

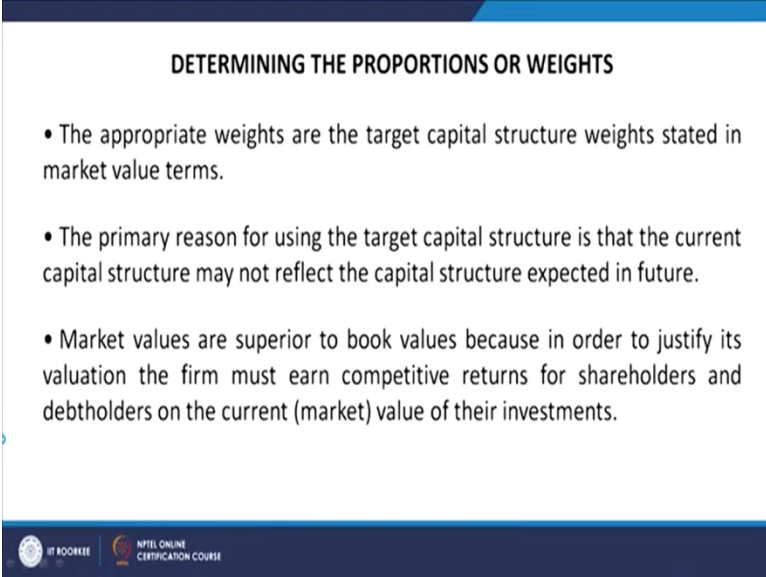
Financial Management for Managers
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Lecture 51
Cost of Capital –Part 5

Welcome all, so in the process of learning about the cost of capital, now we will move forward with some more relevant concepts, which are equally important in learning about the say the entire process of determining the cost of capital or the weighted average cost of capital. So when we talk about the weighted average cost of capital we need two say broad components or the information about the two broad components.

Number 1, is the cost of individual sources of the funds and second one is the say deciding the proportions of these different sources into the capital structure of the firm. So till now in the previous classes we discussed that how to calculate or maybe what are the different sources of the funds from where the capital can be arranged and how to determine the cost of these individual sources.

After determining the cost of these individual sources now we can learn how the weights can be assigned or how the weights can be determined with regard to the different sources. So what should be the proportion of which source because we have learnt till now that largely there are three sources equity capital, preference capital and the borrowed capital or the debt capital. So means in these three sources or out of these three sources how to decide the weights or proportions that is now the second important question to learn or to answer here. So some important points I have noted down here they are with regard to the determining the proportions or weights.

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DETERMINING THE PROPORTIONS OR WEIGHTS

- The appropriate weights are the target capital structure weights stated in market value terms.
- The primary reason for using the target capital structure is that the current capital structure may not reflect the capital structure expected in future.
- Market values are superior to book values because in order to justify its valuation the firm must earn competitive returns for shareholders and debtholders on the current (market) value of their investments.

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So first point says the appropriate weights are the target capital structure weights stated in the market value terms, right? So we have the two capital structures as I have talked to you sometime in the past also, one is the current target. Current capital structure of the firm who is proposing to take the new investment proposal.

If it is an existing firm and want to take up the new investment proposal then they have the two capital structures kind of, one is the existing capital structure of the firm in which they are working, they are operating and second one is the target capital structure which they want to make for the new project or which they want to have for the investment proposal or the new project.

So while determining the weights we should not means look at the existing capital structure of the firm or the current capital structure of the firm rather we should look at the target market structure of the firm or the proposed market structure or the capital structure of the firm. Because we are going to talk something relating to the future right, the project is going to come up in future. So when in future we are going to say set up any investment say process then what kind of the different sources of the funds are available at that time.

And say looking at the risk factor as well as the cost of capital associated to them as well as availability of the funds from these different sources we should more focus upon the target capital structure and on the basis of that we should assign the proportions and the weights, right?

So this is one thing and second thing is that which value we should take? We should take the book value of that investment we are going to make or the market value.

So we have to always take the market value of the firm because always when you want to determine the say a return on investment to be given to the different stakeholders or to the different sources from where the capital will be raised. They would like to have the return on the market value of their investment not on the book value of the investment. So the target capital structure has to be the.

