Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$

Degree of OL = $\frac{\%\text{ change in Operating Income}}{\%\text{ change in Sales.}}$

Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}}$

Degree of FL = $\frac{\%\text{ change in EBIT}}{\%\text{ change in EBT}}$

Combined / Total Leverage (OL × FL)

CL = $\frac{\text{Contribution}}{\text{EBT}}$

Degree of CL = $\frac{\%\text{ change in EBT}}{\%\text{ change in Sales or Contribution}}$

(B) → Cost of Equity

① Dividend Yield Method

$$K_e = \frac{D}{NP} \text{ or } \frac{D}{MP}$$

- NP = Net Proceeds per share.
- MP = Market Price
- D = Dividend per share (expected)

② Dividend Yield + Growth

$$K_e = \left[\frac{D(1+g)}{NP}\right] + g$$

③ Earning Yield Method

$$K_e = \frac{EPS}{NP} \text{ or } \frac{EPS}{MP}$$

④ Capital Asset Pricing Model (CAPM)

$$r_E = R_f + \beta_E (E(R_M) - R_F)$$

where,
- r_E = Reqd. return on the equity of company
- R_f = Risk free rate
- β_E = Beta of the equity
- $E(R_M)$ = Expected return on the market portfolio.

(C) → WACC (Weighted Average Cost of Capital)

$$WACC = w_E r_E + w_P r_P + w_D r_D (1 - t_c)$$

- w_E = proportion of equity
- r_E = cost of equity
- w_P = proportion of preference
- r_P = cost of preference
- w_D = proportion of debt
- r_D = cost of Debt
- t_c = Corporate tax rate

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- W_p = proportion of preference
- r_p = cost of preference
- W_D = proportion of debt
- r_D = cost of Debt
- t_c = Corporate tax rate

Cost of Capital

(A) → Cost of Debt

① Irredeemable Debenture, $K_d = \frac{\text{Interest}\ (1-t)}{\text{Amount Received}}$

② Redeemable Debenture

$$K_d = \frac{\text{Interest}\ (1-t) + \left(\frac{RV - \text{Amt. Received}}{n}\right)}{\left(\frac{RV + \text{Amt. Received}}{2}\right)}$$

→ Cost of Preference Capital.

① Irredeemable, $\frac{\text{Preference Dividend}}{\text{Amount Received}}$

or $\frac{D}{NP}$

② Redeemable, $\frac{PD + \frac{RV - NP}{n}}{\frac{RV + NP}{2}}$

PD → Preference Dividend
RV → Also equal to MV (Maturity Value)
NP → Amount Received
n → Time taken.

③ Redeemable + Growth -

$$\frac{D_1 + \left(\frac{RV - NP}{n}\right)}{\left(\frac{RV + NP}{2}\right)} + g$$

Q. Jawahar Associates Ltd, an all equity firm -

Project	Beta	Expected Return %
A	0.4	12
B	0.8	14
C	1.3	18
D	1.8	24

Rf = 8%.
expected market premium = 7%.
Jawahar cost of capital = 16%

Which projects should be accepted or rejected on the basis of the firm's cost of capital as a hurdle rate?

A

$Rf + \beta(Rm - Rf)$

$8 + 0.4(12 - 8)$
9.6

B

$8 + 0.8(14 - 8)$
12.8

C

$8 + 1.3(18 - 8)$
21

D

$8 + 1.8(24 - 8)$
36.8

Ques [Cost of capital, Leverage, Valuation of firm]

A

$8 + 0.4 \times 7$
10.8

B

$8 + 0.8 \times 7$
13.6

C

$8 + 1.3 \times 7$
17.1

D

$8 + 1.8 \times 7$
$8 + 12.6$
20.6

★ Capital Structure -

It is the mix of the long term sources of funds used by a firm. It is made up of debt and equity securities and refers to permanent financing of the firm.

CAPM approach –

$$K_e = R_f + \beta_e (E(R_m) - R_f)$$

$E(R_m)$ – Expected return on the market portfolio.

