PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT

QUESTIONS

Project Planning and Capital Budgeting

1. Skylark Airways is planning to acquire a light commercial aircraft for flying class clients at an investment of ₹ 50,00,000. The expected cash flow after tax for the next three years is as follows: (₹)

Year 1		Year 2		Year 3	
CFAT	Probability	CFAT	Probability	CFAT	Probability
14,00,000	0.1	15,00,000	0.1	18,00,000	0.2
18,00,000	0.2	20,00,000	0.3	25,00,000	0.5
25,00,000	0.4	32,00,000	0.4	35,00,000	0.2
40,00,000	0.3	45,00,000	0.2	48,00,000	0.1

The Company wishes to take into consideration all possible risk factors relating to airline operations. The company wants to know:

(i) The expected NPV of this venture assuming independent probability distribution with 6 per cent risk free rate of interest.

(ii) The possible deviation in the expected value.

(iii) How would standard deviation of the present value distribution help in Capital Budgeting decisions?

Leasing Decisions

2. Engineers Ltd. is in the business of manufacturing nut bolts. Some more product lines are being planned to be added to the existing system. The machinery required may be bought or may be taken on lease. The cost of machine is ₹ 20,00,000 having a useful life of 5 years with the salvage value of ₹ 4,00,000 (consider short term capital loss/gain for the Income tax). The full purchase value of machine can be financed by bank loan at the rate of 20% interest repayable in five equal instalments falling due at the end of each year. Alternatively, the machine can be procured on a 5 years lease, year-end lease rentals being ₹ 6,00,000 per annum. The Company follows the written down value method of depreciation at the rate of 25 per cent. Company's tax rate is 35 per cent and cost of capital is 14 per cent.

(i) Advise the company which option it should choose – lease or borrow.

(ii) Assess the proposal from the lessor's point of view examining whether leasing the machine is financially viable at 14 per cent cost of capital.

Detailed working notes should be given.

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Dividend Decisions

3. In December, 2011 AB Co.'s share was sold for ₹ 146 per share. A long term earnings growth rate of 7.5% is anticipated. AB Co. is expected to pay dividend of ₹ 3.36 per share.

   (i) What rate of return an investor can expect to earn assuming that dividends are expected to grow along with earnings at 7.5% per year in perpetuity?

   (ii) It is expected that AB Co. will earn about 10% on book Equity and shall retain 60% of earnings. In this case, whether, there would be any change in growth rate and cost of Equity?

Indian Capital Market

4. The following data relate to Anand Ltd.'s share price:

Current price per share	₹ 1,800
6 months future's price/share	₹ 1,950

Assuming it is possible to borrow money in the market for transactions in securities at 12% per annum, you are required:

(i) to calculate the theoretical minimum price of a 6-months forward purchase; and

(ii) to explain arbitrate opportunity.

5. Sensex futures are traded at a multiple of 50. Consider the following quotations of Sensex futures in the 10 trading days during February, 2009:

Day	High	Low	Closing
4-2-09	3306.4	3290.00	3296.50
5-2-09	3298.00	3262.50	3294.40
6-2-09	3256.20	3227.00	3230.40
7-2-09	3233.00	3201.50	3212.30
10-2-09	3281.50	3256.00	3267.50
11-2-09	3283.50	3260.00	3263.80
12-2-09	3315.00	3286.30	3292.00
14-2-09	3315.00	3257.10	3309.30
17-2-09	3278.00	3249.50	3257.80
18-2-09	3118.00	3091.40	3102.60

Abhishek bought one sensex futures contract on February, 04. The average daily absolute change in the value of contract is ₹ 10,000 and standard deviation of these changes is ₹ 2,000. The maintenance margin is 75% of initial margin.

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You are required to determine the daily balances in the margin account and payment on margin calls, if any.

6. The market received rumour about ABC corporation's tie-up with a multinational company. This has induced the market price to move up. If the rumour is false, the ABC corporation stock price will probably fall dramatically. To protect from this an investor has bought the call and put options.

   He purchased one 3 months call with a striking price of ₹ 42 for ₹ 2 premium, and paid ₹ 1 per share premium for a 3 months put with a striking price of ₹ 40.

   (i) Determine the Investor's position if the tie up offer bids the price of ABC Corporation's stock up to ₹ 43 in 3 months.

   (ii) Determine the Investor's ending position, if the tie up programme fails and the price of the stocks falls to ₹ 36 in 3 months.

Security Analysis and Valuation

7. Pragya Limited has issued 75,000 equity shares of ₹ 10 each. The current market price per share is ₹ 24. The company has a plan to make a rights issue of one new equity share at a price of ₹ 16 for every four share held.

   You are required to:

   (i) Calculate the theoretical post-rights price per share;

   (ii) Calculate the theoretical value of the right alone;

   (iii) Show the effect of the rights issue on the wealth of a shareholder, who has 1,000 shares assuming he sells the entire rights; and

   (iv) Show the effect, if the same shareholder does not take any action and ignores the issue.

8. X Limited, just declared a dividend of ₹ 14.00 per share. Mr. B is planning to purchase the share of X Limited, anticipating increase in growth rate from 8% to 9%, which will continue for three years. He also expects the market price of this share to be ₹ 360.00 after three years.

   You are required to determine:

   (i) the maximum amount Mr. B should pay for shares, if he requires a rate of return of 13% per annum.

   (ii) the maximum price Mr. B will be willing to pay for share, if he is of the opinion that the 9% growth can be maintained indefinitely and require 13% rate of return per annum.

   (iii) the price of share at the end of three years, if 9% growth rate is achieved and assuming other conditions remaining same as in (ii) above.

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Calculate rupee amount up to two decimal points.

	Year-1	Year-2	Year-3
FVIF @ 9%	1.090	1.188	1.295
FVIF @ 13%	1.130	1.277	1.443
PVIF @ 13%	0.885	0.783	0.693

9. Pet feed plc has outstanding, a high yield Bond with following features:

Face Value	£ 10,000
Coupon	10%
Maturity Period	6 Years
Special Feature	Company can extend the life of Bond to 12 years.

Presently the interest rate on equivalent Bond is 8%.

