

**FINAL EXAMINATION
GROUP - IV
(SYLLABUS 2012)**

**SUGGESTED ANSWERS TO QUESTIONS
JUNE - 2017**

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.

Answer Question No. 1, which is compulsory and carries 20 marks.

Answer any five questions from Q. No. 2 to Q. No. 8, each of which shall carry 16 marks.

1. (a) State whether the following statements are true or false: 1x12=12
- (i) A cash flow statement breaks the analysis down according to operating and financing activities only.
 - (ii) A financial model specifies the relationship between inputs and outputs.
 - (iii) Analyzing revenue of telecommunication companies market size and market share are value drivers.
 - (iv) Production, employment and consumption are significant data for financial analysis.
 - (v) Off-Balance Sheet financing is used to finance a company without showing debt on the face of the Balance Sheet.
 - (vi) Horizontal financial statement analysis is useful in inter-firm comparison.
 - (vii) Trend ratio shows the nature and rate of movement of various financial factors.
 - (viii) Operating efficiency is measured by the profitability ratios.
 - (ix) High rate labour turnover is an indicator of financial distress of a firm.
 - (x) Market saturation of the product is an external factor responsible for corporate distress.
 - (xi) A brand is nothing but a glorified product name; hence it has no value.
 - (xii) Higher Debt/Equity ratio implies higher valuation of a company.
- (b) If the Net Operating Profit after taxes (NOPAT) is ₹ 10,50,000 and the Capital invested is ₹ 35,00,000 and the Weighted average cost of capital (WACC) is 12%. Find EVA (Economic Value Added)? 2
- (c) XYZ Co. Ltd., has paid a dividend of 2.12 in the year 2016-17. The dividends are expected to grow at 5% per year in the long term and the company has a cost of equity of 9.40%. What is the value per equity share as on today? 4
- (d) Y Ltd., is expected to generate future profits of ₹ 54,00,000. What is its value of business, if investments of this type are expected to give an annual return of 20%? 2

Answer:

1. (a) (i) False
(ii) True
(iii) True
(iv) False
(v) True

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- (vi) False
- (vii) True
- (viii) False
- (ix) True
- (x) True
- (xi) False
- (xii) False

(b) $EVA = NOPAT - (\text{Invested Capital} \times WACC)$
 $= ₹ 10,50,000 - (₹35,00,000 \times 12\%)$
 $= ₹10,50,000 - ₹4,20,000$
 $= ₹6,30,000.$

(c) $V_0 = D_x (1+g)/(r-g)$ where $V_0 =$ Value today of the equity,
 $D =$ Latest dividend = 2.12 (given)
 $g =$ Growth rate = 5% = 0.05
 $r =$ Cost of equity = 9.40% = 0.094

$V_0 = 2.12(1+0.05)/(0.094 - 0.05)$
 $= 2.12 \times 1.05/(0.094 - 0.05)$
 $= 2.12 \times 1.05/0.044$
 $= 2.226/0.044$
 $= 50.59\%$

(d) Value of business = Annual earnings / Annual return
 $= ₹ 54,00,000/0.20$
 $= ₹ 270,00,000.$

2. (a) Using the following information, what is the firm's cash flow from the operations?

Particulars	₹
Net income	120
Decrease in accounts receivables	20
Depreciation	25
Increase in inventory	10
Increase in accounts payable	7
Decrease in wages payable	5
Increase in deferred tax liabilities	15
Profit from the sale of land	2

Please note that the profit on the sale of land should be subtracted from the net income to avoid double counting the gain in net income and investing activities. 8

(b) The following data relate to some important items of a company disclosing its developments during the last five years:

Particulars	2011 (₹)	2016 (₹)
Working capital	9,34,120	15,30,040
Plant and Machinery	3,99,140	9,67,080
Long-term borrowings	2,80,000	5,60,000
Net Tangible assets	11,23,200	19,95,040

You are required to evaluate the changes in financial position (soundness/weakness) of the company by following the trend percentage. 8

Answer:

2. (a) Net Income-Profit from sale of land + Depreciation + Decrease in receivables - Increase in inventories + Increase in accounts payable- Decrease in wages payable + Increase in deferred tax liabilities.
 $= ₹ [120-2+25+20-10+7-5+15]$ $= ₹170.$

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(b) Computation of Trend Percentage

Particulars	Absolute Changes	Trend %	
		2011	2016
Working capital	5,95,920	100	163.8
Plant & Machinery	5,67,940	100	242.3
Long-term borrowings	2,80,000	100	200
Net Tangible assets	8,71,840	100	177.6

Interpretation of changes:

Trend percentage depicts that there is an increase of 142.3% in plant and machinery while an increase in working capital is 63.79%. These trend percentages show that there is rapid increase in fixed assets. But if we see the changes in absolute figures of above said both items then just opposite result comes before us.