Q Mehta Ltd WACC is 11%, and Tax Rate is 35%. Mehta pre tax cost of debt is 10% and its Debt to equity ratio is 0.6 : 1. The risk free rate of return is 8%, and market premium risk is 7%. What is beta of Mehta's equity?

$$\frac{0.6}{1.6} \times 0.10 (1 - 0.35) + \frac{1}{1.6} \times K_e = 11\%$$

$$K_e = 13.7\%$$

$$8\% + \beta_e \times 7\% = 13.7\%$$

$$\beta_e = \frac{13.7 - 8}{7}$$

$$= 0.814$$

Q As an investment mgr you are given the following –

Calculate the expected return on market portfolio and each security.

$R_f = 8\%$

Investment in equity Share of	Initial Price	Dividends	Year end Mkt Price	Beta
Cement Ltd	25	2	50	0.80
Steel Ltd	35	3	60	0.70
Liquor Ltd	45	4	135	0.50
Govt Bonds	1000	100	1005	0.99

Calculate –

1) Expected return of Market Portfolio
2) Expected return of each security.

$50 - 25 + 2 = 27$	25
$60 - 35 + 3 = 28$	35
$135 - 45 + 4 = 94$	45
$1005 - 1000 + 100 = 105$	1000
254	1105

Cement $K_e = R_f + \beta_e (R_m - R_f)$

$= 8 + 0.8(22.9 - 8)$

$= 19.92$

Steel $K_e = 8 + 0.7(22.9 - 8)$

$= 18.43$

Liquor $K_e = 8 + 0.5(22.9 - 8)$

$= 15.45$

Govt $K_e = 8 + 0.99(22.9 - 8)$

$= 22.75$

★ **Return** –

The gain or loss of a security in a particular period. The return consists of the income and the capital gains relative on an investment. It is usually quoted as percentage.

Return is associated with risk.

Q Mrs. Aparna purchased shares of ABC Ltd at Rs 50 and sold it at Rs 55 after one year. Calculate her return –

a) If the company did not pay any dividend in the year.

$10\% \cdot \left(\frac{5}{50} \times 100\%\right)$

b) If the company paid dividend of Rs 2/-

$\frac{7}{50} \times 100\% \rightarrow 14\%$

★ **Capital Asset Pricing Model (CAPM)**

It is a model that describes the relationship between systematic risk and expected return for assets, particularly stocks.

→ **Formula :**

$$\text{Expected Return on equity} = r_f + \beta_a (r_m - r_f)$$

where,

r_f = Risk free Rate $\qquad (r_m - r_f)$ = Risk Premium

β_a = Beta of the security

r_m = Expected market return

→ **Assumptions :**

1) Investors are risk averse and security returns are normally distributed

2) The utility function of investors is quadratic

3) Investors have homogeneous expectations

4) Investors can borrow and lend freely at a riskless rate of interest

5) The market is perfect – there are no taxes, transaction costs, securities are completely divisible, the market is competitive.

6) The quantity of risk securities in the market is given.

Q. $0.06 + 1.5(0.12 - 0.06) = 15\%$

[Risk free rate is 6% and market ~~premium~~ return is 12% and β factor is 1.5. What is the expected return of the security under CAPM?]

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[Risk free rate is 6% and market ~~premium~~ return is 12% and β factor is 1.5. What is the expected return of the security under CAPM?]

10) $K_e = \left(\frac{D(1+g)}{mP}\right) + g$

$= \left(\frac{9(1+105)}{140}\right) + 105$

$= 111.81$

$K_e = \left(\frac{9(1.05)}{140}\right) + 0.05 = 0.1175$

11)

(50000)	CF
100000	100000
10692	20692
12709	33461
13462	46923 → y_1
20385	67308 → y_2

$PBP = 4 + \left(\frac{50000 - 46923}{67308 - 46923}\right)(5-4)$

$= 4 + \frac{3077}{20385}$

$= 4.15$

[* $PBP = x_1 + \frac{(cost - y_1)}{(y_2 - y_1)}(x_2 - x_1)$

Term Loan = 13%

Term Interest = 0.13(1 − 0.4)
= 0.078

WACC = 0.1875 × 150/800 + 0.045 × 60/800

+ 0.165 × 25/800 + 0.078 × 40/800

+ 0.1825 × 250/800

= 0.0228 + 0.003375 + 0.005156
+ 0.0039 + 0.0570

= 0.092231

$K_e = \left(\frac{D(1+g)}{mp}\right) + g$

$= \left(\frac{156.25(1.09)}{150}\right) + 0.09$

= 1.2254.

