

Financial Management for Managers
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Lecture 52
Cost of Capital - Part VI

Welcome all. Now, maybe we will take up the next concept which we started talking in the previous class also, but I stopped at just a means say initiating the discussion on this particular concept and this concept is a say determining the optimal capital budget, optimal capital budget for any project or maybe the number of different investment proposals if you want to take, depending upon the capital we have means available with us plus the capital which we can borrow from the market.

Means as I told you that say, depending upon the marginal cost of capital we have a say some, upper limit, the saturation point where we can maximum go up to, we can invest our own capital as well as we can borrow the funds from the market. Because for the further expansion of any business and growth you need the funds from two sources. One is from the say internal sources and depending upon the funds you have available from the internal sources, you can borrow the funds from the external sources because statutory debt equity ratio is 2 is to 1.

So in that case minimum if you have 1 rupee in your pocket, then you can borrow two rupees from the market. But if you have 0 rupee in your pocket and if we want to fund the entire business on the basis of borrowing from the market, that is not possible. So that is why as I told you in the previous lecture, the marginal cost of capital concept that the moment you want to increase your investment in the market, you have to calculate the breaking points.

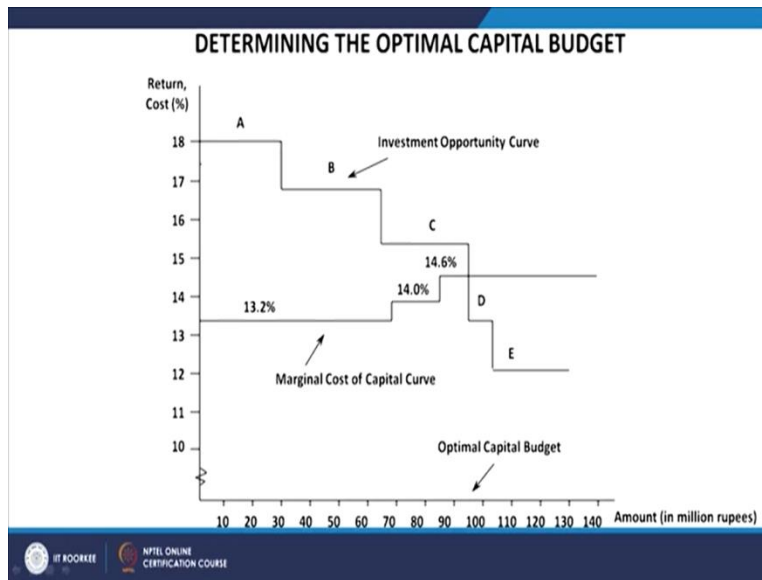
There is an upper limit of the total investment you want to make say in the market with regard to all the different projects. And then that breaking point for the individual sources that how much maximum equity we can invest, how much maximum preference capital we can arrange or maximum say borrowing we can have from the market. So they are the individual breaking points, which we talked about.

So means taking the lead from the marginal cost of capital, here we now are going to learn about the determining the optimal capital budget and the determining the optimal capital budget is basically depends upon or requires two important things. One thing is that the internal rate of return available from one investment proposal or maybe the different investment proposals that is that internal rate of return or maybe the say expected rate of return available from that proposal, right, that a project proposal or the investment opportunity.

Second thing is the required rate of return or in terms of, you can say decided that the in terms cost of capital, so what is the cost of capital which is a required to be invested in that project or into the different series of the projects and what is the expected internal rate of return available from these different projects, right. So a point will come where the internal rate of return available from the one investment opportunity or multiple investment opportunities put together will be equal to that marginal cost of capital.

So that point where these two intersect with each other will be known as the optimal capital budget that depending upon our cost of capital means the required rate of return of the investor and the available or the expected internal rate of return from the different investment proposals. Comparing these two you have to find a point of intersection and that point of intersection will be helping us to know the optimal capital budget of the firm, right.

