

Suggested Answer_Syl12_Dec2015_Paper 20

FINAL EXAMINATION GROUP IV (SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS

DECEMBER 2015

Paper- 20 : FINANCIAL ANALYSIS AND BUSINESS VALUATION

Time Allowed : 3 Hours

Full Marks : 100

The figures in the margin on the right side indicate full marks.

SECTION A

In this section, Answer Question No. 1 (a) and 1 (b) which is compulsory and any two parts out of Question No. 2(a), 2(b) and 2(c)

1. (a) The following information about ABC Limited has been extracted from the Annual Report – 2015 of the Company.

(` In lakhs)

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15
Income Statement:					
Net Sales	5,959	6,500	6,809	6,649	7,262
Other Income:					
Operating	98	112	107	132	121
Non-operating	353	542	511	558	673
Operating expenses	4,464	5,467	6,010	5,847	5,677
Operating Profit	1,593	1,145	906	934	1,706
Exceptional Income/(Expenditure)	—	(22)	—	(49)	148
Earnings before interest, dep. & taxes (EBIDT)	1,946	1,665	1,417	1,443	2,527
Interest & Financing charges	—	1	7	—	—
Earning before dep. & taxes (EBDT)	1,946	1,664	1,410	1,443	2,527
Depreciation and Amortisation	422	466	505	525	414
Profit before Tax (PBT)	1,524	1,198	905	918	2,113
Provision for Tax	455	348	312	276	791
Net Profit (PAT)	1,069	850	593	642	1,322
Balance Sheet:					
Equity Capital	1,289	1,289	1,289	1,289	1,289
Reserves & Surplus	9,876	10,426	10,644	10,833	11,508
Net worth	11,165	11,715	11,933	12,122	12,797
Loans	15	—	—	—	—
Total	11,180	11,715	11,933	12,122	12,797
Net Fixed Assets	5,494	6,612	6,629	6,792	6,645
Assets not used for business	2,382	910	1,893	1,381	651
Working Capital	3,304	4,193	3,411	3,949	5,501
Total Assets	11,180	11,715	11,933	12,122	12,797

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Capital Employed in Business	8,798	10,805	10,040	10,741	12,146
Ratios:					
Operating Profit Margin (OPM)(%)	26.73	17.62	13.31	14.05	23.5
Net Profit Margin (%)	17.94	13.07	8.71	9.65	18.21
Return On Capital Employed (ROCE)	12.15	7.86	5.91	5.98	10.89
Return on Net worth (RONW) (%)	9.57	7.25	4.97	5.29	10.33
Others:					
Book value per share of ` 5 each	43.32	45.46	46.30	47.04	49.65
Earnings per share (in `)	4.15	3.30	2.30	2.49	5.13
Market Price (in `, end of the financial year)	47.83	44.70	35.15	42.65	45.65
Dividend (Per Share)	1.00	1.00	1.25	1.50	1.75

Required:

- (i) On the basis of important growth indicators and using Trend Analysis (Index Series), comment whether the company is growing.
 (ii) Is ABC Limited becoming solvent over the period? 6+4=10

(b) (i) Particulars about River Ltd. are provided below:

	31-03-2014	31-03-2015
Revenue (` lakhs)	4,800	6,200
Assets (` lakhs)	2,000	2,400
Equity Multiplier (EM)	1.33	1.2
Return on Equity (ROE) %	26.67	25

Comment on changes in profit margin, asset efficiency, leverage, return on assets and return on equity of River Ltd. 7

- (ii) Earth Ltd. reported a loss on sale of equipment of ` 15 lakhs in the year 2014-15. In addition, the company's income statement shows depreciation expense of ` 80 lakhs for equipment and cash flow statement shows capital expenditure (entirely for equipment) of ` 170 lakhs. Using information from the comparative balance sheet extracts given below, find the cash received from sale of equipment. 3

Balance sheet extracts	31-03-2014	31-03-2015	Change
Equipment ` lakhs	860	980	120
Accumulated Depreciation on Equipment ` lakhs	450	520	70