(a) If an investor expects that interest will be 8%, six years from now then how much he should pay for this bond now.

(b) Now suppose, on the basis of that expectation, he invests in the Bond, but interest rate turns out to be 12%, six years from now, then what will be his potential loss/ gain if company extends the life of bond by another 6 years.

Portfolio Theory

10. Mr. Tempest has the following portfolio of four shares:

Name	Beta	Investment ₹ Lac.
Oxy Rin Ltd.	0.45	0.80
Boxed Ltd.	0.35	1.50
Square Ltd.	1.15	2.25
Ellipse Ltd.	1.85	4.50

The risk free rate of return is 7% and the market rate of return is 14%.

Required.

(i) Determine the portfolio return. (ii) Calculate the portfolio Beta.

11. A company has a choice of investments between several different equity oriented mutual funds. The company has an amount of ₹1 crore to invest. The details of the mutual funds are as follows:

Mutual Fund	Beta
A	1.6
B	1.0

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C	0.9
D	2.0
E	0.6

Required:

(i) If the company invests 20% of its investment in each of the first two mutual funds and an equal amount in the mutual funds C, D and E, what is the beta of the portfolio?

(ii) If the company invests 15% of its investment in C, 15% in A, 10% in E and the balance in equal amount in the other two mutual funds, what is the beta of the portfolio?

(iii) If the expected return of market portfolio is 12% at a beta factor of 1.0, what will be the portfolios expected return in both the situations given above?

12. X Co., Ltd., invested on 1.4.2009 in certain equity shares as below:

Name of Co.	No. of shares	Cost (₹)
M Ltd.	1,000 (₹ 100 each)	2,00,000
N Ltd.	500 (₹ 10 each)	1,50,000

In September, 2009, 10% dividend was paid out by M Ltd. and in October, 2009, 30% dividend paid out by N Ltd. On 31.3.2010 market quotations showed a value of ₹ 220 and ₹ 290 per share for M Ltd. and N Ltd. respectively.

On 1.4.2010, investment advisors indicate (a) that the dividends from M Ltd. and N Ltd. for the year ending 31.3.2011 are likely to be 20% and 35%, respectively and (b) that the probabilities of market quotations on 31.3.2011 are as below:

Probability factor	Price/share of M Ltd.	Price/share of N Ltd.
0.2	220	290
0.5	250	310
0.3	280	330

You are required to:

(i) Calculate the average return from the portfolio for the year ended 31.3.2010;

(ii) Calculate the expected average return from the portfolio for the year 2010-11; and

(iii) Advise X Co. Ltd., of the comparative risk in the two investments by calculating the standard deviation in each case.

Mutual Funds

13. On 1st April, an open ended scheme of mutual fund had 300 lakh units outstanding with Net Assets Value (NAV) of ₹ 18.75. At the end of April, it issued 6 lakh units at opening NAV plus 2% load, adjusted for dividend equalization. At the end of May, 3 Lakh units were

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repurchased at opening NAV less 2% exit load adjusted for dividend equalization. At the end of June, 70% of its available income was distributed.

In respect of April-June quarter, the following additional information are available:

	₹ in lakh
Portfolio value appreciation	425.47
Income of April	22.950
Income for May	34.425
Income for June	45.450

You are required to calculate

(i) Income available for distribution;

(ii) Issue price at the end of April;

(iii) repurchase price at the end of May; and

(iv) net asset value (NAV) as on 30th June.

Money Market Operations

14. M Ltd. has to make a payment on 30th January, 2010 of ₹ 80 lakhs. It has surplus cash today, i.e. 31st October, 2009; and has decided to invest sufficient cash in a bank's Certificate of Deposit scheme offering an yield of 8% p.a. on simple interest basis. What is the amount to be invested now?

Foreign Exchange exposure and Risk Management

15. JKL Ltd., an Indian company has an export exposure of JPY 10,000,000 payable 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.

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?

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

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INR/US $ = ₹ 66.25

JPY/US$ = JPY 110.85

Is the decision to take forward cover justified?

16. 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
91 day Pts	0.0242 0.0228

Interest rates for the Deposits

Amount of Currency	91 day Interest Rate % p. a.		
	£	€	CHF
0 – 100,000	1	¼	0
100,001 – 500,000	2	1 ½	¼
500,001 – 1,000,000	4	2	½
Over 1,000,000	5.375	3	1

Note: Assume 360 days a year.

Mergers, Acquisitions and Reconstructing

17. T Ltd. Recently made a profit of ₹ 50 crore and paid out ₹ 40 crore (slightly higher than the average paid in the industry to which it pertains). The average PE ratio of this industry is 9. As per Balance Sheet of T Ltd., the shareholder's fund is ₹ 225 crore and number of shares is 10 crore. In case company is liquidated, building would fetch ₹ 100 crore more than book value and stock would realize ₹ 25 crore less.

The other data for the industry is as follows:

Projected Dividend Growth	4%
Risk Free Rate of Return	6%
Market Rate of Return	11%
Average Dividend Yield	6%

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The estimated beta of T Ltd. is 1.2. You are required to calculate value of T Ltd. using

(i) P/E Ratio

(ii) Dividend Yield

(iii) Valuation as per:

(1) Dividend Growth Model

(2) Book Value

(3) Net Realizable Value

18. The CEO of a company thinks that shareholders always look for EPS. Therefore, he considers maximization of EPS as his company's objective. His company's current Net Profits are ₹ 80.00 lakhs and P/E multiple is 10.5. He wants to buy another firm which has current income of ₹ 15.75 lakhs & P/E multiple of 10.

What is the maximum exchange ratio which the CEO should offer so that he could keep EPS at the current level, given that the current market price of both the acquirer and the target company are ₹ 42 and ₹ 105 respectively?

If the CEO borrows funds at 15% and buys out Target Company by paying cash, how much should he offer to maintain his EPS? Assume tax rate of 30%.