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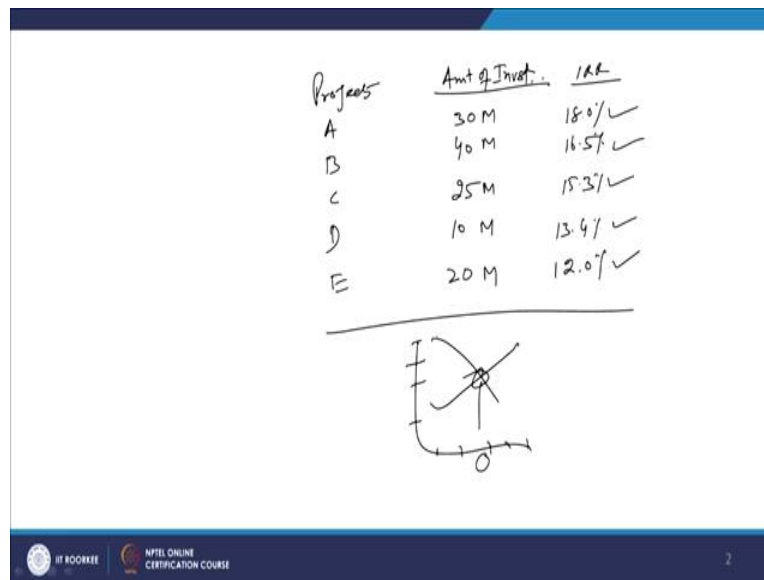
For example, in this case, now what we are talking about here is on the Y axis we have two important things we taken here, that is the return available from any investment proposal and the cost of capital here. Both the things are taken on the Y axis, on the X axis we have taken here as the amount in the possible investment, amount means possible investment to be made in the million rupees right. And these are the two curves, one is the investment opportunity curve and second one is the marginal cost of capital curve.

So what is happening, we are starting with the different say opportunities available and then say we are starting with the opportunity which is giving us the maximum, say possible return or where the internal rate of return of that project is the highest. And then we are starting with the lowest marginal cost of capital because initially the cost of capital will be lower. But the moment you keep on investing more and more in the market, your say marginal cost of capital will also go on increasing.

So on the one side we started with the highest internal rate of return available, in any project. We started with that after that we took the subsequent opportunities, but the internal rate of return was a lesser as compared to the first one. So we started going down and in this case, initially we thought that we found that the cost of capital is lower. But the moment we increased say borrowing from the market or maybe making our own investment, increasing our own investment in the market, our cost started rising.

So investment is coming down over a period of time. Sorry, this return, internal rate of return is coming down over a period of time and the marginal cost of capital is going up over a period of time. And there is one point which is called as a point of intersection and this is the optimal capital budget.

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So how we have worked out this I will take you a little back and I will share you means some figures with you. So for example, we have here that different projects available, these projects are A, B, C, D and E. We have the 5 say investment opportunities which, we have identified on the basis of survey the market. And then we have discussed means found out here the amount of investment required here.

So in A you need to invest minimum 30 million rupees, in this you need to invest minimum requirement is 40 millions. Here, the require, investment requirement is a 25 millions. Here the investment requirement is 10 millions. And here the investment requirement is 20 millions right? And the IRR Internal Rate of Return available from these investment opportunities or these investment proposals is highest is available from the project A that is 18 percent then it is less up to 16.5 percent then it is less up to 15.3 percent and then it is 13.4 percent and then it is 12 percent, right?

So these are the 5 projects, part of which we have worked out the investment requirements, they are in the millions of rupees. This is 30 million, 40 million, 25 million, 10 million 20 million of

rupees. And internal rate of return is 18 percent, 16.5 percent, 15.3 percent, 13.4 percent and 12 percent, right. Now, on the basis of these five possible investment possibilities or investment opportunities, now we have to decide that optimal capital budget and optimal capital budget does not require only one thing that is internal rate of return available from the project.

Because first you have to make investment of this much of the investment in first 30, 40, 25, 10 and 20 right. So then you are going to make this investment this investment has the cost, which we call it as a COC Cost Of the Capital and the internal rate of return must be minimum equal to the marginal cost of capital because that is my required rate of return, right that is my required rate of return.

