Mergers, Acquisitions and Corporate Restructuring
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Module No # 04
Lecture No # 17
Valuation in M and A: Cash Flow Based Approach-5 (Free Cash Flow Models) (Contd.)

Hello friends welcome to one more session on mergers acquisition corporate restructuring we are dealing with the valuation of companies in this recent classes. In this class also will continue with valuation of company using free cash flow approach. And so in this class we are going to talk about again the free cash for the firm free cash flow to the equity.

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And how to value a firm using, free cash flow for the foreign equity and we will also have multiple exercises on valuation using free cash flow as well as estimation of cash flow. So the focus of this class is to solve small numerical in the valuation of company using free cash flow.

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So these are the keywords like we will talk about valuation free cash flow the for free cash flow liquidity. We will talk about multi stress model, of growth in free cash flow we will talk about value of the firm value of equity. We will also touch upon cost of equity and cost of capital which are discussed separately one of the session on estimation of cost of capital. Because you will be using cost of capital for discounting the future cash flows will be also having exercise which will also cover the cost of capital calculation.

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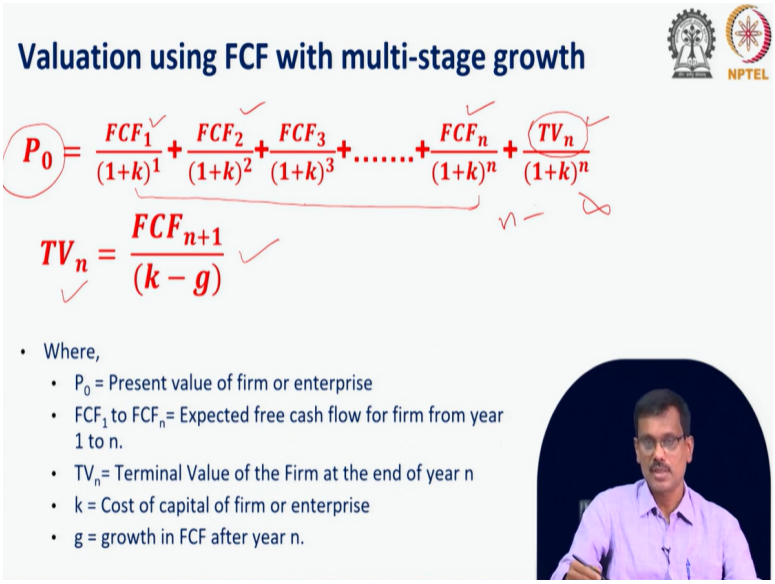

So to, recapitulate the value of a particular company if you today will talk about the price the value today see nothing but the present value of free cash flow that is FCF 1 to FCF infinite. We already discussed what is the FCF that; is nothing but the net operating profit after tax less any Capex then working capital changes also we add back the precision to find out the free cash flow for a firm.

And, in another derivation this model is suppose what happens a company can have growth in the free cash flow may be little higher in initial years and then it may stabilize. So the company can have multi-stage growth in free cash flow so we can have multi stress growth model. Like we had in our dividend discounting model we discussed that yes they can multi-stage growth model in dividend.

So, dividend will be some little higher in the initial years and subsequently it may stabilize similarly the free cash flow can be possibly higher in some in initial years and subsequently it may grow at a constant rate. See that is the case then what we do we find out the free cash flow like 1, 2 up to n 1 to n is nothing but the high growth period after that the freak aspect is going to grow at, a particular stand rate.

So in that case what we do we get the value of the free cash flow from n till infinity in terms of present volume that we term as terminal value at the end of nth year. So this is the terminal value formula so what you do? We find out the free cash flow for the n plus one year and divide by cost minus cost of capital minus growth. So that gives us the terminal value at the end, the end of nth here and that terminal value what we do?

We discount further by n number of years that we bring it to today so essentially we find out the free cash flow for the super for the high growth period separately individually discount them. And also find the terminal values separately at the end of nth year and then discounted to bring it to today. And the addition of these 2 components, will give you the value of the company today that is what we do multi stage model.

