

PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT

QUESTIONS

Future Contract

1. A wheat trader has planned to sell 440000 kgs of wheat after 6 months from now. The spot price of wheat is ₹ 19 per kg and 6 months future on same is trading at ₹ 18.50 per kg (Contract Size= 2000 kg). The price is expected to fall to as low as ₹ 17.00 per kg 6 month hence. What trader can do to mitigate its risk of reduced profit? If he decides to make use of future market what would be effective realized price for its sale when after 6 months is spot price is ₹ 17.50 per kg and future contract price for 6 months is ₹ 17.55.

Leasing

2. BidTown Chemicals has received a notice from Pollution Control Board of their city to get installed wastage affluent plant to improve waste generation. The cost of installation of plant is €5 million with a life span of 4 years. After 4 years the plant shall be disposed at 10% of its installation cost.

Due to installation of plant there will be an incremental cash flow, estimated at 2 million p.a. for the four years.

The company has two options to acquire plant:

- (a) Borrow funds at 10% (pre-tax) rate from a bank and acquire machine. The loan is repayable in 4 equal installments.
- (b) Obtain a financial lease of €2 million payable at the end of the year.

At present the company is ungeared with beta 3. If company takes the loan the D/E ratio of company would become 0.30. Company is in tax bracket of 40%. Depreciation is allowable @25% as per WDV method. Further risk free rate of return and market return are 6% and 8% respectively.

Ignoring the tax gain on the loss due to disposal of plant, you are required to calculate which option of acquiring the plant the company should go for.

Portfolio Management

3. The following information is available in respect of Security X

Equilibrium Return	15%
Market Return	15%
7% Treasury Bond Trading at	\$140
Covariance of Market Return and Security Return	225%
Coefficient of Correlation	0.75

You are required to determine the Standard Deviation of Market Return and Security Return.

4. Mr. Tamarind intends to invest in equity shares of a company the value of which depends upon various parameters as mentioned below:

Factor	Beta	Expected value in%	Actual value in %
GNP	1.20	7.70	7.70
Inflation	1.75	5.50	7.00
Interest rate	1.30	7.75	9.00
Stock market index	1.70	10.00	12.00
Industrial production	1.00	7.00	7.50

If the risk free rate of interest be 9.25%, how much is the return of the share under Arbitrage Pricing Theory?

Consumer Credit

5. Sa Re Gama Electronic is in the business of selling consumer durables. In order to promote its sales it also financing the goods to its customer allowing them to make some cash down payment and balance in installments.

In a deal of LCD TV with selling price of ₹ 50,000, a customer can purchase it for cash down payment of ₹ 10,000 and balance amount by adopting any of the following option:

Tenure of Monthly Installments	Equated Monthly Installment (₹)
12	3,800
24	2,140

You are required to determine the flat and effective rate of interest for each alternative.

Swap

6. Drilddip Inc. a US based company has a won a contract in India for drilling oil field. The project will require an initial investment of ₹ 500 crore. The oil field along with equipments will be sold to Indian Government for ₹ 740 crore in one year time. Since the Indian Government will pay for the amount in Indian Rupee (₹) the company is worried about exposure due exchange rate volatility.

You are required to:

- Construct a swap that will help the Drilddip to reduce the exchange rate risk.
- Assuming that Indian Government offers a swap at spot rate which is 1US\$ = ₹ 50 in one year, then should the company should opt for this option or should it just do nothing. The spot rate after one year is expected to be 1US\$ = ₹ 54. Further you may also assume that the Drilddip can also take a US\$ loan at 8% p.a.

Cap & Floor

7. (a) Suppose that a 1-year cap has a cap rate of 8% and a notional amount of ₹ 100

crore. The frequency of settlement is quarterly and the reference rate is 3-month MIBOR. Assume that 3-month MIBOR for the next four quarters is as shown below.

Quarters	3-months MIBOR (%)
1	8.70
2	8.00
3	7.80
4	8.20

You are required to compute payoff for each quarter.

- (b) Suppose that a 1-year floor has a floor rate of 4% and a notional amount of ₹ 200 crore. The frequency of settlement is quarterly and the reference rate is 3-month MIBOR. Assume that 3-month MIBOR for the next four quarters is as shown below.

Quarters	3 - months IBOR (%)
1	4.70
2	4.40
3	3.80
4	3.40

You are required to compute payoff for each quarter.

Financial Services

8. Extracts from the recent financial statements of ABC Ltd. are given below.

	₹ '000	₹ '000
Turnover		21,300
Cost of sales		16,400
Gross Profit		4,900
Non-current assets		3,000
Current assets		
Inventory	4,500	
Trade receivables	3,500	8,000
Total Assets		11,000
Trade payables	3,000	
Overdraft	3,000	6,000
Equity Shares	1,000	
Reserves	1,000	2,000

Debentures		3,000
Total Liabilities		11,000

XYZ Fincorp, a factor has offered to manage the trade receivables of ABC Ltd. under a servicing and factor-financing agreement. XYZ expects to reduce the average trade receivables period of ABC from its current level to 35 days; to reduce bad debts from 0.9% of turnover to 0.6% of turnover; and to save ABC ₹ 40,000 per year in administration costs.

