

*Solved*  
**Scanner Appendix**

**CMA Final Gr. IV (New Syllabus)**  
(Solution of December - 2014)

**Paper - 20: Financial Analysis and Business Valuation**

**Section - A : Financial Analysis**

**Chapter- 1: Financial Modeling and Analysis of Shareholders' Equity**

**2014 - Dec [2] (b)**

**Common Size Balance Sheet of M/s Novel Company for the years 2011 to 2013**

<b>Particulars</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Cash	7.9	3.8	1.7
Receivables	27.5	27.8	34
Inventories	28.4	25.4	27.6
Current Assets	63.8	57	63.3
Net Fixed Assets	36.2	43	36.7
Total Assets	100	100	100
Payables	26.1	28.6	30.4
Accruals	4.2	5	4.9
Bank loan	3.5	8.7	8.8
Current liabilities (a)	33.8	42.3	44.1
Long term debts	7	9.7	8
Shareholders' equity	59.2	48	47.9
Long term funds (b)	66.2	57.7	55.9
Total Liabilities and equity (a)+ (b)	100	100	100

**Common Size Income Statement of M/s Novel Company for the years 2011 to 2013**

Particulars	2011	2012	2013
Sales	100	100	100
Less: Cost of goods sold	72	74.4	73.5
Gross Profit	28	25.6	26.5
Less: Selling, general and administrative expenses	19.8	17.8	18.3
Profit before tax	8.2	7.8	8.2
Less: Tax	3.3	3	3.5
Profit after tax	4.9	4.8	4.7

**Analysis:**

- The cash balance is dwindling over years 2011 to 2013 which may cause liquidity problems in future.
- There is sharp increase of receivables balance which may be due to inefficiency in collection of debtor's balances.
- The proportion of inventories to total assets remains same in year 2011 and year 2013 but the inventory has shown reduced balance in year 2012.
- The proportion of net fixed assets to total assets remains unchanged for years 2011 and 2013. But higher proportion is shown in year 2012.
- The shareholders equity to total liabilities has sharply declined from 59.2 in 2011 to 47.9 in 2013.
- The proportion of long-term debt remains same in all the 3 years.
- The proportion of bank loan in total liabilities has increased from 3.5 in 2011 to 8.8 in 2013.
- The proportion of accruals to total liabilities remains almost same in all three years.
- The payables have increased from 26.1 to 30.4 over a period of 3 years, represents delay in making payments for creditors.
- There is not much of change in cost of goods sold, selling, general and administrative expenses in all three years causing uniform profit in all three years.

**Statement showing Index analysis of Balance Sheet items in years 2011 to 2013**

Particulars	2011	2012	2013
Cash	100	69	36
Receivables	100	146.2	206.4
Inventories	100	128.7	161.8
Current Assets	100	128.9	165.5
Net Fixed Assets	100	171.6	169.1
Total Assets	100	144.3	166.8

Payable	100	158.1	194
Accruals	100	171.4	195
Bank Loan	100	360	420
Current Liabilities	100	180.7	217.6
Long term debt	100	200	190
Shareholders' equity		117	135.1
		144.3	166.8

**Statement showing Index analysis of Income Statement items in years 2011**

Particulars	2011	2012	2013
Sales	100	126.0	137.8
Cost of goods sold	100	130.3	140.8
Gross Profit	100	115.1	130.3
Selling, general and administrative expenses	100	113.2	127.4
Profit before tax	100	119.7	137.2
Tax	100	115.9	147.7
Profit after tax	100	122.2	130.2

**Analysis:**

Index analysis shows much the same picture. Cash declined faster than total asset and current assets and receivables increased faster than these two bench marks. Inventories fluctuated, but were about the same percentage wise to total assets in 2013 as they were in 2011.

Net fixed assets increased more sharply than total assets in 2012 and then fell back into line in 2013. The sharp increase in bank loans in 2012 and 2013 and the sharp increase in long-term debts in 2012 are evident. Equity increased less than total assets, so debt increased more percentage wise. With respect to profitability, net profits increased less than sales, for the reasons indicated earlier.