Answer:

1. (a) (i)

Particulars	(` in lakhs)				
	2010-11	2011-12	2012-13	2013-14	2014-15
Net Sales	5,959	6,500	6,809	6,649	7,262
Profit After tax	1,069	850	593	642	1,322
Net Worth	11,165	11,715	11,933	12,122	12,797
Net Fixed Assets	5,494	6,612	6,629	6,792	6,645
Total Assets	11,180	11,715	11,933	12,122	12,797
Capital Employed in Business	8,798	10,805	10,040	10,741	12,146

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Index Series	2010-11	2011-12	2012-13	2013-14	2014-15
Net Sales	100.00	109.08	114.26	111.58	121.87
Profit After tax	100.00	79.51	55.47	60.06	123.67
Net Worth	100.00	104.93	106.88	108.57	114.62
Net Fixed Assets	100.00	120.35	120.66	123.63	120.95
Total Assets	100.00	104.79	106.74	108.43	114.46
Capital Employed in Business	100.00	122.81	114.12	122.08	138.05

Net Sales, Profit After tax, Net Worth, Net Fixed Assets, Total Assets and Capital Employed are taken as indicators of growth of ABC Limited and their index series are generated by using 2010-11 as base year. Upto 2013-14, the picture about PAT is very gloomy and there was a declining trend but in 2014-15, there is increase in PAT. The growth rates over last five years are very low Net Sales, Net Worth, Total Assets and Net Fixed Assets which clearly shows that the Company is not growing at a rate at which it should. Growth in Capital employed is higher than those of Net Sales and Profit After Tax which means that the company is employing more resources for growth but market conditions are not good and hence, it is not able to take advantage of the growth in capital employed. Further due to investment in assets not used for business the profitability and growth is lower in earlier years. This investment is fluctuating but reduced in 2014-15 leading to higher PAT.

(ii)

Solvency Ratios :-	2010-11	2011-12	2012-13	2013-14	2014-15
Net Worth	11,165	11,715	11,933	12,122	12,797
Debt/Equity Ratio	The Company has nominal debt of ` 15 lakhs in 2010-11 and no debt thereafter and this ratio is not calculated				
Interest Coverage Ratio	The Company has nominal debt of ` 15 lakhs in 2010-11 and no debt thereafter and this ratio is not calculated				
Equity to Total Assets	99.87%	100%	100%	100%	100%

The Company does not have any debt from 2011-12 to 2014-15 and its net worth is continuously increasing and the share of equity in financing total assets has increased to 100%. All these shows that the company is solvent and it has no threat of being declared bankrupt.

(b) (i)

	31-03-2014	31-03-2015	Identifying change
Revenue (` lakhs)	4800	6200	Increase in revenue
Assets (` lakhs)	2000	2400	Increase in assets
Equity Multiplier (EM)	1.33	1.2	Leverage decreases
Return on Equity (ROE)	26.67	25	Profitability of equity decreases
Asset Turnover (AT) = Revenue/Assets	2.4	2.58	Asset efficiency increases
Return on Asset (ROA) = ROE/EM	20.05	20.83	Profitability of assets increases
Profit Margin = ROA/AT	8.35	8.07	Profit margin decreases

Explaining changes: Although profit margin decreases return on assets increases as assets efficiency increases. Although assets efficiency increases, return on equity decreases as leverage decreases.

