

SHARE VALUATION

ONLY FOR SELF STUDY

YES- DEE

THINK ABOUT

- Objectives of share valuation
- What are various methods of valuation
 - Net Asset Method/ Asset backing Method
 - NAATESH/TNOES
 - Asset @ CV or BV, include Non Trade Investment
 - Deduct Debt Capital and PREF cap
 - Earning Capacity Method/ Yield Method
 - Fair Value method

- **How to determine value of each type of equity share where Face value same but some are fully paid and some are partly paid ?**
 - Convert partly Paid up to fully paid up by Notional call
 - Add the call money net amt available to ESH
 - Value of Fully Paid up share would be (NAATESH after ADDING call money) divided by(total number of equity share)
 - Value of Partly paid up share would be = V.o. fully Paid share – Notional call on such share
- **Shares are fully paid up + Face value are different**
 - Determine NAATESH
 - Determine Total paid up equity capital
 - Determine Net asset available with respect to Re. 1 paid up capital
 - Value of share would be = value of Re.1 capital x paid up amount on such share
- **Face value different+ some are partly paid + some are fully paid**
 - Convert partly paid up share into fully paid up by making Notional call (NC)
 - Add call money to NAATESH-----X
 - Determine the value of Re.1 PUC----- $(X / \text{TPU Amt after NC}) = Y$
 - Find Value of fully paid up ES = $Y \times \text{Face value of such share} = Z$
 - Find value of partly paid up = $Z - \text{Unpaid amt of such share}$
- **Mix of goodwill valuation & share valuation**

- Share Valuation on basis of DPS
- Share valuation on basis of EPS
- Valuation on basis of EA to ESH
- Interpretation of Normal Rate of return=10%
 - If the return from asset is Rs10, the investor would be ready to buy such asset at a price of Rs 100

if RETURN	then VALUE
10	100
1	100/10
EPS =2.5	2.5 X (100/10)
DPS=3	3 X (100/10)

- Value of equity share by Capitalization of earning method
- Valuation under yield method is for large lot

THEORY

VALUATION OF SHARES

- (i) Intrinsic value method or book value or balance sheet value method.
- (ii) Market value method or yield value method.

Intrinsic Value Method

Intrinsic value method assumes liquidation (without liquidation expenses) i.e., we find the amount which the holder of one equity share will get if the company goes into liquidation. It is obtained by dividing (current value of all assets including goodwill and non-trade-assets minus outside liabilities minus P.S.C.) by number of equity shares. A special point about proposed dividend, i.e., whether it is outside liability or not. The answer to this point is if we have to calculate ex-dividend value of shares, proposed dividend should be treated as outside liability. If we have to calculate cum-dividend value of the share, proposed dividend is not outside liability.

If we have to calculate the value of shares as wealth (i.e. no, purchase or sale of shares is taking place), we find cum-dividend value. If the value that we shall determine would be the basis of issuing new shares, we should find ex-dividend value as the proposed dividend appearing in balance sheet shall not be available for new shares to be issued. If purchase/sale/transfer of existing shares is to take place, we find the value from the point of view of buyer. If the buyer will get the proposed dividend, we find cum-dividend value and otherwise ex-dividend value.

If a company has shares of different face values, we find their equivalent number on the basis of any one of the face values. We find the value of

shares on the basis of that face value. We find the value of shares of other face values accordingly.

If we are given that shares have different paid up values, we assume that all the shares are to be made fully paid up. We calculate the value of one fully paid up share. Value of partly paid up share = value of fully paid up share minus unpaid amount. Here we should know the Company Law provision that on the liquidation of a company (intrinsic value method assumes liquidation), company's profits/losses are shared by equity shareholders in the ratio of face value of shares (not in the ratio of paid up value of shares).

Market Value method assumes business as a going concern. Under this two approaches are there: (i) based on dividend, and (ii) based on earnings. Based on dividend, two approaches are there, one is based on actual dividend (It is also known as dividend yield approach) and the other is based on maximum possible dividend. Based on earnings also, there are two methods (i) based on EPS (ii) based on return on equity shareholders' fund (ROE).

Market value (based on actual dividend)	$\frac{\text{Actual Dividend Rate}}{\text{Normal Rate}} \times \text{paid up value}$
Market value (Based on Max. possible div.)	$\frac{\text{Max. Possible Div. Rate}}{\text{Normal rate}} \times \text{paid up value}$
Market value (Based on EPS)	$\frac{\text{E.P.S}}{\text{Normal Rate}}$
Market value (Based on ROE)	$\frac{\text{ROE}}{\text{Normal rate}} \times \text{Paid up value}$

Fair Value = Average of Intrinsic value and market value.

CHOICE OF METHOD

1. Fair value method is considered as most appropriate method when the value to be determined is going to affect a fairly large number of shares. Like acquiring controlling interest, amalgamation, etc., conversion of private company to public company. For fair value, yield value may be calculated on the basis of earnings.
2. Intrinsic value method may be applied when current value of goodwill is given or is to be calculated.
3. In all other cases, yield value based on maximum possible dividend may be applied.
4. Sometimes, the choice of method depends upon data/information given in question.

What is Value?

Value is the 'worth' of a thing. It can also be defined as 'a bundle of benefits' expected from it. It can be tangible or intangible.

Value is defined as:

- a. The worth, desirability, or utility of a thing, or the qualities on which these depend
- b. Worth as estimated
- c. The amount for which a thing can be exchanged in the market
- d. Purchasing power
- e. Estimate the value of, appraise (professionally)

Valuation is defined as:

- Estimation (esp. by professional valuer) of a thing's worth
- Worth so estimated
- Price set on a thing

Approaches to Common Stock Valuation:

There are a number of methods when it comes to common stock valuation. They are given below:

1. Discounted Cash Flow Techniques:

- Present value of Dividends (DDM)
- Present value of Operating Cash Flow
- Present value of Free Cash Flow

2. Relative valuation techniques:

- Price-earnings ratio (P/E)
- Price-cash flow ratios (P/CF)
- Price-book value ratios (P/BV)
- Price-sales ratio (P/S)

Theory of Valuation:

The value of a financial asset is the present value of its expected future cash flows. The inputs required for valuation are:

- a. The stream of expected future returns, or cash flows,
- b. The required rate of return on the investment.

Stream of Expected Returns (Cash Flows): Depending on the investment, returns can be in the form of:

- Earnings
- Dividends
- Interest payments
- Capital gains

The time period and growth rate of returns are important. This essentially means when the cash flows from the investment will be received.

Required Rate of Return:

This is determined by the risk of an investment and available returns in the market. Therefore, this is determined by:

1. The real risk-free rate of return, plus
2. The expected rate of inflation, plus
3. A risk premium to compensate for the uncertainty of returns

Sources of uncertainty, and therefore risk premiums, vary by the type of investment.

Investment Decision Process:

Once the expected (intrinsic) value is calculated, the investment decision is rather straightforward and intuitive:

- If Estimated Value > Market Price, buy
- If Estimated Value < Market Price, do not buy

The particulars of the valuation process vary by type of investment.

Valuation Approaches:

Discounted Cash Flow Valuation: This approach is also known as the Income approach, where the value is determined by calculating the net present value of the stream of benefits generated by the business or the asset. Thus, the DCF approach equals the enterprise value to all future cash flows discounted to the present using the appropriate cost of capital.

Relative Valuation: This is also known as the market approach. In this approach, value is determined by comparing the subject company or asset with other companies or assets in the same industry, of the same size, and/or within the same region, based on common variables such as earnings, sales, cash flows, etc.

The Profit multiples often used are: (a) Earnings before interest tax depreciation and amortisation (EBITDA), (b) Earnings before interest and tax (EBIT), (c) Profits before tax, and (d) Profits after tax.

Asset-based approach: A fourth approach called asset-based approach is also touted as another approach to valuation.

The valuation here is simply the difference between the assets and liabilities taken from the balance sheet, adjusted for certain accounting principles.

Two methods are used here:

- a. The Liquidation Value, which is the sum of estimated sale values of the assets owned by a company.
- b. Replacement Cost: The current cost of replacing all the assets of a company.

However, the asset-based approach is not an alternative to the first three approaches, as this approach itself uses one of the three approaches to determine the values.

This approach is commonly used by property and investment companies, to cross check for asset based trading companies such as hotels and property developers, underperforming trading companies with strong asset base (market value vs. existing use), and to work out break – up valuations.

Adjustments for Valuation Purposes:

A number of adjustments are required from the account statements of the company to be valued, and these are listed below:

Income Statement: ✓

- Excess compensation
- Excess fringe benefits
- Inventory accumulation
- Bad debts
- Depreciation
- Extraordinary write-offs
- Corporate income taxes

Balance Sheet: ✓

- Inventory
- Bad debts
- Fixed asset appreciation/depreciation
- Patent, franchises, goodwill, and other intangibles
- Investment in affiliates
- Future royalties

- Low cost debt service
- Tax loss carry forwards

General Accounting Policies:

- Overhead allocations
- Installment sales
- Deferred compensation
- Pension and profit sharing
- Foreign exchange
- Consolidation
- Depreciation
- Inventories
- Accounts receivable
- Research and development
- Income tax deferrals
- Marketable Securities
- Contingencies
 - a. Unknown law suit potential (product liability)
 - b. Executory contracts
 - c. Management or employment contracts
 - d. Ownership restrictions

What is DCF?

