RAMA UNIVERSITY

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FACULTY OF COMMERCE AND MANAGEMENT

COURSE: B.COM V SEM.

SUBJECT: INTRODUCTION TO FINANCIAL MANAGEMENT

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LECTURE: 24

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LECTURE-24

- **Marginal Weights:**

The other system of assigning weights is the marginal weights system. The marginal weights refer to the proportions in which the firm wants or intends to raise funds from different sources. In other words, the proportions in which additional funds required to finance the investment proposals will be raised are known as marginal weights. So, in case of marginal weights, the firm in fact, calculates the actual WACC of the incremental funds. Theoretically, the system of marginal weights seems to be good enough as the return from investment will be compared with the actual cost of funds. Moreover, if a particular source which has been used in the past but is not being used now to raise additional funds, or cannot be used now for one or the other reason then why should it be allowed to enter the decision process even through the weighing system.

However, there are some shortcomings of the marginal weights system. In particular, the capital budgeting decision process requires the long-term perspective whereas the marginal weights ignore this. In the short run, the firm may be tempted to raise funds only from cheaper sources and thereby accepting more & more proposals. However, later on when other sources will have to be resorted to, some projects, which should have been accepted otherwise, will be rejected because of higher cost of capital.

FORMULA

$$\mathbf{Kw} = \frac{\sum \mathbf{XW}}{\mathbf{W}}$$

Where, Kw = weighted average cost of capital
X = Cost of specific source of finance
W = Weight, proportion of specific source of finance

Illustration 15: A firm has the following capital structure and after tax cost for the different sources of funds used:

Source of funds	Amount(Rs.)	Proportion (%)	After tax cost (%)
Debt	15,00,000	25	5
Preference capital	12,00,000	20	10
Equity Capital	18,00,000	30	12
Retained Earnings	15,00,000	25	11
Total	60,00,000	100	

You are required to compute the weighted average cost of capital.

Solution:

Computation of weighted average cost of capital (WACC)			
Source of funds	**Proportion %) (W)**	**After tax cost (%) (X)**	**Weighted cost % (XW)%**
Debt	25	5	1.25
Preference capital	20	10	2.00
Equity Capital	30	12	3.60
Retained Earnings	25	11	2.75
Weighted Average Cost of Capital			9.60

Illustration 16.: A company has the following capital structure and after tax costs of different sources of Capital used:

Type of Capital	**Book Value**	**Proportion (%)**	**After-tax cost (%)**
Debt	Rs. 4, 50,000	30	7
Preference	3, 75,000	25	10
Equity	6, 75,000	45	15
	15, 00,000	100	

Determine the weighted average cost of capital using book Value weights

The firm wishes to raise further Rs. 6, 00,000 for the expansion of the project as below:

Debt	Rs. 3, 00,000
Preference Capital	Rs. 1, 50,000
Equity Capital	Rs. 1, 50,000

Assuming that specific costs do not change, compute the weighted marginal cost of capital.

Solution:

(a) Computation of weighted average cost of capital (WACC)			
Source of funds	**Proportion %) (W)**	**After tax cost (%) (X)**	**Weighted cost % (XW)%**
Debt	30	7	2.10
Preference capital	25	10	2.50
Equity Capital	45	15	6.75
WACC			**11.35%**

(b) Computation of weighted Marginal cost of capital (WMCC)			
Source of funds	**Proportion %) (W)**	**After tax cost (%) (X)**	**Weighted cost % (XW)%**
Debt	50	7	3.50
Preference capital	25	10	2.50
Equity Capital	25	15	3.75
WACC			**9.75%**

2.3.3 EBIT-EPS Analysis

It can be explained with the help of following example. In this case the financial plan under option 4 seems to be the best as it is giving the highest EPS of RS 38. In this plan, the firm has applied maximum financial leverage and the results are evident. The firm is expecting to earn an EBIT of Rs. 1, 50,000 on the total investment of Rs. 5,00,000 resulting in 30% return .on an after tax basis , this return comes to 15% i.e. 30% x (1 - .5) . However the after tax cost of 10% debentures is 5% i.e. 10% (1 - .5) and the after tax cost of preference shares is only 12% only. In the option 4, the firm has employed 50% debt,25% preference shares and 25 % equity share capital , and the benefits of employing 50% debt (which has after tax cost of 5% only) and 25% preference shares (having cost of 12% only) are extended to the equity shareholders. Therefore the firm is expecting an EPS of Rs 38.