**Chapter- 2: Analysis of Balance Sheet, Income Statement & Cash Flow Statement**

**2014 - Dec [1] {C}** (a) (i),(ii), (iii), (iv), (v)

(i)

	₹ in crores
Net income	627.99
Gain on sale of old machine	-10.25
Depreciation	9.76
Decrease in current investments	47

Decrease in inventories	43.71
Increase in trade receivables	-24.98
Increase in short term borrowings	145.08
Decrease in trade payables	-2.59
Decrease in other CL	-307.77
<b>Cash from operations</b>	<b>527.95</b>

(ii)

<b>Cash Flow Investing Activity [75-25]</b>	<b>₹ 50 crores</b>
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(iii)

	<b>₹ in crores</b>
Sale of shares	0.02
Bank loan & Debentures	50
Increase in short term loans & advances	-14.71
<b>Cash Flow Financing Activity</b>	<b>35.31</b>

(iv) Free Cash Flow to Company (FCFC) = Cash Flow from operations – Capital spending = ₹ (527.95-50) = ₹ 477.95 crores.

(v) Free Cash Flow to Equity owners (FCFE) = Cash Flow from operations – Capital spending + Sale of fixed assets + Debt issued – Debt repaid = ₹ (527.95 – 50 + 24.50 + 50 – 50) = ₹ 502.45 crore. No adjustment is necessary for interest since FCFE includes debt services.

**2014 - Dec [2]** (a) (i), (ii)

(i) I. The NCAER Study on Corporate Distress Prediction prescribed the following three parameters for predicting the stage of Corporate Sickness:

- (i) Cash profit position (a profitability measure)
- (ii) Net working capital position (a liquidity measure)
- (iii) Net worth position (a solvency measure)

In the given case, we need to judge the above-mentioned parameters to ascertain the stage of sickness of the company.

$$\text{Cash profit} = \text{Net Profit} + \frac{\text{Non - cash expenses}}{\text{Loss debited to P\&LA/c}} - \frac{\text{Non - cash incomes}}{\text{Gains Credited to P\&LA/c}}$$

Here,

1. Cash Profit = Net Profit + Depreciation Written Off + Preliminary Expenses Written Off = 190 + 96 + 38 = ₹ 324 lakhs

$$\begin{aligned} 2. \text{ Net Working Capital} &= \text{Current Assets} - \text{Current Liabilities} \\ &= 500 - 780 = (\text{₹ } 280 \text{ lakhs}) \end{aligned}$$

$$3. \text{ Net Worth} = \text{Share Capital} + \text{Reserves \& Surplus} - \text{Miscellaneous Expenditure} - \text{Profit \& Loss A/c (Dr.)}$$

Here,

$$\begin{aligned} \text{Net Worth} &= \text{Equity Share Capital} - \text{Profit \& Loss A/c (Dr.)} \\ &= 230 - 175 = \text{₹ } 55 \text{ lakhs} \end{aligned}$$

**Prediction about Corporate Sickness:** As per NCAER Research Study, out of mentioned three parameters, if any one parameter becomes negative in case of a firm, it can be predicted that the firm has a tendency towards sickness. In the given company, all the three parameters [as calculated under (1), (2) and (3)] show negative value. Therefore, it can strongly be predicted that the company is a sick company and its stage of sickness is 'fully sick'. Immediate necessary drastic revival measures are essentially required for the survival of the company.

II. As per Altman's Model (1968) of Corporate Distress Prediction

$$Z = 1.2 X_1 + 1.4X_2 + 3.3 X_3 + 0.6X_4 + 1.0X_5$$

Here, the five variables are as follows:

$$X_1 = \text{Working Capital to Total Assets} = (280/1900) = (0.15)$$

$$X_2 = \text{Retained Earnings to Total Assets} = [(100-175)]/1900 = (0.04)$$

$$X_3 = \text{EBIT to Total Assets} = 100/1900 = 0.05$$

$$\begin{aligned} X_4 &= \text{Market Value of Equity Shares to Book Value of Total Debt} = 275/1900 \\ &= 0.15 \end{aligned}$$

$$X_5 = \text{Sales to Total Assets} = 2400/1900 = 1.26$$

$$\begin{aligned} \text{Hence, Z-score} &= 1.2(-0.15) + 1.4(-0.04) + 3.3(0.05) + 0.6(0.15) + 1.0(1.26) \\ &= 1.279 \end{aligned}$$

**Note:** As the calculated value of Z-score < 1.81 is Failed or distressed firm.

- (ii) An asset or debt that does not appear on a company's balance sheet. Items that are considered off balance sheet are generally ones in which the company does not have legal claim or responsibility for. For example, loans issued by a bank are typically kept on the bank's books. If those loans are securitized and sold off as investments, however, the securitized debt is not kept on the bank's books. One of the most common off-balance sheet items is an operating lease. Off Balance Sheet (OBS) usually means an asset or debt or financial activity not on the Company's balance sheet. It could involve a lease or a separate subsidiary or a contingent liability such as a letter of credit. It also involves loan commitments, futures, forwards and other derivatives, when-issued securities and loans sold.