We will explain this particle concept with one example subsequently so coming to the as you discussed in this class we are going to talk more about the exercises.

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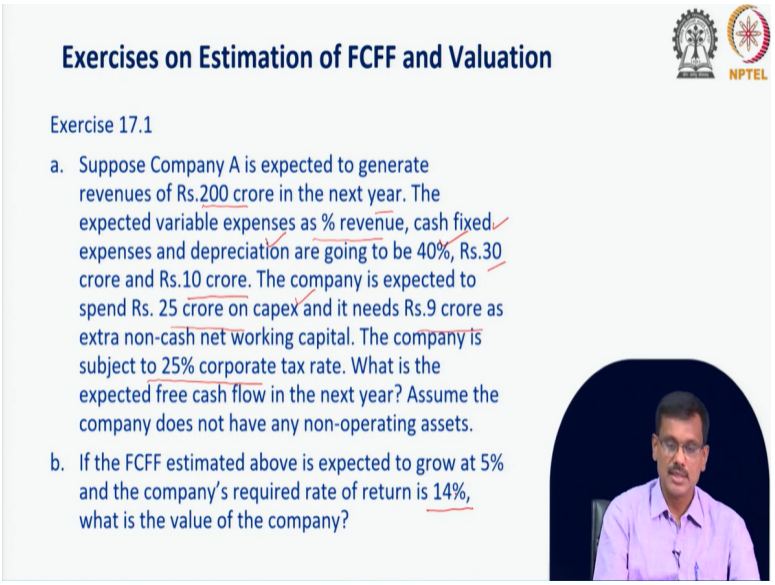

So we will solve small exercises and so we have an exercise here where suppose there is a company A is there which is expected to generate revenue of rupees, let us say 200 crore and the next year. And it will have variable expenses as a percentage revenue of 40% it is expected to have a cash fixed cost of rupees 30 crores it also expected to have a depreciation of rupees 10 crore.

So these are expected in the next year and the company is also expected to spend 25 crore on Capex capital expenditure and company also needs another 9 crore rupees, for extra working capital non cash networking capital and the company subject to 25% corporate tax rate. So in that case first we will find out what is the expected free cash flow in the next year. And we assume that there are no other non-operating assets and is the only asset which give some free cash flow and that will be used for value in the company in subsequent points.

So first of all, we will find out the free cash flow then second once we have the free cash flow then we will find the value of the company and assuming the free cash flow will grow at 5% and the cost of capital or required rate of return for this company is 14%.

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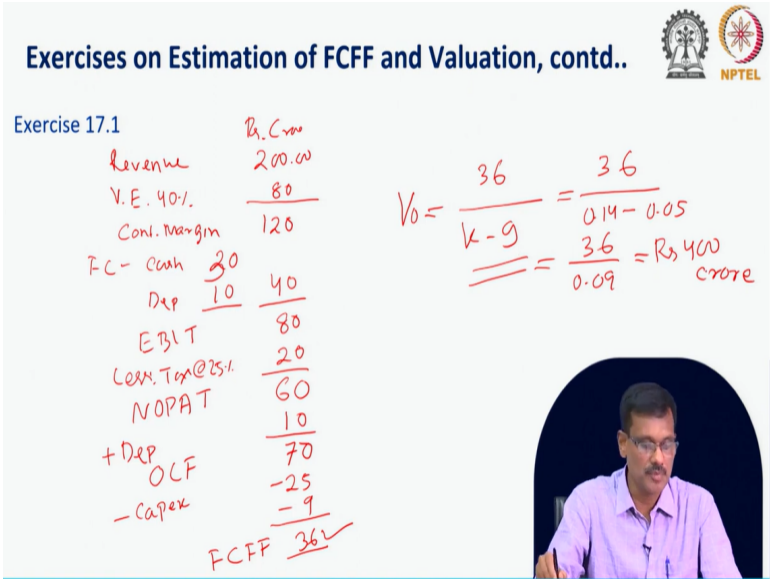

In that case but the value of the company so we will first what will do we will first find out the free cash flow for next year. So in that, case we will take the values from here so next what we do? So what we have is that our revenue is given us we are figures of rupees crore so revenue is 200. T=Then we go back and our variable expenses is 40% of revenue so variable expenses p e I am writing short form is 40% of revenue that comes to 80 crore.

