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16CCCCM13 -FINANCIAL MANAGEMENT

Semester- VI

Unit – I

1. Calculate the present value of cash inflows (uneven cash flow) from the following information:

Year	1	2	3	4	5
Expected Cash Flows (Rs.)	3,000	4,000	5,000	6,000	7,000

Interest Rate 10%

Initial Project cost Rs. 20,000

Solution

Year	Cash Flows (Rs)	PV Factor at 10%	Present Value (Rs.)
1	3000	0.909	2727
2	4000	0.826	3304
3	5000	0.751	3755
4	6000	0.683	4098
5	7000	0.621	4347
Total Present Value			18231

Note: Present value table shows the Present Value of Re.l (Pv factor) received at the end of different years at different rates of interest.

Alternative Solution:

Calculation of Present Value (PV)

$PV = FV/(l+r)t + F2/(1+r)^2 + \ldots\ldots\ldots\ldots Fn/(l+r)^t$

Where,

PV = Present Value

F = Future cash flow

r = Rate of interest

t = No. of years

$PV = 3000/(1+0.10)^1 + = 4000/(1+0.10)^2 + = 5000/(1+0.10)^{3+}$

$= 6000/(1+1.10)^4 +$

$= 7000/(1+0.10)^5$

PV = 3000/1.10 + 4000/1.21 + 5000/1.331+ 6000/1.4641 +7000/1.6105

PV = 2727 + 3305 + 3756 + 4098 + 4346 = Rs. 18232

Present Value (PV) = Rs. 18232

2. Ms. Meena is to receive Rs. 10,000 after 8 years from now. Her time preference for money is 14%. Calculate its present. Value by using discount factor table.

P.V of Rs. 10,000 receivable after 8 years

P.V of Re. I receivable after 8 years @ 14% = 0.351

P.V of Rs. 20,000 receivable after 8 years = 0.351 x 10,000

= 3510

3. A Company has sold 1,000, 10% preference shares Rs. 100 each. The flotation costs were 5% find out the cost of preference capital if shares are issued (a) at par (b) at premium 10% (c) at discount 10%.

Dp - Dividend paid

Np - Net proceeds

$K = \frac{D}{N} \times 100$

(i) When the shares are issued at par

Dp = 1,00,000 x 10%

= Rs. 10,000

Np = Issue Proceeds - Flotation costs

Np = 1,00,000-5,000

Np = Rs.95,000

$Kp = \frac{10,000}{95,000} \times 100$

Kp = 10.52%

(ii) When the shares are issued at premium - 10%

Dp = 10,000

Np = 1,10,000-5,500

= 1,04,500

$Kp = \frac{10,000}{1,04,000} \times 100$

Kp = 9.57%

(iii) When the shares are issued at discount - 10%

Dp = 10,000

Np = 90,000-5,000

= Rs.85, 000

$$Kp = \frac{10,000}{85,000} \times 100$$

Kp = 11.76%

Working Notes:

The dividend paid should always be calculated on Face Value of Shares

(1, 00,000 x 10%) Face value = 1,000 x 100 = 1, 00,000

(i) When Shares are issued at par

Issue proceeds = 1,000 shares ×Rs. 100/share

= 1,00,000

Flotation Costs = 1, 00,000 x 5%

= Rs.5, 000

(ii) When Shares are issued at Premium - 10%

Issue proceeds = 1,000 shares x Rs. 110/share (100+10)

Premium = 100 x 10%

= Rs. 1, 10,000

= Rs. 10/share

Flotation Cost = 1, 10,000 x 5%

= Rs.5, 500

(iii) When shares are issued at discount - 10%

Issue proceeds	=	1,000 shares x Rs.90 / share (100-10)
Discount	=	100 X 10% = Rs.10/share
	=	Rs.90, 000
Flotation Cost	=	1, 00,000 X 5%
	=	Rs.5, 000

Flotation cost should be calculated on issue proceeds (or) Face Value, whichever is higher.

4. The market price of a share is Rs. 125 and a company plans to pay a dividend of Rs. 5 per share. The growth in dividends is expected to be at the rate of 8 %. Calculate the cost of equity capital.