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(ii)

Equipment Account

(` lakhs)

Gross Block		Depreciation	
Opening Balance Equip.	860	Opening Balance Acc. Dep.	450
Add: Capital Exp	170	Add: Depreciation provided	80
	1030		530
Less: Asset Sold at Cost	50*	Less: Depreciation on Asset Sold	10*
Closing Balance Equipment	980	Closing balance of Depreciation	520

Calculation of cash received on Sale of Asset

(` lakhs)

Cost of Asset Sold	50
Less: Depreciation w/off	10
WDV of Asset Sold	40
Less: Loss on Sale of Asset	15
Cash received for Sale of Asset	25

* Indicates Balancing figures

2. (a) (i) How fixed assets are analysed in financial modeling? 6

(ii) The comparative information for two years relating to Mona Ltd. is as follows: 9

Particulars	2013	2014
Sales (`)	12,00,000	14,62,500
Units Sold	4,000	4,500
Sales Price per unit (`)	300	325

You are required to account for the change in sales (amount) due to—

- (I) Change in quantity
- (II) Change in price
- (III) Change in quantity and price taken together

(b) (i) Develop a proforma income statement for the month of July, August and September for a company from the following information: 8

(I) Sales are projected at ` 2,25,000, ` 2,40,000 and ` 2,15,000 for July, August and September respectively.

(II) Cost of goods sold is ` 50,000 plus 30% of selling price per month.

(III) Selling expenses are 3% of sales.

(IV) Rent is ` 7,500 per month, administrative expenses for July are expected to be ` 60,000 but are expected to rise 1% per month over the previous month's expenses.

(V) The company has ` 3,00,000 of 8% loan, interest payable monthly.

(VI) Corporate Tax rate is 35% including surcharge and education cess if any.

(ii) Based on the following information, what are the total net adjustments that the company would make to net income in order to derive operating cash flow? 4

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		Year ended 31.12.2014		
(I)	Income Statement item			
	Net Income	₹ 20 million		
	Depreciation	₹ 02 million		
		31.12.2013	31.12.2014	Change
(II)	Balance Sheet Item			
	Accounts receivable	₹ 25 million	₹ 22 million	(₹ 3 million)
	Inventory	₹ 10 million	₹ 14 million	₹ 4 million
	Accounts payable	₹ 08 million	₹ 13 million	₹ 5 million

(iii) Financial statements of Moonlight Ltd. reveals the following information:

(I)	PBT	₹ 1,000 lakhs
(II)	Inventory overvalued by	₹ 100 lakhs
(III)	Revenue expenses capitalised	₹ 6 lakhs
(IV)	Increase in depreciation due to capitalization	₹ 0.60 lakhs
(V)	Tax Rate	30%

Calculate PAT after reworking and adjusting the financial manipulation undertaken by the company. 3

(c) (i) The balance sheets of Ocean Ltd. for the past two years are as under: [₹ '000]

Liabilities	31-03-14	31-03-15	Assets	31-03-14	31-03-15
Equity Share Capital	50,000	50,000	Gross Fixed Assets	60,000	75,000
General Reserve	12,000	14,000	Less: Accumulated Depreciation	(15,000)	(20,000)
Profit and Loss A/c	5,000	6,000	Net Fixed Assets	45,000	55,000
Public Deposits	10,000	2,000	Long Term Investments	18,000	20,000
Term Loan	20,000	16,000	Inventories	32,000	24,000
Trade Creditors	7,000	10,000	Sundry Debtors	17,000	12,000
Short Term Bank Borrowings (O/D)	15,000	20,000	Cash and Bank	—	—
Provision for Tax	2,000	3,000	Miscellaneous Expenses	9,000	10,000
Total ('000) ₹	1,21,000	1,21,000	Total ('000) ₹	1,21,000	1,21,000

Based on the above information:

- (I) Comment on the change in 'total outside liabilities to tangible net worth' ratio.
- (II) List out the total sources and uses of funds for the year ended 31-03-15 classifying them under the heads long term and short term.
- (III) Comment on the uses of funds. 2+4+2=8

- (ii) On 1st January 2015, Star Ltd. issued 12000 of 5% convertible bonds at their par value of ₹ 50 each. The bonds will be redeemed on 1st January, 2020. Each bond is convertible at the option of the holder at any time during the five year period. Interest on the bond will be paid annually. The prevailing market interest rate for similar debt without conversion option at the date of issue was 6%. At what value should the equity element of the hybrid financial instrument be recognized in the financial statements of Star Ltd. at the date of issue? Given, at 6% rate of discounting, present value of ₹ 1 to be received at the end of 5 years = 0.747258 and present value of 5 years annuity of ₹ 1 = 4.212364. 4

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(iii) Find (YTM) yield to maturity of a 4 year zero coupon bond of ₹ 5,000 issued at ₹ 3,294.