$K_e = \frac{EPS}{mp} + g$

$= \left(\frac{125000}{8000}\right) + 0.09$

150

8) Dividend = 3
g = 6%
MP = 30

Cost of equity capital = $\left(\frac{D(1+g)}{mp}\right) + g$

$= \left(\frac{3(1.06)}{30}\right) + 0.06$

= 0.166.

g = 9%
D = 3
Ke = 0.166

$0.166 = \left(\frac{3(1.09)}{mp}\right) + 0.09$

$0.076 = \frac{3.27}{mp}$

$mp = \frac{3.27}{0.076} = 43.02$

g = 3%
D = 3
Ke = 0.166

$0.166 = \left(\frac{3(1.03)}{mp}\right) + 0.03$

$0.136 = \frac{3.09}{mp}$ ⇒ mp = 22.72.

Kp

Int = 0.12

RV = 100.

Amt Recd = 85

n = 10.

Pref Dividend = 14% × 100

$$Kp = \frac{PD + \frac{RV - NP}{n}}{\frac{RV + NP}{2}}$$

$$= \frac{12 + \frac{100 - 85}{10}}{\frac{100 + 85}{2}}$$

$$= 0.145$$

Term loan = 13%

Term Interest = 0.13(1 − 0.3)

= 0.091

WACC = $0.1648 \times \frac{200}{800} + 0.02208 \times \frac{120}{800} + 0.145 \times \frac{50}{800} + 0.091 \times \frac{80}{100} + 0.1648 \times \frac{350}{800} = 0.13483$

7) $Ke = \left(\frac{D(1+g)}{MP}\right) + g$

$$= \left(\frac{3(1+0.10)}{40}\right) + 0.10$$

$$= 0.1825$$

$$Kd = \frac{I(1-t) + \frac{(RV - Amt\ Recd)}{n}}{\frac{RV + Amt\ Recd}{2}}$$

$$= \frac{0.14(1-0.4) + \frac{(100-80)}{5}}{\frac{100+80}{2}}$$

$$= \frac{0.084 + 4}{90} = 0.045$$

$$Kp = \frac{PD + \frac{RV - NP}{n}}{\frac{RV + NP}{2}}$$

$$= \frac{12 + \frac{100 - 75}{10}}{\frac{100 + 75}{2}} = 0.165$$

Tax = 40%.

$= \frac{40}{100} \times 1000000 = 400000.$

EBT = 20L - 10L

= 1000000.

EAT = 1000000 - 400000

= 600000 (Retained Earnings)

3) Market price = 95
Dividend = 4.50.
Growth = 7%.

$K_e = \frac{D}{N_p} + g$

$= \frac{4.50 \times 100}{95} + 7\%$

$= 4.73\% + 7\% = 11.73\%$

5) ~~Earning Per Share~~ =

$K_e = \left(\frac{D(1+g)}{NP}\right) + g$

$= \frac{10(1+0.08)}{200000} + 0.08$

= ~~0.080054~~
0.080054

4) Ke

Dividend per share = Rs 2
g = 0.12
Net Price = 50

$K_e = \left(\frac{D(1+g)}{mp}\right) + g$

$= \frac{2(1.12)}{50} + .12$

= 0.1648

Kd Int = 0.14
Tax Rate = 0.3
RV = 100
Net Recd = 90
n = 5yrs

$K_d = \frac{0.14(1-0.3) + \frac{(100-90)}{5}}{\frac{100+90}{2}}$

= 0.02208.

Book value

Debt	400000	5	20000
PS	100000	8	8000
ES	600000	15	90000
RE	200000	13	26000
	1300000		144000

$K_w = \frac{144000}{1300000} \times 100 = 11.1\%$

Market value

Debt	380000	5	19000
PS	110000	8	8800
ES	900000	15	135000
RE	300000	13	39000
	1690000		201800

$K_w = \frac{201800}{1690000} \times 100 = 11.9\%$

Q.