In Discounted Cash Flow (DCF) valuation, the value of an asset is the present value of the expected cash flows on the asset.

The basic premise in DCF is that every asset has an intrinsic value that can be estimated, based upon its characteristics in terms of cash flows, growth and risk.

Though the DCF Valuation is one of the three approaches to Valuation, it is essential to understand the fundamentals of this approach, as the DCF method finds application in the use of the other two approaches also. The DCF model is the most widely used standalone valuation model.

Discounted Cash Flow (DCF) Analysis:

To use DCF valuation, we need to estimate the following:

the life of the asset ✓

the cash flows during the life of the asset ✓

the discount rate to apply to these cash flows to get present value ✓

The Present Value of an asset is arrived at by determining the present values of all expected future cash flows from the use of the asset. Mathematically,

$$\text{Value of an asset} = \sum_{i=1}^{i=n} [(CF_i / (1+r)^i)]$$

That is:

$$\text{Value} = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n}$$

where

CF_i = Expected Future Net Cash Flow during period i

n = Life of the asset

r = rate of discount

The expected future net cash flow is defined as after-tax cash flow from operations on an invested capital basis (excluding the impact of debt service) less the sum of net changes in working capital and new investments in capital assets.

The discount rate should reflect the riskiness of the estimated cash flows. The rate will be higher for high risk projects as compared to lower rates for safe or less risky investments. The Weighted Average Cost of Capital (WACC) is used as the discount rate. The cost of capital with which the cash flows are discounted should reflect the risk inherent in the future cash flows.

The WACC is calculated using the following formula:

$$WACC = [(E/(D+E) \times C_E] + [(D/(D+E) \times C_D \times (1-T)]$$

where E is the market value of equity, D is the market value of debt, C_E is the cost of equity, C_D is the cost of debt and T is the tax rate.

The first step in determining WACC is the assessment of capital structure, i.e., how a company has financed its operations.

It can thus be seen that the company's net cash flows are projected for a number of years and then discounted to present value using the WACC. The expected cash flows earned beyond the projection period are capitalized into a terminal value and added to the value of the projected cash flows for a total value indication.

Steps in DCF Valuation:

The steps in valuing a company using DCF are given below:

1. Determine the time horizon for specific forecasts:
Consider economic and business cycles, positive and negative growth.
2. Forecast operating cash flows:
Determine value drivers, estimate historic, current and future ratios, decide on cash/investment policy.
3. Determine residual value:
Decide on residual value methodology, estimate growth rate in perpetuity.
4. Estimate WACC:
Estimate cost of equity and debt, the debt-equity ratio.
5. Discount cash flows:
Determine enterprise value and equity value, conduct sensitivity analysis.s
6. Prepare related financial statements.

Discounted Cash Flow Techniques:

This is based on the basic valuation model: the value of a financial asset is the present value of its expected future cash flows:

✓ $V_j = \sum CF_t / (1+k)^t$

The different discounted cash flow techniques consider different cash flows and also different appropriate discount rates.

Dividend Discount Models:

Simplifying assumptions help in estimating present value of future dividends:

✓ $V_j = \sum D_t / (1+k)^t$

Can also assume various dividends for a finite period of time with a reselling price, and simply calculate the combined present value of the dividends.

Alternative dividend assumptions:

Constant Growth Model:

- Assumes dividends started at D_0 (last year's dividend) and will grow at a constant growth rate
- Growth will continue for an infinite period of time
- The required return (k) is greater than the constant rate of growth (g)

✓ $V = D_1 / (k - g)$

where $D_1 = D_0(1 + g)$

The growth rate can be estimated from past growth in earnings and dividends, using the sustainable growth model. The discount rate would consider the systematic risk of the investment (beta).

Valuation with Temporary Supernormal Growth:

If you expect a company to experience rapid growth for some period of time:

- a. Find the present value of each dividend during the supernormal growth period separately.
- b. Find the present value of the remaining dividends when constant growth can be assumed.
- c. Find the present value of the remaining dividends by finding the present value of the estimate obtained in step 2.

Present Value of Operating Cash Flows:

Another discounted cash flow approach is to discount operating cash flows. Operating cash flows are pre-interest cash flows, so the required rate of return would be adjusted to incorporate the required returns of all investors (use the WACC)

$$V_{Fi} = \sum OCF_t / (1 + WACC_j)^t$$

If we further assume a growth rate of g_{OCF} for operating cash flows, we can value the firm as:

$$V_{Fi} = OCF_t / (WACC_j - g_{OCF})$$

Present Value of Free Cash Flow to Equity:

A third discounted cash flow technique is to consider the free cash flows of a firm available to equity as the cash flow stream to be discounted. Since this is an equity stream, the appropriate discount rate is the required return on equity:

✓
$$V_{Si} = \sum FCF_t / (1 + k_j)^t$$

Once again, if we want constant growth in free cash flows, this expression reduces to the following:

✓
$$V_{Si} = FCF_t / (k_j - g_{FCF})$$

Price – Earnings Ratio:

The Price-Earnings ratio, popularly known as P/E ratio, is affected by two variables:

1. Required rate of return on its equity (k)
2. Expected growth rate of dividends (g)

$$P/E_1 = \frac{D_1/E}{k-g}$$

Look at the relationship between the current market price and expected earnings per share over the next year. The ratio is the earnings multiplier, and is a measure of the prevailing attitude of investors regarding a stock's value.

Using the P/E approach to valuation:

1. Estimate earnings for next year
2. Estimate the P/E ratio (Earnings Multiplier)
3. Multiply expected earnings by the expected P/E ratio to get expected price


$$V = E_1 \times (P/E)$$

$$\text{Expected Return} = r = (\text{Div}_1 / P_0) + [(P_1 - P_0) / P_0]$$

Capitalization Rate can be estimated using the perpetuity formula, given minor algebraic manipulation.

$$\text{Capitalization Rate} = P_0 = [\text{Div}_1 / (r - g)]$$

$$r = (\text{Div}_1 / P_0) + g$$

$$\text{Dividend Yield} = \text{Div}_1 / P_0$$

$$\text{Return on Equity} = \text{ROE} = \text{EPS} / \text{Book Value per share}$$

Dividend Discount Model - Computation of today's stock price which states that share value equals the present value of all expected future dividends.

$$i = n$$

$$P_0 = \sum [\text{Div}_i / (1+r)^i]$$

$$i = 1$$

i = the time horizon of the investment.

Example:

Current forecasts are for XYZ Company to pay dividends of Rs.3, Rs.3.24, and Rs.3.50 over the next three years, respectively. At the end of three years you anticipate selling your stock at a market price of Rs.94.48. What is the price of the stock given a 12% expected return?

$$PV = \frac{3.00}{(1+0.12)^1} + \frac{3.24}{(1+0.12)^2} + \frac{3.50+94.48}{(1+0.12)^3}$$

$$PV = \text{Rs.75/-}$$

If we forecast no growth, and plan to hold out stock indefinitely, we will then value the stock as a **PERPETUITY**.

$$\begin{aligned}\text{Perpetuity} &= P_0 = (\text{Div}_1 / r) \\ &= \text{EPS}_1 / r \text{ [Assumes all earnings are paid to shareholders]}\end{aligned}$$

Constant Growth DDM - A version of the dividend growth model in which dividends grow at a constant rate (*Gordon Growth Model*).

Example - continued

If the same stock is selling for Rs.100 in the stock market, what might the market be assuming about the growth in dividends?

$$100 = 3 / (0.12 - g)$$

$$g = 0.09$$

The market is assuming the dividend will grow at 9% per year, indefinitely.

Example:

Our company forecasts to pay a Rs.5.00 dividend next year, which represents 100% of its earnings. This will provide investors with a 12% expected return. Instead, we decide to plow back 40% of the earnings at the firm's current return on equity of 20%. What is the value of the stock before and after the plowback decision?

No Growth

$$\begin{aligned} P_0 &= (5 / 0.12) \\ &= \text{Rs.41.67/-} \end{aligned}$$

With Growth

$$\begin{aligned} g &= 0.2 \times 0.4 = 0.08 \\ P_0 &= [5 / (0.12 - 0.08)] \\ &= \text{Rs.75/-} \end{aligned}$$

If the company did not plowback some earnings, the stock price would remain at Rs.41.67. With the plowback, the price rose to Rs.75.00.

The difference between these two numbers (75.00-41.67=33.33) is called the Present Value of Growth Opportunities (PVGO).

Valuation Multiple	Description	Pros	Cons
Net asset value	Non-current assets + current assets – current liabilities – non-current liabilities – preference shares	Easy to compute, useful for companies in easily valued fixed assets	Relies on accounting value and not economic value.
Dividend Yield	The ratio of Dividend per share to Market price per share. A measure of income yield from a share and ignores the capital gain or loss element of return.		Difficulty associated with market price per share, varying expectations of investors.
Price to Book Ratio	The ratio of the share price to the book value per share. At the company level, the ratio of market value of the equity to the book value of shareholders' funds. A measure of how much more than asset value is being paid		

Valuation Multiple	Description	Pros	Cons
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Price to Earnings ratio or PE Multiple	It is the ratio of Share Price to Earnings per share or Market Capitalization to Earnings for shareholders. The most common measure of valuation using a multiple of accounting earnings	Commonly used ratio, easy to compute.	Sensitive to accounting standards, time value of money not fully taken into account, needs normalizing when earnings are erratic.
Earnings Yield ratio	The ratio of Earnings per share to Market price per share.		
Price to Cash Flow	It is the ratio of Share Price to Cash flow per share or Market Capitalization to Cash flow. A measure of valuation using cash flow, although the definition of cash flow can vary according to the analyst	Takes investment into account, represents real cash belonging to shareholders.	Time value of money not fully taken into account, confusion over definition of cash flow.