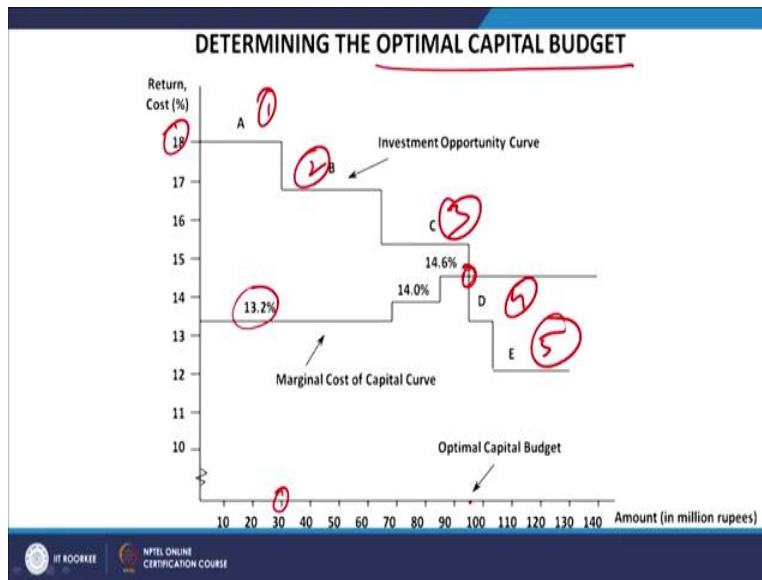
So there will be means the moment you may start making the investment, first you made the investment in the project A, 30 millions we got IRR 18 percent then we made further subsequent investment, 40 millions. Then our IRR available is 16.5 percent then we made further 25 say millions our rate of return is coming down to 15.3 percent because we are starting with the project which is giving us the highest internal rate of return.

Others are giving lesser than the first one. So over a period of say a time or maybe when we are moving from the project A to E, the IRR available in these five proposals or these five opportunities is going to decline. Then you are moving from A to E. So here it is the one component, second thing is when you are making the first investment of 30 millions your cost of capital is comparatively lower, but the moment you start increasing the investment on 30 million first.

Another 40 million is when you invest your own cost of capital is also higher and the cost of the borrowed capital will also be higher, right. Plus when we invest further 25 more millions. Then again the marginal cost of capital will go up. So what is happening, this situation will emerge like this internal rate of return is coming down and the cost of capital is going up.

So it will be a point, which will be known as the point of intersection and this will be known as the say a budget or the optimal capital budget amount taken here will be known as the optimal capital budget and this side we are taking that rate of return and the cost, this is what is explained in the structure which I am a say a discussing here or I was discussing with you before means giving you this information.

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So this is the structure we have worked out here, right. On the Y axis we have taken the return and the cost in the percentage terms, here we have taken the possibly investment to be made and here we are taking the investment opportunities. So the curve has been created by putting these investment opportunities, depending upon the investment requirement, the cost of capital and the say internal rate of return, not even the cost of capital, but the internal rate of return which is available.

So it has been done in that descending order first is the project A. We are put at the top. How much return is available? 18 percent, and how much investment is required, 13 millions, this is investment requirement, this is return available and at this point, because it was our first investment, so we had to only invest 30 million rupees. Our cost of capital, marginal cost of capital was means at this rate, 13.2 percent.

Then we moved to the second opportunity and we went up to the, so we thought that still we can invest more in the market. So then we saw second project B is available here and in the B we can make the furthermore investment of how much, that is of the 40 million rupees.

So total investment this way will become 30 plus 40, 70 millions, then we went to the C, then we went to the D, so it is the 1, this is number 2, this is number 3, this is number 4, this is number 5, right? These are the five say investment opportunities available but the problem here is this is going to give us the highest internal rate of return, when you move from the A to E, 1 to 5 then

the internal rate of return is going to decline and the lowest internal rate of return which is available in this case is that is from the project E and that is the 12 percent, right.

So it means what is happening internal rate of return is going down over a period of time. When we are moving from the first investment opportunity to the fifth investment opportunity whereas when your borrowing needs are going up, your marginal cost is going to increase initially up to some extent up to 70 millions, it was 13.2 percent but when you further increase the investment, it went up, up to 85 millions, it is 14 percent and beyond that say it is going to be 14.6 million.

So there is a point, this is a point of intersection where your internal rate of return available from the different investment opportunities is intersecting with the marginal cost of capital. So it means this is a point of investment here. Maximum investment you can make up to here is of how much, that is of the 95 million rupees by borrowing or arranging funds up to 95 million rupees from the different sources.

Your means that is going to be the upper limit that is going to be the optimal capital budget. If you further increase the investment beyond the 95 million rupees. So what is going to happen, marginal cost of capital is going to increase, or going to remain stable at 14.6 percent but the internal rate of return from that proposal D and E is lesser. And if you look at that rate return is, it is that 13.4 percent which is lesser than 14.6. In this case it is 12 percent it is lesser than 14.6 so what is about to happen, that your IRR is lesser from the project number D and E where the cost of capital is higher.

