchase Value = $(100 \times 58.8235) = 5882.35$

Total outflow with interest = $5882.35 (1.045)^2 = 6423.67$

Option 2 : Letter of Credit arrangement with bank

Value of purchase + Interest for 2 quarters = $5882.35 (1+0.02)^2 = 6120.00$

Commission = $5882.35 \times 0.01 = 58.82$

Total outflow = 6178.82

Option 3 : Forward Contract

Forward Contract rate : 1 franc = 62.50000

Purchase Value = 6250

Hence, Letter of Credit arrangement is most economic.

23.

	Rs.
Present cost \$ 14,000 @ current spot rate of \$ 0.0243 per Re. 1	5,76,132
Cost after 3 months rate will decline by 4% i.e. rate \$0.02333 per Rs.1	6,00,085
Value of \$ 14,000	
Expected loss	23,953
For forward contract amount to be paid @ 0.02336 per Re 1	5,93,220
Extra Amount to be paid for forward contract	17,089
i.e. 28.67 % loss due to enhancement of foreign exchange rate can be recovered by forward contract.	

24.

	USD/INR	USD/JPY	Rate Rs Per 1 yen	Export Value (Rs)	Difference from Case I (Rs)
Case I : Spot Rate 1	42.47	132.87	0.319756	3197560	
Case II : Depreciate Rate	44	145	0.303448	3034480	1,63,080
Case III : Forward Contract	43	143	0.311594	3115940	81,620
Case IV : Spot Rate 2	43.82	141.79	0.311244	3112440	85,120

(i) If hedging is not done and rate is depreciates, then loss will be Rs.1,63,080

(ii) If Forward contract is made, loss is reduced to Rs.81,620

(iii) Even if the spot rate is as given otherwise, forward contract is advantageous.

Hence the best option is to go for forward contract.

25. Rupee Dollar selling rate	=	Rs.47.40
Dollar Hong Kong Dollar	=	HK\$ 7.5780
Rupee - Hong Kong cross rate 47.40/7.5780	=	Rs.6.3077
Amount to be received from the customer	=	Rs.6,37,000
Amount paid in the cover made in London Market	=	Rs.6,30,770
Net profit in the deal	=	Rs.6,230