So the basis of determining the weights or the proportions and that to the value of these different sources of the funds has to be taken as per the market value and not as per the book value. This is the first point, so means it is very clear that the weight should be decided on the basis of the future capital structure and not on the basis of the current capital structure. And for example if the firm is in new, they are coming up for the first time into existence and they want to directly start it up as a public limited company.

So in that case means normally does not happen because creating a public limited company in the first go it is a little difficult but if for example if we assume the situation that any how it is going to happen in that case the current or you can call it as the proposed market structure will be important the say even in that case also not current. But the target market structure will be important that how they look forward that the funds will be available, which sources the funds will be available from and how they have to bring these funds in the venture.

And say what should we the proportion of those different sources which will be forming the capital structure of the new proposal or the new project or the new investment opportunity, right. So always focus upon the target capital structure. The new capital structure and the value of the funds will be in terms of the market value not in terms of the book value. This is the first point, second point is the primary reason for using the target capital structure is that the current capital structure may not reflect the capital structure expected in future.

As I told you that in the future things are going to change, it may be possible that supply of the funds from different sources is going to change and second thing is that riskiness of the new project may be different. So maybe the say the different funds or different sources of the funds

who are otherwise interested to make investment in the company may not be a means say interested in the new project.

Because it is the untested opportunity and the risk factor is very high, so it may be possible that the external equity may not be available. So you have to arrange the funds largely from the retained earnings and from the borrowed capital by paying a higher amount of the say cost of the debt. So that may be possible. So looking at the risk profile, looking at the potential market situation of the new investment proposal we always have to focus upon the target capital structure.

The proposed capital structure and not upon the existing capital structure. Third important point is market values are superior to the book values because in order to justify its valuation the firm must earn competitive returns of shareholder, for shareholders and debt holders on the current that is the market value of their investments. So whatever the ROI you want to provide, whatever the required rate of return will be means expected by those say different sources of the funds. That will be based upon the market value not upon the book value.

And if the market value is always higher as compared to the book value then certainly the ROI will also be higher in the absolute terms not in the percentage terms. So it means for example if we make investment of 250 crores and or means you look back that for example we made an investment of the 250 crores.

Sometime back write the book value of the investment is 250 crores or in a way you can think like or you can plan this say proposal like that initially when we set up the project we say invest in 100 crores or 100 million rupees, 100 crores or 100 million rupees and over a period of time the book value of that investment increase to 250 millions or 250 crores, right?

So there is a book value but the market value of that investment, market value of the total capital structure of the firm is 450 millions, right? So whatever the say your capital structure is going to talk about or we are going to determine the cost of capital that will be in terms of because cost of capital is otherwise a required rate of return by the investors. So investors would like to have the required rate of return on the market value of their investment not on the book value of the investment.

So initially 100 million were invested, the book value rose to 250 million but the market value has gone up to 450 millions. So the investors would like to have the return on 450 millions market value not on the 250 millions of the book value of the investment. So always we talk in terms of the market value of the investment and not in terms of the book value of the investment. So cost of capital means the proportions have to be as per the target markets capital structure not as per the current capital structure.

And the values of the different say sources of the funds will be say will be means useful for us as per the market value of those funds not as per the book value of those different sources of the funds. So that we provide the higher return to the sources from where the capital has been arranged. So proportion of the weights or the different say proportion deciding the proportion or different weights that would depend upon that say what is the target structure of the new project.

Target capital structure of the new project and second thing is what is the market value of those sources? If there is no difference in the book value on the market value because initially it does not remain for the first time. When any investment we are making book value and the market value will be same but over a period of time when the project starts working its performance becomes visible in the market and people come to know about that this is a very good investment opportunity the stocks or thus say shares of this particular project or this company are selling at a very high price.

So what happens because of the say high volume of the trading or the frequency of trading in the market the market value of that investment becomes high as compared to the book value. So we always have to treat them the weights in terms of the market value not in terms of the book value.