Working capital is increased by ₹ 5,95,920 and plant and machinery is increased by ₹ 5,67,940. On the basis of trend percentage it can be said that finance has been provided from long term borrowing and working capital for purchasing plant and machinery.

There is an increase of 100% and 77.6% respectively in long term debt and net tangible assets which is undesirable because more increase in long term debts in comparison to net tangible assets is the indicator of increasing debt burden.

- 3. (a) Hall Corporation paid ₹ 600 million for the outstanding share of Triple C corporation. At the acquisition date, Triple C reported the following Condensed Balance Sheet.**

Triple C Corporation—Condensed Balance Sheet

	Book Value (₹ in millions)
Current Assets	80
Plant and equipment, net	760
Goodwill	30
Liabilities	400
Shareholders' equity	470

The fair value of the plant and equipment was ₹ 120 million more than its recorded book value. The fair values of all other identifiable assets and liabilities were equal to their recorded book values. Calculate the amount of Goodwill that Hall Corporation should report on its Consolidated Balance Sheet.

The Goodwill reported on Triple C Corporation's Balance Sheet is an unidentifiable asset and is thus ignored in the calculation of Hall Corporation's Goodwill. 8

- (b) What are the steps followed under univariate model of distress prediction of a company?** 8

Answer:

- 3. (a) Hall Corporation's Value of Goodwill**

	Fair Value (₹ in millions)
Current Assets	80
Plant and equipment	880
Liabilities	(400)
Fair value of net assets	560
Purchase Price	600

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Less: Fair value of net assets	(560)
Acquisition of Goodwill	40

Note: Goodwill is equal to the excess of purchase price over the fair value of identifiable assets and liabilities acquired. The Plant and equipment was "written-up" by ₹ 120 million to reflect fair value.

The Goodwill reported on Triple C Corporation's Balance sheet is an unidentifiable asset and is thus ignored in the calculation of Hall Corporation's Goodwill.

(b) Steps used under univariate model of distress prediction are as follows:

- (i) An accounting ratio namely current ratio or debt-equity ratio or total debt to total asset etc is selected for analysis of financial distress of companies.
- (ii) A number of distressed companies that is failed companies and non-distressed companies are arbitrarily chosen for analysis.
- (iii) The accounting ratio as selected for analysis of the companies as chosen under (ii) is to be calculated.
- (iv) Comparison of accounting ratios as calculated under (iii) for the companies chosen for analysis are made for prediction of their financial distress.
- (v) Conclusion is made about the prediction of financial distress of the companies on the basis of the comparison done under (iv).

4. (a) State the Multivariate Model of Corporate Distress Prediction developed by Edward I. Altman? **8**

(b) From the following information given below relating to XYZ Ltd., Calculate Altman's Z-score and comment:

Working capital / Total Assets	25%
Retained earnings / Total Assets	30%
Earnings before interest and taxes / Total Assets	15%
Mkt. Value of Equity / Book value of total debt	150%
Sales/Total Assets	2 times

8

Answer:

4. (a) Edward I. Altman developed a Corporate Distress Prediction Model on the basis of Multiple Discriminant Analysis (MDA). Prof. Altman has selected 5 ratios, which had been deemed as the best predictors of Corporate Distress Prediction. The Purposes of these five selected ratios are as follows:

- (i) To measure the liquidity position of the firms
- (ii) To measure reinvestment of earnings of the firms
- (iii) To measure profitability of the firms
- (iv) To measure financial leverage condition of the firms
- (v) To measure sales-generating ability of the firm's assets.

The following Discriminant Function was developed by Altman:

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

Where Z = overall index of Multiple Index function.

X₁ = Working Capital to Total Assets (a liquidity measure)

X₂ = Retained Earnings to Total Assets (a measure of reinvestment of earnings)

X₃ = EBIT to Total Assets (a profitability measure)

X₄ = Market Value of Equity & Preference to Book value of Total Debt (a measure of leverage)

X₅ = Sales to Total Assets (a measure of Sales-generating ability of the firm's assets)

Analysis of Value of Z-score:

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- i. If the calculated value of Z-score is greater than 2.99, it is predicted that the firm belongs to non-bankrupt class (i.e., non-failed firm).
- ii. If the calculated value of Z-score is smaller than 1.81, it is predicted that the firm belongs to bankrupt class (i.e., failed firm).
- iii. If the calculated value of Z-score of a firm falls between 1.81 and 2.99 (referred to as Grey Area), it is predicted that the firm consists of both bankrupt and non-bankrupt class (i.e., mixture of failed and non-failed elements) and, therefore, requires further investigation to determine its solvency status.