19. The following is the Balance-sheet of Grape Fruit Company Ltd as at March 31st, 2011.

Liabilities	(₹ in lakhs)	Assets	(₹ in lakhs)
Equity shares of ₹ 100 each	600	Land and Building	200
14% preference shares of ₹ 100/- each	200	Plant and Machinery	300
13% Debentures	200	Furniture and Fixtures	50
Debenture interest accrued and payable	26	Inventory	150
Loan from bank	74	Sundry debtors	70
Trade creditors	340	Cash at bank	130
		Preliminary expenses	10
		Cost of issue of debentures	5
		Profit and Loss account	525
	1440		1440

The Company did not perform well and has suffered sizable losses during the last few years. However, it is felt that the company could be nursed back to health by proper financial restructuring. Consequently the following scheme of reconstruction has been drawn up :

(i) Equity shares are to be reduced to ₹ 25/- per share, fully paid up;

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(ii) Preference shares are to be reduced (with coupon rate of 10%) to equal number of shares of ₹ 50 each, fully paid up.

(iii) Debenture holders have agreed to forgo the accrued interest due to them. In the future, the rate of interest on debentures is to be reduced to 9 percent.

(iv) Trade creditors will forego 25 percent of the amount due to them.

(v) The company issues 6 lakh of equity shares at ₹ 25 each and the entire sum was to be paid on application. The entire amount was fully subscribed by promoters.

(vi) Land and Building was to be revalued at ₹ 450 lakhs, Plant and Machinery was to be written down by ₹ 120 lakhs and a provision of ₹15 lakhs had to be made for bad and doubtful debts.

Required:

(i) Show the impact of financial restructuring on the company's activities.

(ii) Prepare the fresh balance sheet after the reconstructions is completed on the basis of the above proposals.

20. Write a short note on:

(a) Financial Planning

(b) Role of Clearing Houses

(c) Pros and Cons of Depository Services

(d) Leading and Lagging in context of forex market

(e) Takeover by Reverse Bid

SUGGESTED ANSWERS

1. (i) Expected NPV

(₹ in lakhs)

Year I			*Year II*			*Year III*		
CFAT	***P***	***CF×P***	***CFAT***	***P***	***CF×P***	***CFAT***	***P***	***CF×P***
14	0.1	1.4	15	0.1	1.5	18	0.2	3.6
18	0.2	3.6	20	0.3	6.0	25	0.5	12.5
25	0.4	10.0	32	0.4	12.8	35	0.2	7.0
40	0.3	12.0	45	0.2	9	48	0.1	4.8
	$\bar{x}$ or $\overline{CF}$	27.0		$\bar{x}$ or $\overline{CF}$	29.3			$\bar{x}$ or $\overline{CF}$ 27.9

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NPV	*PV factor @ 6%*	*Total PV*
27	0.943	25.461
29.3	0.890	26.077
27.9	0.840	23.436
	PV of cash inflow	74.974
	Less: Cash outflow	50.000
	NPV	24.974

(ii) Possible deviation in the expected value

Year I				
***X* - $\bar{X}$**	***X* - $\bar{X}$**	***(X* - $\bar{X}$*)²***	***P_1***	***(X* - $\bar{X}$ *)² P^1***
14 – 27	-13	169	0.1	16.9
18 – 27	-9	81	0.2	16.2
25 – 27	-2	4	0.4	1.6
40 – 27	13	169	0.3	50.7
				85.4

$\sigma_1 = \sqrt{85.4}$ = 9.241

Year II				
***X* - $\bar{X}$**	***X* - $\bar{X}$**	***(X* - $\bar{X}$*)²***	***P_2***	***(X* - $\bar{X}$*)² × P_2***
15-29.3	-14.3	204.49	0.1	20.449
20-29.3	-9.3	86.49	0.3	25.947
32-29.3	2.7	7.29	0.4	2.916
45-29.3	15.7	246.49	0.2	49.298
				98.61

$\sigma_2 = \sqrt{98.61} = 9.930$

Year III				
***X* - $\bar{X}$**	***X* - $\bar{X}$**	***(X* - $\bar{X}$*)²***	***P_3***	***(X* - $\bar{X}$*)² × P_3***
18-27.9	-9.9	98.01	0.2	19.602
25-27.9	-2.9	8.41	0.5	4.205
35-27.9	7.1	50.41	0.2	10.082
48-27.9	20.1	404.01	0.1	40.401
				74.29

$\sigma\sigma_3 = \sqrt{74.29}$ = 8.619

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Standard deviation about the expected value:

$$\sigma\sigma = \sqrt{\frac{85.4}{(1.06)^2} + \frac{98.61}{(1.06)^4} + \frac{74.29}{(1.06)^6}} = 14.3696$$

(iii) Standard deviation is a statistical measure of dispersion; it measures the deviation from a central number i.e. the mean.

In the context of capital budgeting decisions especially where we take up two or more projects giving somewhat similar mean cash flows, by calculating standard deviation in such cases, we can measure in each case the extent of variation. It can then be used to identify which of the projects is least riskier in terms of variability of cash flows.

A project, which has a lower coefficient of variation will be preferred if sizes are heterogeneous.

Besides this, if we assume that probability distribution is approximately normal we are able to calculate the probability of a capital budgeting project generating a net present value less than or more than a specified amount.

2. Discounting Factor:

Cost of finance 20% - Tax 35% = 13%.

(i) PV of cash outflows under leasing alternative

Year-end	*Lease rent after taxes P.A.*	*PVIFA at 13%*	*Total P.V.*
1 – 5	₹ 3,90,000	3.517	₹ 13,71,630

PV of cash outflows under buying alternative

Year end	*Loan Instalment*	*Tax advantage on Interest*	*Tax advantage on Depreciation*	*Net Cash Outflow*	*PVIF at 13%*	*Total PV*
1	6,68,673	1,40,000	1,75,000	3,53,673	0.885	3,13,001
2	6,68,673	1,21,193	1,31,250	4,16,230	0.783	3,25,908
3	6,68,673	98,624	98,438	4,71,611	0.693	3,26,826
4	6,68,673	71,542	73,828	5,23,303	0.613	3,20,785
5	6,68,673	38,819	55,371	5,74,483	0.543	3,11,944
		Total PV outflows				15,98,464
		Less: PV of Salvage Value (₹ 4,00,000 *0.543)				2,17,200
						13,81,264