Valuation Multiple	Description	Pros	Cons
Specific Valuation Ratios	Valuation multiples based on a value driver for a specific sector. For instance, telecom on subscriber base, retail on floor space, etc.	Commonly used in acquisitions, gives reference points within a sector.	Important differences between companies may be ignored, time value of money not fully taken into account, considers only one value driver.

*Write short Note on capital market information-P/E ratio, yield ratio and market value/book value of shares.
(9 marks) (November, 1997)*

Answer

Capital market information-P/E ratio, yield ratio and market value/book value of shares:
Frequently share prices data are punched with the accounting data to generate new set of information. These are (i) Price-Earning Ratio, (ii) Yield Ratio, (iii) Market Value/Book Value per share.

$$\text{Price-Earnings Ratio (P/E Ratio)} = \frac{\text{Average Share Price}}{\text{EPS}}$$

(Sometimes it is also calculated with reference to closing share price)

$$\text{P/E Ratio} = \frac{\text{Closing Share Price}}{\text{EPS}}$$

It indicates the pay back period to the investors or prospective investors. The P/E ratio can be interpreted on a comparison with the industry P/E. A low P/E in comparison to the Industry can indicate that there are prospects for growth in share price and hence could be an indicator to buy/hold the shares. A high P/E ratio in comparison to the Industry can be an indicator to sell the shares.

$$\text{Yield} = \frac{\text{Dividend}}{\text{Average Share Price}} \times 100$$

$$\text{or } \frac{\text{Dividend}}{\text{Closing Share Price}} \times 100$$

This ratio indicates return on investment; this may be on average investment or closing investment. Dividend (%) indicates return on paid up value of shares. But yield (%) is the indicator of true return in which share capital is taken at its market value.

$$\frac{\text{Market Value per share}}{\text{Book Value per share}} = \frac{\text{Average Share Price}}{\text{Net Worth/No. of Equity Shares}}$$

$$\text{or} \frac{\text{Closing Share Price}}{\text{Net Worth/No. of Equity Shares}}$$

This ratio indicates market response of the shareholders' investment. Undoubtedly, higher the ratio, better is the shareholders' position in terms of return and capital gains.

Basic Definitions:

Common Stock - Ownership shares in a publicly held corporation.

Secondary Market - market in which already issued securities are traded by investors.

Dividend - Periodic cash distribution from the firm to the shareholders.

P/E Ratio - Price per share divided by earnings per share.

Book Value - Net worth of the firm according to the balance sheet.

Liquidation Value - Net proceeds that would be realized by selling the firm's assets and paying off its creditors.

Market Value Balance Sheet - Financial statement that uses market value of assets and liabilities.

Expected Return - The percentage yield that an investor forecasts from a specific investment over a set period of time. Sometimes called the *market capitalization rate*.

Payout Ratio - Fraction of earnings paid out as dividends.

Plowback Ratio - Fraction of earnings retained by the firm.

Present Value of Growth Opportunities (PVGO) - Net present value of a firm's future investments.

Sustainable Growth Rate - Steady rate at which a firm can grow: plowback ratio X return on equity.

PRACTICAL

Calculate the value of fully paid up and partly shares in the company.

PARTICULAR		AMOUNT
	Capital Employed	401677
Add :	Goodwill	64640
Add :	Non Trade investment	72000
Less :	Preference share capital	(99000)
	NAATESH before Call money	439317
Add :	Calls in Arrear	500
	NAATESH after Call Money	440317
	Total Number of equity share	20000
	Value of fully paid up share	$=440317/20000=22.22$
	Unpaid call per share	2
	Value of Partly paid up share	$=22.22-2=20.22$

Calculate the value of ES by “EA to ESH method”

Fig in Lakhs

PARTICULAR		YR-1	YR-2	YR-3	YR-4	YR-5
	Sales	6	7	8	5	9
Less :	Operating Cost	(3.45)	(3.95)	(4.45)	(2.95)	(4.95)
Less :	Interest on Bank Loan	(.25)	(.25)	(.25)	(.25)	(.25)
Less :	Interest on Debenture	(.30)	(.30)	(.30)	(.30)	(.30)
	EBT	2	2.5	3	1.5	3.5
Less :	Tax	(1.2)	(1.5)	(1.8)	(.9)	(2.1)
	EAT	.8	1	1.2	.6	1.4
Less :	Pref .Div	0	0	0	0	0
	EA TO ESH	.8	1	1.2	.6	1.4

•There exist no trend in EA to ESH => use Simple average to determine FMP,
Which is = $5/5 = 1$ L in this case

•Normal rate of return is 12.5 % MEANS for return of 12.5, the value is 100,
hence for return 1, the value would be $100 / 12.5$

•For a return of 1 Lakh , the Value would be $100000 \times (100 / 12.8) = 8$ Lakhs

Value per equity share = 8Lakhs / Total number of equity share

Illustration 3 - The Balance Sheet of Y Ltd. as at 31st March, 2009 is given below:

<i>Liabilities</i>	<i>Rs.</i>	<i>Assets</i>	<i>Rs.</i>
Equity Share capital (5,00,000 shares of Rs. 10 each)	50,00,000	Land	14,00,000
General Reserve	15,00,000	Buildings	23,00,000
Debentures (14%)	10,00,000	Plant and Machinery	28,00,000
Sundry Creditors	5,00,000	Sundry Debtors	6,00,000
Bank Overdraft	4,00,000	Inventory	8,00,000
Provision for Taxation	1,00,000	Cash and Bank	2,00,000
		Patents and Trademarks	3,00,000
		Preliminary expenses	1,00,000
	<u>85,00,000</u>		<u>85,00,000</u>

The profits of the company for the past four years are as follows:

	(Rs.)
2005 - 06	12,00,000
2006 - 07	15,00,000
2008 - 08	21,00,000
2009 - 09	23,00,000

Every year, the company transfers 20% of its profits to the general reserve. The industry average rate of return is 15% of the share value.

On 31st March, 2009 Independent expert valuer has assessed the values of the following assets:

(Rs.)

Land	26,00,000
Buildings	40,00,000
Plant and Machinery	32,00,000
Debtors (after bad debts)	5,00,000
Patents and Trademarks	2,00,000

Based on the information given above, calculate the fair value of Y Ltd.'s share.

Solution:

(i) Calculation of Share Value based on Net Assets Method

(Rs.)

Assets:		
Land		26,00,000
Buildings		40,00,000
Plant and Machinery		32,00,000
Debtors (after bad debts)		5,00,000
Inventory		8,00,000
Cash and Bank		2,00,000
Patents and Trademarks		2,00,000
		1,15,00,000
Less: Liabilities:		
Debentures (14%)	10,00,000	
Sundry creditors	5,00,000	
Bank overdraft	4,00,000	
Provision for taxation	1,00,000	
Net assets		
		95,00,000

$$\text{Intrinsic value of share} = \frac{\text{Net assets}}{\text{No. of shares}} = \frac{\text{Rs. 95,00,000}}{50,000} = \text{Rs. 19}$$

(ii) Calculation of Share Value based on Yield Method

(Rs.)

Total profits of last 4 years	71,00,000
Less : Bad debts	1,00,000
Total	70,00,000
Average profit (Rs. 70,00,000/4)	17,50,000
Less : Transfer to reserve (20% of Rs. 17,50,000)	3,50,000
Profit available for dividend	14,00,000

$$\text{Rate of dividend} = \frac{14,00,000}{50,00,000} \times 100 = 28\%$$

Valuation of share based on dividend yield

$$= \frac{\text{Rate of dividend}}{\text{Normal rate of return}} \times \text{Nominal value of share} = \frac{28}{15} \times 100 = \text{Rs. 186.67}$$

$$\begin{aligned} (iii) \text{ Fair value of share} &= \frac{\text{Intrinsic value} + \text{Dividend yield value}}{2} = \frac{19 + 15.55}{2} = \text{Rs. 17.28} \\ &= \frac{190 + 186.67}{2} = \text{Rs. 188.33} \end{aligned}$$

Illustration

Z Ltd. Has

- an issued and paid-up capital of 50,000 shares of Rs. 100 each.
- The company declared a dividend of Rs. 12.50 lakhs during the last five years and
- expects to maintain the same level of dividends in the future.
- The control and ownership of the company is lying in the few hands of Directors and their family members.
- The average dividend yield for listed companies in the same line of business is 18%.

Calculate the value of 3,000 shares in the company.

Solution:

$$\text{Dividend per share} = \frac{\text{Rs. 12,50,000}}{50,000} = \text{Rs. 25}$$

$$\text{Dividend yield} = 18\%$$

$$\text{Value per share} = \frac{25}{0.18} = \text{Rs. 138.90}$$

$$\text{Value of 3,000 shares} = 3,000 \times \text{shares Rs. 138.90} = \text{Rs. 4,16,700/-}$$

Illustration 2 - C Ltd. has declared dividend during the past five years as follows:

<i>Year</i>	<i>Rate of Dividend %</i>
2004-05	12
2005-06	14
2006-07	18
2007-08	21
2008-09	24

The average rate of return prevailing in the same industry is 15%. Calculate the value per shares of Rs. 10 of C Ltd. based on the dividend yield method.

