CALCULATION OF PO TAKING BEFORE AND AFTER TAX

QUESTION NO.21 (Exam Question) Mr. A is contemplating purchase of equity shares of a Company. His expectation of return is 10% before tax by way of dividend with an annual growth of 5%. Company's last dividend was Rs. 2 per share. Even as he is contemplating, Mr. A suddenly finds, due to a budget announcement dividends have been exempted from tax in hands of the shareholders (recipients). But the imposition of Dividend Distribution Tax (Corporate Dividend Tax) on the Company is likely to lead to a fall in dividend of 20 paise per share. A's marginal tax rate is 30%. Calculate what should be Mr. A's estimates of price per share before and after Budget announcement?

Solution:

As per Dividend Growth Model:
$$P_o = \frac{Do(1+g)}{Ke-g}$$

Now Market Price Per Share (P_o) before Budget annoncement:
$$P_o = \frac{2 \times (1 + .05)}{.10 - .05} = Rs. 42$$

and Market Price Per Share (
$$P_0$$
) after Budget announcement: $P_0 = \frac{1.80 \times (1 + .05)}{.07 - .05} = Rs. 94.50$

DIVIDEND-WHEN GROWTH RATE IN DIVIDEND IS CALCULATED FROM GROWTH RATE IN EARNING

<u>QUESTION NO.22A(RTP)</u> Z Co. is a watch manufacturing company and is all equity financed and has paid up capital Rs.10,00,000 (Rs.10 per shares). The other data related to the company is as follows:

<u>Year</u>	EPS (Rs.)	Dividend Per Share (Rs.)	Share Price (Rs.)
2004	4.20	1.70	25.20
2005	4.60	1.80	18.40
2006	5.10	2.00	25.50
2007	5.50	2.20	27.50
2008	6.20	2.50	37.20

Z Co. has hired one management consultant, Vidal Consultants about the future earnings and other related item for the forthcoming years. As per Vidal Consultants's report

- (1) The earnings and dividend will grow at 25% for the next two years.
- (2) Earnings are likely at rate of 10% from 3rd year and onwards.
- (3) Further if there is reduction in earnings growth occurs dividend payout ratio will increase to 50% <u>Calculate</u> the estimated share price and Current P/E Ratio (taking Fair Po calculated by you and given current EPS) which analysts now expect for Z Co., using the dividend valuation model. You may further assume that cost of equity is 18%.

Solution:

(a)
$$Po = \frac{3.13}{(1+.18)^1} + \frac{3.91}{(1+.18)^2} + \frac{5.33}{(1+.18)^3} + \frac{5.33(1+.10)}{(1+.18)^4} + \frac{5.33(1+.10)^2}{(1+.18)^5} + \dots \alpha$$

$$P_{O} = \frac{3.13}{(1+.18)^{1}} + \frac{3.91}{(1+.18)^{2}} + \frac{5.33}{(1+.18)^{3}} + \frac{1}{(1+.18)^{3}} + \frac{5.33(1+.10)}{.18-.10} = 53.34$$

<u>Additional Analysis</u>: Why Dividend of Year 3 has been taken to be 5.33? Since it is clearly written in the question that Payout Ratio changed to 50% in year 3 when there is reduction in earning growth rate. How it has been calculated?

<u>Year</u> <u>EPS</u> <u>DPS</u>

2009	7.75	3.13
2010	9.6875	3.91

2011 10.65625 5.33 [50 % D/P ratio, as it is written in question that, when growth rate in earning fall, DP Ratio should be 50%. And we can clearly see that growth rate in earning is falling from second year i.e from 25 % to 10 % in third year. Now from 2011 i.e 3rd year, DPS will grow at the rate of 10% upto infinity or we can say that it is 50% of EPS.

2012 11.721875 5.863 or 5.33(1+.10)

(b) P/E Ratio : P/E Ratio =
$$\frac{\text{Market Price Per Share}}{\text{Earning Per Share}} = \frac{\text{Rs.53.34}}{\text{Rs.6.20}} = 8.60$$

<u>QUESTION NO.22B</u> (Exam Question) (6 Marks) X Ltd. is a Shoes manufacturing company. It is all equity financed and has a paid-up Capital of Rs. 10,00,000 (Rs. 10 per share) X Ltd. has hired Swastika consultants to analyse the future earnings. The report of Swastika consultants states as follows:

- (i) The earnings and dividend will grow at 25% for the next two years.
- (ii) Earnings are likely to grow at the rate of 10% from 3rd year and onwards.
- (iii) Further, if there is reduction in earnings growth, dividend payout ratio will increase to 50%.

The other data related to the company are as follows:

<u>Year</u>	<u>EPS</u>	Net Dividend per share	Share Price
2010	6.30	2.52	63.00
2011	7.00	2.80	46.00
2012	7.70	3.08	63.75
2013	8.40	3.36	68.75
2014	9.60	3.84	93.00

You may assume that the tax rate is 30% (not expected to change in future) and post tax cost of capital is 15%. By using the Dividend Valuation Model, <u>Calculate</u> (i) Expected Market Price per share (ii) P/E Ratio. Solution:

(a) Expected Market Price per share

$$\frac{4.80}{\left(1+.15\right)^{1}} + \frac{6.00}{\left(1+.15\right)^{2}} + \frac{8.25}{\left(1+.15\right)^{3}} + \frac{8.25(1+.10)}{\left(1+.15\right)^{4}} + \frac{8.25(1+.10)^{2}}{\left(1+.15\right)^{5}} + \dots \dots \alpha$$

$$= \frac{4.80}{(1+.15)^{1}} + \frac{6.00}{(1+.15)^{2}} + \frac{8.25}{(1+.15)^{3}} + \frac{1}{(1+.15)^{3}} \times \frac{8.25(1+.10)}{.15-.10} = 133.57$$

(b)P/E Ratio:
$$\frac{133.57}{9.60}$$
 = 13.91

Working Note: Calculation Of Dividend Of Each Year

<u>Year</u>	EPS	<u>DPS</u>
2015	12.00 (9.60 x 125%)	4.80 (3.84 x 125%)
2016	15.00 (12.00 x 125%)	6.00 (4.80 x 125%)
2017	16.50 (15.00 x 110%)	8.25*(50% of Rs.16.50)
2018	18.15	9.07 or 8.25 (1+.10) ¹ or (50% of Rs.18.15)

^{*}Payout Ratio changed to 50%

Note: Since Net DPS word is used its means "DPS is already after tax".