So in that case and we know revenue minus variable expenses gives us, contribution margin. So that comes to 120 crore then we have left cash fixed expenses that is known that is 30 crore and depression 10 crore so what we remove? We remove the fixed cost cash component is 20 crore cash component is 30 crore and depreciation is 10 crore so total fixed cost comes to 30 + 10 that comes to 40 crore.

So 1, 8, 20 - 40 that is 80 crore is my earnings, before interest and tax then once we multiply tax with that we will take out take tax out of that. So less tax so tax is given as 25% so tax at 25% gives us 20 so 60 crore is the not operating profit after tax otherwise no part. So no part is a 60 crore once you have no park then we can go up next is we can find the free cash flow. So then what we do as we know we will add back, depreciation that is 10 crore so 70 crore is the operating cash flow without taking into consideration any change in the

Working capital then after the operating cost per 70 we have to take out capex of as we know the Capex is going to be 25 crore. So take out the 25 crore capex and also we need another 9 crore as investment in working capital so take 9 out. So 70 - 25 - 9 that, gives us 36 crore is the free cash flow for the firm. So that is what the first bit that we wanted it says that as what

is the free cash flow so we solved it we found out the 36 crore is the free cash flow further company for next year.

The next is what you asking what you have done that if the free cash flow is going to grow at 5% from next year onward subsequent year and the, required rate of return was the cost of capital is 14% what the value of the company. So very simple the value of the company is in this case we have a perpetuity this is the next year's cash flow so what you will do? So 36 pre-castro next year divided by k - g so 36 that is cost of capital is given as 14% minus the growth is given as 5%.

So - 0.05 so that gives us 36 divided by 0.09 so that gives us rupees 400 crore is the value of the company. So that is what we do so we estimate the free cash flow then we use the perpetuity to the growth model for evaluation and we found out rupees 400 plus the value of the enterprise or value of the company.

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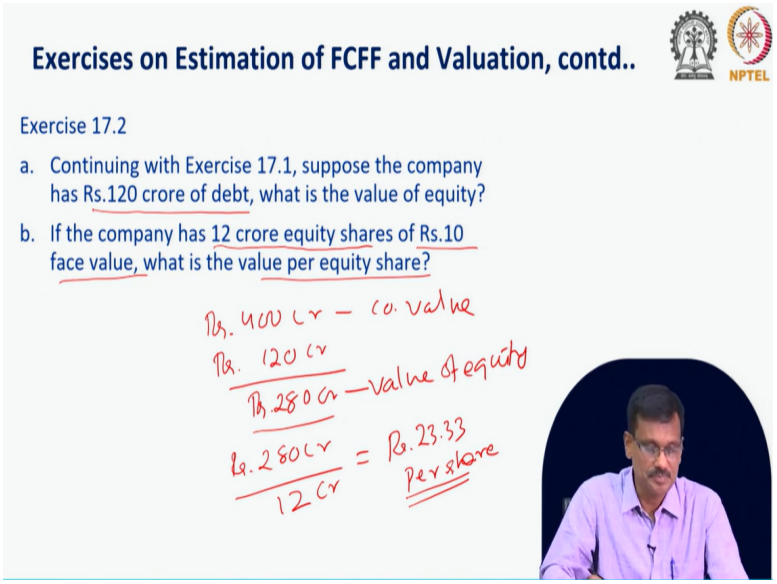

Then suppose containing the previous exercise 17.1 suppose the company has 120 crore update what the value of equity? No problem we already got the value of the company as rupees 400 crore. So 400 crore is the value of the company or enterprise value we take 120 crore date out from there so we have got rupees 280 crore is the value of equity. So value of company minus value of debt gives us value of equity.