Solution:

The dividend rate is calculated based on the weighted average method as follows:

<i>Year</i>	<i>Rate of Dividend %</i>	<i>Weight</i>	<i>Product</i>
2004-05	12	1	12
2005-06	14	2	28
2006-07	18	3	54
2007-08	21	4	84
2008-09	24	5	120
Total		15	298

Weighted average rate of dividend = $298/15 = 19.87\%$

$$\begin{aligned}\text{Value of Equity Share} &= \frac{\text{Company's rate of dividend}}{\text{Industry's normal dividend}} \times \text{Nominal value of share} \\ &= \frac{19.87}{15} \times 10 = \text{Rs. } 132.50\end{aligned}$$

Illustration 8 - From the following data available from the books of X Ltd. Calculate the value of its equity shares based on return on capital employed :

Rs. Lakhs

<i>Year</i>	<i>Capital employed</i>	<i>Profit</i>
2004 - 05	20	3
2005 - 06	26	5
2006 - 07	33	6
2007 - 08	35	8
2008 - 09	41	11

The market expectation being 16%.

Solution:

The rate of return on capital employed is calculated by adopting weighted average method is as follows:

<i>Year</i>	<i>Capital Employed</i> (Rs. lakhs)	<i>Profit</i> (Rs. lakhs)	<i>Return on capital employed</i> % (profit/Cap.emp)	<i>Weight</i>	<i>Product</i>
2005	20	3	15.0	1	15.0
2006	26	5	19.2	2	38.4
2007	33	6	18.2	3	54.6
2008	35	8	22.9	4	91.6
2009	41	11	26.8	5	134.0
				15	333.6

Weighted average rate of return on capital employed = $333.6/15 = 22.24\%$

Value of Share = $\frac{\text{Rate of return}}{\text{Market expected rate of return}} \times \text{Nominal value of share} = \frac{22.24}{18} \times 10 = \text{Rs. 12.36}$

Question 9

Yogesh Ltd. showed the following performance over 5 years ended 31st March, 1997:

<i>Ended 31st March</i>	<i>*Net profit before tax</i>		<i>Prior period adjustment</i>	<i>Remarks</i>
	<i>Rs.</i>		<i>Rs.</i>	
<i>1993</i>	<i>4,00,000</i>	<i>(–)</i>	<i>1,00,000</i>	<i>Relating to 1991-92</i>
<i>1994</i>	<i>3,50,000</i>	<i>(–)</i>	<i>2,50,000</i>	<i>Relating equally to 1991-92 and 1992-93</i>
<i>1995</i>	<i>6,50,000</i>	<i>(+)</i>	<i>1,50,000</i>	<i>Relating to 1993-94</i>
<i>1996</i>	<i>5,50,000</i>	<i>(–)</i>	<i>1,75,000</i>	<i>Relating to 1993-94</i>
<i>1997</i>	<i>6,00,000</i>	<i>(–)</i>	<i>1,00,000</i>	<i>Relating to 1993-94</i>
		<i>(+)</i>	<i>25,000</i>	<i>Relating to 1995-96</i>

**Net profit before tax is after debiting or crediting the figures of loss (–) or Gains (+) mentioned under the columns for prior period adjustments.*

The net worth of the business as per the balance sheet of 31st March, 1992 is Rs. 6,00,000 backed by 10,000 fully paid equity shares of Rs. 10 each. Reserves and surplus constitute the balance net worth. Yogesh Ltd. has not declared any dividend till date.

You are asked to value equity shares on:

(a) Yield basis as on 31.3.1997 : Assuming:

(i) 40% rate of tax

(ii) anticipated after tax yield of 20%.

(iii) differential weightage of 1 to 5 being given for the five years starting on 1.4.1992 for the actual profits of the respective years.

(b) Net asset basis as per corrected balance sheets for each of the six years ended 31.3.1997.

Looking to the performance of the company over the 5 years period, would you invest in the company?
(15 marks) (May, 1997)

Answer

(a)

**Valuation of Shares on Yield basis
as on 31st March, 1997**

<i>Year ended 31st March</i>	<i>Profits as given Rs.</i>	<i>Adjustments</i>		<i>Revised Profits Rs.</i>	<i>Tax Provision Rs.</i>	<i>After tax Profits Rs.</i>	<i>Weight</i>	<i>Weighted profits Rs.</i>
		<i>Increase Rs.</i>	<i>Decrease Rs.</i>					
1993	4,00,000	1,00,000	1,25,000	3,75,000	1,50,000	2,25,000	1	2,25,000
1994	3,50,000	2,50,000	1,00,000	4,75,000	1,90,000	2,85,000	2	5,70,000
		1,50,000	1,75,000					
1995	6,50,000	Nil	1,50,000	5,00,000	2,00,000	3,00,000	3	9,00,000
1996	5,50,000	1,75,000	Nil	7,50,000	3,00,000	4,50,000	4	18,00,000
		25,000						
1997	6,00,000	1,00,000	25,000	6,75,000	2,70,000	4,05,000	<u>5</u>	<u>20,25,000</u>
							<u>15</u>	<u>55,20,000</u>

$$\text{Weighted average profit (after tax)} = \frac{\text{Rs. } 55,20,000}{15} = \text{Rs. } 3,68,000$$

$$\text{Value of business} = \frac{\text{Rs. } 3,68,000}{20\%} = \text{Rs. } 18,40,000$$

$$\text{Value of equity share} = \frac{\text{Rs. } 18,40,000}{10,000} = \text{Rs. } 184$$

(b) 

Valuation of Shares on Net Asset Basis

(i) Revised Net worth as on 31st March, 1992		Rs.	Rs.
Net worth			6,00,000
Less: Adjustments since made during			
1992-93	1,00,000		
1993-94	<u>1,25,000</u>		
	2,25,000		
Less: Relief from tax @ 40%	<u>90,000</u>		
			<u>1,35,000</u>
			<u>4,65,000</u>

(ii) Net asset value		<i>(No. of shares = 10,000)</i>	
<i>As on 31st March</i>		<i>Rs.</i>	<i>Rs.</i>
1992:	Revised net worth	4,65,000	
	Value per share		46.50
1993:	Revised net worth as on 31.3.1992	4,65,000	
	Add: After tax revised profits of 1992-93	<u>2,25,000</u>	
	Net worth as on 31.3.1993	<u>6,90,000</u>	
	Value per share		69.00
1994:	Revised net worth as on 31.3.1993	6,90,000	
	Add: After tax revised profits of 1993-94	<u>2,85,000</u>	
	Net worth as on 31.3.1994	<u>9,75,000</u>	
	Value per share		97.50
1995:	Revised net worth as on 31.3.1994	9,75,000	
	Add: After tax revised profits of 1994-95	<u>3,00,000</u>	
	Net worth as on 31.3.1995	<u>12,75,000</u>	
	Value per share		127.50
1996:	Revised net worth as on 31.3.1995	12,75,000	
	Add: After tax revised profits of 1995-96	<u>4,50,000</u>	
	Net worth as on 31.3.1996	<u>17,25,000</u>	
	Value per share		172.50

1997: Revised net worth as on 31.3.1996	17,25,000	
Add: After tax revised profits of 1996-97	<u>4,05,000</u>	
Net worth as on 31.3.1997	<u>21,30,000</u>	
Value per share		213.00

Performance Appraisal

<i>Revised net worth as on 31st March</i>		<i>Profit during the year ended 31st March</i>		<i>Return on net worth</i>
	<i>Rs.</i>		<i>Rs.</i>	<i>%</i>
1992	4,65,000	1993	2,25,000	48.39
1993	6,90,000	1994	2,85,000	41.30
1994	9,75,000	1995	3,00,000	30.77
1995	12,75,000	1996	4,50,000	35.29
1996	17,25,000	1997	4,05,000	23.48

The company's return has fallen from 48.39% to 23.48%. This may be perhaps due to the fact that the company has been ploughing back its profits without having adequate reinvestment opportunities. Unless the company has profitable investment opportunities, it may not be advisable to invest in the company.

Note: Return on net worth may also be calculated on the basis of average net worth during the relevant year.

Question 10

Capital structure of Lot Ltd. as at 31.3.1998 as under:

	(Rs. in lakhs)
Equity share capital	10
10% preference share capital	5
15% debentures	8
Reserves	4

Lot Ltd. earns a profits of Rs. 5 lakhs annually on an average before deduction of interest on debentures and income tax which works out to 40%.

Normal return on equity shares of companies similarly placed is 12% provided:

- (a) Profit after tax covers fixed interest and fixed dividends at least 3 times.*
- (b) Capital gearing ratio is .75.*
- (c) Yield on share is calculated at 50% of profits distributed and at 5% on undistributed profits.*

Lot Ltd. has been regularly paying equity dividend of 10%.

Compute the value per equity share of the company.

