Paper-18: BUSINESS VALUATION MANAGEMENT

Time Allowed: 3 Hours **Full Marks: 100**

The figures in the margin on the right side indicate full marks.
Answer Question No. 1 which is compulsory carrying 25 marks and any five from the rest.
Working Notes should form part of the answer.
"Whenever necessary, suitable assumptions should be made and indicated in answer by the candidates."

1. (a) Fill in the blanks by using the words/phrases given in the brackets: [1x10=10]

(i) Key to income-based approach of valuation is ---------- (capitalization rate/ internal rate of return)

(ii) β factor does not measure ---------- risk (systematic/unsystematic).

(iii) Super profit is the excess of future maintainable profits over ---------- expected profits (normally/abnormally).

(iv) The value of the patent does not show up if it is ..... generated. (internally/externally).

(v) The risk that the cash flows will not be delivered is called ---------- (liquidity risk/default risk).

(vi) Organizational capital is a ---------- component of intellectual capital (primary/secondary).

(vii) A real estate investment trust is ---------- investment company that invests only in real estate (closed-end/opened-end).

(viii) ---------- takes place when a healthy company merges into a financially weak company (merger/reserve merger).

(ix) The price paid by the option buyer to the option seller to acquire the right to buy or sale is ---------- (Strike Price/ Option Premium).

(x) ---------- implies risk arising from debtors default on financial claim (default risk/credit risk).

(b) In each of the questions given below one out of the four options is correct. Indicate the correct answer: [2×5=10]

(i) RIL (FV ₹10) quotes ₹520 on NSE, and 3 months future price quoting at NSE is ₹542,and one month borrowing rate is given as 15%.The price of 3-month RIL futures is

a) 539.50
b) 598
c) 578.50
d) 545

(ii) S & Co. earns ₹12 per share, capitalization rate of 10% and has a return on investment at the rate of 20%. According to Walter's model price per share at 30% dividend payout ratio will be

a) ₹212
b) ₹204
c) ₹220
d) ₹224

(iii) A bank borrowed call money for 3 days in the overnight call money market and paid ₹152345 for these 3 days on a borrowing of ₹40 crores. The implied call money rate will be

a) 4.61%
b) 4.63%
c) 4.65%
d) 4.67%

(iv) A convertible bond with a face value of ₹1,000 issued at ₹1,300 with a coupon rate of 12%.The conversion rate is 20 shares per bond. The current market price of the bond is ₹1,500 and that of stock is ₹60.The conversion value premium is

a) 15%
b) 18%
c) 20%
d) 25%

(v) A wishes to sell his business and his business has been good. Revenues are growing each year. He desires to pick a best offer and have patience till he gets best price. In this situation on which basis he should value his business

a) Book Value
b) NPV of future earnings
c) Auction value
d) Fair Market Value

(c) State whether the following statements are true or false: [1x5=5]

(i) Horizontal mergers are also known as conglomerate mergers.

(ii) A market is efficient when trading oriented strategies can beat the market.

(iii) Industrial groups are inherently less conservative than investors in allocating resources.

(iv) A levered portfolio provides increasing returns with increased risk.

(v) In constant growth model, the value of equity share is sensitive to growth rates.

Answer:

1. (a)

(i) Capitalization rate

(ii) Unsystematic

(iii) Normally

(iv) Internally

(v) Default risk

(vi) Primary

(vii) Closed-end

(viii) Reverse Merger

(ix) Option Premium

(x) Credit Risk

(b)

(i) ₹539.50

Hints: Future's Price = Spot + Cost of Carry – Dividend

F = 520 + 520 x 0.15 x 0.25 – 0 = 539.50

(ii) ₹204

Hints: As per Walter Model $P = \frac{\left(D + \frac{r}{k}(E-D)\right)}{k} = \frac{\left(3.60 + \frac{0.20}{0.10}(12-3.60\right)}{0.10} = 204$

(iii) 4.63%

Hints: Interest for 3 days = 40 Crores x $\frac{3}{365} x \frac{r}{100}$ = ₹1,52,345

r = 4.63%

(iv) 25%

Hints: Conversion rate is 20 shares per bond. Market price of share ₹ 60.
Conversion Value 20 x ₹ 60 = ₹ 1,200.
Market price of bond = ₹ 1,500