Marginal cost of capital is higher that is 14.6 percent, so this is not that appropriate investment opportunity or investment proposal. So in this case it is better to stop at this point of 95 million rupees of investment where the cost of capital, marginal cost of capital and the internal rate of return, expected return available from this investment which is going to be made into the three projects. Project A, B and C is going to be equal to each other.

So this is the optimal budget or this is the optimal say investment possibility, which can be explored or can be finally given the shape and possible projects are only three which are most optimum and the investment requirements if you look at here, what are the investment requirements? 30, 40 and 25 so it means total becomes 95 millions. So your optimal capital

budget is 95 millions because after or up to 95 millions of investment, your internal rate of return available is either say equal or little more than the cost of capital.

So maximum you can go up to 95 million rupees of investment depending upon the marginal cost of capital in the market and internal rate of return available for the investment opportunities. So this is true in the case of the project A, B, and C requiring the total investment in the 3 projects that is 95 millions. But if you increase the investment beyond that, your cost will be 14.6 percent and the return from the other 2 projects D and E will be lesser than 14.6 percent, so that will not be considered as the optimal capital budget.

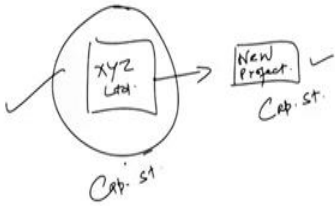
So Optimal capital budget means the decision criteria is the internal rate of return available from the investment opportunity and the marginal cost of capital required say or the marginal cost of capital to be paid on the required amount of investment to be made in the investment proposal or in the investment opportunity. So these two factors are required. So ultimately you are going to compare one thing that is expected rate of return with the required rate of return and required rate of return depends upon the cost of capital.

So it means that point where the expected rate of return is equal to the required rate of return that is the maximum limit of investment can be made and that is known as the optimal capital budget. So with the help of this particular structure, we have been able to explain that how the marginal cost of capital say restricts the investment possibilities. Because sometimes if the internal rate of return available from those investment possibilities is not at least equal to the marginal cost of capital, then there is no point making that investment in the market. So this is how we can decide the optimal capital budgets.

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DIVISIONAL AND PROJECT COST OF CAPITAL

- Using WACC for evaluating investments whose risks are different from those of the overall firm leads to poor decisions. In such cases, the expected return must be compared with the risk-adjusted required return, as calculated by the security market line.
- Multidivisional firms that have divisions characterized by differing risks may calculate separate divisional costs of capital. Two approaches are commonly employed for this purpose:
 - The pure play approach
 - The subjective approach



The diagram illustrates the relationship between a firm and a new project. On the left, a circle represents the firm, labeled 'XYZ Ltd.' with 'Cap. St.' (Capital Structure) written below it. An arrow points from the firm to a box on the right labeled 'New Project', which also has 'Cap. St.' written below it, indicating that the project's capital structure is derived from or related to the firm's capital structure.

Now I will take you to with the next concept, which is again, somewhat important in the say cost of capital process and this is the divisional and the project cost of capital. So, for calculating this divisional and the project cost of capital, the question arises here that for example, there are the 2 entities, right. One entity is the firm, this is the firm which is existing and this firm is called as X, Y, Z Limited.

This is a firm and this firm want to take the new investment proposal and this is the new project, right. This is the new proposal, new project they want to take up right? Now they already when they are in the market they have their own capital structure. The funds are already invested in X,

Y, Z Limited they are into the business already and they already have their own capital structure and when you are going to create this investment proposal or this investment new investment you want to make in the market.

This new investment also is going to have its own capital structure, right. This is also going to have its own capital structure, so it means while deciding the cost of capital, this is the capital structure here and this is again going to have the another capital structure, right. So this is the one existing current capital structure and this is called as the target capital structure. The new capital structure we are going to have here.

So it means what we are going to talk about here is that know how to calculate the cost of capital or the weighted average cost of capital for that new project or for the additional investment or the new investment which we are going to make in the market. Let us see what is written here, using WACC for evaluating investments or using weighted cost of capital for evaluating investments whose risks are different of the overall firm leads to poor decisions.

In such cases, the expected return must be compared with the risk-adjusted required return, as calculated by the security market line, security market line means capital asset pricing model because two entities are going to be different. When you are talking about this particular investment already which we have made it has a different risk complexion, different risk profile. Here we have in the new proposal the risk complexion is different, risk profile is different and first the risk emanates from because it is a new proposal, right.