(b) As per Altman's Model of Corporate Distress Prediction,

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

Where Z = overall index of Multiple Index Function.

X₁ = Working Capital to Total Assets (a liquidity measure)

X₂ = Retained Earnings to Total Assets (a measure of reinvestment of earnings)

X₃ = EBIT to Total Assets (a profitability measure)

X₄ = Market Value of Equity & Preference to Book value of Total Debt (a measure of leverage)

X₅ = Sales to Total Assets (a measure of Sales-generating ability of the firm's assets)

Here, the five variables are as follows:

X ₁ = Working capital / Total Assets	= 25%,
X ₂ = Retained earnings / Total Assets	= 30%
X ₃ = Earnings before interest and taxes / Total Assets	= 15%
X ₄ = Mkt. Value of Equity/Book value of total debt	= 150%
X ₅ = Sales/Total Assets	= 2 times.

$$\begin{aligned}\text{Hence, Z score} &= (1.2 \times 25\%) + (1.4 \times 30\%) + (3.3 \times 15\%) + (0.6 \times 150\%) + (1 \times 2) \\ &= 0.30 + 0.42 + 0.495 + 0.90 + 2.00 \\ &= 4.115.\end{aligned}$$

Comment: As the calculated value of Z-score is much higher than 2.99, it can be strongly predicted that the company is a non-bankrupt company.

5. (a) M Ltd. has been following a dividend payout of only 20% so that the funds needed for the growth of the firm targeted at 10% is retained. The expectation of return is 12%.
- (i) At what rate the market is discounting the current and future earnings of M Ltd.?
 - (ii) If the current level of earnings is ₹ 10 per share, at what price the shares of the firm are being traded? 4+4=8

(b) What are the myths of valuation?

8

Answer:

5. (a) (i) The dividend discount model in terms of earnings and retention ratio is:

$$\text{Price } (P_0) = \frac{D_1}{(r-g)} = \frac{E_1 \times (1-b)}{r-g}$$

$$\text{Or P/E Multiple } \frac{P_0}{E_1} = \frac{(1-b)}{r-g}$$

Retention Ratio, b	80.00%
Required Return, r	12.00%
Growth Rate, g	10.00%
P/E ratio based on expected earnings, E ₁	10.00
P/E ratio based on current earnings, E ₀	11.00

Market is discounting the current and future earnings of the firms at 10 and 11 times respectively.

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(ii) Current earnings, E_0	₹ 10.00
Growth Rate, r	10.00%
Required Return, r	12.00%
Expected earnings, E_1	₹ 11.00
Retention Ratio, b	80.00%

$$\text{Price} = 10 \times (1 + 0.1) \times \frac{1 - 0.8}{0.12 - 0.1} = ₹ 110.00$$

(b) The following are some of the myths of valuation:

- (a) Valuation is an objective search for true value;
- (b) Since valuation models are quantitative, valuation is subjective;
- (c) A well researched and well done valuation is timeless;
- (d) A good valuation provides a precise estimate of value;
- (e) The more quantitative a model the better is valuation;
- (f) To make money on valuation, you have to assume that markets are inefficient;
- (g) The product of valuation, (i.e. value) matters, and not the valuation;
- (h) How much a business is worth depends on what the valuation is used for.

6. (a) Capital Structure of P Ltd. on 31st March 2016 was as follows:

Equity Capital 18,000 of ₹ 100 each (₹)	18,00,000
12% Preference Capital 5,000 shares of ₹ 100 each (₹)	5,00,000
12% Secured Debenture (₹)	5,00,000
Reserves (₹)	5,00,000
Profit earned before Interest and Taxes during the year (₹)	7,20,000
Tax rate (%)	40%
Return on Equity Shares from the industry to which this company belongs to (%)	15%

Subject to:—

The profit after tax covers fixed interest and fixed dividends at least 4 times

- (i) The debt equity ratio is at least 2
- (ii) Yield on equity shares is calculated at 60% of distributed profits and 10% of undistributed profits.

The company has been paying regularly an equity dividend of 15%.

The risk premium for dividends is generally assumed at 1%

Calculate:

- (i) Interest and Fixed coverage
- (ii) Debt-Equity ratio

10

(b) The operating and cost data of ABC Ltd., are:

Sales	₹ 20,00,000
Variable Costs	₹ 14,00,000
Fixed Costs (including 15% interest on ₹ 10,00,000).	