Premium over Conversion Value (₹1,500 – ₹1,200) $= \frac{300}{1,200} x100 = 25\%$

(v) Fair Market Value

(c)

(i) False

(ii) False

(iii) False

(iv) True

(v) True

2. (a) XYZ Ltd. has a capital of ₹ 10,00,000 in equity shares of ₹ 100 each. The shares are currently quoted at par. The company proposes to declare a dividend of ₹10 per share at the end of the current financial year. The capitalization rate for the risk class of which the company belongs is 12%. What will be the market price of the share at the end of the year, if

(i) a dividend is not declared?

(ii) a dividend is declared?

(iii) assuming that the company pays the dividend and has net profits of ₹5,00,000 and makes new investments of ₹10,00,000 during the period, how many new shares must be issued? Use the MM model.

(b) Khan Ltd. furnishes the following information relating to the previous three years, and requests you to compute the value of the brand of the company.

[₹ in lakhs]

Particulars	2012	2013	2014
Profits Before Interest and Tax	75.00	100.00	150.00
Loss on Sale of Assets	3.00	10.00	18.00
Non Operating Income	12.00	12.00	8.00

Inflation was 10% for 2013 and 12% for 2014. If the capitalisation factor considering internal and external value drivers to the brand is 15, determine the brand value. Assume an all inclusive future tax rate of 40%. [(2+2+4)+7]

Answer:

(a) As per MM model, the current market price of equity share is: $P_0 = \frac{1}{1+k_e} x(D_1 + P_1)$

(i) If the dividend is not declared:

$$100 = \frac{1}{1+0.12}(0 + P_1)$$

$$100 = \frac{P_1}{1.12}$$

P_1 = ₹ 112

The Market price of the equity share at the end of the year would be ₹112.

(ii) If the dividend is declared:

$$100 = \frac{1}{1+0.12}(10 + P_1)$$

$$100 = \frac{10 + P_1}{1.12}$$

$112 = 10 + P_1$

$P_1 = 112 - 10 =$ ₹ 102

The market price of the equity share at the end of the year would be ₹ 102.

(iii) In case the firm pays dividend of ₹ 10 per share out of total profits of ₹ 5,00,000 and plans to make new investment of ₹ 10,00,000, the number of shares to be issued may be found as follows:

	₹
Total Earnings	5,00,000
Less: Dividends paid	1,00,000
Retained earnings	4,00,000
Total funds required	10,00,000
Fresh funds to be raised	6,00,000
Market price of the share	102
Number of shares to be issued (₹ 6,00,000/102)	5,882.35

Or, the firm would issue 5,883 shares at the rate of ₹ 102

(b)

Particulars	2012	2013	2014
Profits Before Interest and Tax	75.00	100.00	150.00
Add: Loss on Sale of Assets	3.00	10.00	18.00
Less: Non Operating Income	(12.00)	(12.00)	(8.00)
Branded Earning	66.00	98.00	160.00
Inflation Adjustment Factor	1.10 x 1.12 = 1.23	1.12	1.00
Inflation Adjusted Earnings as at 31.03.2012	81.18	109.76	160.00
Weights	1	2	3
Product	81.18	219.52	480.00
Weighted Average Earnings Before [(81.18 + 219.52 + 480)/(1+2+3)]			130.12
Less: Taxes at 40%			(52.05)
Weighted Average Brand Earnings After			78.07
Capitalisation Factor			15
Brand Value			₹1,171.05 lakhs

3. (a) From the following particulars of three companies, ascertain the value of goodwill. Terms and conditions are as follows:

(i) Assets are to be revalued.

(ii) Goodwill is to be valued at four years' purchase of average super profits for three years. Such average is to be calculated after adjustment of depreciation at 10% on the amount of increase/decrease on revaluation of fixed assets. Income tax is to be ignored.

(iii) Normal profit on capital employed is to be taken at 10%, capital employed being considered on the basis of net revalued amounts of tangible assets.