And if this equity the company has 12 crore equity, shares of rupees 10 phase value what the value per equity share. So this 2 piece 10 rupee face value has no meaning for us for this calculation what we need to do is that? Whatever value we got rupees 280 crore we divided by

2L crore shares so that gives us rupees 23.33 is the power share value per share. So in this case we found the value of equity or development number of say that gives us, the value per share. So we will continue with this exercise with some other variety for example continue this particular exercise.

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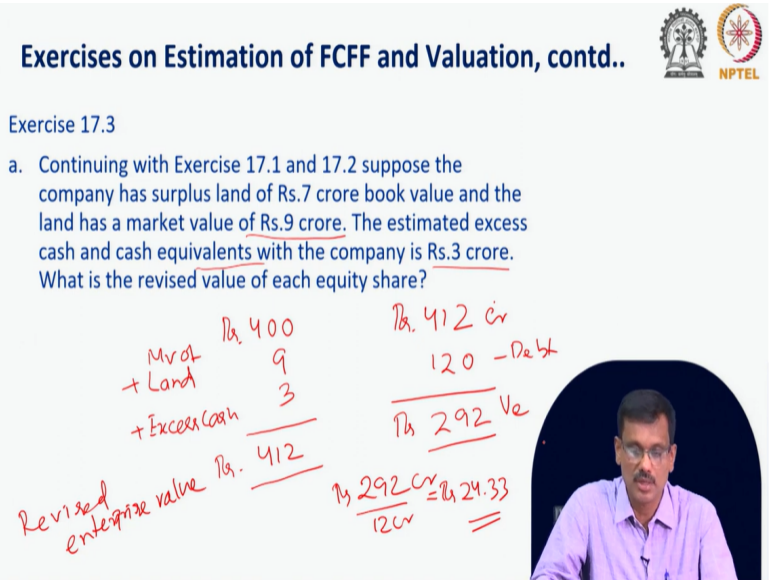

Next is that continuous with previous exercises suppose the company has a surplus land of rupees 7 crore book value and the market value of the land is 9 crore. And the company has excess cash and cash equivalent of rupees 3 crore we discussed in the, previous session that. Whatever value that you have got is from the value of the operating assets of the company. If the company has some other assets and the cash flow from those assets have not been factored in the free cash flow estimation then you have to value those assets separately.

So the company has a surplus land and the land is as per the books of account 7 crore but the market value, is 9 crore. Similarly the company has got certain excess cash that means it has got cash more than what is required. So the excess gas and the value of the land in terms of market value has to be added to the value of the firm that will be a re-estimated the value as the value of the company as well as value of the equity.

So what we will do here we have already found out 400 crore without, considering these two non-operating assets so what we do now? We are to this rupees for we already estimate rupees 400 crore and what we do we add land value of land market value of land 9 crore and we add also the excess cash that company has. We touched upon these particular concepts in the previous session in session number 16.

So now my value of the company the enterprise were re-estimated, revised enterprise value of this company is rupees 412 crore. Now from rupees 400 12 crore the company we already discussed the company has a date of 120 crore so we remove 120 crore date. So that gives us rupees 292 as the value of equity. And once your rupees value of 290 crore so 290 crore and the company has 12 crore shares.

So 292 crore rupees divided by, 12 crore share that gives us rupees 24.33 value per share so without considering the non-operating assets of the company the value of share was 23.3 with considering it comes to around rupees 24.33 that is where the valuation of this particular equity that we did. So we will go ahead with some more exercises on free cash flow estimation or evaluation of equity and subsequent, exercises problems