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WACC

<i>Source of Capital</i>	<i>Proportion (1)</i>	<i>Cost (2)</i>	<i>Weighted Cost [(1) x (2)]</i>
Equity	0.60	16.0%	9.60%
Preference	0.05	14.0%	0.70%
Debt	0.35	8.4%	2.94%
			WACC = 13.24%

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Now we talk here as the weighted average cost of capital, if you look at this the weighted average cost of capital. So we are taking here something as that is the different sources of the capital are given here means we have this way we have explained this the process of determining the weighted average cost of capital where we have calculated here is that is the weighted average cost of capital is 13.4 percent.

And this all depends upon the process of determining the weighted average cost of capital. So if you talk about determining the weighted average cost of capital.

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$$WACC = W_E r_E + W_P r_P + W_D r_D (1 - T_c)$$

XYZ Ltd

$$r_E = 16.0\% \quad W_E = 0.60$$
$$r_P = 14.0\% \quad W_P = 0.05$$
$$r_D = 12.0\% \quad W_D = 0.35$$

Corp. Tax rate is 30%

$$r_D = 12\% \cdot (1 - 0.30) = 8.4\%$$

So let us recall the process WACC and for this if you recall it if you take this into account. So WACC can be calculated how? We all understand it that it has to be like W E weight of the say equity capital. So it has to be something like weight of equity capital and multiplied by a return on the equity capital, cost of r is the W is the weight of the equity capital r is the say cost of equity capital plus W P is the proportion of the preference capital and say your r P not W P, rP is the cost of preference capital rP is the cost of reference capital.

And then we have to take the third component here that is that W D is the proportion of the or the weight of the debt capital and rD is the cost of the debt capital but here this cost we calculate by adjusting it for the tax benefit. So it is 1 minus the tax rate. So it means 1 minus Tc we have to take this as the 1 minus Tc. So this becomes the process to determine the 1 minus Tc. So it means the tax rate.

So it is the W is the proportion of the equity that is a internal funds equity capital and then is the cost of equity capital rE then it is a proportion of the preference capital cost of the preference capital. This is the proportion or the weight of the debt capital borrowed capital and this is a cost of the debt capital but the cost of debt capital has to be say considered after-tax not pre-tax. So when you are multiplying it by 1 minus the tax rate, so it means you can understand that this cost actually will be lesser than what we are going to pay.

Because there is a tax advantage available on the debt capital and so whatever the financial cost we pay on the borrowed capital that is say subject to the tax deductions or maybe tax benefit is available there on that because we debit the profit and loss account with the interest cost, the financial cost and when you subtract it from the revenues in the profit and loss account by debiting the profit and loss account with the interest cost.

So that much of the tax savings are there which benefit is not there on the equity capital as well as on the preference capital. Because in the equity capital and the preference capital we pay the dividends which are not tax deductible. So this benefit is there, so for determining the weighted average cost of capital. For example, we assume here that there is a company called it as the XYZ Limited.

We assume this, this is a company XYZ Limited and they are going to make a new investment here. And say the cost of the new investment is say new investment is say requirement is going to be fulfilled from three different sources of the funds. The investment requirement of this new investment proposal is going to be fulfilled from three different sources, one is the equity capital, second is the preference capital and third is the borrowed capital or debt capital.

And the cost of capital is given to us, here r_E that is equal to 16 percent and when you call upon the r_P cost of the preference capital that is given to us is the 14 percent and if you talk about the cost of r_D , that is a cost of debt that is equal to 12 percent, right? So these are the three different sources from where the funds can be arranged for this new investment proposal by XYZ Limited. And this information is available with regard to the say the cost of capital coming from the different three sources and we are given here as the different proportions also.

So it means W_E is also given which is going to be how much? That is going to be 60 percent and W_P is also given and that is going to be somewhere how much, That is 0 point we can call it as 5 percent only, only 5 percent and then the proportion of the D is or the debt is going to be remaining amount and this is 35 percent, right. So these are the proportions, this is the cost of the three sources, these are the weights of the three different sources.