The summarized Balance Sheets and relevant information are given below: (₹ in lakhs)

Liabilities	P Ltd.	Q Ltd.	R Ltd.	Assets	P Ltd.	Q Ltd.	R Ltd.
Equity shares of ₹10 each	12.00	14.00	6.00	Goodwill	-	1.00	-
Reserves	2.00	1.00	2.00	Net tangible block	16.00	12.00	10.00
10% Debentures	4.00	-	2.00	Current assets	6.00	5.00	2.00
Trade & expense creditors	4.00	3.00	2.00				
Total	22.00	18.00	12.00	Total	22.00	18.00	12.00

	P Ltd. (₹)	Q Ltd. (₹)	R Ltd. (₹)
Revaluation of tangible block	20,00,000	10,00,000	12,00,000
Revaluation of current assets	7,00,000	2,80,000	1,60,000
Average annual profit for three years before charging debenture interest	3,60,000	2,88,000	1,56,000

[7]

(b) Consider a bond portfolio comprising of a zero coupon bond, 8% coupon bond and a 10% coupon bond (all with 10years to maturity). All have a face value of ₹1000. The current prices of these bonds are ₹463.19, ₹1000 and ₹1134.20 respectively. If the yield over the next 1 year period is likely to stay at 8%, what is the current value of the portfolio and what will be the portfolio value at the end of next year? Calculate the individual return earned on each bond? [8]

Answer:

3. (a)

Valuation of Goodwill

	P Ltd. (₹)	Q Ltd. (₹)	R Ltd. (₹)
Average annual profit after charging debenture interest	3,20,000	2,88,000	1,36,000
Less/Add: Depreciation on amount increased/ decreased on revaluation	(40,000)	20,000	(20,000)
	2,80,000	3,08,000	1,16,000
Less: Normal profit at 10% on capital employed as calculated in working note	(1,90,000)	(98,000)	(96,000)
Super Profit	90,000	2,10,000	20,000
Goodwill valued at four years' purchase of super profits	3,60,000	8,40,000	80,000

Working Note:
Calculation of Capital Employed

	P Ltd. (₹)	Q Ltd. (₹)	R Ltd. (₹)
Tangible fixed assets	20,00,000	10,00,000	12,00,000
Current assets	7,00,000	2,80,000	1,60,000
	27,00,000	12,80,000	13,60,000
Less: Debentures and Creditors	(8,00,000)	(3,00,000)	(4,00,000)
	19,00,000	9,80,000	9,60,000

(b) The zero coupon bond if discounted with 8% for the next 9 years would give us value at the end of 1 year to be = ₹ 500.25. Secondly the 8% bond is currently quoting at ₹ 1,000. It would continue to quote at ₹ 1000 because the yield is slated to remain at 8% = coupon rate. In contrast, the 10% bond is currently quoting at ₹ 1134.20. It would quote cheaper at ₹ 1124.94. This can be calculated as follows:
Price at the end of 1 year = ₹ 100 x PVIFA (8%,n) + ₹ 1000 x PVIF (8%,n) = ₹1124.94

	Zero coupon	8% coupon	10% coupon	Portfolio Value
Current prices	₹ 463.19	₹ 1000	₹ 1134.20	₹ 2597.39
Price one year from now	₹ 500.25	₹ 1000	₹ 1124.94	₹ 2625.19
Price increase	₹ 37.06	₹ 0.00	-₹9.26	₹ 27.80
Coupon income	₹ 0.00	₹ 80.00	₹ 100.00	₹ 180.00
Income	₹ 37.06	₹ 80.00	₹ 90.74	₹ 207.80
Rate of Return	8.00%	8.00%	8.00%	8.00%

We therefore get a portfolio Value of ₹ 2597.39 now and ₹ 2625.19 a year later. With a overall capital gain of ₹ 27.80 and overall coupon income of ₹ 180.00 we have overall return of 8% on the portfolio. Note that this is equal to the yield we expect over the next one year.

4. (a) D.K. International Ltd. is developing a new production process. During the financial year ending 31st March, 2014, the total expenditure incurred was ₹50 lakhs. This process met the criteria for recognition as an intangible asset on 1st December, 2013. Expenditure incurred till this date was ₹22 lakhs. Further expenditure incurred on the process for the financial year ending 31st March, 2015 was ₹80 lakhs. As at 31st March, 2015, the recoverable amount of know-how embodied in the process is estimated to be ₹72 lakhs. This includes estimates of future cash outflows as well as inflows.