(15 marks)(November, 1998)

Answer

$$\begin{aligned} \text{(i) Break up value of Re. 1 of share capital} &= \frac{\text{Rs. 28.98 lakhs}}{\text{Rs. 16.00 lakhs}} \\ &= \text{Rs. 1.81} \end{aligned}$$

$$\text{Break up value of Rs. 10 paid up share} = 1.81 \times 10 = \text{Rs. 18.10}$$

$$\text{Break up value of Rs. 6 paid up share} = 1.81 \times 6 = \text{Rs. 10.86}$$

Market value of shares :

$$\text{Average dividend} = \left(\frac{11\% + 12\% + 13\% + 14\%}{4} \right) = 12.5\%$$

$$\text{Market value of Rs. 10 paid up share} = \frac{12.5\%}{10\%} \times 10 = \text{Rs. 12.50}$$

$$\text{Market value of Rs. 6 paid up share} = \frac{12.5\%}{10\%} \times 6 = \text{Rs. 7.50}$$

- (ii) Break up value of share will remain as before even if the controlling interest is being sold. But the market value of shares will be different as the controlling interest would enable the declaration of dividend upto the limit of disposable profit.

$$\frac{\text{Average Profit}^*}{\text{Paid up value of shares}} \times 100 = \frac{\text{Rs. 3.4 lakhs}}{\text{Rs. 16 lakhs}} \times 100 = 21.25\%$$

Market value of shares :

$$\text{For Rs. 10 paid up share} = \frac{21.25\%}{10\%} \times 10 = \text{Rs. 21.25}$$

$$\text{For Rs. 6 paid up share} = \frac{21.25\%}{10\%} \times 6 = \text{Rs. 12.75}$$

$$\text{Fair value of shares} = \frac{\text{Breakup value} + \text{Market value}}{2}$$

$$\text{Fair value of Rs. 10 paid up share} = \frac{18.10 + 21.25}{2} = \text{Rs. 19.68}$$

$$\text{Fair value of Rs. 6 paid up share} = \frac{10.86 + 12.75}{2} = \text{Rs. 11.81}$$

* (Transfer to reserves has been ignored)

Working Notes:*(Rs. in lakhs)***(a) Calculation of average capital employed**

Fixed assets		24.00
Other tangible assets		3.00
Intangible assets		<u>3.00</u>
		30.00
Less : Liabilities	10	
Bonus	<u>1</u>	<u>11.00</u>
		19.00
Less : $\frac{1}{2}$ of profits [$\frac{1}{2}$ (4.1 – Bonus 1.0)]		<u>1.55</u>
Average capital employed		<u>17.45</u>

(b) Calculation of super profit

Average profit	$= \frac{1}{4} (3 + 3.5 + 4 + 4.1 - \text{Bonus } 1.0)$	
	$= \frac{1}{4} \times 13.6$	3.400
Less : Normal profit	$= 10\% \text{ of Rs. } 17.45 \text{ lakhs}$	<u>1.745</u>
Super profit		<u>1.655</u>

(c) Calculation of goodwill

3 Years' purchase of average super-profit	$= 3 \times 1.655 = \text{Rs. } 4.965 \text{ lakhs}$
Increase in value of goodwill	$= \frac{1}{2} (\text{book value} + 3 \text{ years' super profit})$
	$= \frac{1}{2} (5 + 4.965)$
	$= \text{Rs. } 4.9825 \text{ lakhs}$

Net assets as revalued including

book value of goodwill	24.00
Add : Increase in goodwill (rounded-off)	<u>4.98</u>
Net assets available for shareholders	<u>28.98</u>

Note : In the above solution, tax effect of disputed bonus and corporate dividend tax have been ignored.

Question 12

Following are the information of two companies for the year ended 31st March, 2002 :

<i>Particulars</i>	<i>Company A</i>	<i>Company B</i>
<i>Equity Shares of Rs. 10 each</i>	<i>8,00,000</i>	<i>10,00,000</i>
<i>10% Pref. Shares of Rs. 10 each</i>	<i>6,00,000</i>	<i>4,00,000</i>
<i>Profit after tax</i>	<i>3,00,000</i>	<i>3,00,000</i>

Assume the Market expectation is 18% and 80% of the Profits are distributed.

- (i) What is the rate you would pay to the Equity Shares of each Company ?*
 - (a) If you are buying a small lot.*
 - (b) If you are buying controlling interest shares.*
 - (ii) If you plan to invest only in preference shares which company's preference shares would you prefer ?*
 - (iii) Would your rates be different for buying small lot, if the company 'A' retains 30% and company 'B' 10% of the profits?*
- (12 marks) (November, 2002)*

Answer

- (i) (a) **Buying a small lot of equity shares:** If the purpose of valuation is to provide data base to aid a decision of buying a small (non-controlling) position of the equity of the companies, dividend capitalisation method is most appropriate. Under this method, value of equity share is given by:

$$\frac{\text{Dividend per share}}{\text{Market capitalisation rate}} \times 100$$

$$\text{Company A : Rs. } \frac{2.4}{18} \times 100 = \text{Rs. } 13.33$$

$$\text{Company B : Rs. } \frac{208}{18} \times 100 = \text{Rs. } 11.56$$

- (b) **Buying controlling interest equity shares**

If the purpose of valuation is to provide data base to aid a decision of buying controlling interest in the company, EPS capitalisation method is most appropriate. Under this method, value of equity is given by:

$$\frac{\text{Earning per share (EPS)}}{\text{Market capitalisation rate}} \times 100$$

$$\text{Company A : Rs. } \frac{3}{18} \times 100 = \text{Rs. } 16.67$$

$$\text{Company B : Rs. } \frac{2.6}{18} \times 100 = \text{Rs. } 14.44$$

- (ii) Preference Dividend coverage ratios of both companies are to be compared to make such decision.

Preference dividend coverage ratio is given by:

$$\frac{\text{Profit after tax}}{\text{Preference Dividend}} \times 100$$

$$\text{Company A : } \frac{\text{Rs. } 3,00,000}{\text{Rs. } 60,000} = 5 \text{ times}$$

$$\text{Company B : } \frac{\text{Rs. } 3,00,000}{\text{Rs. } 40,000} = 7.5 \text{ times}$$

If we are planning to invest only in preference shares, we would prefer shares of B Company as there is more coverage for preference dividend.

- (iii) Yes, the rates will be different for buying a small lot of equity shares, if the company 'A' retains 30% and company 'B' 10% of profits.

The new rates will be calculated as follows:

$$\text{Company A : Rs. } \frac{2.1}{18} \times 100 = \text{Rs. } 11.67$$

$$\text{Company B : Rs. } \frac{2.34}{18} \times 100 = \text{Rs. } 13.00$$

Working Notes:

1. Computation of earning per share and dividend per share (companies distribute 80% of profits)



	<i>Company A</i>	<i>Company B</i>
Profit before tax	3,00,000	3,00,000
Less: Preference dividend	<u>60,000</u>	<u>40,000</u>
Earnings available to equity shareholders (A)	<u>2,40,000</u>	<u>2,60,000</u>
Number of Equity Shares (B)	80,000	1,00,000
Earning per share (A/B)	3.0	2.60
Retained earnings 20%	48,000	52,000
Dividend declared 80% (C)	1,92,000	2,08,000
Dividend per share (C/B)	2.40	2.08

2. Computation of dividend per share (Company A retains 30% and Company B 10% of profits)

Earnings available for Equity Shareholders	2,40,000	2,60,000
Number of Equity Shares	80,000	1,00,000
Retained Earnings	72,000	26,000
Dividend Distribution	1,68,000	2,34,000
Dividend per share	2.10	2.34

Question 13

The following is the Balance Sheet of N Ltd. as on 31st March, 2002:

Balance Sheet			
<i>Liabilities</i>	<i>Rs.</i>	<i>Assets</i>	<i>Rs.</i>
4,00,000 Equity shares of Rs. 10		Goodwill	4,00,000
each fully paid	40,00,000	Building	24,00,000
13.5% Redeemable preference shares		Machinery	22,00,000
of Rs. 100 each fully paid	20,00,000	Furniture	10,00,000
General Reserve	16,00,000	Vehicles	18,00,000
Profit and Loss Account	3,20,000	Investments	16,00,000
Bank Loan (Secured against fixed assets)	12,00,000	Stock	11,00,000
Bills Payable	6,00,000	Debtors	18,00,000
Creditors	31,00,000	Bank Balance	3,20,000
		Preliminary Expenses	2,00,000
	<u>1,28,20,000</u>		<u>1,28,20,000</u>

Further information:

- (i) Return on capital employed is 20% in similar businesses.*
- (ii) Fixed assets are worth 30% more than book value. Stock is overvalued by Rs. 1,00,000, Debtors are to be reduced by Rs. 20,000. Trade investments, which constitute 10% of the total investments are to be valued at 10% below cost.*
- (iii) Trade investments were purchased on 1.4.2001. 50% of non-Trade Investments were purchased on 1.4.2000 and the rest on 1.4.1999. Non-Trade Investments yielded 15% return on cost.*
- (iv) In 1999-2000 new machinery costing Rs. 2,00,000 was purchased, but wrongly charged to revenue. This amount should be adjusted taking depreciation at 10% on reducing value method.*
- (v) In 2000-2001 furniture with a book value of Rs. 1,00,000 was sold for Rs. 60,000.*
- (vi) For calculating goodwill two years purchase of super profits based on simple average*

profits of last four years are to be considered. Profits of last four years are as under:

1998-1999 Rs. 16,00,000, 1999-2000 Rs. 18,00,000, 2000-2001 Rs. 21,00,000, 2001-2002 Rs. 22,00,000.