60 percent coming from equity, 5 percent coming from the preference capital and 35 percent coming from the debt capital, additional information given to us here is that the corporate tax rate is 30 percent, right, corporate tax rate is 30 percent, so if the corporate tax rate is that 30

percent so r_D which is equal to 12 percent at the moment will be finally coming down to 1 minus how much? You have to multiply 12 percent into 1 minus, this is 30 percent. So if you multiply it this actually works out as effectively this comes up as 8.4 percent. So the cost of equity is going to remain as 16 percent, cost of preference capital is going to remain as 14 percent but the cost of debt, effective cost of debt which will be included here in this particular component is going to come down which is we are going to play the 12 percent.

But effectively it is going to come down to 8.4 percent because of the tax deductible advantage of the debt capital. So this is the situation with regard to the different sources of the funds being used in the new project by the XYZ Limited, their cost of capital is also given and their proportions or weights are also given. So finally on the basis of this information we have calculated here the weighted average cost of capital, right.

We have calculated here the weighted average cost of capital. So if you look at this weighted average cost of capital here, so what is this, source of capital here we have taken, proportion we have taken and then the cost we have taken here and the weighted cost has been calculated here. So in this case of the equity capital our proportion is 60 percent, cost is 16 percent. So mind it, the cost for the equity and the preference capital is the same original cost, no tax deductible advantages there.

So the weighted cost is this much, preference is this much is the proportion 5 percent, this is a cost means the dividend we are going to pay and this is going to be the weighted cost and debt is the 35 percent is the proportion as we have seen and effective cost has come down from the 12 percent to 8.4 percent because of the tax advantage of 30 percent. So the weighted cost is this much, so finally the weighted average cost of capital is 13.24 percent.

Means the cost of equity is very high, always normally the cost of equity is very high. So cost of equity is very high 16 percent, preference is also comparatively high, debt is cheaper and debt has further become cheaper from the 12 percent to 8.4 percent. Because it has the feature of being tax deductible or whatever the cost we pay to service that debt in the form of the interest that is debited in the profit and loss account as an expense and by that amount your profit goes down. And when the profit goes down your tax component also goes down.

So this advantage is there with the debt capital. So there must be a means a question a misconception which I will discuss at the end of the say discussion on the cost of capital, there is a misconception that since the debt capital is very cheap, so every firm must increase this component of capital in their capital structure because overall say weighted average cost of capital will go down but this conception is not true.

This is a misconception because the moment you increase the amount of debt in the firm, the riskiness of the overall firm increases and the movement the riskiness of the overall firm increases. The equity shareholders also increase their required rate of return. So overall weighted average cost of capital almost remains the same or unaffected. Because the moment you increase the debt, the borrowed capital in the concern your riskiness increases.

Because it has the positive feature that yes it is tax-deductible as a source of fund the cost of capital on the debt is or with regard to debt is tax-deductible. But it is s very-very risky also in a particular situation when the cash flows of the firm are not very sure and in the initial years or a beginning of any say of the project years beginning years of any project when the cash flows are not up to the mark, the project is incurring the losses and even it has not reached up to break-even point.

You even at that time you have to service the debt. And you need the free cash flow for that or may be sufficient cash flow for that for servicing the debt. And if the funds are not available then the debt has a capacity to take the firm or the project to the say the (brim) brink of this bankruptcy and that may be a difficult situation. So if it is cheaper as compared to equity it is equally risky also. So riskiness makes it difficult to employ in the firm in the desired amount or in the desired proportion, right.