The XYZ would also make an advance to ABC of 80% of the revised book value of trade receivables. The interest rate on the advance would be 2% higher than the 7% that ABC currently pays on its overdraft. The XYZ would charge a fee of 0.75% of turnover on a with-recourse basis, or a fee of 1.25% of turnover on a non-recourse basis.

Assuming 365 days in a year and all sales and purchases are on credit you are required to evaluate the proposal of XYZ Fincorp.

Capital Budgeting

9. ABC Ltd. is considering a project in US, which will involve an initial investment of US \$ 1,10,00,000. The project will have 5 years of life. Current spot exchange rate is ₹48 per US \$. The risk free rate in US is 8% and the same in India is 12%. Cash inflow from the project is as follows:

Year	Cash inflow
1	US \$ 20,00,000
2	US \$ 25,00,000
3	US \$ 30,00,000
4	US \$ 40,00,000
5	US \$ 50,00,000

Calculate the NPV of the project using foreign currency approach. Required rate of return on this project is 14%.

10. Shashi Co. Ltd has projected the following cash flows from a project under evaluation:

Year	0	1	2	3
₹ (in lakhs)	(72)	30	40	30

The above cash flows have been made at expected prices after recognizing inflation. The firm's cost of capital is 10%. The expected annual rate of inflation is 5%. Show how the viability of the project is to be evaluated. PVF at 10% for 1-3 years are 0.909, 0.826 and 0.751.

Dividend Decision

11. The following information relates to Maya Ltd:

Earnings of the company	₹ 10,00,000
Dividend payout ratio	60%
No. of Shares outstanding	2,00,000
Rate of return on investment	15%
Equity capitalization rate	12%

- What would be the market value per share as per Walter's model?
- What is the optimum dividend payout ratio according to Walter's model and the market value of company's share at that payout ratio?

Mergers and Acquisition

12. Simple Ltd. and Dimple Ltd. are planning to merge. The total value of the companies are dependent on the fluctuating business conditions. The following information is given for the total value (debt + equity) structure of each of the two companies.

Business Condition	Probability	Simple Ltd. ₹ Lacs	Dimple Ltd. ₹ Lacs
High Growth	0.20	820	1050
Medium Growth	0.60	550	825
Slow Growth	0.20	410	590

The current debt of Dimple Ltd. is ₹ 65 lacs and of Simple Ltd. is ₹ 460 lacs.

Calculate the expected value of debt and equity separately for the merged entity.

Security Valuation

13. The following data is related to 8.5% Fully Convertible (into Equity shares) Debentures issued by JAC Ltd. at ₹ 1000.

Market Price of Debenture	₹ 900
Conversion Ratio	30
Straight Value of Debenture	₹ 700
Market Price of Equity share on the date of Conversion	₹ 25
Expected Dividend Per Share	₹ 1

You are required to calculate:

- Conversion Value of Debenture
- Market Conversion Price
- Conversion Premium per share

- (d) Ratio of Conversion Premium
 - (e) Premium over Straight Value of Debenture
 - (f) Favourable income differential per share
 - (g) Premium pay back period
14. 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.

Mutual Funds

15. Mr. A can earn a return of 16 per cent by investing in equity shares on his own. Now he is considering a recently announced equity based mutual fund scheme in which initial expenses are 5.5 per cent and annual recurring expenses are 1.5 per cent. How much should the mutual fund earn to provide Mr. A return of 16 per cent?

Indian Capital Market

16. The current market price of an equity share of Penchant Ltd is ₹ 420. Within a period of 3 months, the maximum and minimum price of it is expected to be ₹ 500 and ₹ 400 respectively. If the risk free rate of interest be 8% p.a., what should be the value of a 3 months Call option under the "Risk Neutral" method at the strike rate of ₹ 450 ? Given $e^{0.02} = 1.0202$
17. 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

Abshishek 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.

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

Foreign Exchange Risk Management

18. You as a dealer in foreign exchange have the following position in Swiss Francs on 31st October, 2009:

	Swiss Francs
Balance in the Nostro A/c Credit	1,00,000
Opening Position Overbought	50,000
Purchased a bill on Zurich	80,000
Sold forward TT	60,000
Forward purchase contract cancelled	30,000
Remitted by TT	75,000
Draft on Zurich cancelled	30,000

What steps would you take, if you are required to maintain a credit Balance of Swiss Francs 30,000 in the Nostro A/c and keep as overbought position on Swiss Francs 10,000?