		After	
Equity	10,00000	12%	120000
Preference	5,00000	10%	50000
8% loan	15,00000	8%	120000 × 0.5 = 60000
	3000000		230000

$WACC = \frac{230000}{3000000} = 7.67\%$

Practice Exercise

1) $EBIT = \frac{\text{Contribution}}{OL} = \frac{0.4}{4} = 0.1$

$FL = \frac{EBIT}{EBT}$

$EBT = \frac{EBIT}{FL} = \frac{0.1}{2} = 0.05$

$EAT = 0.05 - 0.4$

$EBIT = 2(EBIT - 10,00000)$

=

1) $FL = \frac{EBIT}{EBT}$

$EBIT = 2 \times EBT$

$= 2(EBIT - 1000000)$

$EBIT = 2EBIT - 2000000$

$EBIT = 2000000$

$OL = \frac{\text{Contribution}}{EBIT}$

Contribution $= 4 \times 2000000$

$= 8000000$

$\frac{\text{Contribution}}{\text{Sales}} = 0.4$ Sales = 20000000

Q Company sells 15 million of common shares.
Expected return = 12%.
Issue 10 million of debentures.
Cost of Debt = 8%.
Tax Rate = 35%.
Find WACC ?

~~0.08~~

$K_d = \frac{0.12(1-0.08)}{10000000}$ ~~$\frac{0.12(1-0.08)}{10000000}$~~

$= 1 \times 1.04 \times 10^{-8}$

$0.08 \times 1.104 \times 10^{-8} = 8.832 \times 10^{-10}$

Method 1

	Capital Amt		
Equity	15000000	12%	1800000
Debt	10000000	8%	~~520000~~ ~~800000~~
	25000000		2320000

~~10000000 (1-35%)~~
$10000000 \times 8\% \times (1-35\%)$

$WACC = \frac{C}{W} = \frac{2320000}{25000000} = 0.0928$

Method 2

$W_E = \frac{15}{25} = 0.6$ $K_e = 0.12$

$W_D = \frac{10}{25} = 0.4$ $K_A = 0.05(1-0.35) = 0.052$

$WACC = W_E \times K_e + W_d k_d$

$= (0.6 \times 0.12) + (0.052 \times 0.4)$
$= 0.0928$

Q Calculate WACC of Bharat Nigam Ltd

	Proportion	SCC
E	0.6	16%
Ps	0.05	14%
D	0.35	8.4%

WACC $= 0.35 \times 0.084 + 0.05 \times 0.14 + 0.6 \times 0.16$
$= 0.1324$

Q.

	Book value	Market value	Specific cost (%)
Debt	400000	380000	5
Preference	100000	110000	8
Equity	600000	900000	15
Retained Earnings	200000	300000	13
	1300000	1690000	

Q Omega enterprises issued 10 years 9% preference share of the value Rs 100/- which is currently selling for Rs 92/-. What is the cost of Pref. Share?

$$\frac{9 + \frac{100 - 92}{10}}{\frac{92 + 100}{2}}$$

$= 0.102083 \quad \% = 10.20\%$

Cost of Equity Share Capital :-

→ Dividend yield Method

$$K_e = \frac{D}{NP} \text{ or } \frac{D}{MP}$$

NP = Net Proceeds per share | D = Expected Dividend per share
MP = Market Price

→ Dividend yield plus growth in Dividend method.

$$K_e = \left\{\frac{D(1+G)}{NP}\right\} + G$$

→ Earning Yield Method / Earning Price Ratio

$$K_e = \frac{EPS}{NP} \text{ or } \frac{EPS}{MP}$$

Sources of Finance	Capital Amt		Specific cost of capital	CTC	Weights
1) Equity	E	E	K_e	$K_e \times (E+R_e)$	$\frac{E+R_e}{W}$
2) Retained Earnings	RE		K_e	$K_e \times (E+R_e)$	
3) Preference Share	Ps		K_p	$K_p \times P_s$	P_s/W
4) Debentures	D		K_{d_1}	$D \times K_{d_1}$	D/W
5) Loans	L		K_{d_2}	$L \times K_{d_2}$	L/W
	W or TC			C	

① Method.