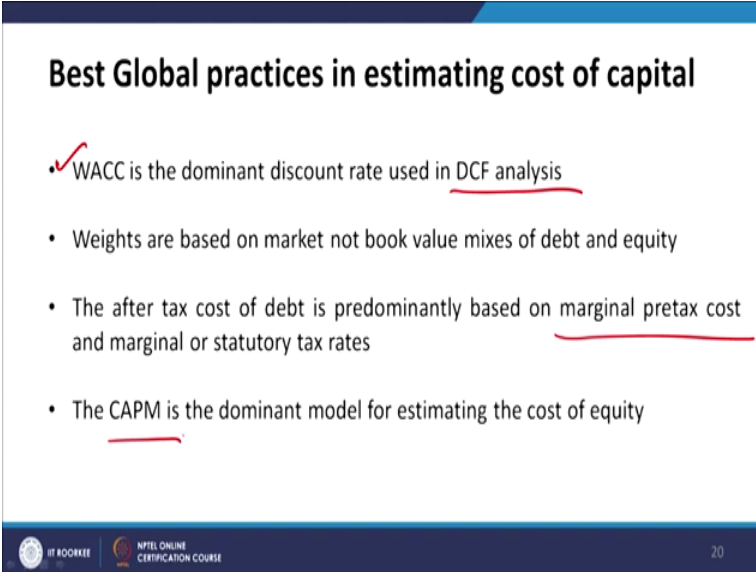
So this is how we can decide that or we can work out the weighted average cost of capital WACC proportion. These now the question here is how we have decided these proportions, 60 percent, 5 percent and 35 percent? These proportions depend upon the target capital structure of the new investment proposal, target capital structure. It may be possible that for example out of the information available in the market or the information which we have generated from the different say financial experts or maybe by preparing the DPFR Detailed Project Feasibility Report.

We have come out that the new project should be means requiring the total capital whatever the amount it is requiring for example 200 or the 300 million rupees. For example it is requiring, so we can say it will be very easy for us to raise equity from the market. So 60 percent will come from the equity preference capital also we can issue but only very nominal amount 5 percent and then the remaining amount will come in the debt. So this is a proposed capital structure of the new project not as per the existing capital structure of the firm.

So there is a difference between the target capital structure and the current capital structure. So if the new project is coming up new capital structure should be decided and that should be as per the target or the expected situation in the market. And then the cost of capital as per the, say the cost of individual sources has to be worked out and then the weighted average cost of capital has to be calculated.

So this is how we calculate or learn about that how to calculate the cost of individual sources of funds and second thing is how to determine the weights to be given or the say the different sources from where the funds will come, how much proportion of those sources has to be there or how much weightage to these different sources has to be there that we are going to means make use of in this particular concept of say deciding about the weighted average cost of capital .

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Best Global practices in estimating cost of capital

- WACC is the dominant discount rate used in DCF analysis
- Weights are based on market not book value mixes of debt and equity
- The after tax cost of debt is predominantly based on marginal pretax cost and marginal or statutory tax rates
- The CAPM is the dominant model for estimating the cost of equity

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Now we talk about some best global practices in estimating the cost of capital, best global practices in estimating the cost of capital. First important point here is weighted average is the

dominant discount rate used in the DCF analysis, discounted cash flow analysis DCF analysis is the discounted cash flow analysis. So you always require weighted average cost of a capital without WACC it is very difficult to discount the cash flows because total investment we are making in any project is that is coming from different sources that is coming from equity also, that is coming from preference capital also and that is coming from the debt capital also.

So it means the discount rate which we want to use if you remember that the cash flow CF divided by $1 + R$. So that R is the basically the say discount rate and that is based upon that WACC weighted average cost of capital and that is also the required rate of return also by the suppliers of different sources of funds. So this is very important that for using or calculating the discounted cash flows we will have to use the weighted average cost of capital and all the firms in this world are using the WACC as the say discount factor.

Second is weights are based upon market not book value mixes of debt and equity, weights are based on market not book value mixes of the debt and equity. So market value of the debt we have to means. For example in case of debt the market value is same as compared to the maybe as there is a book value. So there is no difference in the book value and the market value of the debt because how much we are borrowing same amount we have to pay back the interest cost is separate but there is no difference as far as the debt is concerned in the market value and in the book value.

But in case of the equity it happens that the market value is different as compared to the book value. The companies who are well-managed companies who are operating in the market you would agree with me that there is a lot of difference in their market capitalization and in the book value of their say equity capital. So market capitalization is more important the market value of that say capital is more important for this.

So weights have to be decided as per the market value not as per the say book value of that investment to be brought into the project. Third important point is the after-tax cost of debt is predominantly based on marginal pre-tax cost and marginal or statutory tax rates. The after-tax cost of the debt is predominantly based on the marginal pre-tax cost.