Solution

$$Ke = \frac{Dp}{Mp} + g$$

where,

K_e = Cost of Equity Capital

Dp = Expected Dividend per Share Rs. 5

M_p = Market Price per Share Rs. 125

g = Expected Growth in Dividends 8%

$$Ke = \frac{5}{125} + \frac{8}{100} = 0.04 + 0.08$$

= 0.12 or 12%

Unit – II

5. Razak Ltd. has a capital structure consisting of equity capital only. It has 50,000 equity shares of Rs. 10 each. Now the company wants to raise a fund for Rs. 1, 25,000 for its various investment purposes after considering the following three alternative methods of financing.

    i. If it issues 12,500 equity shares of Rs. 10 each

    ii. If it borrows a debt of Rs. 1,25,000 at 8% interest; and

    iii. If it issues 1,250 8% preference shares of Rs. 100 each.

Show the effect of EPS under various methods of financing if EBIT (after additional investment) are Rs. 1,56,250 and rate of taxation is @ 50%

Solution

Statement showing evaluation of options

Particulars	Plant I	Plant II	Plant III
EBIT	1,56,250	1,56,250	1,56,250
(-) Interest	-	(10,000)	-
EBT	1,56,250	1,46,250	1,56,250
(-) Tax - 50%	(78,125)	(73,125)	(78,125)
EAT	78,125	73,125	78,125
(-) Preference Dividend	-	-	(10,000)
Earnings available to Equity shareholders	78,125	73,125	68,125
(+) by No. of equity shares	62,500	50,000	50,000
EPS	1.25	1.46	1.36

The EPS is highest at Plan II, i.e. when expansion is made only via debt at 8%.

6. Universal Ltd, wants to implement a project for which Rs. 60Lakh is to be raised. The following financial plans are under evaluation:

Plan A: Issue of 6 lakhs equity share of Rs. 10 each

Plan B: Issue of 30,000, 10% non - convertible debentures of Rs. 100 each and issue of 3 lakhs equity shares of Rs. 10 each.

Assuring a corporate tax of 55%, calculate the indifference point.

Solution

Indifference Point

1. At indifference point, we assume that EPS under Plan A = EPS under Plan B

$$\frac{(x - I_1)(1 - T) - PD_1}{n_1} = \frac{(x - I_2)(1 - T) - PD_2}{n^2}$$

$I_1 = 0$ $T = 0.55$ $I_2 = 3, 00,000$ $n_1 = 6, 00,000$ $n_2 = 3, 00,000$

$$= \text{Indifference point}$$

$$\frac{(x - 0)(1 - 0{,}55) - 0}{6{,}00{,}000} = \frac{(x - 3{,}00{,}000)(1 - 0{,}55) - 0}{3{,}00{,}000}$$

$$= \frac{0.45x}{6} = \frac{0.45x - 1.35}{3}$$

By Cross multiplying, $1.35x = 2.7x - 8.1$

$1.35x = 8.1$

$X = 6$

(Or) 6 x 1, 00,000 = EBIT = Rs. 6, 00,000

When EBIT of Plan 1 and Plan 2 is Rs.6, 00,000, the EPS of both plans will be equal)

Unit – III

7. A firm has sales of Rs. 20,00,000, variable cost of Rs. 14,00,000, fixed cost of Rs. 4,00,000 and a debt of Rs. 10,00,000 at 10%. Calculate (a) Operating Leverage (b) Financial Leverage (c) Combined Leverage

Solution

	Rs.
Sales	= 20,00,000
Less: Variable Cost	= 14,00,000
Contribution	= 6,00,000
Less: Fixed Cost	= 4,00,000
EBIT	= 2,00,000
Less: Interest (10, 00,000 @ 10%)	= 1,00,000
EBT	= 1,00,000

(a) Operating Leverage

$$OL = \frac{\text{Contribution}}{\text{EBIT}}$$

$$= \frac{\text{Rs.6,00,000}}{\text{Rs.2,00,000}}$$

$$= 3 \text{ times}$$

(b) Financial Leverage

$$FL = \frac{\text{EBIT}}{\text{EBT}}$$

$$= \frac{\text{Rs. 2,00,000}}{\text{Rs. 1,00,000}}$$

$$= 2 \text{ times}$$

(c) Combined Leverage

CL = Operating Leverage x Financial Leverage

= 3x2

= 6 times

8. From the following information, you are required to find out the Degree of operating leverage in the year 2008

EBIT (2007) = Rs. 42,000

EBIT (2008) = Rs. 50,000

Sales (2007) = 1, 10,000 units

Sales (2008) = 1, 40,000 units

Solution

$$\text{Degree of Operating Leverage} = \frac{\%\text{ Change in EBIT}}{\%\text{ Change in quality sold}}$$

$$= \frac{19.05\%}{27.27\%}$$

= 0.6984 or 69.84%

9. The following data relates to XYZ Ltd.

EPS Rs. 15

Captalisation rate 15%

Rate of return 20%

Determine market price per share under Gordon's Model if retention is - (a) 20% (b) 40% and (c) 60%