Given that:

PV of ₹ 1	at 11%	at 10%
Yr. 1	0.9009	0.9091
Yr.2	0.8116	0.8264
Yr. 3	0.7312	0.7513
Yr.4	0.6588	0.6830

Answer:

2. (a) (i) Financial modeling is the task of building a financial model, or the process of using a financial model for financial decision making and analysis. It is an abstract representation of a financial decision making situation. Financial modeling is used to do historical analysis of a company's performance, and to do projections of its financial performance into the future. Fixed assets are analysed in financial modeling in the following manner:

- (A) Each Class of asset should show -
- (I) Opening balance
 - (II) Additions / deletions
 - (III) Depreciation
 - (IV) Closing balance
- (B) Divide Additions in following -
- (I) Sustainability Capital Expenditure (CAPEX) - historical analysis
 - (II) Capacity expansion addition/Project / BMR (CWIP)
 - (III) Interest capitalization of the project (CWIP)
- (C) In case of any Capacity expansion/ Projects / BMR -
- (I) Identify cost of project
 - (II) Add increase capacity because of project in production & revenue
 - (III) Sources of finance (Debt/Equity), adding it in debt portion
- (D) Cash flow impact
- (E) Tax benefits on capital expenditure.

(ii)

	2013	2014	Changes
Sales value (₹)	12,00,000	14,62,500	(+)2,62,500
Sales units	4,000	4,500	(+)500
Selling price per unit (₹)	300	325	(+)25

Statement showing account for changes in sales

1. Change in sales due to change in quantity [Change in quantity × Base years unit selling price = [(4,500-4,000) × ₹ 300]	1,50,000
2. Change in sales due to change in price [Change in unit selling price × Base years quantity = [(₹ 325-₹ 300) × 4,000]	1,00,000
3. Change in sales due to change in quantity and price taken together [Change in unit selling price × Change in quantity = [(₹ 325 - ₹ 300) × (4,500-4,000)]	12,500
Total increase in sales	2,62,500

Note: Here the base year is 2013

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(b) (i) Proforma income statement for the months of July, August and September:

Particulars	July (In `)	August (In `)	September (In `)
Sales	2,25,000	2,40,000	2,15,000
(-) Cost of goods sold	1,17,500	1,22,000	1,14,500
Gross Profit	1,07,500	1,18,000	1,00,500
Less: Operating Exps.			
Selling Expenses	6,750	7,200	6,450
Rent	7,500	7,500	7,500
Admn. Exps.	60,000	60,600	61,206
EBIT	33,250	42,700	25,344
(-) Interest	2,000	2,000	2,000
PBT	31,250	40,700	23,344
(-) Tax 35%	10,938	14,245	8,170
PAT	20,312	26,455	15,174

(ii) To derive operating cash flow, the company would make the following adjustments to net income:

	` in millions	` in millions
Add:		
depreciation (a noncash expense)	2	
decrease in accounts receivable	3	
increase in accounts payable	5	10
subtract the increase in inventory		(4)
Net Additions (` in million)		6

(iii)

	(` Lakhs)
PBT	1,000.00
Less: Overvaluation of Inventory	100.00
Less: Revenue expenses capitalized	6.00
Add: Increase in depreciation due to capitalization	0.60
Revised PBT	894.60
Less: Tax @ 30%	268.38
PAT	626.22

(c) (i) (I)

	[` '000]	
Outside Liabilities	31-03-14	31-03-15
Public Deposits	10,000	2,000
Term Loan	20,000	16,000
Trade Creditors	7,000	10,000
Short Term Bank Borrowings (O/D)	15,000	20,000
Provision for Tax	2,000	3,000
Total Outside Liabilities	54,000	51,000

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	[` '000]	
Tangible Net Worth	31-03-14	31-03-15
Equity Share Capital	50,000	50,000
General Reserve	12,000	14,000
Profit and Loss A/c	5,000	6,000
Miscellaneous Expenses	(9,000)	(10,000)
Tangible Net Worth	58,000	60,000

Total outside liabilities to tangible net worth ratio	54,000/58,000 = 0.93	51,000/60,000 = 0.85
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Comment: As the ratio has decreased it denotes moving towards lesser risk and better solvency position.