So first we have the marginal pre-tax cost because pre marginal pre-tax cost is a cost which we pay to the banks, right? So we are going to pay to the banks for example the cost of the debt is 12

percent we are going to pay to the bank 12 percent the financial cost we are going to show in the profit and loss account as the interest cost that will be 12 percent. That will not be minus tax but the real effect of that we have to calculate while calculating the cash flows that the tax advantage will be there and that cost which we are paying as the cost of servicing the debt that will be means taken to the profit and loss account will be treated as a financial expense.

And by that amount your profit will go down and certainly your tax component, tax liability will also go down. So you need to, to calculate the post-tax cost of the debt you need to have the pre-tax cost of the debt and the tax rate. So both the things if are available to us then we will be able to calculate them post tax cost of the debt which will be relevant cost for any kind of the decision making as well as for calculating the weighted average cost of capital.

And fourth important point is that the CAPM is the dominant model for estimating the cost of equity, it is a worldwide practice that largely cost of equity is determined on the basis of CAPM. There the other techniques also book building techniques is also there or some other techniques are also there for determining the cost of equity but in the practical sense the most objective model, most objective method is the CAPM Capital Asset Pricing Model with the help of which we determine the cost of equity.

And any cost of equity determined with the help of CAPM will be considered as the reliable cost of the equity. So these are some of the best global practices which are being used in estimating the cost of capital or we call it as in a way the weighted average cost of capital.

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WEIGHTED MARGINAL COST OF CAPITAL SCHEDULE

The procedure for determining the weighted marginal cost of capital involves the following steps:

1. Estimate the cost of each source of financing for various levels of its use through an analysis of current market conditions and an assessment of the expectations of investors and lenders.
2. Identify the levels of total new financing at which the cost of the new components would change, given the capital structure policy of the firm. These levels, called *breaking points*, can be established using the following relationship.

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Now we talk something about the save on a more relevant concept which is equally important here equally relevant here that is the weighted marginal cost of capital schedule and weighted marginal cost of capital schedule means what we mean by weighted marginal cost of capital? Marginal cost of capital is important here to be known about. Say when we make the investment we make in the sequential form, right.

First we make investment in the one project and if we are very successful or successful to the desired extent in that investment process then we go for the next one then we go for next one and then we go for next one, right?

But there is a means upper limit to the extent we can make investment in the market depending upon the whole say spectrum of the firm capital structure of the firm there is a upper limit that to what extent in this given say the overall performance of the firm, existing firm the capability of the existing management, the capability of the existing shareholders there is the upper limit of deciding about that to what extent maximum you can take the size of this firm?

Or maximum you can talk about is that when the investment proposals are different, we are having not one single project, we are having the multiple projects. For example, we first has the project A we invested some amount and the ROI was very good. So we were very successful then we went for the BCDE, so like that there is a say upper limit that to what extent maximum we can expand the business of the firm so that will be deciding.

The maximum upper limit of expansion of the business or the proposed expansion of the business will be deciding the marginal cost of capital because after making investment in the one project how much marginal investment you want to make in the market? So the moment you want to you think of increasing the investment in the market same way the marginal cost of capital will come in the picture, right?

So in this case say what is written here, the procedure for determining the weighted marginal cost of capital involves the following steps. The procedure for determining the weighted marginal cost of capital involves the following steps. Number 1 estimate the cost of each source of financing for various level of its use through an analysis of the current market conditions and an assessment of the expectations of the investors and the lenders, right.

Estimate the cost of each source of financing for the various level of its use through an analysis of the current market condition, how much funds are normally available from the market, right? And what is the cost of individual source of funds in the market? Because ultimately the borrowing funds from the market or raising funds from the market also depends upon the say internal rate of return available from any investment opportunity, right.

Accordingly we can decide about that if the say expected return or the internal rate of return from the project is going to be very high then we think of that yes after successful completion of the one project. We will go for the second project we will go for the third project but then comes the saturation the upper limit beyond which we do not want to say make investment in the market.