19. (i) The rate of inflation in USA is likely to be 3% per annum and in India it is likely to be 6.5%. The current spot rate of US \$ in India is ₹ 43.40. Find the expected rate of US \$ in India after one year and 3 years from now using purchasing power parity theory.
- (ii) On April 1, 3 months interest rate in the UK £ and US \$ are 7.5% and 3.5% per annum respectively. The UK £/US \$ spot rate is 0.7570. What would be the forward rate for US \$ for delivery on 30th June?
20. Write a short note on
- Explain the different levels of strategy
 - Social Cost Benefit Analysis
 - Book Building

- (d) Limitations of Credit Rating
- (e) Inter Bank Participation Certificate

SUGGESTED ANSWERS/HINTS

1. In order to hedge its position trader would go short on future at current future price of ₹ 18.50 per kg. This will help the trader to realize sure ₹ 18.50 after 6 months.

Quantity of wheat to be hedged	440000 kgs
Contract Size	2000 kgs
No. of Contracts to be sold	220
Future Price	₹ 18.50
Exposure in Future Market (₹18.50X220X2000)	₹ 81,40,000

After 6 months the trader would cancel its position in future market by buying a future contract of same quantity and will sell wheat in spot market and position shall be as follows.

Price of Future Contract	₹ 17.55
Amount bought	₹ 77,22,000
Gain/Loss on Future position	₹ 4,18,000
Spot Price	₹ 17.50
Amount realized by selling in spot market	₹ 77,00,000
Effective Selling Amount	₹ 81,18,000
Effective Selling Price (Per Kg)	₹ 18.45

2. Working Notes:

- (a) Calculation of Cost of Equity

Ungeared

$$\begin{aligned}
 k_e &= R_f + \beta(R_M - R_f) \\
 &= 6\% + 3(8\% - 6\%) \\
 &= 6\% + 6\% = 12\%
 \end{aligned}$$

Gearred

$$\begin{aligned}
 B_L &= \beta_U[1 + (1 - T)D/L] \\
 &= 3(1 + 0.60 \times 0.30) = 3(1.18) = 3.54 \\
 k_e &= 6\% + 3.54(8\% - 6\%) = 13.08\% \text{ say } 13\%.
 \end{aligned}$$

- (b) Calculation of Annual Installment and Schedule of Debt Repayment under Loan Option

The loan amount is repayable together with the interest at the rate of 10% on loan amount and is repayable in equal installments at the end of each year. The PVAF at the rate of 10% for 4 years is 3.170, the amount payable will be

$$\text{Annual Payment} = \frac{5,000,000}{3.170} = \text{€ } 1,577,287 \text{ (rounded)}$$

Schedule of Debt Repayment

End of Year	Total Payment €	Interest €	Principal €	Principal Amount Outstanding €
1	1,577,287	500,000	1,077,287	3,922,713
2	1,577,287	392,271	1,185,016	2,737,697
3	1,577,287	273,770	1,303,517	1,434,180
4	1,577,287	143,107*	1,434,180	-----

* Balancing Figure

Now evaluation shall be made in three stages:

- (i) Whether project is worthwhile or not by computing NPV of the machine using 12% as discounting rate.

Particulars	Year	PVF@12%	Cash Flow €	PV €
Initial Outlay	0	1	(5,000,000)	(5,000,000)
Incremental Cash Inflow	1	0.893	2,000,000	1,786,000
Incremental Cash Inflow	2	0.797	2,000,000	1,594,000
Incremental Cash Inflow	3	0.712	2,000,000	1,424,000
Incremental Cash Inflow	4	0.636	2,000,000	1,272,000
Salvage Value	4	0.636	500,000	318,000
Total				1,394,000

Since NPV of plant is positive it should be installed.

- (ii) Should the plant be leased: The relevant discount rate shall be cost of equity (ungeared) i.e. 12%. According the PV of cash flow under lease option shall be as follows:

Lease Rent	€2,000,000
Tax Shield	<u>(€800,000)</u>
Outflow	<u>€1,200,000</u>

× 3.038

€3,645,600

- (iii) Loan Option: When company will go for loan option, company shall become geared one cost of equity for discounting.

Schedule of Cash Outflows: Debt Alternative

(Amount in €)

(1)	(2)	(3)	(4)	(3) + (4)	(5)	(6)	(7)	(8)
End of year	Debt Payment	Interest	Dep		Tax Shield [(3)+(4)]0.40	Cash outflows (2) – (5)	PV F @ 13%	PV
1	1,577,287	500,000	1,250,000	1,750,000	700,000	877,287	0.885	776,398
2	1,577,287	392,271	937,500	1,329,771	531,908	1,045,379	0.783	818,532
3	1,577,287	273,770	703,125	976,895	390,758	1,186,529	0.693	822,265
4	1,577,287	143,107	527,344	670,451	268,180	1,309,107	0.613	802,483
Less: PV of Salvage Value								3,219,678
								(306,500)
								2,913,178

Total present value of Outflows = €2,913,178

Since PV of outflows is lower in the Borrowing option, BidTown should avail of the loan and purchase the equipment.