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		Less: PV of tax saving on short term capital loss (4,74,609 – 4,00,000) * 35% * .543	14,179
		NPV of Cash outflow	13,67,085

Working Notes:

(1) Schedule of Debt Payment

Year-end	*Opening balance*	*Interest @ 20%*	*Repayment*	*Closing Balance*	*Principal Amount*
1	20,00,000	4,00,000	6,68,673	17,31,327	2,68,673
2	17,31,327	3,46,265	6,68,673	14,08,919	3,22,408
3	14,08,919	2,81,784	6,68,673	10,22,030	3,86,889
4	10,22,030	2,04,406	6,68,673	5,57,763	4,64,267
5	5,57,763	1,10,910*	6,68,673	0	5,57,763

*Balancing Figure

(2) Schedule of Depreciation

Year	*Opening WDV*	*Depreciation*	*Closing WDV*
1	20,00,000	5,00,000	15,00,000
2	15,00,000	3,75,000	11,25,000
3	11,25,000	2,81,250	8,43,750
4	8,43,750	2,10,938	6,32,812
5	6,32,812	1,58,203	4,74,609

(3) EMI = ₹ 20,00,000 / Annuity for 5 years @ 20% = i.e. ₹ 20,00,000 / 2.991 = ₹ 6,68,673.

Advice: Company is advised to borrow and buy not to go for leasing as NPV of cash outflows is lower in case of buying alternative.

Note: Students may note that the cost of capital of the company given in the question is 14% at which cash flows may also be discounted.

(ii) Evaluation from Lessor's Point of View

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Lease Rent	6,00,000	6,00,000	6,00,000	6,00,000	6,00,000
Less: Depreciation	5,00,000	3,75,000	2,81,250	2,10,938	1,58,203
EBT	1,00,000	2,25,000	3,18,750	3,89,062	4,41,797
Less: Tax @ 35%	35,000	78,750	1,11,563	1,36,172	1,54,629

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EAT	65,000	1,46,250	2,07,187	2,52,890	2,87,168
Add: Depreciation	5,00,000	3,75,000	2,81,250	2,10,938	1,58,203
Cash Inflows	5,65,000	5,21,250	4,88,437	4,63,828	4,45,371
PV factor @ 14%	0.877	0.769	0.675	0.592	0.519
PV of inflows	4,95,505	4,00,841	3,29,695	2,74,586	2,31,148

Evaluation:

Aggregate PV of cash inflows	17,31,775
Add: PV of salvage value (4,00,000 × 0.519)	2,07,600
Add: Tax shelter on short-term capital loss (4,74,609 – 4,00,000) × 0.35 × 0.519	13,553
PV of all cash inflows	19,52,928
Cost of the machine	20,00,000
NPV	–47,072

Hence, leasing at this rate is not feasible.

3. (i) According to Dividend Discount Model approach the firm's expected or required return on equity is computed as follows:

$$= \frac{D_1}{P_0} + g$$

Where,

K_e = Cost of equity share capital

D_1 = Expected dividend at the end of year 1

P_0 = Current market price of the share.

g = Expected growth rate of dividend.

$$\text{Therefore, } K_e = \frac{3.36}{146} + 7.5\%$$

= 0.0230 +0.075 = 0.098 Or, K_e = 9.80%

(ii) With rate of return on retained earnings (r) 10% and retention ratio (b) 60%, new growth rate will be as follows:

g= br i.e.

= 0.10 X 0.60 = 0.06

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Accordingly, dividend will also get changed and to calculate this, first we shall calculate previous retention ratio (b_1) and then EPS assuming that rate of return on retained earnings (r) is same.

With previous Growth Rate of 7.5% and r =10% the retention ratio comes out to be:

$0.075 = b_1 \times 0.10$

$b_1 = 0.75$ and payout ratio = 0.25

With 0.25 payout ratio the EPS will be as follows:

$$\frac{3.36}{0.25} = 13.44$$

With new 0.40 (1 – 0.60) payout ratio the new dividend will be

$D_1 = 13.44 \times 0.40 = 5.376$

Accordingly, new K_e will be

$$K_e = \frac{5.376}{146} + 6.0\%$$

or, $K_e = 9.68\%$

Alternatively

EPS with 6% growth rate instead of 7.5%.

$$13.44 \times \frac{1.06}{1.075} = 13.25$$

With new 0.40 (1 – 0.60) payout ratio the new dividend will be

$D_1 = 13.25 \times 0.40 = 5.30$

Accordingly, new K_e will be

$$K_e = \frac{5.30}{146} + 6.0\%$$

or, $K_e = 9.63\%$

4. (i) Calculation of theoretical minimum price of a 6 months forward contract-

Theoretical minimum price = ₹ 1,800 + (₹ 1,800 x 12/100 x 6/12) = ₹ 1,908

(ii) Arbitrage Opportunity-

The arbitrageur can borrow money @ 12 % for 6 months and buy the shares at ₹ 1,800. At the same time he can sell the shares in the futures market at ₹ 1,950. On the expiry date 6 months later, he could deliver the share and collect ₹ 1,950 pay off ₹ 1,908 and record a profit of ₹ 42 (₹ 1,950 – ₹ 1,908).

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5. Initial Margin = $\mu + 3\sigma$

Where μ = Daily Absolute Change

σ = Standard Deviation

Accordingly

Initial Margin = ₹ 10,000 + ₹ 6,000 = ₹ 16,000

Maintenance margin = ₹ 16,000 x 0.75 = ₹ 12,000

Day	*Changes in future Values (₹)*	*Margin A/c (₹)*	*Call Money (₹)*
4/2/09	-	16000	-
5/2/09	50 x (3294.40 - 3296.50) = -105	15895	-
6/2/09	50 x (3230.40 - 3294.40) = -3200	12695	-
7/2/09	50 x (3212.30 - 3230.40) = -905	16000	4210
10/2/09	50 x (3267.50 - 3212.30) = 2760	18760	-
11/2/09	50 x (3263.80 - 3267.50) = -185	18575	-
12/2/09	50 x (3292 - 3263.80) = 1410	19985	-
14/2/09	50 x (3309.30 - 3292) = 865	20850	-
17/2/09	50 x (3257.80 - 3309.30) = -2575	18275	-
18/2/09	50 x (3102.60 - 3257.80) = -7760	16000	5485

6. Cost of Call and Put Options

= (₹ 2 per share) x (100 share call) + (₹ 1 per share) x (100 share put)

= ₹ 2 x 100 + 1 x 100

= ₹ 300

(i) Price increases to ₹43. Since the market price is higher than the strike price of the call, the investor will exercise it.