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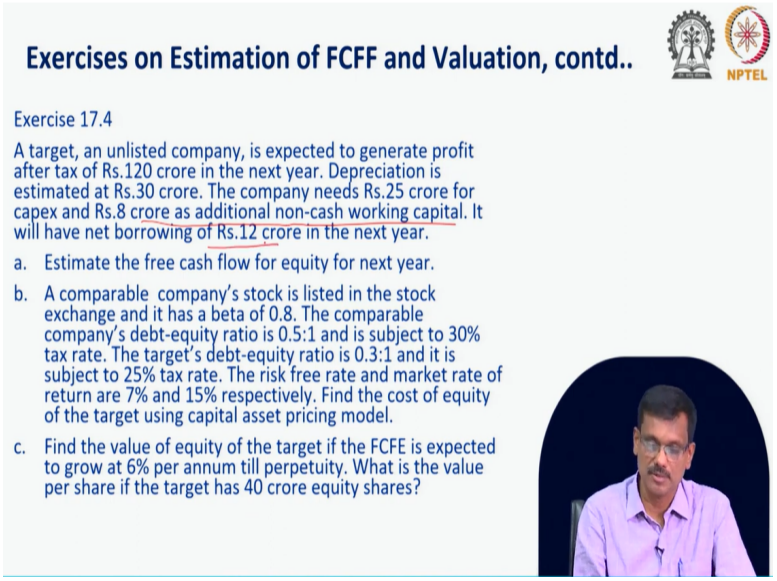

So we have one more exercise on this that is we have a target which is an unlisted company which is expected to generate a profit after tax of 120 crore in the next year. And company is going to have depreciation of 30 crore and company also needs 25 crore in Capex and 8 crore in the form of additional non-cash working capital and it will have a 12 crore net borrowing in the next, year.

Net borrowing is nothing but the extra boring minus any repayment so first we have to find out the free cash flow of the equity.

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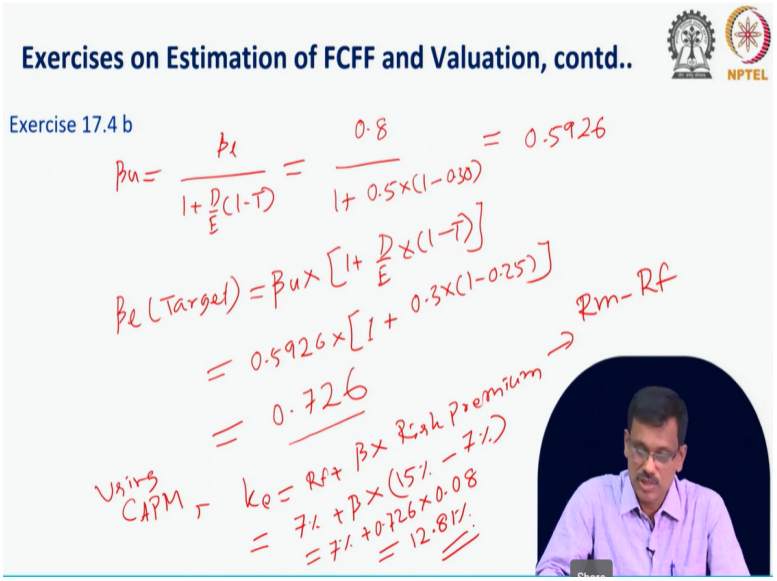

So coming to that free cash flow equity we FCFE that we are going to calculate where figures in rupees crore upper profit after tax is given as 120 crore we add back depreciation so that is 30 crore. So that gives us 150 then we have expansion requirement, 25 crore of Capex and 8 crore of non-cash working capital so Capex 25 delta networking capital is eight so total 33 crore is growth for growth in terms Capex and networking capital.

So we have got one 7 crore left from the cash flow generated then we are also going to have net borrowing. So net borrowing is a positive so it is an extra cash flow for the company that, comes to 12 crore. So 129 crore is the free cash flow for equity so this is our net borrowing we are on that date we adds 129 crore that is the first one and second is asking what is it is asked that.

We will do the valuation of the company using free cash flow of equity but we need cost of equity calculation for this so what happened? There is a company this company is unlisted so we will go for a, listed company and given that nothing is given. Then we will be using capital asset pricing model for finding the cost of equity for finding out the cost of equity using CAPM or capital asset pricing model we need beta when its respirator return we need risk premium.