3. First we shall compute the β of Security X.

$$\text{Risk Free Rate} = \frac{\text{Coupon Payment}}{\text{Current Market Price}} = \frac{7}{140} = 5\%$$

Assuming equilibrium return to be equal to CAPM return then:

$$15\% = R_f + \beta_X(R_m - R_f)$$

$$15\% = 5\% + \beta_X(15\% - 5\%)$$

$$\beta_X = 1$$

- (i) Standard Deviation of Market Return

$$\beta_m = \frac{\text{Cov}_{X,m}}{\sigma_m^2} = \frac{225\%}{\sigma_m^2} = 1$$

$$\sigma_m^2 = 225$$

$$\sigma_m = \sqrt{225} = 15\%$$

(ii) Standard Deviation of Security Return

$$\beta_x = \frac{\sigma_x}{\sigma_m} \times \rho_{x_m} = \frac{\sigma_x}{15} \times 0.75 = 1$$

$$\sigma_x = \frac{15}{0.75} = 20\%$$

4. Return of the stock under APT

Factor	Actual value in %	Expected value in %	Difference	Beta	Diff. x Beta
GNP	7.70	7.70	0.00	1.20	0.00
Inflation	7.00	5.50	1.50	1.75	2.63
Interest rate	9.00	7.75	1.25	1.30	1.63
Stock index	12.00	10.00	2.00	1.70	3.40
Ind. Production	7.50	7.00	0.50	1.00	0.50
					8.16
Risk free rate in %					9.25
Return under APT					17.41

5.

	12 Months	24 Months
1. Total Annual Charges for Loan	₹3,800 X 12 – ₹40,000 = ₹5,600	(₹2,140 X 24 – ₹40,000)/2 = ₹5,680
2. Flat Rate of Interest (F)	$\frac{₹5,600}{₹40,000} \times 100 = 14\%$	$\frac{₹5,680}{₹40,000} \times 100 = 14.20\%$
3. Effective Interest Rate	$\frac{n}{n+1} \times 2F = \frac{12}{13} \times 28 = 25.85\%$	$\frac{n}{n+1} \times 2F = \frac{24}{25} \times 28.40 = 27.26\%$

6. (a) The following swap arrangement s can be entered by Drilldip.

- (i) Swap a US\$ loan today at an agreed rate with any party to obtain Indian Rupees (Rs.) to make initial investment.
- (ii) After one year swap back the Indian Rupees with US\$ at the agreed rate. In such case the company is exposed only on the profit earned from the project.

(b) With the swap

	Year 0 (Million US\$)	Year 1 (Million US\$)
Buy ₹ 500 crore at spot rate of 1US\$ = ₹ 50	(100.00)	----

Swap ₹ 500 crore back at agreed rate of ₹ 50	----	100.00
Sell ₹ 240 crore at 1US\$ = ₹ 54	----	44.44
Interest on US\$ loan @8% for one year	----	(8.00)
	<u>(100.00)</u>	<u>136.44</u>

Net result is a net receipt of US\$ 36.44 million.

Without the swap

	Year 0 (Million US\$)	Year 1 (Million US\$)
Buy ₹ 500 crore at spot rate of 1US\$ = ₹ 50	(100.00)	----
Sell ₹ 740 crore at 1US\$ = ₹ 54	----	137.04
Interest on US\$ loan @8% for one year	----	(8.00)
	<u>(100.00)</u>	<u>129.04</u>

Net result is a net receipt of US\$ 29.04 million.

Decision: Since the net receipt is higher in swap option the company should opt for the same.

7. (a) There is no payoff to the cap if the cap rate exceeds 3-month MIBOR. For Periods 2 and 3, there is no payoff because 3-month MIBOR is below the cap rate. For Periods 1 and 4, there is a payoff and the payoff is determined by: ₹ 100 crore × (3-month MIBOR – Cap Rate)/4

The payoffs are summarized below:

Quarters	3-months MIBOR (%)	Pay-off (₹)
1	8.70	17,50,000
2	8.00	Nil
3	7.80	Nil
4	8.20	5,00,000

- (b) There is a payoff to the floor if 3-month MIBOR is less than the floor rate. For Periods 1 and 2, there is no payoff because 3-month MIBOR is greater than the floor rate. For Periods 3 and 4, there is a payoff and the payoff is determined by:

₹ 200 crore × (Floor Rate – 3-month MIBOR)/4

The payoffs are summarized below:

Quarters	3-months MIBOR (%)	Pay-off (₹)
1	4.70	Nil

2	4.40	Nil
3	3.80	10,00,000
4	3.40	30,00,000

8. Working Notes:

(i) Present Trade receivables period = $365 \times 3,500/21,300 = 60$ days

(ii) Reduction in trade receivables under factoring arrangement

	₹
Current trade receivables	3,500,000
Revised trade receivables (₹ 21,300,000 x 35/365)	2,042,466
Reduction in trade receivables	1,457,534

Calculation of benefit of with-recourse offer

As the XYZ's offer is with recourse, ABC will gain the benefit of bad debts reducing from 0.9% of turnover to 0.6% of turnover.