Ending position = (- ₹ 300 cost of 2 option) + (₹ 1 per share gain on call) x 100

= - ₹ 300 + 100

Net Loss = - ₹ 200

(ii) The price of the stock falls to ₹36. Since the market price is lower than the strike price, the investor may not exercise the call option.

Ending Position = (- ₹300 cost of 2 options) + (₹4 per stock gain on put) x 100

= - ₹300 + 400

Gain = ₹100

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7. (i) Calculation of theoretical Post-rights (ex-right) price per share:

$$\text{Ex-right value} = \left\lfloor \frac{MN + SR}{N + R} \right\rfloor$$

Where,

M = Market price,

N = Number of old shares for a right share

S = Subscription price

R = Right share offer

$$= \left\lfloor \frac{(₹\ 24 \times 4) + (₹\ 16 \times 1)}{4 + 1} \right\rfloor = ₹\ 22.40$$

(ii) Calculation of theoretical value of the rights alone:

= Ex-right price – Cost of rights share

= ₹ 22.40 – ₹ 16 = ₹ 6.40

Or $= \frac{₹\ 22.40 - ₹16}{4} = ₹\ 1.60$

(iii) Calculation of effect of the rights issue on the wealth of a shareholder who has 1,000 shares assuming he sells the entire rights:

		₹
(a)	Value of shares before right issue (1,000 shares × ₹ 24)	24,000
(b)	Value of shares after right issue (1,000 shares × ₹ 22.40)	22,400
	Add: Sale proceeds of rights renunciation (250 shares × ₹ 6.40)	1,600
		24,000

There is no change in the wealth of the shareholder even if he sells his right.

(iv) Calculation of effect if the shareholder does not take any action and ignores the issue:

	₹
Value of shares before right issue (1,000 shares × ₹ 24)	24,000
Less: Value of shares after right issue (1,000 shares × ₹ 22.40)	22,400
Loss of wealth to shareholders, if rights ignored	1,600

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8. (i) Expected dividend for next 3 years.

Year 1 (D_1) ₹ 14.00 (1.09) = ₹ 15.26

Year 2 (D_2) ₹ 14.00 $(1.09)^2$ = ₹ 16.63

Year 3 (D_3) ₹ 14.00 $(1.09)^3$ = ₹ 18.13

Required rate of return = 13% (Ke)

Market price of share after 3 years = (P_3) = ₹ 360

The present value of share

$$P_0 = \frac{D_1}{(1+ke)} + \frac{D_2}{(1+ke)^2} + \frac{D_3}{(1+ke)^3} + \frac{P_3}{(1+ke)^3}$$

$$P_0 = \frac{15.26}{(1+0.13)} + \frac{16.63}{(1+0.13)^2} + \frac{18.13}{(1+0.13)^3} + \frac{360}{(1+0.13)^3}$$

P_0 = 15.26(0.885) + 16.63(0.783) +18.13(0.693) + 360(0.693)

P_0 = 13.50 + 13.02 + 12.56 + 249.48

P_0 = ₹ 288.56

(ii) If growth rate 9% is achieved for indefinite period, then maximum price of share should Mr. A willing be to pay is

$$P_0 = \frac{D_1}{(ke-g)} = \frac{₹\ 15.26}{0.13\text{-}0.09} = \frac{₹15.26}{0.04} = ₹\ 381.50$$

(iii) Assuming that conditions mentioned above remain same, the price expected after 3 years will be:

$$P_3 = \frac{D_4}{k_e - g} = \frac{D_3(1.09)}{0.13-0.09} = \frac{18.13 \times 1.09}{0.04} = \frac{19.76}{0.04} = ₹\ 494$$

9. (a) If the current interest rate is 8%, the company will not extent the duration of Bond and the maximum amount the investor would ready to pay will be:

= £1,000 PVIAF (8%, 6) + £10,000 PVIF (8%, 6)

= £1,000 x 4.623 + £10,000 x 0.630

= £4,623 + £ 6,300

= £ 10,923

(b) If the current interest rate is 12%, the company will extent the duration of Bond. After six years the value of Bond will be

= £1,000 PVIAF (12%, 6) + £10,000 PVIF (12%, 6)

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= £1,000 x 4.111 + £10,000 x 0.507

= £4,111 + £5,070

= £9,181

Thus, potential loss will be £9,181 - £10,923 = £1,742

10. Market Risk Premium (A) = 14% – 7% = 7%

Share	*Beta*	*Risk Premium (Beta x A) %*	*Risk Free Return %*	*Return %*	*Return ₹*
Oxy Rin Ltd.	0.45	3.15	7	10.15	8,120
Boxed Ltd.	0.35	2.45	7	9.45	14,175
Square Ltd.	1.15	8.05	7	15.05	33,863
Ellipse Ltd.	1.85	12.95	7	19.95	89,775
Total Return					1,45,933

Total Investment ₹ 9,05,000

(i) Portfolio Return = $\frac{₹\,1,45,933}{₹\,9,05,000} \times 100 = 16.13\%$

(ii) Portfolio Beta

Portfolio Return = Risk Free Rate + Risk Premium x β = 16.13%

7% + 7β = 16.13%

β = 1.30

Alternative Approach

First we shall compute Portfolio Beta using the weighted average method as follows:

$$Beta_P = 0.45 \text{ X} \frac{0.80}{9.05} + 0.35 \text{ X} \frac{1.50}{9.05} + 1.15 \text{ X} \frac{2.25}{9.05} + 1.85 \text{ X} \frac{4.50}{9.05}$$

= 0.45 X 0.0884 + 0.35 X 0.1657+ 1.15 X 0.2486+ 1.85 X 0.4972

= 0.0398 + 0.058 + 0.2859 + 0.9198 = 1.3035

Accordingly,

(i) Portfolio Return using CAPM formula will be as follows:

$R_P = R_F + Beta_P(R_M – R_F)$

= 7% + 1.3035(14% - 7%) = 7% + 1.3035(7%)

= 7% + 9.1245% = 16.1245%

(ii) Portfolio Beta

As calculated above 1.3035

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11. With 20% investment in each MF Portfolio Beta is the weighted average of the Betas of various securities calculated as below:

(i)

Investment	*Beta (β)*	*Investment (₹ Lacs)*	*Weighted Investment*
A	1.6	20	32
B	1.0	20	20
C	0.9	20	18
D	2.0	20	40
E	0.6	20	12
		100	122
	Weighted Beta (β) = 1.22		

(ii) With varied percentages of investments portfolio beta is calculated as follows:

Investment	*Beta (β)*	*Investment (₹ Lacs)*	*Weighted Investment*
A	1.6	15	24
B	1.0	30	30
C	0.9	15	13.5
D	2.0	30	60
E	0.6	10	6
		100	133.5
	Weighted *Beta (β)* = 1.335		

(iii) Expected return of the portfolio with pattern of investment as in case (i)

= 12% × 1.22 i.e. 14.64%

Expected Return with pattern of investment as in case (ii) = 12% × 1.335 i.e., 16.02%.

12.

Calculation of return on portfolio for 2009-10	*(Calculation in ₹/ share)*		
	M	*N*	
Dividend received during the year	10	3	
Capital gain/loss by 31.03.10			
Market value by 31.03.10	220	290	

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Cost of investment	200	300	
Gain/loss	20	(-)10	
Yield	30	(-)7	
Cost	200	300	
% return	15%	(-)2.33%	
Weight in the portfolio	57	43	
Weighted average return			7.55%
Calculation of estimated return for 2010-11			
Expected dividend	20	3.5	
Capital gain by 31.03.11			
(220x0.2) + (250x0.5) + (280x0.3) – 220 = (253-220)	33	-	
(290x0.2) + (310x0.5) + (330x0.3) – 290 = (312 – 290)	-	22	
Yield	53	25.5	
*Market Value 01.04.10	220	290	
% return	24.09%	8.79%	
*Weight in portfolio (1,000x220): (500x290)	60.3	39.7	
Weighted average (Expected) return			18.02%
(*The market value on 31.03.10 is used as the base for calculating yield for 10-11)			

Calculation of Standard Deviation

M Ltd.

Exp. market value	*Exp. gain*	*Exp. div.*	*Exp. Yield (1)*	*Prob. Factor (2)*	(1) x (2)	*Dev. (P_M-$\overline{P_M}$)*	*Square of dev. (3)*	(2) x (3)
220	0	20	20	0.2	4	-33	1089	217.80
250	30	20	50	0.5	25	-3	9	4.50
280	60	20	80	0.3	24	27	729	218.70
					53			σ^2_M = 441.00

Standard Deviation (σ_M) 21

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N Ltd.

Exp. market value	*Exp. gain*	*Exp. div.*	*Exp Yield (1)*	*Prob. Factor (2)*	(1) X(2)	*Dev. (P_N- $\overline{P_N}$)*	*Square of dev. (3)*	(2) X (3)
290	0	3.5	3.5	0.2	0.7	-22	484	96.80
310	20	3.5	23.5	0.5	11.75	-2	4	2.00
330	40	3.5	43.5	0.3	13.05	18	324	97.20
					25.5			σ^2_N = 196.00

Standard Deviation (σ_N) 14

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

13. Calculation of Income available for Distribution

	Units (Lakh)	*Per Unit (₹)*	*Total (₹ In lakh)*
Income from April	300	0.0765	22.9500
Add: Dividend equalization collected on issue	6	0.0765	0.4590
	306	0.0765	23.4090
Add: Income from May		0.1125	34.4250
	306	0.1890	57.8340
Less: Dividend equalization paid on repurchase	3	0.1890	(0.5670)
	303	0.1890	57.2670
Add: Income from June		0.1500	45.4500
	303	0.3390	102.7170
Less: Dividend Paid		0.2373	(71.9019)
	303	0.1017	30.8151

Calculation of Issue Price at the end of April

	₹
Opening NAV	18.750
Add: Entry Load 2% of ₹ 18.750	(0.375)
	19.125

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Add: Dividend Equalization paid on Issue Price	0.0765
	19.2015

Calculation of Repurchase Price at the end of May

	₹
Opening NAV	18.750
Less: Exit Load 2% of ₹ 18.750	(0.375)
	18.375
Add: Dividend Equalization paid on Issue Price	0.1890
	18.564

Closing NAV

		₹ *(Lakh)*
Opening Net Asset Value (₹ 18.75 × 300)		5625.0000
Portfolio Value Appreciation		425.4700
Issue of Fresh Units (6 × 19.2015)		115.2090
Income Received (22.950 + 34.425 + 45.450)		102.8250
		6268.504
Less: Units repurchased (3 × 18.564)	-55.692	
Income Distributed	-71.9019	(-127.5939)
Closing Net Asset Value		6140.9101
Closing Units (300 + 6 – 3) lakh		303 lakh
∴ Closing NAV as on 30th June		₹ 20.2670

14. Calculation of Investment Amount

Amount required for making payment on 30th January, 2010	= ₹ 80,00,000
Investment in Certificates of Deposit (CDs) on 31st October, 2009	
Rate of interest	= 8% p.a.
No. of days to maturity	= 91 days
Interest on ₹ 1 of 91 days	
(₹ 1 × 0.08 × 91/365)	= 0.0199452
Amount to be received for ₹ 1	
(₹ 1.00 + ₹ 0.0199452)	= 1.0199452

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Calculation of amount to be invested now to get ₹ 80 lakhs after 91 days:

$$= \frac{₹\ 80,00,000}{₹\ 1.0199452} = ₹\ 78,43,558.65$$

Or, ₹ 78,43,600 or ₹ 78,44,000 approximately.