A form of financing in which large capital expenditure are kept off of a company's balance sheet through various classification methods. Companies will often use off-balance-sheet financing to keep their debt to equity (D/E) and leverage ratio low, especially if the inclusion of a large expenditure would break negative debt covenants.

Contrast to loans, debt and equity, which do appear on the balance sheet. Examples of Off-balance-sheet financing includes joint ventures, research and development partnerships, and operating leases (rather than purchases of capital equipment).

Operating lease are one of the most common forms of Off-balance-sheet financing. In these cases, the asset itself is kept on the lessor's balance sheet and the lessee reports only the required rental expenses for use of the asset. Generally Accepted Accounting Principles in the U.S. have set numerous rules for companies to follow in determining whether a lease should be capitalized (including on the balance sheet) or expense.

### Chapter- 3: Analysis of Profitability, Growth & Sustainable Earning

2014 - Dec [1] {C} (b)

	Ordinary Share		'A' Ordinary Share	
No. of shares	107.41		20.2	
Face value	5		5	
Share capital	537.05		101	
	<b>2012-13</b>	<b>2013-14</b>	<b>2012-13</b>	<b>2013-14</b>
Net income	683.22	645.552	1062.498	968.328
<b>Basic EPS [Net Income/ No. of Equity Shares]</b>	6.360860255	6.010166651	52.59891	47.9370297
P/E ratio [Price /EPS]				
When price is ₹ 124	19.49421855	20.63170744	2.357463	2.586726812
When price is ₹ 118	18.55094991	19.63339901	2.243392	2.461562611

Let ordinary equity share gets ₹ X as dividend, then A ordinary shares will get ₹(X+0.05x) as dividend.

Therefore, for 2012-13

$$X + x + 0.05x = 1708.05$$

$$2.5x = 1708.05$$

$$X = ₹ 683.22 \text{ crores}$$

Therefore, for 2013-14

$$X + x + 0.05x = 1613.88$$

$$2.5x = 1613.88$$

$$X = ₹ 645.522 \text{ crores.}$$

**2014 - Dec [2]** (c) (i), (ii), (iii), (iv)

(i)

Particulars	2013	2012	2011	2010
Net Income	438	423	410	395
Revenue	2620	2450	2340	2240
Assets	1588	1468	1400	1335
Equity	790	726	685	650
Equity Multiplier [Assets/Equity]	2.010127	2.022039	2.043796	2.053846
ROE Under DuPont Analysis [Net Income/Total Equity]	0.55443	0.582645	0.59854	0.607692
ROA Under DuPont Analysis [Net Income/Total Assets]	0.275819	0.288147	0.292857	0.29588

(ii) A low P/E ratio could be a sign of weakness. Perhaps the company has problems that make it riskier going forward, even if it has earnings now, so the future expectations and thus the price of the stock is now low. Or it could be a sign of a buying opportunity for a stock that is currently under priced.

(iii) In an efficient market, the share price should reflect a firm's future value creation potential, greater value creation can indicate greater future dividends from the company. A higher P/E ratio should reflect greater expected future gains because of perceived growth opportunities and/or some competitive advantages and/or lesser risk, but at the same time it indicates that the share price is relatively more expensive.

During periods where markets are out of equilibrium, for example during a bubble, high P/E ratios may also reflect over-optimism and over-pricing. Conversely, a lower P/E ratio can reflect either poorer future opportunities or potentially a bargain if the market is over-pessimistic or if one believes the market is not taking into account potential restructuring or a takeover that would improve future prospects.