You are required to calculate:

(i) Amount to be charged to Profit and Loss A/c for the year ending 31st March, 2014 and carrying value of intangible as on that date.

(ii) Amount to be charged to Profit and Loss A/c and carrying value of intangible as on 31st March, 2015.

Ignore Depreciation. [3+3]

(b) Sun Pharma with its need to grow and maintain its leadership position in the pharma industry is planning to acquire ABTCPL. The recent financial details of the two companies are as follows:

Particulars	Sun Pharma	ABTCPL
PAT	₹2200 lakhs	₹40 lakhs
MPS(FV₹10)	₹200	₹24
P/E Ratio	18.18	12
Projected Growth Rates(p.a.)	9%	5%

There are two views expressed by two leading consultants on the benefits due to Synergy, one arguing that there can be no benefit from synergy while the other projects a 3% increase in earnings after the acquisition.

(i) If ABTCPL's shareholders want an exchange ratio of 0.4 (i.e. 4 shares for every 1 share of ABTCPL), would that be acceptable to the shareholders of Sun Pharma, if
1. **There is no synergy due to merger.**
2. **There is an increase in earnings of the merged entity by 3% due to synergy.**

(ii) If Sun Pharma accepts an exchange ratio of 0.4 and synergy benefits are not realized, will there be any dilution in EPS of Sun Pharma? If so, when will the dilution be wiped off? [5+4]

Answer:

4. (a) As per AS 26 'Intangible Assets'

(i) For the year ending 31.03.2014

(1) Carrying value of intangible as on 31.03.2014:
At the end of financial year 31st March 2014, the production process will be recognised (i.e., carrying amount) as an intangible asset at a cost of ₹ 28 lakhs (expenditure incurred since the date the recognition criteria were met, i.e., from 1st December 2013).

(2) Expenditure to be charged to Profit and Loss Account:
The ₹ 22 lakhs is recognised as an expense because the recognition criteria were not met until 1st December 2013. This expenditure will not form part of the cost of the production process recognised in the balance sheet.

(ii) For the year ending 31.03.2015.

(1) Expenditure to be charged to Profit and Loss account.

	(₹ in lakhs)
Carrying amount as on 31.03.2014	28
Expenditure during 2013-2015	80
Total book cost	108
Recoverable Amount	(72)
Impairment loss	36

₹ 36 lakhs to be charged to Profit and Loss Account for the year ending 31.03.2015.

(2) Carrying value of intangible as on 31.03.2015

	(₹ in lakhs)
Total Book Cost	108
Less: Impairment loss	(36)
Carrying amount as on 31.03.2014	72

(b) (i) The shareholders of Sun Pharma would not like their existing EPS to go down. So, they would at least prefer current EPS of 200/18.18= ₹ 11.

1. Without synergy

Using the given data and equating it to ₹ 11.

$$\frac{EPS_S N_S + EPS_A N_A}{N_S + ER(N_A)} = EPS_{SA} = \frac{200}{18.18} = ₹\ 11$$

Where, EPS_A = 24/12 = ₹ 2, N_s= 2200/11 = 200 lakhs, N_A = 40/2 = 20 lakh

Therefore

$$₹\ 11 = \frac{11 x\ 200\,lakh + 2 x\ 20\,lakh}{200\,lakh + ER\,(20\,lakh)}$$ Therefore, ER = 0.182

2. With Synergy

$$\frac{\left[EPS_S N_S + EPS_A N_A\right] x 1.03}{N_S + ER(N_A)} = EPS_{SA} = \frac{200}{18.18} = ₹\ 11$$

Therefore

$$₹\ 11 = \frac{[11 x\ 200\,lakh + 2 x\ 20\,lakh] x\ 1.03}{200\,lakh + ER\,(20\,lakh)}$$ Therefore, ER = 0.487

So, Sun Pharma shareholders would accept at least the average of these ER.

= 0.5 x 0.182 + 0.5 x 0.487 = 0.335

So, ABTCPL's demand for ER of 0.4 will not be acceptable to Sun Pharma.