15. Since the direct quote for ¥ and ₹ is not available it will be calculated by cross exchange rate as follows:

₹/$ x $/¥ = ₹/¥

62.22/102.34 = 0.6080

Spot rate on date of export 1¥ = ₹ 0.6080

Expected Rate of ¥ for August 2014 = ₹ 0.5242 (₹ 65/¥124)

Forward Rate of ¥ for August 2014 = ₹ 0.6026 (₹ 66.50/¥110.35)

(i) Calculation of expected loss without hedging

Value of export at the time of export (₹ 0.6080 x ¥10,000,000)	₹ 60,80,000
Estimated payment to be received on Aug. 2014 (₹ 0.5242 x ¥10,000,000)	₹ 52,42,000
Loss	₹ 8,38,000

Hedging of loss under Forward Cover

₹ Value of export at the time of export (₹ 0.6080 x ¥10,000,000)	₹ 60,80,000
Payment to be received under Forward Cover (₹ 0.6026 x ¥10,000,000)	₹ 60,26,000
Loss	₹ 54,000

By taking forward cover loss is reduced to ₹ 54,000.

(ii) Actual Rate of ¥ on August 2014 = ₹ 0.5977 (₹ 66.25/¥110.85)

Value of export at the time of export (₹ 0.6080 x ¥10,000,000)	₹ 60,80,000
Estimated payment to be received on Aug. 2014 (₹ 0.5977 x ¥10,000,000)	₹ 59,77,000
Loss	₹ 1,03,000

The decision to take forward cover is still justified.

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Alternatively, it can be shown as follows:

Value of export as per Forward Contract (₹ 0.6026 x ¥10,000,000)	₹ 60,26,000
Estimated payment to be received on Aug. 2014 (₹ 0.5977 x ¥10,000,000)	₹ 59,77,000
Loss	₹ 49,000

The decision to take forward cover is still justified.

16. Individual Basis

	Interest	***Amt. after 91 days***	***Conversion in £***
Holland € 725,000 x 0.02 x 91/360 =	€ 3,665.28	€ 728,665.28	£502,414.71 (728,665.28 x 0.6895)
Switzerland CHF 998,077 x 0.005 x 91/360=	CHF 1,261.46	CHF 999,338.46	£432,651.51 (999,338.46÷2.3098)
UK £ 75,000 x 0.01 x 91/360 =	£ 189.58	£ 75,189.58	£ 75,189.58
Total GBP at 91 days			£ 1,010,255.80

Swap to Sterling

Sell € 7,25,000 (Spot at 0.6858) buy £	£ 4,97,205.00
Sell CHF 9,98,077(Spot at 2.3326) buy £	£ 4,27,881.76
Independent GBP amount	£ 75,000.00
	£ 1,000,086.76
Interest (£ 1,000,086.76 x 0.05375 x 91/360)	£ 13,587.98
Total GBP at 91 days	£ 1,013,674.74
Less: Total GBP at 91 days as per individual basis	£ 1,010,255.80
Net Gain	£ 3,418.94

17. (i) ₹ 50 crore x 9 = ₹ 450 crore

(ii) ₹ 50 crore x $\left(\frac{0.80}{0.06}\right)$ = ₹ 666.67

(iii) (1) Ke = 6% + 1.2 (11% - 6%)

= 12%

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$$= \frac{40 \text{ crore x } 1.04}{0.12 - 0.4} = ₹ 520 \text{ crore}$$

(2) ₹ 225 crore

(3) ₹ 225 crore + ₹ 100 crore – ₹ 25 crore = 300 crore

18. (i)

	Acquirer Company	*Target Company*
Net Profit	₹ 80 lakhs	₹ 15.75 lakhs
PE Multiple	10.50	10.00
Market Capitalization	₹ 840 lakhs	₹ 157.50 lakhs
Market Price	₹ 42	₹ 105
No. of Shares	20 lakhs	1.50 lakhs
EPS	₹ 4	₹ 10.50

Maximum Exchange Ratio 4 : 10.50 or 1 : 2.625

Thus, for every one share of Target Company 2.625 shares of Acquirer Company.

(ii) Let x lakhs be the amount paid by Acquirer company to Target Company. Then to maintain same EPS i.e. ₹ 4 the number of shares to be issued will be:

$$\frac{(80 \text{ lakhs} + 15.75 \text{ lakhs}) - 0.70 \times 15\% \times x}{20 \text{ lakhs}} = 4$$

$$\frac{95.75 - 0.105x}{20} = 4$$

x = ₹ 150 lakhs

Thus, ₹ 150 lakhs shall be offered in cash to Target Company to maintain same EPS.

19. Impact of Financial Restructuring

(i) Benefits to Grape Fruit Ltd.

(a) *Reduction of liabilities payable*

	₹ in lakhs
Reduction in equity share capital (6 lakh shares x ₹ 75 per share)	450
Reduction in preference share capital (2 lakh shares x ₹ 50 per share)	100
Waiver of outstanding debenture Interest	26
Waiver from trade creditors (₹ 340 lakhs x 0.25)	85
	661

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(b) *Revaluation of Assets*	
Appreciation of Land and Building (₹ 450 lakhs - ₹ 200 lakhs)	250
Total (A)	911

(ii) Amount of ₹ 911 lakhs utilized to write off losses, fictious assets and over- valued assets.

Writing off profit and loss account	525
Cost of issue of debentures	5
Preliminary expenses	10
Provision for bad and doubtful debts	15
Revaluation of Plant and Machinery (₹ 300 lakhs – ₹180 lakhs)	120
Total (B)	675
Capital Reserve (A) – (B)	236

(ii) Balance sheet of Grape Fruit Ltd as at 31st March 2011 (after re-construction)

(₹ in lakhs)

Liabilities	*Amount*	*Assets*		*Amount*
12 lakhs equity shares of ₹ 25/- each	300	Land & Building		450
10% Preference shares of ₹ 50/- each	100	Plant & Machinery		180
Capital Reserve	236	Furnitures & Fixtures		50
9% debentures	200	Inventory		150
Loan from Bank	74	Sundry debtors	70	
Trade Creditors	255	Prov. for Doubtful Debts	-15	55
		Cash-at-Bank (Balancing figure)*		280
	1165			1165

*Opening Balance of ₹130/- lakhs + Sale proceeds from issue of new equity shares ₹ 150/- lakhs.