Weighted Avg cost of capital $= \frac{C}{W}$

Cost of capital
$K_e \times \left(\frac{E+R_e}{W}\right)$
$K_p \times P_s/W$
$K_{d_1} \times D/W$
$K_{d_2} \times L/W$

★ WACC – Average rate of return a company expects to compensate all its different investors. The weights are the fraction of each financing source in the company's target capital structure.

$$WACC = W_d * K_d (1-T) + W_e * K_e + W_p * K_p$$

Tax Rate

$$\frac{120 + \frac{(1000 - 1040)}{4}}{\frac{1000 + 1040}{2}}$$

$$\frac{84 - 10}{1040} = 0.0775$$

WTR

$$\frac{120 \times (1 - 0.3) + \frac{(1000 - 1040)}{4}}{\frac{1000 + 1040}{2}} = 0.1078$$

Q. 12.5% of redeemable debenture for 7 yrs having FV of Rs 100/-, it is discounted at 5%, and floating cost is at 1%. What is the cost of debenture with a Tax Rate of 40%.

CMP = 95 − 1 = 94

Redeemable

$$\frac{12.5(1 - 0.4) + \left(\frac{100 - 94}{7}\right)}{\left(\frac{100 + 94}{2}\right)}$$

$$\frac{7.5 + 0.85}{97} = 0.086.$$

Irredeemable $= \frac{I(1-t)}{\text{Amt Rec'd.}}$

$$= \frac{12.5(1 - 0.4)}{94} = 0.079.$$

Cost of Preference Capital

Irredeemable

$$\frac{\text{Preference Dividend}}{\text{Amount Received.}}$$

OR $\frac{D}{NP}$

Redeemable.

$$\frac{PD + \frac{RV - NP}{n}}{\frac{RV + NP}{2}}$$

→ RV = MV (Maturity Value)

D = Annual Pref. Dividend.

NP = Net Proceeds = Par value of Pref Share Capital.

Redeemable Growth.

$$\frac{D_1 + \left(\frac{RV - NP}{n}\right)}{\frac{RV + NP}{2}} + g.$$

Step3 - Covariance for x, m.

$Cov_{xy} = \Sigma p_i [r_m - E(r_m)] [r_x - E(r_x)]$

$= 0.4(16-11.8)(20-12.2) + 0.4(12-11.8)(13-12.2) + 0.2(3-11.8)(-5-12.2)$

$= 43.44$,

Step4 - Calculation of Beta -

$\beta_x = \frac{Cov(x,m)}{\sigma^2_m} = \frac{43.44}{22.56} = 1.93$ (more volatile)

Cost of Capital - Refers to the opportunity cost of making a specific investment.

Cost of Debt -

$K_{db} = K_{db} = I/P$

K_{db} = before tax cost of debt.

I = Interest, P = Principal.

$K_{db} = I/NP$ (NP = Net Proceeds)

$K_{da} = I(1-t)/NP$

K_{da} = After tax cost of debt

t = Rate of tax.

$K_d = \frac{\text{Interest}(1-t)}{\text{Amount Received.}}$ (D - F) — Irredeemable Debenture

Redeemable Debenture: $K_d = \frac{\text{Interest}(1-t) + \left(\frac{RV - \text{Amount Received}}{n}\right)}{(RV + \text{Amt. Received})/2}$

n = no. of years in which debt is to be redeemed

RV = Redeemable value of debt.

t = Tax Rate

Q Find the cost of capital for the following debenture of ABC Ltd.

Interest - 12% (C.Rate)

Face Value of Debenture - Rs 1000/-

~~Coupon Rate - 10%~~

Maturity Period - 4 yrs

Amount Net Price of Debenture - Rs 1040/-

(i) Tax Rate - 30%

(ii) Without Tax Rate

$K_d = \frac{Rs\ 120(1-0.30) + \left(\frac{1040-1000}{4}\right)}{\left(\frac{1040+1000}{2}\right)}$

$= \frac{84 + 10}{1020} = 0.0921$

$K_d = \frac{130}{1020} = 12.74\%$.