So that the capital availability will also be saturated accordingly and the subscriber to the shares of the different projects of the company same firm, same company as well as the cost to be charged or asked by the sources of the debt or the lenders of the debt will also have their own say means you call it as the stipulations, limitations and restrictions.

So number one is that how much maximum you can borrow will depend upon the lending capacity or the stock subscribing capacity of the potential shareholders as well as the say borrowing capacity of the firm depending upon the internal rate of return available from the different investment proposals and the cost of capital to be paid to the different sources from where the funds will be arranged.

Second point is identify the levels of the total new financing at which the cost of new component would change as means identify the levels of total new financing at which the cost of new components would change given the capital structure policy of the firm these levels called breaking points this is a very important concept in the marginal cost of capital schedule breaking points can be established using the following relationship can be established using the following relationship.


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WEIGHTED MARGINAL COST OF CAPITAL SCHEDULE

$$BP_j = \frac{TF_j}{w_j}$$

where BP_j is the breaking point on account of financing source j , TF_j is the total new financing from source j at the breaking point, and w_j is the proportion of financing source j in the capital structure.

3. Calculate the WACC for various ranges of total financing between the breaking points.
4. Prepare the weighted marginal cost of capital schedule which reflects the WACC for each level of total new financing.

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So weighted marginal cost of capital schedule will depend upon these breaking points, so B P is equal to TF, BP j is equal to TF j divide by Wj right, where BP j is the breaking point, this is a breaking point on account of financing source j means breaking point on account of the financing source j means financing source can be largely we have seen there the 3. One is the internal capital that is a equity capital, I am talking about the equity capital may be by selling the additional shares in the market or maybe through retained earnings.

Second is the preference capital, third is the borrowed capital. So in every source or with regard to every source of capital, means one source of capital will be called as j we have to determine the breaking points. Breaking points are basically the upper limits of raising the funds depending upon the borrowing capacity of the firm right. Because there is a maximum limit for example you talk about say that the NIRMA industries.

Initially they started means this entire process, business process long back in the beginning of 80s by the single product that is the NIRMA washing powder in the market. Now they are expanding, they have diversified, they are expanding but now they have stopped at some place they are into the say detergents, they are into the cosmetics. They are into the education sector or they may be into one or two more sectors but that is I think the upper limit of the group.

And this is you call it as the breaking point, we have to decide the breaking point that how much maximum investment we can make in the different projects of the company accordingly the marginal requirements of the capital will be decided and in that total requirement of the capital how much will come from the equity. So j means equity is $1j$, one source of financing and the breaking point of the maximum equity raising capacity have to be worked out.

Similarly the breaking point for maximum say a preference capital has to be worked out and similarly the breaking point for the debt capital has to be worked out. So it means breaking point for that particular source of financing which we have assumed there is j will depend upon the total financing coming from that source and W_j is the proportion of financing source, j in the capital structure.

Means total financing TF_j is the total new financing from the source j at the breaking point from the source j total capital coming from the source j in the new capital structure. And W_j is the proportion, the weightage of that particular source j in the say new capital structure of the firm or in the say proposed capital section of the firm. So it means you have to determine the breaking points how much upper limit or the maximum capital we can raise for different kind of the projects and there also the breaking points with regard to equity, with regard to preference capital, with regard to debt capital we have to work out.

And then with regard to those breaking points we have to say determine the range of raising the capital and the respective cost of paying. The cost of that capital, so it means the marginal cost of capital will depend upon that because you do not borrow the huge amount in one go that is not available. Also from the market first you borrow the first set of amount you make investment in one project.

If you give very say you can call it as an encouraging results then you go for second, third, fourth but then the saturation comes. So there we have to try to find out that saturation level maximum

borrowing limit and in that within that maximum borrowing limit the breaking point for equity maximum say raising the funds through equity, breaking point for preference capital and breaking point for the debt capital we have to work out.

And then for calculating this BP the breaking point for example the equity capital in one proposed capital structure or the total proposed capital structure of all the projects put together you have to find out in this totally investment in all the projects we have made what is the proportion of total financing coming from equity and what is the in terms of the weightage of equity in the total capital structure of all the projects.