	₹
Finance cost saving = $1,457,534 \times 0.07$	102,027
Administration cost saving	40,000
Bad debt saving = $21,300,000 \times (0.009 - 0.006)$	63,900
Total saving	205,927
Additional interest on advance $(2,042,466 \times 0.8 \times 0.02)$	32,680
Net benefit before factor fee (A)	173,247
With-recourse factor fee = $21,300,000 \times 0.0075$ (B)	159,750
Net benefit of with-recourse offer (A) – (B)	13,497

Calculation of benefit of non-recourse offer

As the offer is without recourse, the bad debts of ABC will reduce to zero, as these will be carried by the XYZ, and so the company will gain a further benefit of 0.6% of turnover.

	₹
Net benefit before with-recourse factor fee (A) as above	173,247
Non-recourse factor fee ₹ $21,300,000 \times 0.0125$ (D)	266,250
Net cost before adjusting for bad debts (E) = (D) – (A)	93,003
Remaining bad debts eliminated = $21,300,000 \times 0.006$ (F)	127,800
Net benefit of non-recourse offer (F) – (E)	34,797

The XYZ's offer is financially acceptable on a with-recourse basis, giving a net benefit of ₹ 13,497. On a non-recourse basis, the XYZ's offer is not financially acceptable, giving a net loss of ₹ 93,003, if the elimination of bad debts is ignored.

The difference between the two factor fees (₹ 106,500 or 0.5% of sales), which represents insurance against the risk of bad debts, is less than the remaining bad debts (₹ 127,800 or 0.6% of sales), which will be eliminated under non-recourse factoring.

When this elimination of bad debts is considered, the non-recourse offer from the factor is financially more attractive than the with-recourse offer.

$$9. \quad (1 + 0.12)(1 + \text{Risk Premium}) = (1 + 0.14)$$

$$\text{Or, } 1 + \text{Risk Premium} = 1.14/1.12 = 1.0179$$

Therefore, Risk adjusted dollar rate is = $1.0179 \times 1.08 = 1.099 - 1 = 0.099$ i.e. 9.9%

Calculation of NPV

Year	Cash flow (Million) US\$	PV Factor at 9.9%	P. V.
1	2.00	0.910	1.820
2	2.50	0.828	2.070
3	3.00	0.753	2.259
4	4.00	0.686	2.744
5	5.00	0.624	<u>3.120</u>
			12.013
		Less: Investment	<u>11.000</u>
		NPV	<u>1.013</u>

Therefore, Rupee NPV of the project is = ₹ (48 x 1.013) Million
= ₹48.624 Million

10. Here the given cash flows have to be adjusted for inflation. Alternatively, the discount rate can be converted into nominal rate, as follows:-

$$\text{Year 1} = \frac{0.909}{1.05} = 0.866; \quad \text{Year 2} = \frac{0.826}{(1.05)^2} \text{ or } \frac{0.826}{1.1025} = 0.749$$

$$\text{Year 3} = \frac{0.751}{(1.05)^3} = \frac{0.751}{1.1576} = 0.649$$

Year	Nominal Cash Flows (₹ in lakhs)	Adjusted PVF as above	PV of Cash Flows (₹ in lakhs)
1	30	0.866	25.98
2	40	0.749	29.96
3	30	0.649	<u>19.47</u>
	Cash Inflow		75.41
	Less: Cash Outflow		<u>72.00</u>
	Net Present Value		<u>3.41</u>

With positive NPV, the project is financially viable.

Alternative Solution

Assumption: The cost of capital given in the question is "Real".

Nominal cost of capital = $(1.10)(1.05) - 1 = 0.155 = 15.50\%$

DCF Analysis of the project

				(₹ Lakhs)
	Period	PVF @15.50%	CF	PV
Investment	0	1	-72	-72.00
Operation	1	0.866	30	+25.98
---do---	2	0.750	40	+30.00
---do---	3	0.649	30	<u>+19.47</u>
NPV				<u>+3.45</u>

The proposal may be accepted as the NPV is positive.