So in that case what; happened this company only states we do not have any beta for this particular stock. So we have a comparable, company similar company whose stock is listed and the beta is 0. 8 and the company has that company has a dedicated to 0.5 piece to one and we have their components of 30% tax rates what you do here? We will be now using lever

non-livered beta formula to find out the beta of this particular stock that is x the proxy beta for the target company.

So first what you do we will find the, only word beta from the labor beta of the comparable company. Once you have the unlimited of this company then we can find liver beta of this company. So what you do here so let us do that so only word beta formula is beta lever divided by one plus dead by equity ratio into 1 – t. So in our example the beta is 0. 8 for the comparable company and the comparable company has a date liquid ratio of, 0. 5 and the company comparable company subject to 30% tax rate.

So you can see here 0.5 distribution 30% tax rate so with this we find out the only word beta of this particular stock that comes to so if you divide this 10.8 by this one that comes to 0.5926. Now this only version now we have to find out the beta lever for the target using, the same type of formula so beta lever nothing but beta on lever into one plus dead by equity ratio of the target into 1 - tax rate applicable for the target.

So our only word beta you already got 0.5926 into 1 plus the date reduction of this particular company is 0.3 is to one and the company subject 25% tax rate. So we will be now multiplying 0.3 into 1 - 0.25. So this gives us the lever data for the target company so that comes to 0.726. So in summary we could find out the beta of this only state stock as a proxy by taking the help of the lever beta of the another listed company is a comparable company. We have discussed that in some the cost of capital calculation system.

So our second job is done 0.726 then using capital, asset pricing model we can find out the cost of equity of this company. So the cost of equity of this company is RF + beta into risk premium so we already got the beta. So let us look at the respirator return so this company has 7% the economy has a 7% risk creator return so 7% plus beta into risk premium. Risk premium can be directly given indirect, not given then we can take market return minus risk free rate of return.

So mark return is given as fifteen percent and risk free is given a 7% that is nothing but 8% is premium so that gives a 7% + beta. So 7% + beta of 0.726 into 0.08 or 8% that gives us 12.81% as the cost of, equity so we need this cost of equity because we have to value the firm with discounting free cash for equity. So once you have two well point 81% cost of equid we

can go the next bit but the next bit that is saying if FCFF is expected to grow at 6% per annum with a perpetuity then what is the value of share?

That is the target has 40 crore equity shares so the FCFE is going, to grow at 6% so now we have 24.3 crore as the FCFE and 12.81% is the growth sorry cost of capital and 5% going to grow. So we already have FCFE of next year so you do not have to multiply the growth to find out the FCFE.

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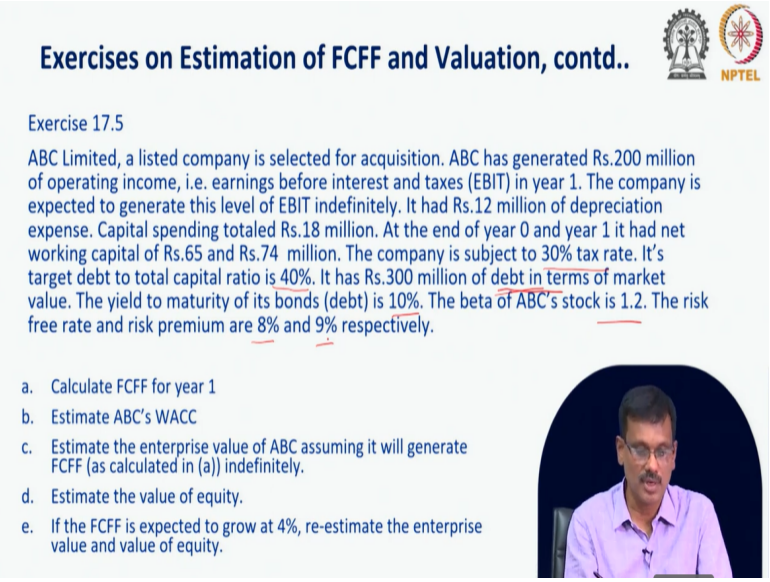

So next year FCFE is 129 and 129 divided by cost of capital so what we did? FCFE 1 divided by k e - g so, 129 divided by that is estimated free cash flow for the next year divided by cost of equity you already got 12.8981% and the growth was given us 6%. So 12.1281% means 0.1261- 0.06 so that gives us rupees around 1895 crore this is the value of equity and the company, has 40 crore shares so value of per share is say this value of equity.