(II)

	[` '000]
Long Term	
Sources of fund	
Increase in General Reserve	2,000
Surplus in Profit and Loss A/c	1,000
Depreciation for the year	5,000
Total Sources	8,000
Uses of fund	
Public Deposits repayment	8,000
Term Loan repayment	4,000
Fixed Assets purchase	15,000
Investments purchase	2,000
Addition to Miscellaneous expenses	1,000
Total Uses	30,000
Deficit	22,000

	[` '000]
Short Term	
Sources of fund	
Increase in Creditors	3,000
Increase in Bank borrowings	5,000
Increase in Provision for tax	1,000
Decrease in Inventory	8,000
Decrease in Debtors	5,000
	22,000
Uses	-
Surplus	22,000

(III) Ocean Ltd. has diverted short-term funds amounting to 22000 [` '000] raised mainly by resorting to additional trade credit, bank borrowings and reduction in current assets, for long term uses like purchases of fixed assets, investments and repayment of public deposits and term loans, which is not prudent.

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(ii)

Particulars	`
Bond Principal: $12,000 \times 50$	6,00,000.00
Annual interest payment = $6,00,000 \times 5\%$	30,000.00
Present Value of Principal = $6,00,000 / (1+0.06)^5 = 6,00,000 \times 0.747258$	4,48,354.80
Present Value of Interest = $30,000 \times$ present value of annuity at $6\% = 30,000 \times 4.212364$	1,26,370.92
Value of Bond without conversion option on the date of issue	5,74,725.72
Issue price at par	6,00,000.00
Equity element (value of conversion option)	25,274.28

(iii) YTM = 11%

From the table it is observed that at 11% PV of 4th year Cash Flow of ` 1 is ` 0.6588. YTM is the discounting rate that equates the current price of the bond to the discounted value of cash flows. At 11% the PV of the maturity cash flow of the 4 year zero coupon bond of ` 5000 is ` $5000 \times 0.6588 =$ ` 3294. As the current market price is ` 3294, the applicable rate of discounting i.e. YTM is 11%.

SECTION B

In this section, Answer Question No. 3(a) and 3(b) which is compulsory and any two parts out of Question No. 4(a), 4(b) and 4(c)

3. (a) (i) King Corporation purchased a 9% bond at par for ` 10,00,000 at the beginning of the year. Currently interest rates have increased and the market value of the bond declined by ` 40,000. Determine the bond's effect in King's financial statements under each classification of securities. 3
- (ii) Fountain Corporation acquired business of Rivulet Ltd. on 31-03-2013 for ` 6,000 lakhs. The details of acquisition are as under:

	[amount in ` lakhs]
Fair Value of identifiable assets	5,000
Goodwill (to be amortized in 5 years)	1,000

Fountain uses straight-line method of depreciation over 8 year's life with no residual value. On 31-03-2015 a significant decline in the expected cash flows has been estimated as stated below. Net selling price of the acquired business (a cash generating unit) is not determinable. Time value of money is represented by financing cost of 10% p.a.