- (iv) The price-to-book (P/B) valuation model showed that firms increase their price-to-book ratios if they can grow residual earnings. The price-earning (P/E) valuation model showed that firms increase their price-earning ratios if they can grow abnormal earnings. Clearly, then, an assessment of a firm's ability to deliver growth is critical to valuation. The analysis of growth is explained. Analysts often talk of growth in terms of a firm's ability to grow earnings. Earnings growth is not a valid growth concept for valuation because firms can grow earnings without adding value. Rather, residual earnings growth and abnormal earnings growth are the relevant measures. Residual earnings growth is the focus when evaluating P/B ratios and abnormal earnings growth is the focus when evaluating P/E ratios. Growth in residual earnings is driven by increases in return on equity (ROE) and growth in equity investment. So the analysis of growth for the evaluation of P/B ratios amounts to an analysis of how ROE and investment change over time. As earnings are just investment multiplied by the rate of return on investment, abnormal earnings growth is driven by the same factors that determine residual earnings growth. The analysis of growth uncovers these factors. The question of whether future earnings will grow over current earnings involves further issues: Will current earnings perpetuate or are there aspects of current earnings that are not likely to be repeated in the future? Earnings temporarily depressed by a labour strike are not indicative of future earnings. Earnings that reflect a one-time special contract may be abnormally high. Earnings reduced by restructuring charges may not be a good forecast of the future earnings that will likely benefit from the restructurings. Earnings that are indicative of a firm's long-run earning ability are called sustainable earnings, persistent earnings or core earnings. Earnings based on temporary factors are called unusual earnings or transitory earnings. Sustainable earnings are the basis for growth, so this study note out lines an analysis that distinguishes sustainable earnings from transitory earnings.

<b>Section - B : Business Valuation</b>
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**Chapter- 1: Valuation Basics & Valuation Models****2014 - Dec [3] {C} (b) (i), (ii), (iii)**

- (b) (i) Minimum Price = (Market price of common stock – Exercise price)\*  
(Exercise ratio) = ₹ (16-12)\*1 = ₹ 4
- Warrant Premium = Market price of warrant - Minimum price of warrant  
= ₹ (16-4)  
= ₹ 12



**(ii) Calculation of EVA**

$$\begin{aligned}
 \text{Financial Leverage} &= \text{PBIT} / \text{PBT} \\
 1.4 &= \text{PBIT} / (\text{PBIT} - \text{Interest}) \\
 1.4 &= \text{PBIT} / (\text{PBIT} - 100) \\
 1.4 (\text{PBIT} - 100) &= \text{PBIT} \\
 1.4 \text{PBIT} - 140 &= \text{PBIT} \\
 1.4 \text{PBIT} - \text{PBIT} &= 140 \\
 0.4 \text{PBIT} &= 140 \\
 \text{PBIT} &= 140 / 0.4 = 350 \text{ lacs} \\
 \text{NOPAT} &= \text{PBIT} - \text{Tax} = ₹ 350 \text{ lacs} (1 - 0.30) = ₹ 245 \text{ lacs.} \\
 \text{Weighted average cost of capital (WACC)} &= 15\% (300 / 700) + (1 - 0.30) \times \\
 &(10\%) \times (400 / 700) = 10.4\% \\
 \text{EVA} &= \text{NOPAT} - (\text{WACC} \times \text{Total Capital}) \\
 &= ₹ 245 \text{ lacs} - 0.104 \times ₹ 700 \text{ lacs} \\
 &= ₹ 245 - 72.8 \text{ lacs} \\
 &= ₹ 172.2 \text{ Lacs.}
 \end{aligned}$$

- (iii)** It is a performance metric that calculates the creation of shareholder value. It distinguishes itself from traditional financial performance metrics such as net profit and EPS: EVA is the calculation of what profits remain after the cost of company's capital—both debt and equity are deducted from operating profit. The value of a firm is the sum of the capital invested and the present value of the economic value added. The present value of the economic value added by an asset over its life is the net present value of that asset. The value of a firm can be written as the sum of three components, the capital invested in assets in place, the present value of the economic value added by these assets and the expected present value of the economic value that will be added by future investments.

**2014 - Dec [4]** (a) (i), (c)

- (a)** (i) There are a number of misconceptions about valuation. Some of the misconceptions are as under:
1. A valuation is an objective search for true value.
  2. A good valuation provides a precise estimate of value.
  3. The more quantitative, the better the valuation.
  4. Valuing a private business should be done only when the business is ready to be sold.

5. Business in an industry always sell for 'x' times the annual revenue. So why should valuation of the business be done by external valuer.
6. The business should be at least worth equivalent to what a competitor sold his business recently.
7. The business loses money, so it is not worth much.