So you have to determine the breaking points. Number 3, calculate the weighted average cost of capital for various ranges of that total financing between the breaking point. So range I am telling 0 to for example 75 millions you can raise for from equity or 0 to 100 million you can raise from debt or 0 to 30 millions you can raise from the preference capital. So those ranges have to be decided and then we have to calculate the WACC for individual range.

Fourth, prepare the weighted marginal cost of capital schedule which reflects the WACC for each level of total new financing. So total schedule we have to prepare and we have to find out that from the different sources how much capital can be say generate and what will be the say weighted average cost of capital coming from different sources and what is the maximum borrowing limit of all the projects put together and the source wise how much maximum funds we can raise?

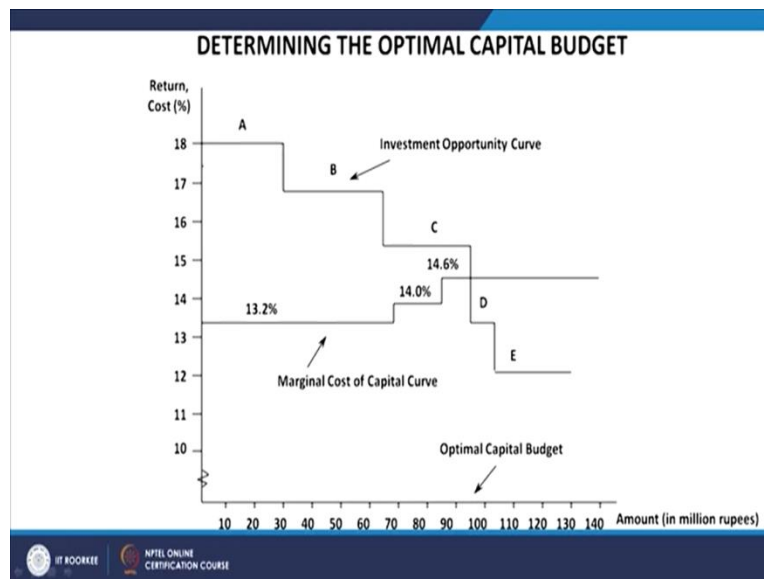
For example from equity, debt and the preference capital and on the basis of those breaking points and range is decided, rang is of raising the capital decided. You can work out the breaking points and on the basis of these breaking points the say marginal cost of capital can be worked out. So here because of the lack of time I am not able to explain it to you with the help of an example or with the help of solving a problem but further detailed discussion and reference you can refer to the book on financial management by Prasanna Chandra.

Where this concept of the weighted marginal cost of the capital schedule has been discussed has been explained largely this conceptual thing I have taken from there and then it is explained in the book, how this marginal cost of capital can be calculated? What is the concept of the breaking points? So further detailed reference you can refer to the book but here as per the

importance or the relevance of this concept I could means introduce you with the concept of the marginal cost of capital and the moment we keep on say increasing our requirements of raising the funds from the market.

We have to say accordingly calculate the weighted average cost of capital and theoretically this is the process conceptually this is a process how we can calculate the weighted marginal cost of capital or how we can prepare the weighted marginal cost of capital schedule, right. So after this we will be talking about say something that is with regard to the determining the optimal capital budget.

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So determining the optimal capital budget if you look at this structure, so in this case what we are going to talk about here is, we have on the one side in this structure the return or the cost given here. And then on this side we are given the amount in the millions of rupees and there is some curves coming up here.

So we are going to drive out of it the say the optimal capital budget, so what this say process of determining the say optimal capital budget. And how we means a arrive at this particular situation and how we means arrive at that budget, the total capital investment budget which is called as a optimal budget. This all means we will discuss in detail but in the next class. So that we can understand in detail that or say what are the different sources of the funds from where the capital can be arranged.

How we have to decide the proportions of the capital coming from the different sources. What is the importance of the return associated to those sources? What is the cost of capital importance of the cost of capital associated to those sources and how to decide the optimal capital budget this I will discuss with you in the next class. Till then thank you very much.