11. MAYA Ltd.

(i) Walter's model is given by –

$$p = \frac{D + (E - D)(\gamma / k_e)}{k_e}$$

Where, p = Market price per share,

E = Earning per share – ₹ 5

D = Dividend per share – ₹ 3

γ = Return earned on investment – 15%

k_e = Cost of equity capital – 12%

$$\therefore p = \frac{3 + (5-3) \times \frac{0.15}{0.12}}{0.12} = \frac{3 + 2 \times \frac{.15}{.12}}{.12} = ₹ 45.83$$

- (ii) According to Walter's model when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is Nil. So, at a payout ratio of zero, the market value of the company's share will be:-

$$\frac{0 + (5-0) \times \frac{.15}{.12}}{0.12} = ₹ 52.08$$

12. Compute Value of Equity

Simple Ltd.

			₹ in Lacs
	High Growth	Medium Growth	Slow Growth
Debit + Equity	820	550	410
Less:Debt	460	460	460
Equity	360	90	-50

Since the Company has limited liability the value of equity cannot be negative therefore the value of equity under slow growth will be taken as zero because of insolvency risk and the value of debt is taken at 410 lacs. The expected value of debt and equity can then be calculated as:

Simple Ltd.

							₹ in Lacs
	High Growth		Medium Growth		Slow Growth		Expected Value
	Prob.	Value	Prob.	Value	Prob.	Value	
Debt	0.20	460	0.60	460	0.20	410	450
Equity	0.20	360	0.60	90	0.20	0	126
		820		550		410	576

Dimple Ltd.

							₹ in Lacs
	High Growth		Medium Growth		Slow Growth		Expected Value
	Prob.	Value	Prob.	Value	Prob.	Value	
Equity	0.20	985	0.60	760	0.20	525	758

Debt	0.20	65	0.60	65	0.20	65	65
		1050		825		590	823

Expected Values

₹ in Lacs

Equity		Debt	
Simple Ltd.	126	Simple Ltd.	450
Dimple Ltd.	758	Dimple Ltd.	65
	884		515

13. (a) Conversion Value of Debenture

= Market Price of one Equity Share X Conversion Ratio

= ₹ 25 X 30 = ₹ 750

- (b) Market Conversion Price

$$= \frac{\text{Market Price of Convertible Debenture}}{\text{Conversion Ratio}} = \frac{\text{₹ 900}}{30} = \text{₹ 30}$$

- (c) Conversion Premium per share

Market Conversion Price – Market Price of Equity Share

= ₹ 30 – ₹ 25 = ₹ 5

- (d) Ratio of Conversion Premium

$$\frac{\text{Conversion premium per share}}{\text{Market Price of Equity Share}} = \frac{\text{₹ 5}}{\text{₹ 25}} = 20\%$$

- (e) Premium over Straight Value of Debenture

$$\frac{\text{Market Price of Convertible Bond}}{\text{Straight Value of Bond}} - 1 = \frac{\text{₹ 900}}{\text{₹ 700}} - 1 = 28.6\%$$

- (f) Favourable income differential per share

$$\frac{\text{Coupon Interest from Debenture} - \text{Conversion Ratio} \times \text{Dividend Per Share}}{\text{Conversion Ratio}}$$

$$\frac{\text{₹ 85} - 30 \times \text{₹ 1}}{30} = \text{₹ 1.833}$$

- (g) Premium pay back period

$$\frac{\text{Conversion premium per share}}{\text{Favourable Income Differential Per Share}} = \frac{\text{₹ 5}}{\text{₹ 1.833}} = 2.73 \text{ years}$$

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

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

Where,

M = Market price,

N = Number of old shares for a right share

S = Subscription price

R = Right share offer

$$= \left[\frac{(\text{₹ } 24 \times 4) + (\text{₹ } 16 \times 1)}{4 + 1} \right] = \text{₹ } 22.40$$

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

= Ex-right price – Cost of rights share

= ₹ 22.40 – ₹ 16 = ₹ 6.40

- (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)	<u>1,600</u>
		<u>24,000</u>

There is no change in the wealth of the shareholder if he does not take any action and ignores the issue.

- (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)	<u>22,400</u>
Loss of wealth to shareholders, if rights ignored	<u>1,600</u>

15. Personal earnings of Mr. A = R_1

Mutual Fund earnings = R_2

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

$$= \frac{1}{1 - 0.055} \times 16\% + 1.5\%$$

$$= 18.43\%$$

Mutual Fund earnings = 18.43%

16. Let the probability of attaining the maximum price be p

$$(500 - 420) \times p + (400 - 420) \times (1-p) = 420 \times (e^{0.02} - 1)$$

$$\text{or, } 80p - 20(1 - p) = 420 \times 0.0202$$

$$\text{or, } 80p - 20 + 20p = 8.48$$

$$\text{or, } 100p = 28.48$$

$$p = 0.2848$$

$$\text{The value of Call Option in ₹} = \frac{0.2848 \times (500 - 450)}{1.0202} = \frac{0.2848 \times 50}{1.0202} = 13.96$$