Year	Cash Flow [amount in ` lakhs]
2015	800
2016	800
2017	800
2018	700
2019	600
2020	500

Required as on 31-03-2015:

- (I) Value in use
- (II) Impairment loss
- (III) Revised Carrying amount

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Year	PV of ` 1 @ 10% discounting
1	0.9091
2	0.8265
3	0.7513
4	0.6830
5	0.6209
6	0.5645

3+2+2=7

- (b) (i) Why Discounted Cash Flow method is not appropriate for valuation of real estate? 5
- (ii) Amrutha Cements Ltd. earned free cash flow to Equity Shareholders during the Financial Year ending 2015 at ` 4.5 lakhs and its cost of equity is 13% with a projected earnings growth rate of 10%. The market value of debt is ` 50 lakhs. What will be the value of firm as per Constant Growth Valuation Model? 5

Answer:

3. (a) (i)

Bond classified as	Balance Sheet	Income Statement
Held-to Maturity	Valued at ` 10,00,000	Interest income ` 90,000
Trading security	Valued at ` 9,60,000	Loss ` 40,000 recognized; Interest income ` 90,000
Available-for-sale	Valued at ` 9,60,000	Interest income ` 90,000; Unrealized loss of ` 40,000 is not recognized in income statement but reported in Change in Shareholders' Equity

(ii) In the books of Fountain Corporation (Rivulet cash generation unit)

(i)

Calculation of Value Use

Year	Future Cash Flow	Discounted Cash Flow
2015	800	727.28
2016	800	661.20
2017	800	601.04
2018	700	478.10
2019	600	372.54
2020	500	282.25
	Value in Use	3122.41
	Rounded off to	` 3122

	Particulars	goodwill	Identifiable assets	Total
	acquisition cost on 31 -03-2013	1,000	5,000	
	depreciation /amortization (2 yrs)	400	1,250	
	carrying amount	600	3,750	4,350
	recoverable amount			3,122
(II)	Impairment loss (Allocated)	600	628	1,228
(III)	Revised Carrying amount	Nil	3,122	3,122

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- (b) (i) Discounted Cash Flow (DCF) Method of valuation is not appropriate for valuation of real estate due to following reasons:
- (I) Difficult to estimate discount rates for most real estate investments.
 - (II) Estimating cash flows for the time horizon is tedious and difficult to do, as is the estimation of the terminal value.
 - (III) DCF does not reflect market conditions- that the market is strong or weak at the time of valuation.

This third argument can be rejected at two levels. On one level, cash flows should reflect the market conditions, since they will be higher (higher rents and lower vacancy rates) and grow faster in strong market conditions. On the other hand, any additional value being assigned by the market beyond the cash flow levels can be considered to be 'overvaluation' and should not be built into the appraised value in the first place.

(ii) According to the constant growth valuation model.

$$V_0 = \frac{FCFE_1}{(K_e - g)}$$

Where, $FCFE_1 = FCFE_0 (1+g)$

$$V_0 = \frac{4,50,000 \times 1.10}{(0.13 - 0.10)}$$

$$V_0 = \frac{4,95,000}{0.03}$$

$$V_0 = \text{` } 1,65,00,000$$

4. (a) (i) R Ltd. is intending to acquire S Ltd. (by merger) and the following information is available in respect of both the companies— 12

Particulars	R Ltd.	S Ltd.
Total current earnings	2,50,000	90,000
Number of outstanding shares	50,000	30,000
Market price per share	21	14

You are required to calculate—

- (I) Present EPS of both the companies,
 - (II) If the proposed merger takes place what would be the new EPS for R Ltd. (assuming that merger takes place by exchange of equity shares and the exchange ratio is based on the current market price)
 - (III) What should be the exchange ratio if S Ltd., wants to ensure the same earnings to members as before the merger took place?
- (ii) What are the limitations of Economic Value Added method of firm valuation? 3
- (b) (i) Discuss the process to minimize valuation bias. 10
- (ii) What are different methods of valuing self-generated brands? 5
- (c) (i) A company has a capital base of ` 5 crores and has earned profits of ` 35 lakhs. Return on investment of the industry to which the company belongs is 12% p.a. If the

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services of a particular executive is acquired by the company, it is expected that the profits will rise ` 9 lakhs over and above the target profit as per industry norms. Calculate the maximum salary that could be offered to the executive and the maximum bid price for acquiring the executive. 2+2=4