20. (a) Financial planning is the backbone of the business planning and corporate planning. It helps in defining the feasible area of operation for all types of activities and thereby defines the overall planning framework. Financial planning is a systematic approach whereby the financial planner helps the customer to maximize his existing financial resources by utilizing financial tools to achieve his financial goals.

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There are 3 major components of Financial planning:

- Financial Resources (FR)
- Financial Tools (FT)
- Financial Goals (FG)

Financial Planning: FR + FT = FG

For an individual, financial planning is the process of meeting one's life goals through proper management of the finances. These goals may include buying a house, saving for children's education or planning for retirement. It is a process that consists of specific steps that helps in taking a big-picture look at where you financially are. Using these steps you can work out where you are now, what you may need in the future and what you must do to reach your goals.

Outcomes of the financial planning are the financial objectives, financial decision-making and financial measures for the evaluation of the corporate performance. Financial objectives are to be decided at the very outset so that rest of the decisions can be taken accordingly. The objectives need to be consistent with the corporate mission and corporate objectives. Financial decision making helps in analyzing the financial problems that are being faced by the corporate and accordingly deciding the course of action to be taken by it.The financial measures like ratio analysis, analysis of cash flow statement are used to evaluate the performance of the Company. The selection of these measures again depends upon the corporate objectives.

(b) Clearing house is an exchange-associated body charged with the function of ensuring (guaranteeing) the financial integrity of each trade. Orders are cleared by means of the clearinghouse acting as the buyer to all sellers and the seller to all buyers. Clearing houses provide a range of services related to the guarantee of contracts, clearance and settlement of trades, and management of risk for their members and associated exchanges.

Role of Clearing Houses

- It ensures adherence to the system and procedures for smooth trading.
- It minimises credit risks by being a counter party to all trades.
- It involves daily accounting of all gains or losses.
- It ensures delivery of payment for assets on the maturity dates for all outstanding contracts.

It monitors the maintenance of speculation margins.

(c) The major benefits accruing to investors and other market players are as follows:

1. Securities are held in a safe and convenient manner
2. Transfer of securities is effected immediately

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3. Stamp duty for transfer is eliminated and transaction costs are reduced
4. Paper work is minimized
5. Bad deliveries, fake securities and delays in transfers are eliminated.
6. Routine changes viz. change in address of one person owning securities issued by different companies can be taken care of simultaneously for all securities with little delay.
7. Benefit accruing from issue of bonus shares, consolidation, split or merger is credited without much difficulty.
8. Payment of dividends and interest is expedited by the use of electronic clearing system.
9. Securities held in electronic form can be locked in and frozen from either a sale or purchase for any definite period.
10. Securities held in electronic form can also be pledged for any credit facility. Both the lender (pledge) and the investor- borrower (pledgor) are required to have a depository account. Once the pledgee confirms the request of the investor the depository takes action and the pledge is in place. By a reverse process, the pledge can be released once the pledge confirms receipt of funds.

There are however risks as well

1. Systemic failure – Input control, process control and output control being parts of computerized environment apply equally to the dematerialization process. Unforeseen failures, intentional or otherwise, on the part of the individuals entrusted with protecting data integrity, could lead to chaos.
2. Additional record keeping – In built provisions for rematerialization exist to take care of the needs of individuals who wish to hold securities in physical form. Companies will invariably need to maintain records on a continuous basis for securities held in physical form. Periodical reconciliation between demat segment and physical segment is very much necessary.
3. Cost of Depository Participant (DP) – For transacting business, investors have to deal not only with brokers but also with depository participant which acts as an additional tier in the series of intermediaries. A one time fee is levied by the depository participant which small investors consider to be an avoidable cost.
4. Human Fraud – Dematerialization is not a remedy for all ills. Unlawful transfers by individuals against whom insolvency proceedings are pending or transfers by attorney holders with specific or limited powers are possible.

(d) Leading means advancing a payment i.e. making a payment before it is due. Lagging involves postponing a payment i.e. delaying payment beyond its due date.

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In forex market Leading and lagging are used for two purposes: -

(1) Hedging foreign exchange risk: A company can lead payments required to be made in a currency that is likely to appreciate. For example, a company has to pay $100000 after one month from today. The company apprehends the USD to appreciate. It can make the payment now. Leading involves a finance cost i.e. one month's interest cost of money used for purchasing $100000.

A company may lag the payment that it needs to make in a currency that it is likely to depreciate, provided the receiving party agrees for this proposition. The receiving party may demand interest for this delay and that would be the cost of lagging. Decision regarding leading and lagging should be made after considering (i) likely movement in exchange rate (ii) interest cost and (iii) discount (if any).

(2) Shifting the liquidity by modifying the credit terms between inter-group entities: For example, A Holding Company sells goods to its 100% Subsidiary. Normal credit term is 90 days. Suppose cost of funds is 12% for Holding and 15% for Subsidiary. In this case the Holding may grant credit for longer period to Subsidiary to get the best advantage for the group as a whole. If cost of funds is 15% for Holding and 12% for Subsidiary, the Subsidiary may lead the payment for the best advantage of the group as a whole. The decision regarding leading and lagging should be taken on the basis of cost of funds to both paying entity and receiving entity. If paying and receiving entities have different home currencies, likely movements in exchange rate should also be considered.

(e) In ordinary case, the company taken over is the smaller company; in a 'reverse takeover', a smaller company gains control of a larger one. The concept of takeover by reverse bid, or of reverse merger, is thus not the usual case of amalgamation of a sick unit which is non-viable with a healthy or prosperous unit but is a case whereby the entire undertaking of the healthy and prosperous company is to be merged and vested in the sick company which is non-viable. A company becomes a sick industrial company when there is erosion in its net worth. This alternative is also known as taking over by reverse bid.

The three tests should be fulfilled before an arrangement can be termed as a reverse takeover are specified as follows:

(i) The assets of the transferor company are greater than the transferee company,

(ii) Equity capital to be issued by the transferee company pursuant to the acquisition exceeds its original issued capital, and

(iii) The change of control in the transferee company through the introduction of a minority holder or group of holders.

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