3. Gordon's Model: M. Gordon has also given a model on the line of Walter. He suggested that dividends are relevant and it will affect the value of the firm. He argued that the value of a rupee of dividend income is more than the value of a rupee of capital gain. This is on account of uncertainty of future and discounting future dividends by shareholders at a higher rate. According to Gordon the market value of a share is equal to the present value of future infinite stream of dividends.

Gordon argues that investors prefer current dividends rather than capital gains. Dividends are more predictable than capital gains. Investors value current dividends more highly than an expected future capital gain.

Assumptions

1. The firm is an all equity firm.
2. Retained earnings are the only source of financing the investment programme.
3. The rate of return on the firm's investment (r) is constant.
4. The growth rate of the firm 'g' is the product of its retention ratio 'b' and its rate of return 'r'. i.e. g = b x r.
5. Cost of capital is constant and it is more than the growth rate.
6. The firm has long-term life.
7. Corporate taxes do not exist.

Mathematical Formula

Under Gordon's model, market price of share is calculated as below:

$$P_0 = \frac{D_1}{k_e - g} \quad \text{or}$$

$$P_0 = \frac{E(1 - b)}{k_e - br}$$

where, P_0 = Current market price

D_1 = Expected dividend at the end of year 1

k_e = Cost of equity capital (or expected rate of return)

1 = br = Growth rate in 'r' i.e. rate of return on investment of an all-equity firm.

$$E = \text{Earning per share}$$
$$b = \text{Retention ratio}$$

Example 3

The following information is available in respect of A Ltd:

Earning per share	Rs. 10
Cost of Capital	10%

Find out the market price of the share under different rates of return, r, of 8%, 10% and 15% for different payout ratios of 40%, 80% and 100%.

Solution

$$P_o = \frac{E(1-b)}{k_e - br}$$

(i) $r = 8\%$ $(r < k_e)$ $r = 10\%$ $(r = k_e)$ $r = 15\%$ $(r > k_e)$

(a) *When dividend payout ratio is 40% (i e. retention ratio b is 60%)*:

$$P_o = \frac{10(1-0.6)}{0.10-(0.6 \times 0.08)} \qquad \frac{10(1-0.6)}{0.10-(0.6 \times 0.10)} \qquad \frac{10(1-0.6)}{0.10-(0.6 \times 0.15)}$$

$$= \text{Rs. } 77 \qquad\qquad = \text{Rs. } 100 \qquad\qquad = \text{Rs. } 400$$

(b) *When dividend payout ratio is 80% (i e. retention ratio b is 20%)*:

$$P_o = \frac{10(1-0.2)}{0.10-(0.2 \times 0.08)} \qquad \frac{10(1-0.2)}{0.10-(0.2 \times 0.10)} \qquad \frac{10(1-0.2)}{0.10-(0.2 \times 0...)}$$

$$= \text{Rs. } 95.24 \qquad\qquad = \text{Rs. } 100 \qquad\qquad = \text{Rs. } 114 ?$$

(c) *When dividend payout ratio is 100% (i.e. retention ratio b is zero)*:

$$P_o = \frac{10(1-0)}{0.10-(0 \times 0.08)} \qquad \frac{10(1-0)}{0.10-(0 \times 0.10)} \qquad \frac{10}{0.10 - ,,,\times 0.1}$$

$$= \text{Rs. } 100 \qquad\qquad = \text{Rs. } 100 \qquad\qquad = \text{Rs. } 100$$

Conclusions (Implications of Gordon's Model)

1. When r is greater than k , the market price of share increases as the dividend payout ratio decreases. Thus growth firms should distribute lower dividends and should retain maximum earnings.

2. When r is less than k_e, the market price per share increases as the dividend payout ratio increases. In the case of declining firms, the shareholders will gain if the firm distributes its earnings. In such cases the optimum payout ratio will be 100%.

3. When $r = k_e$, the market price remains unchanged. Dividend policy has no effect on the price of shares. Thus for a normal firm there is no optimum dividend payout.

4. Residual Theory: The residual theory focuses on the firm's internal need for capital. This theory states that if there are viable projects, earnings should be retained for funding the projects. This means if there are investment opportunities, company should pay less dividend or no dividend. Thus dividend will be paid only if funds are available after financing the viable projects. Out of the earnings first the company finances its investment opportunities. Anything left over is paid out as dividend. Thus dividends are paid out of residual profits left after meeting the investment needs of the firm. That is why this theory has come to be called residual theory. Under this theory the dividend depends upon the amount of earnings and the firm's profitable investment opportunities.

Under the residual theory, the dividend policy is passive in nature. Hence dividend policy has no direct influence on the market price of the share. In this theory retention policy becomes active.

5. 'Bird in hand' theory: Graham, Dodd and Cottle state that one dollar of dividend is worth opportunity three dollars of retained cash flows. According to their view dividends (current income) are worth more to investors than retained earnings (future benifit in the form of capital gain) because the purchaser of a share buys the expectations of future dividend. The investors will apply a lower rate of discount to the expected stream of future dividends than the more distant capital gains.

6. Tax differential theory: According to this theory since dividends are effectively taxed at higher rates than capital gains, investors require higher rates of dividend. Therefore investors would not prefer higher dividend because of the higher rate of tax. They prefer a low dividend payout and a huge rate of earning retention on the expectation of an appreciation in the capital value of the company (capital gain). Thus according to this theory, a firm should pay a low dividend in order to minimise its cost of capital and maximise its value.