Solution

Computation of Market price per share under Gordon model:

(a) Retention is at 20% (Payout Ratio 80%)

$$P_0 = \frac{D}{K - g}$$

D = Dividend Per Share i.e. EPS x Payout Rate

= 15 x 80% = Rs.12

K = Cost of Capital = 15%

g = Growth rate = Retention ratio x Rate of return

= 20% x 20% = 4%

P_0 = $\frac{12}{15\% - 4\%} = \frac{12}{11\%}$

= Rs. 109.09

(b) If Retention rate is 40% (Payout Ratio 60%):

D = Rs. 15 x 60 % = Rs. 9

g = 40% x 20% = 8%

K = 15%

P_0 = $\frac{9}{15\% + 8\%} = \frac{9}{7\%} = \text{Rs.}128.57$

(c) If Retention rate is 60% (Payout Ratio 40%):

D = 15x 40 % = Rs. 6

g = 60% x 20% = 12 %

K = 15%

P_0 = $\frac{6}{15\% - 12\%} = \frac{6 \times 100}{3\%} = \text{Rs.}200$

Comment: XYZ Ltd is a Growth Firm as r > k

Unit – IV

10. A firm is engaged in large scale consumer retailing. From the following information, you are required to forecast their working capital requirement :

Projected Annual Sales = Rs. 65, 00,000

Percentage of Net Profit on Cost of Sales - 25%

Average credit period allowed to Debtors - 10 weeks

Average credit period allowed by Creditors - 4 weeks

Average stock carrying (in terms of sales requirement) - 8 weeks

Add 10% to compute figures to allow for contingencies.

Solution:

Projected Annual Sales = Rs. 65, 00,000

Projected Annual sales per week = $\frac{\text{Rs.}65,00,000}{52}$ = Rs. 1, 25,000

Less: Net profit thereon (25% on cost or 20% on sales) = Rs. 25,000

Projected Cost per week = R. 1, 00,000

WORKING CAPITAL REQUIREMENT FORECAST

Current Assets:	*Rs.*		*Rs.*
Stock (8 weeks)	Rs. 1, 00,000 x 8	=	8, 00,000
Debtors (10 weeks)	Rs. 1, 00,000 x10	= 10, 00,000	
Add: Profit @25% on Cost		= 2, 50,000	12, 50,000
			20, 50,000
Less: Current Liabilities:			
Creditors (4 weeks)	Rs. 1, 00,000 x 4	=	4, 00,000
Working Capital Computed:			16, 50,000
Add: 10% for contingencies			1, 65,000
Total Requirement of Working Capital:			18, 15,000

The following items are taken into consideration at the time of ascertaining the requirement of working capital for a manufacturing concern,

(i) Total quantity of units to be produced throughout the year.

(ii) Total costs incurred on materials, wages and overheads.

(iii) Information about the length of time for which raw materials are to remain in store before they are issued for production. (The longer the period, the more will be the requirement of working capital).

(iv) Information about the length of production cycle. (The longer the period, the larger will be the requirement of working capital)

(v) Information about the length of sales cycle. That is, the period during which finished products will remain in the warehouse. (The longer the period of stay, the more will be the requirement of working capital)

(vi) Information about the average of credit allowed to debtors. (The longer the period allowed to customers, the more will be the requirement of working capital).

(vii) Information about the average of credit allowed by suppliers. (The longer the period allowed by creditors, the less will be the requirement of working capital).

(viii) Information about the business expenses.

(ix) Information about the lag in payment of wages and overheads. (The longer the period, the less will be the requirement of working capital).

Forecast of working capital is compiled on the basis of estimate only. Therefore, in order to provide for contingencies, a provision (percentage basis) may be added as a margin of safety. This provision helps in cushioning all uncertainties involved in making the estimates.

11. ABC Ltd., estimated cash payments of 40 lakhs for a one month period. The average fixed cost for securing capital from the market is Rs.100 and the interest rate on marketable securities is 12% per annum or 1.0% for the one month period. What is the economic order size of cash?