- (ii) From the following details, compute the total value of human resources of the employee group skilled and unskilled, using Lev and Schwartz (1971). 6

	Particulars	Skilled	Unskilled
1	Annual average earning of an employee till the retirement age	` 80,000	` 40,000
2	Age of retirement (years)	65	60
3	No. of employees in the group	40	100
4	Average age (years)	62	58
5	Discount rate	12%	12%

PV of ` 1 @ 12% discounting rate

Year	P.V. @ 12%
1	0.8929
2	0.7972
3	0.7118

- (iii) 'Jaggi & Lau suggested that a proper valuation of human resource is not possible unless the contribution of individuals as a group is taken into consideration.' Comment. 5

Answer:

4. (a) (i) (I) $EPS = \text{Total Earnings}/\text{No. of Equity shares}$
 $EPS_{R Ltd} = 2,50,000/50,000 = ` 5$
 $EPS_{S Ltd} = 90,000/30,000 = ` 3$
- (II) No. of shares S Ltd shareholders will get in R Ltd based on market prices of shares is as follows: Exchange Ratio = $14/21 = 2/3$ i.e. for every 3 shares of S Ltd 2 shares of R Ltd
 Total No. of shares of R Ltd issued = $14/21 \times 30,000 = 20,000$ shares
 Total number of shares of R Ltd after merger = $50,000 + 20,000 = 70,000$
 Total Earnings of R Ltd after merger = $2,50,000 + 90,000 = 3,40,000$
 [Remember no synergy given]
 The new EPS of R Ltd after merger = $3,40,000/70,000 = ` 4.86$.
- (III) Calculation of Exchange Ratio to ensure S Ltd to earn the same before the merger took place: Both acquiring and acquired firm can maintain their EPS only if the merger takes place based on respective EPS.
- Exchange Ratio based on $EPS = 3/5 = 0.6$
 Total Shares of R Ltd receivable by S Ltd. shareholders = $0.6 \times 30,000 = 18,000$
 Total number of shares of R Ltd after merger = $50,000 + 18,000 = 68,000$
 $EPS \text{ after merger} = \text{Total Earnings}/\text{Total number of shares} = [` 2,50,000 + ` 90,000] / 68,000 = ` 5$.
 Total Earnings after merger of S Ltd = $5 \times 18,000 = ` 90,000$.

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(ii) Limitations of EVA method of Firm Valuation

- (I) Needs calculation of invested capital for every year which depends on valuation issues.
- (II) Economic profits as excess returns are fairly subjective, depending on the valuation of invested capital
- (III) Economic profit framework may provide data inducing illusionary accuracy of the quantified business plan.
- (IV) EVA does not involve forecasts of future cash flows and does not measure present value, but depends on current level of earnings whereas shareholders are interested in future performance.

(b) (i) Process To Minimize Valuation Bias

Bias cannot be regulated or legislated out of existence. Analysts are human and bring their biases to the table. However, there are ways in which we can mitigate the effects of bias on valuation:

- (I) **Reduce institutional pressures:** A significant portion of bias can be attributed to institutional factors. Equity research analysts in the 1990s, for instance, in addition to dealing with all of the standard sources of bias had to grapple with the demand from their employers that they bring in investment banking business. Institutions that want honest sell-side equity research should protect their equity research analysts who issue sell recommendations on companies, not only from irate companies but also from their own sales people and portfolio managers.
- (II) **De-link valuations from reward/punishment:** Any valuation process where the reward or punishment is conditioned on the outcome of the valuation will result in biased valuations. In other words, if we want acquisition valuations to be unbiased, we have to separate the deal analysis from the deal making to reduce bias.
- (III) **No pre-commitments:** Decision makers should avoid taking strong public positions on the value of a firm before the valuation is complete. An acquiring firm that comes up with a price prior to the valuation of a target firm has put analysts in an untenable position, where they are called upon to justify this price. In far too many cases, the decision on whether a firm is under or overvalued precedes the actual valuation, leading to seriously biased analyses.
- (IV) **Self-Awareness:** The best antidote to bias is awareness. An analyst who is aware of the biases he or she brings to the valuation process can either actively try to confront these biases when making input choices or open the process up to more objective points of view about a company's future.
- (V) **Honest reporting:** In Bayesian statistics, analysts are required to reveal their priors (biases) before they present their results from an analysis. Thus, an environmentalist will have to reveal that he or she strongly believes that there is a hole in the ozone layer before presenting empirical evidence to that effect. The person reviewing the study can then factor that bias while looking at the conclusions. Valuations would be much more useful if analysts revealed their biases up front.