So when it is a new proposal certainly the it is going to bring more risk as compared to the one which is already tested and tried it is already operating in the market, right. So in this case, the risk factor is more here. So when you are talking about that in the new project the risk factor is more but while calculating the weighted average cost of capital, if you for example, you assign the same weights in the new projects also or in the new projects capital structure also as per the existing weights, as well as the cost of the capital you assign in the same way as we are doing it for the existing operations then that will not be a correct approach.

For the new project, for the new division we have to calculate the weighted average cost of capital by adjusting for the risk factor and the risk adjusted say cost of capital has to be calculated. And for example it is written here that risk adjusted cost of capital or required rate of

return has to be calculated and the one way of doing that is that with the help of the security market line or with the help of CAPM, we whatever the say required rate of return because ultimately that is a cost of equity or the basically the cost of capital and that is going to decide the required rate of return.

So we should not do this mistake that the cost of capital of the existing firm should be applicable or should be applied to the new proposal also because the risk profile being different of the existing firm as compared to the new investment opportunity or possibility. So accordingly the rate of return, required rate of return from the new proposal, new project has to be that risk adjusted and for calculating that we have to or calculating the weighted average cost of capital see if for example, the funds that are coming from two sources, one is the borrowed capital, second is that equity capital.

So for the borrowed capital there is no problem because the interest we are going to pay to the lender that is going to be the cost of borrowing or the cost of the debt. But as per as is the cost of equity is concerned. You cannot use the cost of equity as we are already using for the existing investment proposal. For that the new cost has to be calculated and there, that cost has to be calculated by making use of CAPM.

Where we will calculate the risk adjusted cost of capital for the new equity investment or the risk adjusted a required return. We have to calculate by using the security market line approach or the CAPM method. Second multidivisional firms that have divisions characterized by the different risks may calculate separate divisional cost of capital, separate divisional cost of capital has to be calculated. And for that, two approaches are commonly employed for this purpose.

For every division, you do not apply it that for the existing firm. I am repeatedly telling you that what is the cost of capital for the different so or weighted average cost of capital for the existing firm, if they are going to take up the new investments, it is going to be same for this. Also, this is going to be the foolishness. We cannot afford to do like that, right. We cannot afford to do like that. So it means in this case the, it is a new division new project.

So you have to have the different approach because new project, new division is going to bring the higher amount of the risk as compared to the tested and tried investment process which we are already into. So for the new divisions, for every division we have to calculate that separate

cost of capital or the divisional cost of capital has to be calculated. Two approaches are given here.

One approach is pure-play approach, pure play approach says or the pure play approach requires one important thing here that what we have to do is before calculating the weighted average cost of capital for the new project, we should try to find out, an entity or the company or the project which is already into the market which is say listed in the market which have issued the stock capital, share capital in the market.

It is listed in the market and for which the certain information that is number 1, beta of that company is available, right. Second thing is debt equity ratio of that company is available and debt rating of that company is also available. If something is already say working in the market of the similar kind which we are proposing to create. If similar entities already operating in the market, which we are planning to create as a new entity in in the same field, in the same area or in the same sector.

Then you can emulate that information which is already available with regard to that existing company or existing unit for the new project also. So you can calculate the beta also what is a beta of the existing company or the on basis of the returns of the existing company that you can make use of debt equity ratio of that company can be made use of and debt rating of that company can be made use of.

So pure play requires that we are able to find out an entity which is already working in the market in the same sector, in the same field of the same size and say producing same product or service. Then there is no problem in determining the new capital structure as well as the weighted average cost of capital because all market related information is available with us. But since it does not happen so easily, so if the pure play is not possible, this approach, pure play approach is not possible to be adopted.

In that case, we will have to follow the subjective approach and in the subjective approach, what we have to do is, we have to find out that first what is going to be the capital structure of the new investment opportunity or the new investment proposal, one, this much of the capital will come from the equity, this much will come from the preference capital. this much will come from the debt and this will be the capital structure of the company where the debt equity ratio will be this.

First we have to decide it on the subjective estimates, right and when you talk about the subjective estimates, we can take the help of the financial experts in the market. We can take the help of the say consultants, financial consultants in the market. So first you decide the capital structure of the new project, right. And then you say try to find out that what is the cost of capital with regard to these different three sources, what will be the cost of equity capital, what will be the cost of preference capital? And determining the cost of debt capital is not a difficulty at all right.