Risk are of 2 types -

1) Non Systematic - Risks include risks that are specific to a company or industry. This kind of risk can be eliminated through diversification across sectors and companies. The effect of diversification is that the diversifiable risks of various equities can offset each other.

2) Systematic Risks - are those risks that affect the overall stock markets. Systematic risks can't be mitigated through diversification but can be well understood via an important risk measure called as "BETA".

Beta (β) - It is a measure of volatility or Systematic risk of a security or a portfolio in comparison to the market as a whole.

β = 1 → Security's price will move with the market

β < 1 → Security will be less volatile than the market

β > 1 → Security's price will be more volatile than the market.

eg: If a β of a stock (HUL) is 1.2. If BSE sensex goes up, the value of HUL stock will go up by 20%.

Calculating Beta -

1) Using the equation
2) Using MS Excel (Regression Analysis)

$$\beta_x = \frac{Cov(x, m)}{\sigma_m}$$

x → Any Stock for which you want to find the β.
m → Any Index (eg: Nifty Index)

Step 1 - Calculate Expected Returns -

$$E(r) = \sum p_i r_i$$

p_i = probability
r_i = return
n = no. of outcomes

$E(r_m) = 16 \times 0.4 + 2 \times 0.4 + 3 \times 0.2 = 11.8\%$

$E(r_x) = 20 \times 0.4 + 13 \times 0.4 + 0.2 \times (-5) = 12.2\%$

Step 2 - Calculate Variance and SD

$$\text{Variance} = \sigma^2 = \sum p_i (r_i - E(r))^2$$

$0.4(16-12.2)^2 + 0.4(12-12.2)^2 + 0.2(3-12.2)^2$

$= 5.776 + 0.016 + 16.928 = 22.72$

$0.4(20-12.2)^2 + 0.4(13-12.2)^2 + 0.2(-5-12.2)^2$

$= 83.76$

$\sqrt{83.76} = 9.15$

$FL = \frac{EBIT}{EBT}$

$= \frac{50000}{40000} = 1.25$

$CL = \frac{\text{Contribution}}{EBIT}$

$= \frac{200000 - 100000}{40000} = 2.5$

Q XYZ Ltd. decided to use 2 financial plans and they need 50000 for total investment

Particulars	Plan A	Plan B
Debentures 10% (Int Rate)	40,000	10,000
Equity Share (@ Rs 10 each)	10,000	40,000
Total Investment	50,000	50,000
No. of Equity Shares	1000	4000
EBIT are assumed	5000	12500
Tax Rate	50%	50%

Calculate EPS.

EPS_A EBIT − Int. on Deb. − Tax

$5000 - 4000 - 500 = \frac{500}{1000} = 0.5$ EPS

$EPS_B = \frac{(12500 - 1000) - 5750}{4000}$

$= 1.43$

Q Kumar company has sales of 2500000, Variable cost 1250000, Fixed Cost 500000. Debt of 1250000 @ 8% ROI. Calculate CL.

$CL = \frac{1250000}{1100000} = 2.13$

$FL = \frac{1200000}{1100000} = 1.09$

~~Total Leverage = 1.23~~

OL =

CL = FL × OL

$OL = \frac{CL}{FL} = 1.03$

Combined / Total Leverage -

It is the product of OL and FL.

Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}}$

(or)

Degree of CL = $\frac{\%\text{ change in EBT}}{\%\text{ change in Sales or Contribution}}$

Measurement of DCL -

$DCL_S = DOL_S \times DFL_{EBT}$

Eg: DFL = 1.67
DOL = 3.0

DCL = 1.67 × 3 = 5 times

(When Sales change 1%, EPS will change 5%)

Q From the following data determine degree of OL and find which company has greater amt of business risk and why?

	Comp A	Comp B
Sales	2500000	3000000
Fixed Cost	750000	1500000
V cost	50% of Sales 1250000	25% of Sales 750000
EBT	500000	750000
OL =	$\frac{1250000}{500000}$	$\frac{2250000}{750000}$
	2.5	3

→ Company B has greater risk

Q A company has following capital structure -

1) Equity Share Capital - Rs 100000
2) 10% Pref. Share Capital - Rs 100000
3) Debentures in 8% Debenture Rs 50000
4) EBIT - 50000
5) Calculate FL and CL assuming that the company is in 50% Tax bracket.