While we cannot eliminate bias in valuations, we can try to minimize its impact by designing valuation processes that are more protected from overt outside influences and by reporting our biases with our estimated values.

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(ii) Important methods in valuation of self generated brands are discussed below:

- (I) **Historical cost method:** Here Brand value is the sum total of Brand Development cost + Brand Marketing and Distribution Cost + Brand Promotion cost including advertising and other cost.
- (II) **Replacement Price Model:** It is the opportunity cost of investment made for replacement of brand, Brand Value = Replacement Brand Cost.
- (III) **Market Price Model:** Here Brand value is net realizable value on sale in the market.
- (IV) **Current Cost Model:** According to this approach the current corporate brands are valued at the current value to the group which is reviewed annually and not subject to amortization.
- (V) **Potential Earning Model:** The potential Earning model is based on the estimated potential earning that would be generated by a brand and their capitalization by using appropriate discount rate. The volume of revenues raised by a brand in the market determines its value.

Total market value of brand = Net brand revenue / capitalization rate

Net - Brand revenue = (Brand units x Unit brand price) - (Brand units x Unit brand cost) - (Marketing cost + R & D cost + tax costs)

(c) (i) Maximum Salary Payable

Particulars	Amount in ` lakhs
Capital Base	500
Target Profit ($500 \times 12\%$)	60
Increase over target profit	9
Total Profit expected after induction	69
Current Profit	35
Incremental Profit	34

Max. Salary = Incremental profit due to induction = ` 34 lakhs per annum.

Max Bid Price = Value of Salary payable in perpetuity = maximum salary \div rate of returns on investment = $34/0.12 = ` 283.33$ lakhs.

(ii)

Particulars	Skilled	Unskilled	Total
Annual average earning of an employee till the retirement age (`)	80,000	40,000	
Age of retirement (years)	65	60	
Average age (years)	62	58	
Years left for an employee	3	2	
Present value of annuity for the remaining years at 12%	2.4019	1.6901	
Present Value of an employee (`)	1,92,152	67604	
Number of employees	40	100	
Total Value of the groups (`)	76,86,080	67,60,400	1,44,46,480

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(iii) Jaggi and Lau suggested a model for valuation of human resources. According to them, proper valuation of human resources is not possible unless the contributions of individuals as a group are taken into consideration. They referred group to homogeneous employees whether working in the same department or division of the organization or not. They believed that an individual's expected service tenure in an organization is difficult to predict, but on a group basis, it is relatively easy to estimate the percentage of people in a group likely to leave the organization in future. Accordingly, they developed a model which attempts to calculate the present value of all existing employees in each rank. Such present value is measured with the help of the following steps:

- (I) Ascertain the number of employees in each rank.
- (II) Estimate the probability that an employee will be in his rank within the organization or terminated/promoted in the next period. This probability will be estimated for the specified time-period
- (III) Ascertain the economic value of an employee in a specified rank during each time period
- (IV) The present value of existing employees in each rank is obtained by multiplying the above three factors and applying an appropriate discount rate.

Merit:

Jaggi and Lau model approached the valuation of human resources on the basis of grouping of employees. Under this method, calculations get simplified and the chances of errors get reduced.

Demerit:

- (I) This model ignores individual skills of the employees. The varied skills of the employees are not recognized in the valuation process under Jaggi and Lau model.
- (II) The performance of a group may be seriously affected in the event of exit of a single individual.