So on the normal cost of capital, you can add some premium on the basis of subjective estimates and then risk adjusted cost of capital or the required rate of return can be calculated. So normal for example, the equity capital is where we are anticipating that in the normal course the equity capital is available at 15 percent but since it is a new investment opportunity. So you can add some premium for the risk and you can say that no for the new project, my cost of equity will be 19 percent, so 15 plus 4 percent the premium for the risk we are going to take.

Similarly in case of the preference capital, normally it is 14 percent but I want to add the premium risk premium of 2 percent so for the new project it will be 16 percent and that there is no issue at all. You can easily means take the cost of the borrowing. So for the equity capital and the preference capital subjective estimates can be made use off if the pure play is not possible, if the similar kind of the entities not available in the market, already working in the market.

Then the over and above the expected cost of capital, some premium for the risk can be added and that say the project based, the division based new capital structure as well as the cost of capital can be calculated. But the entire cost will be based upon the subjective estimates and the subjective estimates are done by the financial experts, so you cannot reject them they are largely worth accepting.

So this is how we decided the cost of capital of the division or the new project and if it is the project to be taken up by the existing firm, then in no case the cost of capital of the existing firm has to be applied for calculating the weighted average cost of capital for the new project because the risk profile of the two entities is going to be different, right?

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FLOATATION COSTS

- Floatation or issue costs consist of items like underwriting costs, brokerage expenses, fees of merchant bankers, underpricing cost, and so on.
- One approach to deal with floatation costs is to adjust the WACC to reflect the floatation costs:

$$\text{Revised WACC} = \frac{\text{WACC}}{1 - \text{Floatation costs}}$$

- A better approach is to leave the WACC unchanged but to consider floatation costs as part of the project cost.

200 Million
20 M
220

equity → R.E + Fresh issue
f.c

XYZ Ltd
WACC = 12%
f.c = 6%

Revised WACC = $\frac{12}{(1 - 0.06)} = 12.77\%$

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Now we are going to talk about the next concept and this is a very important concept. This is the flotation cost and in this concept I am going to talk about 2-3 things. Flotation costs first of all you understand what is the flotation costs. When you talk about the sources of the funds, right in the capital structure when you talk about the sources of the funds, we already have known till now a lot of discussion has been done and we say the first source is that equity, right.

And when you talk about the equity, you call it as equity comes from the two sources. First is the retained earnings and second one is the fresh issue of the stock or that shares in the market. Fresh issue of the shares in the market, so this plus this makes the total equity capital, right. Now in

this case retained earnings are coming from within the firm within the organization. So it has to zero flotation costs because we have not to pay any cost to anybody.

These funds are lie in with us, there means in the form of the free reserve and surplus they are available with us. So it means retained earning is free of any kind of the flotation costs. But yes, when it is a question of the fresh issue. Introducing the equity through fresh issue, you have to pay the flotation cost. Here comes the question of the flotation cost. So what is the flotation cost, how adjust the flotation costs while calculating the total cost of capital, this I am going to discuss here in this particular part now right.

So first of all, please read it, what is the flotation cost of capital? Flotation or issue cost consist of items like underwriting costs, brokerage expenses, fees of merchant banker, under-pricing cost and so on. So then you go for the fresh issue in the market before means raising the capital before the capital start coming in to the say companies account, company has to incur so many expenses and these are expenses on account of these different heads and total of this cost, which is on these different heads is called as the flotation cost.

Now we have to adjust and that is only applicable on the fresh issue, not on the retained earnings. Not on the say this, any other kind of internal source of that capital. Now how to adjust for the flotation cost, how to calculate that the flotation cost? So in this case for calculating the flotation costs, we have a number of things to means take care of and for calculating the flotation cost here.

First thing is first method given to us is, it is written here, one approach to deal with the flotation costs is to add just the weighted average cost of capital to reflect the flotation cost. One approach to deal with the flotation costs is to adjust weighted average cost of capital to reflect the flotation costs. So you can adjust it, you can upscale the weighted average cost of capital and the revised cost of capital can be calculated.

So how you can use this formula for calculating the revised weighted average cost of capital by adjusting the flotation costs, for example we assume here and we learn how to do that. For example here the let us say there is a company XYZ Limited. Again, it is a company. So, their normal weighted average cost of capital is say a 12 percent, we assume that weighted average cost of capital for the company is 12 percent but they want to raise additional capital for making

a further investment or maybe for any, investment proposal, they want to raise further capital from the market.