Given that the sales of the company is 2,00,000/-

$$DOL = \frac{Q(P-V)}{Q(P-V)-F}$$

Eg: Q = 3750
Price = 800
VC = 400
FC = 1000000

$$DOL = \frac{3750(800-400)}{3750(800-400)-1000000}$$

$$= \frac{1500000}{1500000-1000000} = 3$$

$$DOL = \frac{S-VC}{S-VC-F}$$

⇒ Degree of operating leverage is highest when the firm is closest to break even point.

Revenue
− cost
EBIT
− Interest
EBT
− Tax
EAT
− Preference Stock Dividend
− Dividend
Retained Earnings

★ Financial Leverage -

The sensitivity of net income to change in fixed financing cost, such as interest expenses, preffered dividends
(Similar to OL but instead of fixed operating cost we use Fixed Financing Cost)

→ A high FL (firm) means that its profit is very sensitive to changes in fixed financing cost.

Financial Leverage = $\frac{EBIT}{EBT}$

(OR)

Degree of FL = $\frac{\%\text{ change in EBT}}{\%\text{ change in EBIT}}$

Measurement of DFL = $\frac{EBIT}{EBIT-I}$

eg: EBIT = 500000
Interest = 200000

$$DFL = \frac{500000}{500000-200000} = 1.67 \text{ times}$$

for 1% change in EBIT, DFL will change 1.67 times.

Q The share of stock paid a dividend of Rs 2/- last yr. The dividend is expected to grow at a constant rate of 6% in the future. The req^d rate of return on this stock is considered to be 12%. How much should the stock sell for now?

$$P = \frac{2}{0.12 - 0.06} = 33.33$$

★ Price Earning Ratio = $\frac{P}{E}$

★ Return on Equity -

$$\frac{D}{P_0} + \frac{P_1 - P_0}{P_0} = \frac{D + (P_1 - P_0)}{P_0}$$

~~Plowback~~ Retained Ratio = Dividend Payout Ratio

How much dividend I retain for the next year

Dividend = Earnings (1 - PBR)
= E(1 - b)

★ Growth Rate = ROE × Plowback Ratio
= 20 × 0.6
= 12%

$$P_0 = \frac{D_0}{(r - g)} = \frac{E(1-b)}{r - (ROE \times b)}$$

Q. Find the intrinsic value of ~~stock~~ equity share for the following details :-

1) The req^d Rate of return is 15%.
2) Plowback Ratio is 0.5
3) ROE = 25%.
4) Earnings Per share = 20 Rs

$$P_0 = \frac{20(1 - 0.5)}{0.15 - (0.25 \times 0.5)} = \frac{10}{0.025}$$

= 400

Q

	g	
Low Growth	= 5%	
Normal —	= 10%	ROR = 20%
Super Normal —	= 15%	

EPS = Rs 3/- D = Rs 2/-

Dividend

Find Stock Price in Each Case, Yield, Capital Gain Yield, Price Earning Ratio.

L4 $P_0 = \frac{2}{0.20 - 0.05} = 13.33$

Dividend Yield = $\frac{D_1}{P_0} = \frac{2}{13.33} = 15\%$

Capital Gain Yield = $\frac{P_1 - P_0}{P_0} = 5\%$

Q The share of stock paid a dividend of ₹2/- last yr. The dividend is expected to grow at a constant rate of 6% in the future. The req^d rate of return on this stock is considered to be 12%. How much should the stock sell for now?

$$P = \frac{2}{0.12 - 0.06} = 33.33$$

★ Price Earning Ratio = $\frac{P}{E}$

★ Return on Equity -

$$\frac{D}{P_0} + \frac{P_1 - P_0}{P_0} = \frac{D + (P_1 - P_0)}{P_0}$$

Plowback ~~Ploughback~~ Ratio = Dividend Payout Ratio

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$$P_0 = \frac{D_0}{(r-g)} = \frac{E(1-b)}{r-(ROE \times b)}$$