You are requested to calculate

- (i) Operating Leverage
- (ii) Financial Leverage and the
- (iii) Combined Leverage

2+2+2=6

Answer:

6. (a) Calculation of profit after tax (PAT) (₹)

	₹
Profit before interest and tax (PBIT)	7,20,000

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Less: Debenture interest (₹ 5,00,000 × 12/100)	60,000
Profit before tax (PBT)	6,60,000
Less tax @ 40%	2,64,000
Profit after tax	3,96,000
Less: Preference dividend (₹ 5,00,000 × 12/100) = ₹ 60,000	
Equity Dividend (₹ 18,00,000 × 15/100) = ₹ 2,70,000	3,30,000
Retained earnings	66,000

Calculation of Interest and fixed dividend Coverage:

$$= \frac{(\text{PAT} + \text{Debenture Interest})}{(\text{Debenture Interest} + \text{Preference Dividend})} = \frac{₹(3,96,000 + 60,000)}{₹(60,000 + 60,000)} = 3.8 \text{ times.}$$

Calculation of Debt equity ratio:

$$\begin{aligned} \text{Debt Equity Ratio} &= \frac{\text{Debt (long term loan)}}{\text{Equity (shareholder's fund)}} \\ &= \frac{\text{Debentures}}{\text{Preference Share Capital} + \text{Equity Share Capital} + \text{Reserves}} \\ &= \frac{₹5,00,000}{(5,00,000 + 18,00,000 + 5,00,000)} = 0.179. \end{aligned}$$

The ratio is less than prescribed ratio.

(b)

Variable Cost	= ₹ 14,00,000
Sales	= ₹ 20,00,000
Contribution	= ₹ 6,00,000
Less: Fixed Cost	= ₹ 2,50,000
EBIT	= ₹ 3,50,000
Less: Interest	= ₹ 1,50,000
EBT	= ₹ 2,00,000

(i) Operating Leverage = Contribution/EBIT = ₹ 6,00,000/₹ 3,50,000 = 1.71428

(ii) Financial Leverage = EBIT/EBT = ₹ 3,50,000/₹ 2,00,000 = 1.75

(iii) Combined Leverage = Operating Leverage x Financial Leverage
= 1.75 x 1.71428 = 2.99999 = say 3.

7. (a) The following data is given to you regarding a company having a share in branded portion as well as unbranded portion:

Branded Revenue	₹ 500 per unit
Unbranded Revenue	₹ 120 per unit
Branded Cost	₹ 350 per unit
Unbranded Cost	₹ 100 per unit
Research and Development	₹ 20 per unit
Branded Products	1 lakh unit
Unbranded Products	40,000 units
Tax rate is 39.55%; Capitalization factor 18%	

Calculate the Brand Value.

8

(b) List the factors that influence Brand Valuation?

8

Answer:

7. (a) The net revenue from the branded product

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$$\begin{aligned} &= (\text{Revenue}-\text{Cost}) \times \text{Quantity sold} \\ &= (\text{₹ } 500 - \text{₹ } 350) \times 1,00,000 \\ &= \text{₹ } 1,50,00,000 \end{aligned}$$

$$\text{Net revenue from the unbranded product} = (\text{₹ } 120 - \text{₹ } 100) \times 40,000 = \text{₹ } 8,00,000$$

$$\begin{aligned} \text{PAT for branded product} \\ &= (1,50,00,000 - 28,00,000) \times (1 - 0.3955) \\ &= (1,22,00,000) \times (0.6045) \\ &= 73,74,900 \end{aligned}$$

$$\begin{aligned} \text{Brand Value} &= \text{Returns/Capitalization rate} = \text{₹ } 73,74,900/0.18 \\ &= \text{₹ } 4,09,71,667. \end{aligned}$$

(b) The following factors influence Brand Valuation:

- Cost of acquisition of brand;
- Expenses incurred on nurturing a home grown brand;
- Earning power of the brand;
- Product Life Cycle;
- Separating brand from other less important value drivers;
- Intrinsic strength of the people and process handling brand;
- Impact of other new brands in the market;
- Accuracy in projecting the super or extra earnings offered by a brand and the rate of discounting cash flows;
- Cost of withdrawing or rejecting the brand.

8. Write Short Notes on any four out of the following:

4×4=16

- (i) Financial Analysis
- (ii) Key Areas of Valuation
- (iii) Financial Leverage
- (iv) Off Balance Sheet
- (v) Hostile Takeover

Answer:

8. (i) **Financial Analysis:** The Finance Analysis of companies is usually undertaken so that investors, creditors and other stakeholders can make decisions about those companies.