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

Where μ = Daily Absolute Change

σ = Standard Deviation

$$\text{Accordingly, Initial Margin} = ₹ 10,000 + ₹ 6,000 = ₹ 16,000$$

$$\text{Maintenance margin} = ₹ 16,000 \times 0.75 = ₹ 12,000$$

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

18. Exchange Position/Currency Position:

Particulars	Purchase Sw. Fcs.	Sale Sw. Fcs.
Opening Balance Overbought	50,000	
Bill on Zurich	80,000	
Forward Sales – TT		60,000
Cancellation of Forward Contract		30,000
TT Sales		75,000
Draft on Zurich cancelled	30,000	—
	1,60,000	1,65,000
Closing Balance Oversold	5,000	—
	1,65,000	1,65,000
Cash Position (Nostro A/c)		
	Credit	Debit
Opening balance credit	1,00,000	—
TT sales	—	75,000
	1,00,000	75,000
Closing balance (credit)	—	25,000
	1,00,000	1,00,000

The Bank has to buy spot TT Sw. Fcs. 5,000 to increase the balance in Nostro account to Sw. Fcs. 30,000.

This would bring down the oversold position on Sw. Fcs. as Nil.

Since the bank requires an overbought position of Sw. Fcs. 10,000, it has to buy forward Sw. Fcs. 10,000.

19. (i) According to Purchasing Power Parity forward rate is

$$\text{Spot rate} \left[\frac{1+r_H}{1+r_F} \right]^t$$

So spot rate after one year

$$= ₹ 43.40 \left[\frac{1+0.065}{1+0.03} \right]^1$$

$$= ₹ 43.40 (1.03399)$$

$$= ₹ 44.8751$$

After 3 years

$$\begin{aligned} & ₹ 43.40 \left[\frac{1 + 0.065}{1 + 0.03} \right]^3 \\ &= ₹ 43.40 (1.03398)^3 \\ &= ₹ 43.40 (1.10544) \\ &= ₹ 47.9761 \end{aligned}$$

(ii) As per interest rate parity

$$\begin{aligned} S_1 &= S_0 \left[\frac{1 + \ln A}{1 + \ln B} \right] \\ S_1 &= £0.7570 \left[\frac{1 + (0.075) \times \frac{3}{12}}{1 + (0.035) \times \frac{3}{12}} \right] \\ &= £0.7570 \left[\frac{1.01875}{1.00875} \right] \\ &= £0.7570 \times 1.0099 = £0.7645 \\ &= UK £0.7645 / US\$ \end{aligned}$$

20. (a) Strategies at different levels are the outcomes of different planning needs. There are basically three types of strategies:
- (i) **Corporate Strategy:** At the corporate level planners decide about the objective or objectives of the firm along with their priorities and based on objectives, decisions are taken on participation of the firm in different product fields. Basically a corporate strategy provides with a framework for attaining the corporate objectives under values and resource constraints, and internal and external realities. It is the corporate strategy that describes the interest in and competitive emphasis to be given to different businesses of the firm. It indicates the overall planning mode and propensity to take risk in the face of environmental uncertainties.
 - (ii) **Business Strategy:** It is the managerial plan for achieving the goal of the business unit. However, it should be consistent with the corporate strategy of the firm and should be drawn within the framework provided by the corporate planners. Given the overall competitive emphasis, business strategy specifies the product market power i.e. the way of competing in that particular business activity. It also addresses coordination and alignment issues covering internal functional activities. The two most important internal aspects of a business

strategy are the identification of critical resources and the development of distinctive competence for translation into competitive advantage.

- (iii) **Functional Strategy:** It is the low level plan to carry out principal activities of a business. In this sense, functional strategy must be consistent with the business strategy, which in turn must be consistent with the corporate strategy. Thus strategic plans come down in a cascade fashion from the top to the bottom level of planning pyramid and performances of functional strategies trickle up the line to give shape to the business performance and then to the corporate performance.
- (b) It is increasingly realised that commercial evaluation of projects is not enough to justify commitment of funds to a project especially when the project belongs to public utility and irrespective of its financial viability it needs to be implemented in the interest of the society as a whole. Huge amount of funds are committed every year to various public projects of all types—industrial, commercial and those providing basic infrastructure facilities. Analysis of such projects has to be done with reference to the social costs and benefits since they cannot be expected to yield an adequate commercial rate of return on the funds employed at least during the short period. A social rate of return is more important. The actual costs or revenues do not necessarily reflect the monetary measurement of costs or benefits to the society. This is because the market price of goods and services are often grossly distorted due to various artificial restrictions and controls from authorities, hence a different yardstick has to be adopted for evaluating a particular project of social importance and its costs and benefits are valued at 'opportunity cost' or shadow prices to judge the real impact of their burden as costs to the society. Thus, social cost benefit analysis conducts a monetary assessment of the total cost and revenues or benefits of a project, paying particular attention to the social costs and benefits which do not normally feature in conventional costing.