In case, the company opts for all equity financing only, the EPS is Rs 15 which is just equal to the after tax return on investment. However in option 2, where 50% funds are obtained by an issue of 12% preference shares , the 3% extra is available to the equity shareholders resulting in increase in of EPS fro m Rs 15 to Rs 18 and then to rs 21.50 . This gradual increase in EPS is different plans from Rs 15 to Rs 18 and then to Rs 21.5 and ultimately to Rs 38 is not without reasons. The company is expecting this increase in EPS when more and more preference shares and debt financing is availed because the after tax cost of preference shares and debenture are less than the after tax return on total investment. What happens if the return on investment (EBIT as a% of funds employed) is reduced from 30% to 18%? The results are shown in the following table.

Option 1	**Option 2**	**Option 3**	**Option 4**	
EBIT	***Rs 90,000***	***Rs 90,000***	***Rs 90,000***	***Rs 90,000***
-interest	---	-------	12,500	25,000
Profit before tax	90,000	90,000	77,500	65,000
-tax @50%	45,000	45,000	38,750	. 32,500
Profit after tax	45,000	45,000	38,750	32,500
-Preference dividend	---	30,000	15,000	15,000
Profit for equity share	45,000	15,000	23,750	17,500
No. of equity shares (of Rs. 100 each)	5,000	2500	2500	1250
EPS	9	6	9.5	14

In this case the EPS is under option 1 is Rs 9 and this is just equal to the after tax return on investment of 9%.. This is because the firm is an all equity firm. However if the company opts for 50% financing from preference shares, the EPS reduces to Rs 6.

The above example shows that the behavior of the EPS as result of change in financing pattern depends upon the ROI of the firm. Whenever the ROI of the firm is more than the cost of debt, the financial leverage is said to be favorable. Higher the degree of financial leverage factor, the larger will be the earnings available to equity shareholders.

Varying EBIT with Different Patterns: The assumption of constant EBIT is unrealistic and imaginary. In practice, a firm may not able to correctly estimate the EBIT level whatsoever thorough analysis might have been made in this respect. The EBIT level may vary and the actual EBIT may come out to be different than the expected one. Therefore the effect of financial leverage on the EPS should be analyzed under the assumption of varying EBIT also. The following example will illustrate this point.

Suppose, there are three firm X & co., Y Y & co.and Z & co. these firms are alike in all respect except the leverage. The financial position of three firms is presented as follows:

Capital structure	**X & Co.**	**Y & Co.**	**Z & Co.**
Share capital (of RS. 100 Each)	2, 00,000	1, 00,000	50,000
6% debenture	----	1, 00,000	1, 50, 000
Total	2, 00,000	2, 00,000	2, 00,000

These firms are expected to earn a ROI at different levels depending upon the economic conditions. In normal conditions, the ROI is expected to be 8% which may fluctuate by 3% on either side on the occurrence on bad economic conditions or good economic conditions.

	poor eco. Cond.	**Normal eco. Cond**	**Good eco. cond**
Total assets	Rs 2,00,000	Rs. 2,00,000	Rs. 2,00,000
ROI	5%	8%	11%
EBIT	Rs. 10,000	Rs. 16,000	Rs. 22,000
X & co.(no financial leverage)			
EBIT	10,000	16,000	22,000
-Interest	--------	-------	-------
Profit before tax	10,000	16,000	22,000
-Tax @ 50%	5,000	8,000	11,000
Profit after tax	5,000	8,000	11,000
Number of shares	2,000	2,000	2,000
EPS (Rs)	2.5	4	5.5
Y & Co.(50% leverage)			
EBIT	10,000	16,000	22,000
-Interest	6,000	6,000	6,000
Profit before tax	4,000	10,000	16,000
-Tax @ 50%	2,000	5,000	8,000
Profit after tax	2,000	5,000	8,000
Number of shares	1,000	1,000	1,000
EPS (Rs)	2	5	8

Z & Co. (75% leverage)

EBIT	10,000	16,000	22,000
-Interest	9,000	9,000	9,000
Profit before tax	1,000	7,000	13,000
-Tax @ 50%	500	3,500	6,500
Profit after tax	500	3,500	6,500
Number of shares	500	500	500
EPS (Rs)	1	7	13

On the basis of the figures given above, it may be analyzed as to how the financial leverage affects the returns available to the shareholders under varying EBIT levels.