(c)

**Determination of NPV of Windmill** Amount in Lakhs

Incremental cash outflows	
Cost of Land	15
Cost of the windmill	300
Less: Subsidy from State Government ( $\text{₹}15 \text{ lakhs} \times 0.87$ )	13
<b>Total</b>	<b>302</b>

Incremental CFAT and PV							
Year	Gross Savings on 24 Lakhs units	Maintenance Costs	Net Savings	Taxes	CFAT	PVF (0.15)	Total PV
1	54	4	50	-87.5	137.5	0.87	119.62
2	60	6	54	18.9	35.1	0.76	26.68
3	66	8	58	20.3	37.7	0.66	24.88
4	72	10	62	21.7	40.3	0.57	22.97
5	78	12	66	23.1	42.9	0.5	21.45
6	84	14	70	24.5	45.5	0.43	19.56
7	90	16	74	25.9	48.1	0.38	18.28
8	102	18	84	29.4	54.6	0.33	18.02
9	114	20	94	32.9	61.1	0.28	17.11
10	126	22	104	36.4	67.6	0.25	16.9
10	Land				60	0.25	15
Total Present Value							320.47
Less: Incremental cash outflow							302.00
<b>NPV</b>							<b>18.47</b>

Assuming taxable income from other sources, there will be tax savings of ₹ 87.5 lakhs on negative EAT of ₹ 250 lakhs (₹ 300 lakhs, depreciation – ₹ 50 Lakhs, net savings).

**Chapter - 2: Valuation of Mergers & Acquisitions****2014 - Dec [3] {C} (a)****Figures in crores**

Particulars	Healthy Ltd.	Dull Ltd.
Equity Share Capital	4000	2200
Face Value	10	10
Number of Shares	400	220
Earnings After Tax [EAT]	7070	4930.19
EPS [EAT/Number of Shares]	17.68	22.41
P/E Ratio [Given]	21.80	15.25
Market Price [EPS*P/E Ratio]	385.32	341.75
Swap Ratio based on Market Price	0.89	

**2014 - Dec [4] (b)**

<b>Cost of Acquisition</b>		
<b>Proposed Payments</b>		
Dissolution Expenses	0.5	419.5
Current Liabilities	25	
10.5% Debentures	44	
11% Convertible Preference Shares	100	
Equity Shares	250	
Less: Sales proceeds from Investments	150	174.75
Debtors	15	
Inventories	9.75	
Cash and Bank Balance	4.25	179
Net cost of Acquisition		240.5

Year	Cash Flow (In ₹ Crores)	Discounting Factor	Present Value
1	70	0.8621	60.34
2	75	0.7432	55.74
3	85	0.6407	54.46
4	90	0.5523	49.71
5	100	0.4761	47.61

6	125	0.4104	51.31
7	140	0.3538	49.54
8	50	0.3538	17.69
		Total	386.40

Since the present value of the future cash flows is more than the cost of acquisition, it will be a profitable proposition to take over the said company, BMCL.

### Chapter- 9: Valuation of Goodwill, Patents & Copyrights

2014 - Dec [4] (a) (ii)

#### Valuation of goodwill

Capital employed on 31 <sup>st</sup> March, 2014	Amount (₹)	
Land & Building		9,00,000
Plant and Machinery		10,00,000
Stock		2,00,000
Debtors		1,50,000
Cash and Bank		50,000
Less: Sundry Creditors		3,00,000
		20,00,000
Average maintainable trading profit for the year ending 31 <sup>st</sup> March, 2014		
Net profit before tax		6,00,000
Less: Additional depreciation	40,000	
Less: Additional recurring expenses	50,000	
Less: Non-operating income (interest on investment)	10,000	1,00,000
		5,00,000
Less: Provision for taxation @30% of ₹ 5,40,000		1,62,000
		3,38,000
Average trading capital employed		
Closing capital employed		20,00,000
Less: 50% of average maintainable trading profit after tax		1,69,000
		18,31,000

<b>Super Profit</b>		
Average maintainable operating profit		3,38,000
Less: Normal profit 14% of capital employed ₹18,31,000		2,56,340
		81,660
<b>Valuation of Goodwill</b>		
Super Profits	81,660	
Goodwill at 3 years purchase of super profits	2,44,980	

**Note:**

1. It has been assumed that additional depreciation arising out of revaluation of assets is not deductible for calculating provision for taxation.
2. Since tax rate is 30% and normal pre-tax rate being 20% the after tax normal rate of return will be 14%.

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