United Nations Industrial Development Organisation (UNIDO) and Organisation of Economic Cooperation and Development (OECD) have done much work on Social Cost Benefit analysis. A great deal of importance is attached to the social desirability of projects like employment generation potential, value addition, foreign exchange benefit, living standard improvement etc. UNIDO and OECD approaches need a serious consideration in the calculation of benefits and costs to the society. This technique has got more relevance in the developing countries where public capital needs precedence over private capital.
- (c) Book building is a technique used for marketing a public offer of equity shares of a company. It is a way of raising more funds from the market. After accepting the free pricing mechanism by the SEBI, the book building process has acquired too much significance and has opened a new lead in development of capital market.

A company can use the process of book building to fine tune its price of issue. When a company employs book building mechanism, it does not pre-determine the issue price (in case of equity shares) or interest rate (in case of debentures) and invite subscription to the issue. Instead it starts with an indicative price band (or interest band) which is determined through consultative process with its merchant banker and asks its merchant banker to invite bids from prospective investors at different prices (or different rates). Those who bid are required to pay the full amount. Based on the response received from investors the final price is selected. The merchant banker (called in this case Book Runner) has to manage the entire book building process. Investors who have bid a price equal to or more than the final price selected are given allotment at the final price selected. Those who have bid for a lower price will get their money refunded.

In India, there are two options for book building process. One, 25 per cent of the issue has to be sold at fixed price and 75 per cent is through book building. The other option is to split 25 per cent of offer to the public (small investors) into a fixed price portion of 10 per cent and a reservation in the book built portion amounting to 15 per cent of the issue size. The rest of the book-built portion is open to any investor.

The greatest advantage of the book building process is that this allows for price and demand discovery. Secondly, the cost of issue is much less than the other traditional methods of raising capital. In book building, the demand for shares is known before the issue closes. In fact, if there is not much demand the issue may be deferred and can be rescheduled after having realised the temper of the market.

- (d) Credit rating is a very important indicator for prudence but it suffers from certain limitations. Some of the limitations are:
- (i) **Conflict of Interest** – The rating agency collects fees from the entity it rates leading to a conflict of interest. Since the rating market is very competitive, there is a distant possibility of such conflict entering into the rating system.
 - (ii) **Industry Specific rather than Company Specific** – Downgrades are linked to industry rather than company performance. Agencies give importance to macro aspects and not to micro ones; overreact to existing conditions which come from optimistic / pessimistic views arising out of up / down turns. At times, value judgments are not ruled out.
 - (iii) **Rating Changes** – Ratings given to instruments can change over a period of time. They have to be kept under constant watch. Downgrading of an instrument may not be timely enough to keep investors educated over such matters.
 - (iv) **Corporate Governance Issues** – Special attention is paid to:
 - (a) Rating agencies getting more of their revenues from a single service or group.

- (b) Rating agencies enjoying a dominant market position. They may engage in aggressive competitive practices by refusing to rate a collateralized / securitized instrument or compel an issuer to pay for services rendered.
- (c) Greater transparency in the rating process viz. in the disclosure of assumptions leading to a specific public rating.
- (v) Basis of Rating – Ratings are based on 'point of time' concept rather than on 'period of time' concept and thus do not provide a dynamic assessment.
- (vi) Cost Benefit Analysis – Since rating is mandatory, it becomes essential for entities to get themselves rated without carrying out cost benefit analysis.
- (e) The Inter Bank Participation Certificates are short term instruments to even out the short term liquidity within the Banking system particularly when there are imbalances affecting the maturity mix of assets in Banking Book.

The primary objective is to provide some degree of flexibility in the credit portfolio of banks. It can be issued by schedule commercial bank and can be subscribed by any commercial bank.

The IBPC is issued against an underlying advance, classified standard and the aggregate amount of participation in any account time issue. During the currency of the participation, the aggregate amount of participation should be covered by the outstanding balance in account.

There are two types of participation certificates, with risk to the lender and without risk to the lender. Under 'with risk participation', the issuing bank will reduce the amount of participation from the advances outstanding and participating bank will show the participation as part of its advances. Banks are permitted to issue IBPC under 'with risk' nomenclature classified under Health Code-I status and the aggregate amount of such participation in any account should not exceed 40% of outstanding amount at the time of issue. The interest rate on IBPC is freely determined in the market. The certificates are neither transferable nor prematurely redeemable by the issuing bank.

Under without risk participation, the issuing bank will show the participation as borrowing from banks and participating bank will show it as advances to bank.

The scheme is beneficial both to the issuing and participating banks. The issuing bank can secure funds against advances without actually diluting its asset-mix. A bank having the highest loans to total asset ratio and liquidity bind can square the situation by issuing IBPCs. To the lender, it provides an opportunity to deploy the short-term surplus funds in a secured and profitable manner. The IBPC with risk can also be used for capital adequacy management.

This is simple system as compared to consortium tie up.