Finance Analysis is the selection, evaluation and interpretation of financial data, along with other pertinent information, to assist in investment and financial decision-making. Finance Analysis may be used internally to evaluate issues like employee performance, operating efficiency, credit policies and extremely to evaluate potential investments and credit-worthiness of borrowers, among other things.

The goal of Financial Analysis is to assess the performance of a firm in the context of its stated goals and strategy. There are two principal tools of Financial Analysis: Ratio-Analysis and Cash-Flow Analysis. Ratio-Analysis involves assessing how various line items in a firm's financial statements relate to one another. Cash-Flow Analysis allows the analyst to examine the firm's liquidity and how the firm is managing its operating costs and financing cash flows.

Financial Analysis is used in a variety of contexts. Ratio Analysis of a company's present and past performance provides the foundation for making forecasts of future performance.

Financial Analysis is useful in company valuation, Credit evaluation, financial distress

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prediction, security analysis, mergers and acquisition analysis and corporate financial policy analysis.

(ii) Key Areas of Valuation:

The following are certain key areas where valuation plays a key role:

- Valuation of equity share in the primary, secondary as well as derivative market;
- Private placement of equity shares;
- Corporate restructuring and turnaround;
- Secured lending including project finance;
- Securitization and other debt instruments;
- Implementation of Basel-II recommendation;
- Portfolio management-Mutual fund, hedge fund and professional investors;
- Long term and medium term investment decisions, M& A, takeovers, divestiture, disinvestment, capital budgeting, private equity investment, venture capital investment, strategic investors, financial investors and others;
- Dividend decision and buy back of shares;
- Borrowing decisions;
- Financial risk management decisions;
- Court case related decisions;
- Tax related valuation including transfer pricing;
- Development projects valuation;
- Intangibles;
- Financial reporting valuation;
- Equity research;
- Forensic accounting and financial fraud investigation;
- Dissolution of firm, partner buyout and admission;
- Insurance product valuation;
- Estate planning and financial planning;
- Corporate planning;
- Property valuation;
- Value based performance measurement;
- Credit rating;
- Fairness and solvency opinion; and
- Charitable donation.

(iii) Financial Leverage: Financial Leverage is the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT on the earnings per share. These fixed charges do not vary with the EBIT or operating profit. It refers to the use of debt fund in the capital structure. It indicates the use of earnings in making payments for fixed interest and fixed dividend bearing securities. Favourable or positive leverage occurs when the firm earns more on the assets purchased with the funds, than the fixed cost of their use.

A high ratio is risky but a low ratio indicates a low interest outflow and consequently lower borrowings.

Financial Leverage = EBIT/EBT.

Financial Leverage is sometimes called as ' trading on equity'. The purpose behind this principle is to give the equity shareholders a high rate of return than the general rate of earning on the capital employed in the company with an objective to

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compensate them for the risk which they have to bear.

(iv) Off Balance Sheet (OBS): Off Balance Sheet is one where 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.OBS usually means an asset or debt or financial activity which is 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 are sold.

Some companies may have significant amounts of off-balance sheet assets and liabilities. For example-Financial institutions often offer asset management or brokerage services to their clients. The assets in question (often securities) usually belong to the individual clients directly or in trust, while the company may provide management, depository or other services to the client. The company itself has no direct claim to the assets and usually has some basic fiduciary duties with respect to the client. Financial institutions may report off-balance sheet items in their accounting statements formally and may also refer to "assets under management", a figure that may include on and off balance sheet items.

(v) Hostile Takeover: The acquiring firm, without the knowledge and consent of the management of the target firm, may unilaterally pursue the efforts to gain a controlling interest in the target firm, by purchasing shares of the latter firm at the stock exchanges. This is a technique for affecting either a take-over or an amalgamation. It may be defined as an offer to acquire shares of a company, whose shares are not closely held, addressed to the general body of shareholders with a view to obtaining at least sufficient shares to give the offer or voting control of the company. Takeover bid is thus adopted by the company for taking over the control and management affairs of listed company by acquiring its controlling interest.

While a takeover bid is used for affecting a takeover, it is frequently against the wishes of the management of Offeree Company when it becomes a hostile takeover bid. It may take the form of an offer to purchase shares for cash or for share exchange or a combination of these two. Such case of merger/acquisition is popularly known as 'raid'. The Caparo group of UK made a hostile takeover bid to take DCM Ltd., and Escorts Ltd., similarly some other NRIs have also made hostile bid to takeover some other Indian companies. The new takeover code, as announced by SEBI deals with the hostile takeover bids.