- (vii) Additional depreciation provision at the rate of 10% on the additional value of Plant and Machinery alone may be considered for arriving at average profit.*

Find out the intrinsic value of the equity share. Income-tax and Dividend tax are not to be considered.

(16 marks)(May 2003)

Answer

Calculation of intrinsic value of equity shares of N Ltd.

1. Calculation of Goodwill

(i) Capital employed

Fixed Assets	Rs.	Rs.
Building	24,00,000	
Machinery (Rs. 22,00,000 + Rs. 1,45,800)	23,45,800	
Furniture	10,00,000	
Vehicles	<u>18,00,000</u>	
	75,45,800	
Add: 30% increase	<u>22,63,740</u>	
	98,09,540	
Trade investments (Rs. 16,00,000 × 10% × 90%)	1,44,000	
Debtors (Rs. 18,00,000 – Rs. 20,000)	17,80,000	
Stock (Rs. 11,00,000 – Rs. 1,00,000)	10,00,000	
Bank balance	<u>3,20,000</u>	1,30,53,540
Less: Outside liabilities		
Bank Loan	12,00,000	
Bills payable	6,00,000	
Creditors	<u>31,00,000</u>	<u>49,00,000</u>
Capital employed		<u>81,53,540</u>

(ii) Future maintainable profit

Calculation of average profit

	1998-99	1999-2000	2000-2001	2001-2002
	Rs.	Rs.	Rs.	Rs.
Profit given	16,00,000	18,00,000	21,00,000	22,00,000
Add: Capital expenditure of machinery charged to revenue		2,00,000		
Loss on sale of furniture	<u> </u>	<u> </u>	<u>40,000</u>	<u> </u>
	16,00,000	20,00,000	21,40,000	22,00,000
Less: Depreciation on machinery		20,000	18,000	16,200
Income from non-trade investments		1,08,000	2,16,000	2,16,000
Reduction in value of stock				1,00,000
Bad debts	<u> </u>	<u> </u>	<u> </u>	<u>20,000</u>
Adjusted profit	<u>16,00,000</u>	<u>18,72,000</u>	<u>19,06,000</u>	<u>18,47,800</u>

	Rs.	
Total adjusted profit for four years (1998-1999 to 2001-2002)	72,25,800	
Average profit (Rs. 72,25,800/4)	18,06,450	
Less: Depreciation at 10% on additional value of machinery (22,00,000 + 1,45,800) × 30/100 i.e. Rs. 7,03,740	<u>70,374</u>	
Adjusted average profit	<u>17,36,076</u>	
(iii) Normal Profit		□
20% on capital employed i.e. 20% on Rs. 81,53,540	Rs.16,30,708	
(iv) Super profit		
Expected profit – normal profit		
Rs. 17,36,076 – Rs. 16,30,708 = Rs. 1,05,368		
(v) Goodwill		
2 years' purchase of super profit Rs. 1,05,368 × 2 = Rs. 2,10,736		

2. Net assets available to equity shareholders

	<i>Rs.</i>	<i>Rs.</i>
Goodwill as calculated in 1(v) above		2,10,736
Sundry fixed assets		98,09,540
Trade and Non-trade investments		15,84,000
Debtors		17,80,000
Stock		10,00,000
Bank balance		<u>3,20,000</u>
		1,47,04,276
Less: Outside liabilities		
Bank loan	12,00,000	
Bills payable	6,00,000	
Creditors	<u>31,00,000</u>	49,00,000
Preference share capital		<u>20,00,000</u>
Net assets for equity shareholders		<u>78,04,276</u>

3. Valuation of equity shares

$$\begin{aligned}\text{Value of equity share} &= \frac{\text{Net assets available to equity shareholders}}{\text{Number of equity shares}} \\ &= \frac{\text{Rs. 78,04,276}}{4,00,000} \\ &= \text{Rs. 19.51}\end{aligned}$$

Note:

1. Depreciation on the overall increased value of assets (worth 30% more than book value) has not been considered. Depreciation on the additional value of only plant and machinery has been considered taking depreciation at 10% on reducing value method while calculating average adjusted profit.
2. Loss on sale of furniture has been taken as non-recurring or extraordinary item.
3. It has been assumed that preference dividend has been paid till date.

Question 14

✚ The *Capital Structure* of M/s XYZ Ltd., on 31st March, 2003 was as follows:

	Rs.
<i>Equity Capital</i> 18,000 Shares of Rs. 100 each	18,00,000
<i>12% Preference Capital</i> 5,000 Shares of Rs. 100 each	5,00,000
<i>12% Secured Debentures</i>	5,00,000
<i>Reserves</i>	5,00,000
<i>Profit earned before Interest and Taxes during the year</i>	7,20,000
<i>Tax Rate</i>	40%

Generally the *return on equity shares of this type of Industry* is 15%.

Subject to:

- (a) The profit after tax covers Fixed Interest and Fixed Dividends at least 4 times.
- (b) The *Debt Equity ratio* is at least 2;
- (c) *Yield on 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%.

Find out the value of Equity shares of the Company. (16 marks)(November, 2004)

$$\text{Actual Yields on equity shares} = \frac{\text{Yield on shares}}{\text{Equity share capital}} \times 100$$



Calculation of Expected Yield on Equity Shares

Normal return expected	15%
Add: Risk premium for low interest and fixed dividend coverage (3.8 < 4)	1%*
Risk for debt equity ratio not required	<u>Nil**</u>
	<u>16%</u>



Value of an Equity Share

$$= \frac{\text{Actual yield}}{\text{Expected yield}} \times \text{Paid up value of a share}$$

Answer

Calculation of profit after tax (PAT)		Rs.
Profit before interest & tax (PBIT)		7,20,000
Less: Debenture interest (Rs. 5,00,000 $\times$ 12/100)		<u>60,000</u>
Profit before tax (PBT)		6,60,000
Less: Tax @ 40%		<u>2,64,000</u>
Profit after tax (PAT)		3,96,000
Less: Preference dividend $\left(\text{Rs. } 5,00,000 \times \frac{12}{100} \right)$	60,000	
Equity dividend $\left(\text{Rs. } 18,00,000 \times \frac{15}{100} \right)$	<u>2,70,000</u>	<u>3,30,000</u>
Retained earnings (undistributed profit)		<u>66,000</u>

Calculation of Yield on Equity Shares

Yield on equity shares is calculated at 60% of distributed profits and 10% of undistributed profits:

60% of distributed profits (60% of Rs. 2,70,000)	1,62,000
10% of undistributed profits (10% of Rs. 66,000)	<u>6,600</u>
	<u>1,68,600</u>

$$\begin{aligned}\text{Yields on equity shares} &= \frac{\text{Yield on shares}}{\text{Equity share capital}} \times 100 \\ &= \frac{\text{Rs. 1,68,600}}{\text{Rs. 18,00,000}} \times 100 \\ &= 9.37\%\end{aligned}$$

CHECKING REQUIREMENT OF RISK PREMIUM FOR LOW INTEREST AND FIXED DIVIDEND COVERAGE

Calculation of Interest and Fixed Dividend Coverage

$$= \frac{\text{PAT} + \text{Debenture interest}}{\text{Debenture interest} + \text{Preference dividend}}$$

$$= \frac{\text{Rs. } 3,96,000 + 60,000}{\text{Rs. } 60,000 + 60,000}$$

$$= \frac{\text{Rs. } 4,56,000}{\text{Rs. } 1,20,000} = 3.8 \text{ times}$$

Calculation of Debt Equity Ratio

$$\text{Debt Equity Ratio} = \frac{\text{Debt (longterm loans)}}{\text{Equity (shareholders' funds)}}$$

$$= \frac{\text{Debentures}}{\text{Preference share capital} + \text{Equity share capital} + \text{Reserves}}$$

$$= \frac{\text{Rs. } 5,00,000}{\text{Rs. } 5,00,000 + 18,00,000 + 5,00,000}$$

$$\text{Debt Equity Ratio} = \frac{\text{Rs. } 5,00,000}{\text{Rs. } 28,00,000} = .179$$

The ratio is less than the prescribed ratio.

Calculation of Expected Yield on Equity Shares	15%
Normal return expected	
Add: Risk premium for low interest and fixed dividend coverage ($3.8 < 4$)	1%*
Risk for debt equity ratio not required	<u>Nil**</u>
	<u>16%</u>

Value of an Equity Share

$$= \frac{\text{Actual yield}}{\text{Expected yield}} \times \text{Paid up value of a share}$$

$$= \frac{9.37}{16} \times 100 = \text{Rs. } 58.56$$

□

- * When interest and fixed dividend coverage is lower than the prescribed norm, the riskiness of equity investors is high. They should claim additional risk premium over and above the normal rate of return. Hence, the additional risk premium of 1% has been added.
- ** The debt equity ratio is lower than the prescribed ratio, that means outside funds (Debts) are lower as compared to shareholders' funds. Therefore, the risk is less for equity shareholders. Therefore, no risk premium is required to be added in this case.

Illustration 18 : XY Pvt. Ltd., a retail florist, is for sale at an asking price of Rs. 31,00,000. You have been contacted by a potential buyer who has asked you to give him opinion as to whether the asking price is reasonable. The potential buyer has only limited information about XY Pvt. Ltd. He does not know that annual gross sales of XY Pvt. Ltd. is about Rs. 41,00,000 and that last year's tax return reported an annual profit of Rs. 4,20,000 before tax.