(ii) Projected EPS of the merged entity

$$\frac{\left[EPS_S N_S + EPS_A N_A\right] x [1+g]}{N_S + 0.4(N_A)} = EPS_{SA} = \text{Projected EPS of the merged entity}$$

'g' of the merged entity = $\frac{200 x\ 1.09 + 24 x\ 1.05}{200 + 24} - 1 = ₹\ 8.57\%$

Projected EPS = $\frac{[11 x\ 200\,lakh + 2 x\ 20\,lakh] x\ 1.0857}{200\,lakh + 0.4\,(20\,lakh)} = ₹\ 11.7$

Without merger EPS_s = ₹ 11 x 1.09 = ₹ 11.99

Dilution = $\frac{[11.99 - 11.70]}{11.99} = 2.42\%$

The shareholders of Sun Pharma will never be able to wipe off the dilution since the 'g' of the merged entity is lower than the pre-merger growth rate. So only if the prediction of synergy works and 'g' earnings growth rate increases beyond 9% then only the shareholders can hope for wiping off the dilution of share value.

5. (a) Yahoo is considering the acquisition of Bookpad in a stock-for-stock transaction in which Bookpad would receive ₹ 85 for each share of its common stock. Yahoo does not expect any change in its price/earnings ratio multiple after the merger and chooses to value the Bookpad conservatively by assuming no earning growth due to synergy.

Calculate

(i) The purchase price premium
(ii) The exchange ratio
(iii) The number of new shares issued by Yahoo
(iv) Post- merger EPS of the combined firms
(v) Pre-merger EPS of the Yahoo
(vi) Pre-merger P/E ratio
(vii) Post merger share price
(viii) Post merger equity ownership distribution

The following additional information is available

	Yahoo	Bookpad
Earnings	₹2,50,000	₹72,500
Number of Shares	1,10,000	20,000
Market price per share	₹52	₹64

Also comment on the results. [1+1+1+1+1+1+1+1+2]

(b) From the following details, compute according to Lev and Schwartz (1971) model, the value of the skilled employees.

	Skilled
Annual average earning of an employee till the retirement age	₹50,000
Age of retirement	65 years
Discount rate	15%
No. of employees in the group	20
Average age	62 years

[5]

Answer:

5. (a) (i) Purchase price premium = Offer price for Bookpad stock / Bookpad Market price per share = 85 / 64 = 1.328 or 33% app.

(ii) Exchange ratio = Price per share offered for Bookpad / market price per share for Yahoo = 85 / 52 = 1.6
Yahoo issues 1.6 shares of stock for each of Bookpad's stock.

(iii) New shares issued by Yahoo = Shares of Bookpad x Exchange ratio
= 20,000 x 1.6 = 32,000

(iv) Post-merger EPS of the combined companies = Combined earning / Total number of share.
Combined earnings = ₹ (2,50,000 + 72,500)
= ₹ 3,22,500

Total shares outstanding of the new entity
= 1,10,000 + 32,000 = 1,42,000
= ₹ 2.271

(v) Pre-merger EPS of Yahoo
= Earnings / Number of shares
= ₹2,50,000 / 1,10,000 = ₹ 2.273

(vi) Pre-merger P/E = Pre-merger market price per share / Pre-merger earnings per share
= 52/2.273 = 22.87

(vii) Post-merger share price = Post-merger EPS x Pre-merger P/E
= 2.271x22.87=₹ 51.94 (as compared to ₹ 52 Per-merger)

(viii) Post-merger Equity Ownership Distribution
Bookpad = Number of new shares / Total number of shares
= 32,000 / 1,42,000 = 0.2253 or 22.53%
Yahoo = 100 – 22.53 = 77.47%

Comment – The acquisition results in a ₹ 0.06 reduction in the market price of the Yahoo due to a 0.002 decline in the EPS of the combined companies. Whether the acquisition is a poor decision depends upon what happens to the earnings would have in the absence of the acquisition, the acquisition may contribute to the market value of the acquiring company.

(b) According to Lev and Schwartz, the value of human capital embodied in a person of age is the present value of his remaining future remaining future earnings from employment. Their valuation model for a discrete income stream is given by the following formula:

$$V = \sum_{t=r}^{t} \frac{I(t)}{(1+r)^{t-r}}$$

Where,

V = the human capital value of a person years old.