So equity capital from the market and in their case, the flotation cost is expected to be 6 percent right. So weighted average cost of capital is for the existing project which is already going on that investment, that business, that production process, that opportunities already going on and the weighted average cost of capital is 12 percent. Now for the expansion of their activities, they want to further say expand and want to create the new facility or the one more division, one more plant. So they want to borrow farther capital from the market.

And partly it is coming in the form of the equity capital by way of the fresh issue. So they have calculated that since the weighted average cost of capital is the 12 percent for the company coming from the different, capital coming from the different sources. But here the flotation costs will be 6 percent, so normally the annual cost of the funds which will be paying will be 12 percent but flotation costs is 6 percent, so as per the first approach, which is written here.

What we are going to say here, we have to calculate the revised WACC weighted average cost of capital. And in this case, the revised can be calculated as how much weighted average cost of capital the formula says what, weighted average cost of capital divided by 1 minus flotation costs. So it is weighted average cost of capital, how much? 12 percent, 1 minus flotation costs is how much? This is going to be 0.06 percent means so this is going to be how much?

If you solve this, this is going to be 12.77 percent, so the first approach says, the first approach requires or first approach says here, one approach to deal with the flotation costs is to adjust the weighted average cost of capital to reflect the flotation costs. And when you are adjusting it, it means your in the say before adjusting the flotation cost you had estimated your weighted average cost of capital, with regard to all the sources of the funds is going to be 12 percent.

But when you are adjusting the 6 percent as the flotation cost, it is becoming 12.77 percent but this approach is not correct approach, this approach is not correct approach because when you are using this rate, 12.77 percent it means you are assuming that the flotation costs of 6 percent is the annual cost, this is not the annual cost, this is only one time cost. So once it is not annual cost, it is the one time cost.

It means in this case what is going to be the justification of adding into the weighted average cost of capital and means up scaling the total weighted average cost of capital from the 12 percent to 12.77 percent that is not justified because one cost is the one time cost. Second is the annual cost, recurring cost, right. So two costs being of different types cannot be put together, cannot be merged cannot be mixed.

So in this case, but we have to do is we have to use some different approach and for using this different approach, but we have to do is second approach. A better approach is to leave the weighted average cost of capital unchanged. But to consider flotation costs as part of that project cost. This is the better approach. That is one approach is that is means the second approach is, this is the better approach is to leave the weighted average cost of capital unchanged but to consider the flotation costs as a part of the project cost.

So how to treat it, for example, we are assuming here that your project investment requirement we had calculated is 200 million rupees, right, 200 million rupees, but we understand the flotation costs is going to be 20 million rupees. So why do not you do something that your total project cost, why do not you say it will be 220 millions, so that after paying this 20 millions as the flotation costs, we are still left with some amount and this 200 million is available with us and here all the conditions are met that this is the 20 million is a onetime cost, so we are only, it is a only one time cash outflow.

So when you are showing the cash out flow of the project, it will not be 200, it will be 220 millions. Finally while comparing the cash outflow with the inflows, you have to earn that much of the inflows or that much of the returns from the project, which are say meeting the, the project basic investment also plus the flotation cost also. So this is a better approach and then means with the help of this approach we can calculate this that yes, it is all best possible.

It is always better to say make use of it and to increase the overall cost of the project rather than say up scaling the say the weighted average cost of capital. So how we can do it, let us see there is a problem here, flotation costs.

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Floatation cost

Problem:

The cost of equity of XYZ Ltd., an all equity firm is 18 percent. The company is considering a Rs 200 million expansion project which will be funded by selling additional equity. Based on the advice of merchant banker, XYZ Ltd. Believes that its floatation costs will be 8 percent of the amount issued. This means the net proceeds will only be 92 percent of the amount of equity raised.

Required:

What will be the cost of expansion project for XYZ Ltd. considering the floatation cost?

 NTEL ONLINE CERTIFICATION COURSE 26

The problem we have identified we have done here, one is, the problem is the cost of capital or the cost of equity of XYZ Limited and all equity firm is 18 percent. The cost of equity of XYZ Limited and all equity firms is 18 percent. The company is considering a rupees 200 million expansion project, which will be funded by selling additional equity.

Based on the advice of the merchant banker XYZ Limited believes that its flotation cost will be 8 percent of the amount issued. It will be the flotation cost will be the 8 percent of the amount issued. This means the net proceeds will only be 92 percent of the amount of the equity raised, right. So required, what will be the cost of expansion of the project for XYZ Limited considering the flotation cost.