You have collected the following information from the financial details of several retail florists that were up for sale in the past:

TABLE I

	<i>Price-to-sale (P/S) Ratio</i>	<i>Price-to earnings (P/E)</i>
Number of firms	38	33
Mean Ratio	0.55	3.29
Coefficient of Variation	0.65	1.52
Maximum Ratio	2.35	6.29

TABLE 2 : TOP 10 PLAYERS (IN DESCENDING P/S ORDER)

Firm	(P/S) Ratio	(P/E) Multiple
1	2.35	5.65
2	1.76	6.29
3	1.32	5.31
4	1.17	4.60
5	1.09	3.95
6	1.01	3.25
7	0.96	3.10
8	0.85	2.96
9	0.72	2.90
10	0.68	2.75

Offer your opinion on the reasonableness of the asking price.

32.97

Solution:

Average P/S ratio of Industry = 0.55

Average P/E ratio of Industry = 3.29

Coefficient of variation of P/S ratio = 0.65

Coefficient of variation of P/E ratio = 1.52

The coefficient of variation of P/S ratio is much lower than the coefficient of variation of P/E ratio. From this we can infer that there is a wider dispersion in case of P/E ratio than in case of P/S ratio.

Therefore, while defining the market, it is preferable to take P/S as guiding factor.

Asking price of XY Pvt. Ltd. = Rs. 31,00,000

Annual sales of XY Pvt. Ltd. = 41,00,000

Asking P/S ratio of XY Pvt. Ltd. = $31,00,000 / 41,00,000 = 0.76$

P/S ratio of XY Pvt. Ltd. 0.76 is much higher than industry average 0.55, it is far below than the maximum P/S ratio of 2.35.

The P/S ratio of XY Pvt. Ltd. is lying between 8th and 9th highest of the top ten players of the industry.

31.97/10

In other words, XY Pvt. Ltd. would need to be among the 22% ($8.5/35 \times 100$) most desirable florist business to justify the asking price of Rs. 31,00,000 with annual gross sales of Rs. 41,00,000. If the sales are likely to hold in the coming years, the price may be $(.85 + .72)/2 \times \text{Rs. 41 lakhs} = \text{Rs. 32.18 lakhs}$.

Provided the buyer believes that XY Pvt. Ltd. is a superior retail florist (among the top quartile), and the future sales are not likely to fall, the asking price of Rs. 31 lakhs appears to be reasonable. However, the buyer should make sure that the florist's accounts reflect a true and fair view of the business before he arrives at a final decision.

Calculation of Yield on Equity Shares

Yield on equity shares is calculated at 50% of profits distributed and 5% on undistributed profits.

		(Rs.)
50% on distributed profits	(Rs. 6,40,000 $\times$ 50/100)	3,20,000
5% on undistributed profits	(Rs. 6,20,800 $\times$ 5/100)	31,040
Yield on equity shares		<u>3,51,040</u>

$$\text{Yield on equity shares \%} = \frac{\text{Yield on shares}}{\text{Equity share capital}} \times 100 = \frac{\text{Rs. 3,51,040}}{\text{Rs. 80,00,000}} \times 100 = 4.388\%$$

Calculation of Expected Yield on Equity shares

Note: There is a scope for assumptions regarding the rates (in terms of percentage for every one time of difference between Sun Ltd. and Industry Average) of risk premium involved with respect to Interest and Fixed Dividend Coverage and Capital Gearing Ratio. The below solution has been worked out by assuming the risk premium as:

- (i) 1% for every one time of difference for Interest and Fixed Dividend Coverage.
- (ii) 2% for every one time of difference for Capital Gearing Ratio.
- (i) Interest and Fixed Dividend Coverage of Sun Ltd. is 2.16 times but the Industry Average is 3 times. Therefore, risk premium is added to Sun Ltd. share @ 1% for every 1 time of difference.

$$\text{Risk premium} = 3.33 - 2.16 (1\%) = 0.84 (1\%) = 0.84\%$$

- (ii) Capital Gearing Ratio of Sun Ltd. is 0.93 but the Industry Average is 0.75 times. Therefore, risk premium is added to Sun Ltd. shares @ 2% for every 1 time of difference.

$$\text{Risk premium} = 0.75 - 0.93 (2\%) = 0.18 (2\%) = 0.36\%$$

	(%)
Normal return expected	9.60
Add: Risk premium for low Interest and Fixed Dividend Coverage	0.84
Add: Risk premium for high Interest Gearing Ratio	0.36
	10.80

Value of Equity Share

$$= \frac{\text{Actual yield}}{\text{Expected yield}} \times \text{Paid-up value of share} = \frac{4.39}{10.80} \times 100 = \text{Rs. 40.65}$$

Question 15

The following abridged Balance Sheet as at 31st March, 2005 pertains to Glorious Ltd.

<i>Liabilities</i>	<i>Rs. in lakhs</i>	<i>Assets</i>	<i>Rs. in lakhs</i>
<i>Share Capital:</i>		<i>Goodwill, at cost</i>	<i>420</i>
<i>180 lakh Equity shares of Rs. 10 each, fully paid up</i>	<i>1,800</i>	<i>Other Fixed Assets</i>	<i>11,166</i>
<i>90 lakh Equity shares of Rs. 10 each, Rs. 8 paid up</i>	<i>720</i>	<i>Current Assets</i>	<i>2,910</i>
<i>150 lakh Equity shares of Rs. 5 each, fully paid-up</i>	<i>750</i>	<i>Loans and Advances</i>	<i>933</i>
<i>Reserves and Surplus</i>	<i>5,628</i>	<i>Miscellaneous Expenditure</i>	<i>171</i>
<i>Secured Loans</i>	<i>4,500</i>		
<i>Current Liabilities</i>	<i>1,242</i>		
<i>Provisions</i>	<i><u>960</u></i>		
	<i><u>15,600</u></i>		<i><u>15,600</u></i>

You are required to calculate the following for each one of the three categories of equity shares appearing in the above mentioned Balance Sheet:

- (i) Intrinsic value on the basis of book values of Assets and Liabilities including goodwill;*
- (ii) Value per share on the basis of dividend yield.*

Normal rate of dividend in the concerned industry is 15%, whereas Glorious Ltd. has been paying 20% dividend for the last four years and is expected to maintain it in the next few years; and

- (iii) Value per share on the basis of EPS.*

For the year ended 31st March, 2005 the company has earned Rs. 1,371 lakh as profit after tax, which can be considered to be normal for the company. Average EPS for a fully paid share of Rs. 10 of a Company in the same industry is Rs. 2.

(16 Marks) (November. 2005)

Answer

(i) Intrinsic value on the basis of book values	Rs. in lakhs	Rs. in lakhs
Goodwill		420
Other Fixed Assets		11,166
Current Assets		2,910
Loans and Advances		<u>933</u>
		15,429
Less: Secured loans	4,500	
Current liabilities	1,242	
Provisions	<u>960</u>	<u>6,702</u>
		8,727
Add: Notional call on 90 lakhs equity shares @ Rs. 2 per share		<u>180</u>
		<u>8,907</u>

Equivalent number of equity shares of Rs. 10 each.

	<i>Rs. in lakhs</i>
Fully paid shares of Rs. 10 each	180
Partly-paid shares after notional call	90
Fully paid shares of Rs. 5 each, $\left[\frac{\text{Rs. 150 lakhs}}{\text{Rs. 10}} \times \text{Rs. 5} \right]$	<u>75</u>
	<u>345</u>

$$\text{Value per equivalent share of Rs. 10 each} = \text{Rs. } \frac{8,907 \text{ lakhs}}{345 \text{ lakhs}} = \text{Rs. 25.82}$$

Hence, intrinsic values of each equity share are as follows:

Value of fully paid share of Rs. 10 = Rs. 25.82 per equity share.

Value of share of Rs. 10, Rs. 8 paid-up = Rs. 25.82 – Rs. 2 = Rs. 23.82 per equity share.

Value of fully paid share of Rs. 5 = $\frac{\text{Rs. 25.82}}{2} = \text{Rs. 12.91}$ per equity share.

(ii) Valuation on dividend yield basis:

$$\text{Value of fully paid share of Rs. 10} = \frac{20}{15} \times \text{Rs. 10} = \text{Rs. 13.33}$$

$$\text{Value of share of Rs. 10, Rs. 8 paid-up} = \frac{20}{15} \times \text{Rs. 8} = \text{Rs. 10.67}$$

$$\text{Value of fully paid share of Rs. 5} = \frac{20}{15} \times 5 = \text{Rs. 6.67}$$

(iii) Valuation on the basis of EPS:

Profit after tax = Rs. 1,371 lakhs

Total share capital = Rs. (1,800 + 720 + 750) lakhs = Rs. 3,270 lakhs

Earning per rupee of share capital = Rs. $\frac{1,371 \text{ lakhs}}{3,270 \text{ lakhs}}$ = Re. 0.419

Earning per fully paid share of Rs. 10 = Re. 0.419 $\times$ 10 = Rs. 4.19

Earning per share of Rs. 10 each, Rs. 8 paid-up = Re. 0.419 $\times$ 8 = Rs. 3.35

Earning per share of Rs. 5, fully paid-up = Re. 0.419 $\times$ 5 = Rs. 2.10

Value of fully paid share of Rs. 10 = Rs. $\frac{4.19}{2} \times 10$ = Rs. 20.95

Value of share of Rs. 10, Rs. 8 paid-up = Rs. $\frac{3.35}{2} \times 10$ = Rs. 16.75

Value of fully paid share of Rs. 5 = Rs. $\frac{2.10}{2} \times 10$ = Rs. 10.50

Question 16

The directors of a public limited company are considering the acquisition of the entire share capital of an existing company X Ltd engaged in a line of business suited to them. The directors feel that acquisition of X will not create any further risk to their business interest.