I(t) = the person's annual earnings up to retirement.

r = a discount rate specific to the person.

t = retirement age.

Value of skilled employees:

$$= \frac{50,000}{(1+0.15)^{(65-62)}} + \frac{50,000}{(1+0.15)^{(65-63)}} + \frac{50,000}{(1+0.15)^{(65-64)}}$$

₹ 32,875.81 + ₹ 37,807.18 + ₹ 43,478.26 = ₹ 1,14,161.25

Total value of skilled employees is ₹ 1,14,161.25 x 20 = ₹ 22,83,225.

6. (a) How do you value acquired brand? [5]

(b) The following information is given for 2 companies that are identical except for their capital structure:

	RED	BLUE
Total Invested Capital	**1,00,000**	**1,00,000**
Debt/Asset Ratio	**0.8**	**0.5**
Shares Outstanding	**6,100**	**8,300**
Pre Tax Cost of Debt	**16%**	**13%**
Cost of Equity	**26%**	**22%**
Operating Income(EBIT)	**25,000**	**25,000**
Net Income	**8,970**	**12,350**

The tax rate is uniform 35% in all cases.

(i) Compute the weighted average cost of capital for each company.

(ii) Compute the Economic Value Added (EVA) for each company.

(iii) Based on the EVA, which company would be considered for best investments?

(iv) If the industry PE ratio is 11, estimate the price for the share of each company.

(v) Calculate the estimated market capitalization for each of the companies.

[2+2+1+3+2]

Answer:

6. (a) A purchased brand is one, which is acquired from other existing concerns. The acquiring company may acquire only the brand names. The value of acquired brands is given below:
Brand value=Price paid for acquisition.

On the other hand, a company may acquire an existing business concern along with its brands. It happens in case of mergers & acquisitions. The sum involved in these transactions provides an indication of the financial value of brands. In this case;
Brand value=Purchase consideration(x)-Net assets acquired(y).

Does excess price always represent brand value? (X-Y) represents the amount of purchased goodwill but acquiring company might have paid excess price for varied factors also. Those are;

Location of the factory;

Long term contracts with suppliers;

Better manufacturing technology etc.

Competitive force may make the acquirer to increase the bid price thereby increasing the amount of purchased goodwill. This inseparability of brand from other intangible assets makes it difficult to value brands.

(b) (i) Computation of WACC of each company:

	RED	BLUE
W_d	0.8	0.5
K_d	10.4	8.45
W_e	0.2	0.5
K_e	26	22
WACC $[W_d \times K_d + W_e \times K_e]$	13.52	15.225

(ii) Computation of Economic Value Added (EVA) for each company:

	RED	BLUE
WACC	13.52	15.225
Invested Capital	100000	100000
EBIT	25000	25000
NOPAT	16250	16250
EVA (NOPAT – WACC x Invested Capital)	2730	1025

(iii) Based on the EVA, RED considered for best investments.

(iv) If the industry PE ratio is 11, calculation of price for the share of each company:

	RED	BLUE
Shares	6100	8300
Net Income	8970	12350
EPS	1.47	1.49
Price [P/E × EPS] [where (P/E = 11)]	16.17	16.37

(v) Calculation of the estimated market capitalization for each of the companies:

	RED	BLUE
Shares	6100	8300
Price [P/E × EPS]	16.17	16.37
Market Cap	98637	135871

7. (a) List the reasons why companies are going for restructuring? [6]

(b) Describe the progress made by India so far in the field of human resource accounting. [5]

(c) List the applications of DCF Valuation? [4]

Answer:

7. (a) There are basically six reasons why companies are going for restructuring:

(1) The globalization of business has compelled Indian companies to open new export houses to meet global competition. Global market concept has necessitated many companies to restructure because lowest cost producers only can survive in the competitive global market.

(2) Changed fiscal and government policies like deregulation/decontrol has led many companies to go for newer market and customer segments.

(3) Revolution information technology has made it necessary for companies to adapt new changes in the communication/information technology for improving corporate performance.

(4) Many companies have divisionalised into smaller businesses. Wrong divisionalisation strategy has led to revamp themselves. Product divisions which do not fit into the company's main line of business are being divested. Fierce competition is forcing Indian companies to relaunch themselves.