It means when I am saying we have to follow the second approach and that second approach is the, what we have to follow this approach and this approach is requiring a better approach is to leave the weighted average cost of capital unchanged but to consider the flotation cost as a part of the project cost. So it means it is given in the problem also that the total capital, the company want to raise is 200 millions.

But that financial expert has advised that your flotation cost will be 8 percent, it means if you raise 200 millions only and pay 8 percent as the flotation costs, it means net proceeds available with this will be only 92 percent because out of 200 millions, 8 percent will be paid as a politician cost. So it will create a problem because we needed 200 millions, we need 200 million.

So in that case, what we have to do is, we have to jack up the project cost. We have to jack up the upscale the project cost. So how we can do that, let us do it and try to understand how we can say upscale the project cost for this purpose.

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$$\begin{aligned} \text{₹ } 200 \text{ M} &= (1 - 0.08) \times \text{Amt to be raised} \\ \text{Amt to be raised} &= \frac{\text{₹ } 200 \text{ M}}{(1 - 0.08)} = \text{₹ } 217.39 \text{ Million} \\ \text{₹ } 200 + 17.39 &= \text{₹ } 217.39 \text{ M} \end{aligned}$$

For example, how much investment is required to be made? This investment that required to made this rupees 200 million, right. So if you want to have 200 million available with us after paying the flotation costs. So how much of the amount has to be raised? The amount to be raised should be something that should be equal to 1 minus a 0.8 percent means that is the 8 percent, 0.08 into amount to be raised into amount to be raised, right.

So now the amount to be raised so that finally after being the flotation costs, we are left with the 200 million with us, this if you calculate this will become rupees 200 million divided by 1 minus 8 percent or 0.08 if you calculate this, this amount works out as rupees 217.39 millions, this is the amount, 217 and 39 millions. So it means it is very clear that 8 percent of the flotation cost for raising 200 million rupees of investment works out as 17.39 million rupees.

So it is better to increase the funds to be raised means the project cost. It will not be rupees 200 but it will be 200 plus the flotation costs which we have already calculated 39, so this will be 217.39 millions and this cost we have to raise from the market means this much of the funds we have to raise from the market because which is, this is going to be the ultimate project cost. So

the cash outflow we will not treat as 200 millions only cash outflow will be 217.39 millions and this will be known as the total project cost.

So, this is the correct method rather than up scaling the weighted average cost of capital and creating a problem of mixing up the two different types of the costs. One is the annual cost another is the one time cost. So there is going to be that say that entire process is going to be principally incorrect. In this case we are going to jack up the overall project cost. So it means for making the investment of 200 million rupees and if the entire funding is coming, coming through the equity financing and equity financing has the flotation cost.

So how much is the flotation cost? Financial expert has advised, it will be 8 percent, so if it is 8 percent, why do not you add up that 8 percent into 200 million, so let us see how much it works out and this works out as 217.3 millions. So if you raise this much of amount from the market, considering it as a total project cost, then finally 200 millions will be easily available with us for meeting the project cost.

And 17.39 millions can be used as the flotation costs. So there will not be any kind of the problem. So here means this is the better way of calculating and adjusting for the flotation cost. But here, the question further arises that we have treated in the second method, we have treated only that the entire funding of 200 millions is coming from equity capital, is coming from equity capital. But in the practical sense, entire capital never comes from the equity capital it comes from different sources.

It comes from the equity capital, it comes from the in the equity capital also there are the two sources, fresh issue, second is that retained earnings. Second is the preference capital. Third one is the debt capital. So in that case you have to calculate the weighted average flotation cost. In that case you have to calculate the weighted average flotation cost because flotation cost will be different for the equity capital, for the preference capital for the debt capital.

And finally we should try to find out that what is the flotation cost, how to adjust it and means applying it to the different sources from where the funds are coming we have to calculate the weighted average flotation cost. And then accordingly, finally adjust there that cost to that total cost of the project. And finally we will have to make available that much of amount for the

project for meeting the project cost, which is the actual requirement plus raise the additional amount as the flotation cost.

So both the, say expenses or heads of expenses have the sufficient funds available. So how to calculate the weighted average flotation cost and some other related concepts with regard to the means concluding say remarks with regard to this cost of capital process. I will discuss with you in the next class for the moment I will stop it here and now we have only one more class in that we will conclude the total discussion on the cost of capital. After that after that, I will take you to the next concept and that is the capital structure. Till then thank you very much.