The following is the Balance Sheet of X Ltd., as at 31st December, 2005:



Liabilities	Rs.	Assets	Rs.
Share Capital:		Fixed assets	6,00,000
4,000 equity shares of Rs.100 each fully paid-up	4,00,000	Current assets:	
General reserve	3,00,000	Stock	2,00,000
Bank overdraft	2,40,000	Sundry debtors	3,40,000
Sundry creditors	<u>3,00,000</u>	Cash and bank balances	1,00,000
	<u>12,40,000</u>		<u>12,40,000</u>

✚ X's financial records for the past five years were as under:

	2005	2004	2003	2002	2001
	Rs.	Rs.	Rs.	Rs.	Rs.
Profits	80,000	74,000	70,000	60,000	62,000
Extra ordinary item(s)	<u>3,500</u>	<u>4,000</u>	<u>(6,000)</u>	<u>(8,000)</u>	<u>1,000</u>
	83,500	78,000	64,000	52,000	61,000
Dividends	<u>48,000</u>	<u>40,000</u>	<u>40,000</u>	<u>32,000</u>	<u>32,000</u>
	<u>35,500</u>	<u>38,000</u>	<u>24,000</u>	<u>20,000</u>	<u>29,000</u>

□

Additional information:

- (i) There were no changes in the issued capital of X during this period.*
- (ii) The estimated values of X Ltd.'s assets on 31.12.2005 are:*

	<i>Replacement cost</i>	<i>Realisable value</i>
	<i>Rs.</i>	<i>Rs.</i>
<i>Fixed assets</i>	<i>8,00,000</i>	<i>5,40,000</i>
<i>Stock</i>	<i>3,00,000</i>	<i>3,20,000</i>

- (iii) It is anticipated that 1% of the debtors may prove to be difficult to be realized.*
- (iv) The cost of capital to the acquiring company is 10%.*
- (v) The current return of an investment of the acquiring company is 10%. Quoted companies with similar businesses and activities as X have a P/E ratio approximating to 8, although these companies tend to be larger than X.*

Required:

Estimate the value of the total equity capital of X Ltd., on 31.12.2005 using each of the following bases:

- (a) Balance sheet value*
- (b) Replacement cost*
- (c) Realisable value*
- (d) Gordon's dividend growth model*
- (e) P/E ratio model.*

(16 Marks)(May, 2006)

		Rs.	Rs.
(a) Balance Sheet Value			
Capital		4,00,000	
Reserve		<u>3,00,000</u>	7,00,000
(b) Replacement cost value			
Capital		4,00,000	
Reserve		3,00,000	
Appreciation:			
Fixed assets	2,00,000		
Stock	<u>1,00,000</u>	<u>3,00,000</u>	10,00,000

□

(c) Realizable value			
Capital		4,00,000	
Reserve		3,00,000	
Appreciation in stock		1,20,000	
Depreciation in fixed assets		(60,000)	
Book debts (Bad)*		<u>(3,400)</u>	7,56,600

(d) **Gordon's dividend growth model**

The formula to be used is $P = \frac{E(1-b)}{k-br}$

Where

- P Price of share
- E Earning per share
- b retention ratio
- k cost of capital
- br growth rate
- r rate of return on investment.

Profits retained: Rs.35,500 + 38,000 + 24,000+ 20,000 + 29,000 = Rs. 1,46,500

Profits earned: Rs.83,500 + 78,000 + 64,000+ 52,000+61,000 = Rs. 3,38,500

Retention ratio: $\frac{\text{Rs.1,46,500}}{\text{Rs.3,38,500}} = 0.43$

Return on investment for the year 2005 = $\frac{\text{Rs.80,000}}{4,00,000 + 3,00,000 + \frac{1}{2} \text{ of } 35,500} \times 100$
 $= \frac{80,000}{7,17,750} \times 100 = 11.14$

Growth rate = Return on investment x retention ratio

$$= 11.14 \times 0.43 = 4.79 \%$$

$$\text{Average profits} = \frac{\text{Rs. } 3,38,500}{5} = \text{Rs. } 67,700$$

$$\text{Market value} = \frac{\text{Rs. } 67,700 (1 - .43)}{0.10 - 0.0479} = \frac{\text{Rs. } 67,700 \times 0.57}{.0521} = \text{Rs. } 7,40,672 (\text{approx})$$

(e) P/E ratio model

Comparable quoted companies have a P/E ratio of 8. X Ltd. is prima facie small company.

If a P/E ratio of 6 is adopted, the valuation will be $80,000 \times 6 = \text{Rs. } 4,80,000$

If a P/E ratio of 7 were to be adopted, the valuation will be $80,000 \times 7 = \text{Rs. } 5,60,000$

* It has been assumed that estimated bad debts would not be relevant for estimating values under bases (a) and (b).

Question 17

P Limited is considering the acquisition of R Limited. The financial data at the time of acquisition being:

	<i>P Limited</i>	<i>R Limited</i>
<i>Net profit after tax (Rs. in lakhs)</i>	60	12
<i>Number of shares (lakhs)</i>	12	5
<i>Earning per share (Rs.)</i>	5	2.40
<i>Market price per share (Rs.)</i>	150	48
<i>Price earning ratio</i>	30	20

It is expected that the net profit after tax of the two companies would continue to be Rs.72 lakhs even after the amalgamation.

Explain the effect on EPS of the merged company under each of the following situations:

- (i) P Ltd. offers to pay Rs.60 per share to the shareholders of R Ltd.*
- (ii) P Ltd. offers to pay Rs.78 per share to the shareholders of R Ltd.*

The amount in both cases is to be paid in the form of shares of P Ltd.

(10 marks) (November 2006)

Answer

- (i) In this case, P Ltd. offers to pay Rs.60 per share.

The share exchange ratio would be $\frac{60}{150} = 0.4$

It means, P Ltd. would give 0.4 shares for every one share of R Ltd. In other words, P Ltd. would give 2 shares for 5 shares of R Ltd.

The total number of shares to be issued by P Ltd. to R Ltd.

$$= 5,00,000 \times 0.4 = 2,00,000 \text{ shares}$$

or

$$5,00,000 \times \frac{2}{5} = 2,00,000 \text{ shares}$$

Total number of shares of P Ltd. after acquisition of R Ltd.

$$= 12,00,000 + 2,00,000 = 14,00,000 \text{ shares}$$

Calculation of E.P.S. of the amalgamated company

$$= \frac{\text{Total Net Profit after Interest and Tax}}{\text{Total Number of shares}}$$

$$= \frac{72,00,000}{14,00,000} = \text{Rs.5.14 per share}$$

After amalgamation, The EPS of P Ltd., will improve from Rs.5 to Rs.5.14 whereas EPS of former shareholders of R Ltd would reduce from present 2.40 per share to $5.14 \times 0.4 = \text{Rs.2.056}$ per share after merger.

- (ii) In this case, P Ltd. offers Rs.78 per share to the shareholders of R Ltd.

The Exchange Ratio would be $\frac{78}{150} = 0.52$ shares of P Ltd. for each share of R Ltd. In other words, P Ltd would give 52 shares for per 100 shares of R Ltd.

P Ltd would issue $5,00,000 \times 0.52 = 2,60,000$ shares to shareholders of R Ltd.

$$\text{E.P.S. of the Merged Company} = \frac{72,00,000}{12,00,000 + 2,60,000} = 4.93$$

After Merger, there is a dilution in the E.P.S., of P Ltd. from 5 to 4.93.

After Merger E.P.S. of former shareholders of R Ltd.

$$= 4.93 \times 0.52 = 2.56$$

There is a gain of Re. 0.16 in E.P.S. of merged company in comparison to E.P.S. of R Ltd. of Rs.2.40 before merger.

Comments:

Initial increase in and decrease in earnings per share are possible in both cases of Merger. Generally, the dilution in E.P.S. will occur wherever the Price Earnings ratio of acquired company calculated on the basis of price paid exceed the P/E ratio of acquired company and vice-versa.

In Situation (i) - The price offered by P Ltd. per share of R Ltd. is Rs.60 and E.P.S. of R Ltd. is 2.4, which would become the earnings of P Ltd. after merger.

Price Earning (P/E) Ratio of P Ltd. after merger = $\frac{60}{2.40} = 25$. It is lower than the P/E

Ratio of P Ltd. before merger i.e., 30, the E.P.S. of P Ltd. after merger increases to Rs.5.14.

In Situation (ii) - The price earnings (P/E) ratio offered for Merger is $\frac{78}{2.4} = 32.5$ which

is higher than P/E Ratio of P Ltd. before Merger. Hence, the E.P.S. of P Ltd after merger would get diluted.