(5) Improved productivity and cost reduction has necessitated downsizing of the work force-both at works and managerial level.

(6) Convertibility of rupee has attracted medium-sized companies to operate in the global market.

(b) Human resource accounting can be defined as the process of indentifying, measuring and communicating information about human resources in financial statements in order to facilitate effective management. Human resource accounting is a recent phenomenon in India. Leading public sector units like OIL, BHEL, NTPC, MMTC and SAIL etc. have started reporting Human Resources in their annual reports as additional information. The Indian companies basically adopted the model of human resource valuation as advocated by Lev and Schwartz (1971). Indian Companies focused their attention on the present value of employee earning as a measure of their human capital. However the Indian Companies have suitably modified the Lev and Schwartz model to suit their individual circumstances.

(c) Application of DCF Valuation:

(1) DCF valuation approach is the easiest to use for assets or firms with the following characteristics:
cash flows are currently positive the cash flows can be estimated with some reliability for future periods, and where a proxy for risk that can be used to obtain discount rates is available.

(2) DCF approach is also attractive for investors who have a long time horizon, allowing the market time to correct its valuation mistakes and for price to revert to "true" value, or those who are capable of providing the needed thrust as in the case of an acquirer of a business.

8. (a) Write a short note on Accounting for investment by a holding company in subsidiaries. [7]

(b) The following table contains expected returns estimated from historical data, required returns from the CAPM, the covariance of the security with the true market portfolio, and the security's beta.

Stock	Expected Return %	Required return from CAPM %	Covariance with Market	Beta	Overvalued or Undervalued
Stock X	19.0	17.000	0.40	1.000	?
Stock Y	16.0	12.875	0.25	?	?
Stock Z	25.5	?	?	2.000	?
Risk-Free T-Bill	6.0	6.000	0	0	

Using the CAPM formulas, assuming the CAPM is true and assuming the market variance is 0.40, fills in all the blanks. Assuming the CAPM is true, which investment(s) would you choose to invest in? Why? [8]

Answer:

8. (a) Investments by a holding company in the shares of its subsidiary company are normally considered as long term investments. Indian holding companies show investment in subsidiary just like any other investment and generally classify it as trade investment. As per AS 13 'Accounting for Investments', investments are classified as long term and current investments. A current investment is an investment that by its nature is readily realizable and is intended to be held for more than one year from the date of acquisition. A long term investment is one that is not a current one.

Costs of investment include besides acquisition charges, expenses such as brokerage, fees and duties. If an investment is acquired wholly or partly by an issue of shares or other securities, the acquisition cost is determined by taking the fair value of the shares/ securities issued. If an investment were to be acquired in exchange - part or whole - for another asset, the acquisition cost of the investment is determined with reference to the value of the other asset exchanged. Dividends received out of income earned by a subsidiary before the acquisition of the shares by the holding company and not treated as income but treated as recovery of cost of the assets (investment made in the subsidiary). The carrying cost for current investment is the lower of cost or fair/market value whereas investment in the shares of the subsidiary (treated as long term) is carried normally at cost.

(b) Stock X is undervalued as it provides more returns than CAPM returns. (19% > 17%).

For stock Y, we have $\beta = \frac{\sigma_{sm}}{\sigma_m^2} = \frac{0.25}{0.40} = 0.625$ .CAPM returns of stock Y is less than expected returns, indicating stock is under-valued.

For stock Z, we need to find CAPM returns for which we use same R_m as that of Stock X. i.e., 17%. This is because stock X has same beta as that of market. = 1. Thus, we get,

$E(R_c) = 0.06 + 2(0.17 - 0.06) = 28\%$. We can find the covariance using the same formula used above i.e., $\beta = \frac{\sigma_{cm}}{\sigma_m^2} = \frac{\sigma_{cm}}{0.40} = 2.0$, i.e. σ_{cm} = 2 x 0.40 = 0.80. Now, Stock Z is overvalued as it provides less return than CAPM return. (25.5% < 28%).

Thus, stocks X and Y are undervalued according to the CAPM, thus, these investments should be chosen as their prices will increase for equilibrium to be restored.