Solution

The optimum size of cash balance in this instance will be:

$$C = \sqrt{\frac{2UP}{S}}$$

Where,

C = Optimum cash balance

U = Rs. 40, 00,000 (monthly cash payment)

P = Rs. 100 (fixed cost per-transaction)

S = 12% per annum or 1% for the month (opportunity cost)

$$C = \sqrt{\frac{2 \times 40,00,000 \times 100}{0.01}}$$

The optimal transaction of the company is Rs. 2, 82,842.

12. A company is expecting to have Rs.2, 50,000 cash in hand on 1st April 2008, and it requires you to prepare an estimate of cash position during the three months, April-June 2008.

Month	**Sales (Rs.)**	**Purchases (Rs.)**	**Wages (Rs.)**	**Expenses (Rs.)**
February	7,00,000	4,00,000	80,000	60,000
March	8,00,000	5,00,000	80,000	70,000
April	9,20,000	5,20,000	90,000	70,000
May	10,00,000	6,00,000	1,00,000	80,000
June	12,00,000	5,00,000	1,20,000	90,000

Additional Information

i. Period of credit allowed by suppliers is two months.

ii. 25% of sale is for cash and the period of credit allowed to customer for credit sale is one month.

iii. Delay in payment of wages and expenses is one month.

iv. Income tax. Rs. 2.50,000 is to be paid in June 2009.

Solution

Cash Budget

Particulars	**April Rs.**	**May Rs.**	**June Rs.**	**Total Rs.**
Opening Balance of Cash	2,50,000	5,30,000	8,10,000	15,90,000
Cash Receipts				
Cash Sales	2,30,000	2,50,000	3,00,000	7,80,000
Debtors	6,00,000	6,90,000	7,50,000	20,40,000
Total Cash Receipts - (A)	10,80,000	14,7.0,000	18,60,000	44,10,000
Cash Payments				
Creditors	4,00,000	5,00,000	5,20,000	14,20,000
Wages	80,000	90,000	1,00,000	2,70,000
Expenses	70,000	70,000	80,000	2,20,000
Income Tax-	-	-	2,50,000	2,50,000
Total Payments - (B)	5,50,000	6,60,000	9,50,000	21,60,000
Closing Balance of Cash (A-B)	5,30,000	8,10,000	9,10,000	22,50,000

UNIT – V

13. A company uses a particular material in a factory, which is 20,000 units per year. The cost per unit of material is Rs.10. The cost of placing one order is Rs. 100 and the inventory carrying cost is 20% on average inventory. From this information calculate EOQ.

Solution

Determination of EOQ

$$EOQ = \sqrt{\frac{2AB}{CS}}$$

Where,

A = Annual Consumption = 20,000 units

B = Buying Cost per Order = Rs. 100

C = Cost per Unit = Rs. 10

S = Storage and Carrying Cost - 20% on average inventory

$$EOQ = \sqrt{\frac{2 \times 20{,}000 \times 100}{10 \times 20\%}} = 1{,}414 \text{ Units}$$

14. Two components P and Q are used as follows, Normal usage 1,000 units per week each; Re-ordering quantity P - 20,000, Q - 8,000; Re ordering period P - 4 to 6 weeks, Q 2 to 4; Minimum usage 2,000 units per week each, Maximum usage 3,000 units per week each.

You are required to calculate the following for each of the components

(i) Minimum Stock Level

(ii) Maximum Stock Level

(iii) Average Stock Level

(iv) Re-ordering Level

Solution

1, Re-ordering Level , = Maximum Consumptionx Maximum Re-order period

Product P = 3,000 x 6 = 18,000 units

Product Q = 3,000 x 4 = 12,000 units

2, Minimum Level = Re-order Level - (Normal Consumption x Normal Re-order Period)

Product P = 18,000 - (1,000 x 5)

= 18,000-5,000 = 13,000 units

Product Q = 12,000 - (1,000 x 3)

= 12,000-3,000 = 9,000 units

3. Maximum Level = Re-order Level + Re-order Quantity - (Minimum Consumption x Minimum Re-order Period)

Product P = 18,000 + 20,000 - (2,000 x 4)

= 38,000 - 8,000 = 30,000 units

Product Q = 12,000 + 8,000 - (2,000 x 2)

= 20,000-4,000 = 16,000 units

4. Average Stock Level = Minimum Level
+ ½ of Re-order Quantity

Product P = 13,000 + ½ (20,000)

= 13,000 + 10,000 = 23,000 units

Product Q = 9,000 + 14 (8,000)

= 9,000 + 4,000 = 13,000 units