So value per share comes to 1895 crore so rupees 1895 crore divided by 40 crore number of shares that gives us rupees 47.37 that is the value of share. So in this case what we did we estimate the free cash flow liquidity we also found out the cost of equity by using liver non-lived beta formula and then we, found out the value per share. So we will have one more problem to solve in this class that is we have a company ABC limited which is listed body selective acquisition.

And ABC has generated 200 million operating income in year one and it is going to grow remain like that does not go to grow it is going to remain same like for indefinitely there is no

zero growth. It has got some other item like, depression 12 million then capital spending is expected 18 million. And in the year zero in the previous year it had a capital networking capital 65.

Now in this year they have 74 million network capital and this company subject 30% tax rate and its debt to total capital is 40% that means the equity is 60% and debt is 40% it has 300 million, update in terms of market value. And the yield to maturity is 10% for this bond that is the company's bond and this beta of this particular ABC company stock is 1.2 and we have a risk created between 8% and this premium 9%.

So with the help of this information first we will find out the free cash flow for the fur then we will go to the next bit.

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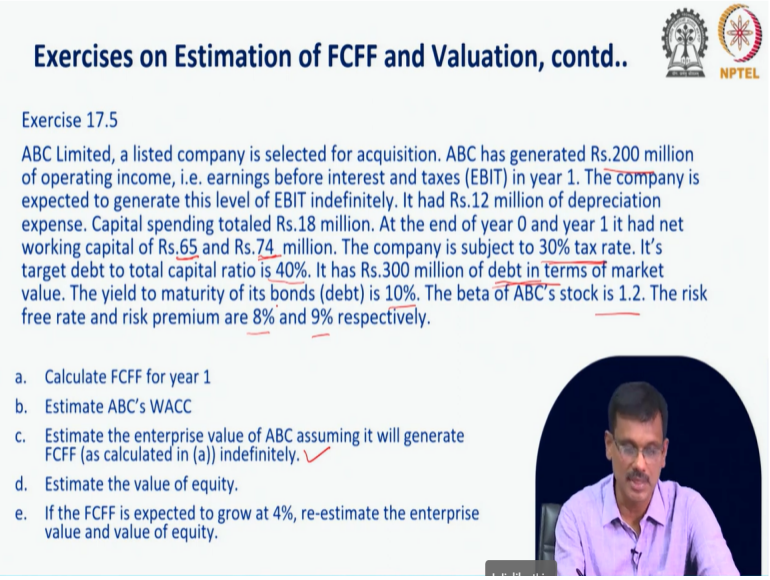

So coming to the, free cash flow for the fund we start with the EBIT we have in rupees million this figures and rupees million. So EBIT is 200 million then less tax that is as tax is at the rate of 25 or 30% not 25 to 30% so 30% comes to 60. So this is nothing but net operating profit after tax otherwise known as no part that comes to 140. Then we add back depreciation of, 12 is given that gives us operating cash flow without adjusting for change in working capital.

Then we need 18 minute capital spending and we also have a networking capital 65 and 74 so less for the growth we need Capex of 18 million. And networking capital we need the extra working capital that is delta that is delta and NWC as we saw here. We in this year 75, 74 million in the previous is 65 that means 65 million already there we need 74 then extra working capital is 74 - 65 that comes to 9 million.

So 27 million total goes towards expansion and so we are left with 125 million so this is nothing but the free cash flow for the firm for this particular year one which is not going to grow that is as per that. Then for that finding, the valuation here we need to have the valid average cost of capital for this particular company so for that we need cost update and cost of equity. So cost of date is given 10% that is yield to maturity that is taken as pre-tax cost updates.

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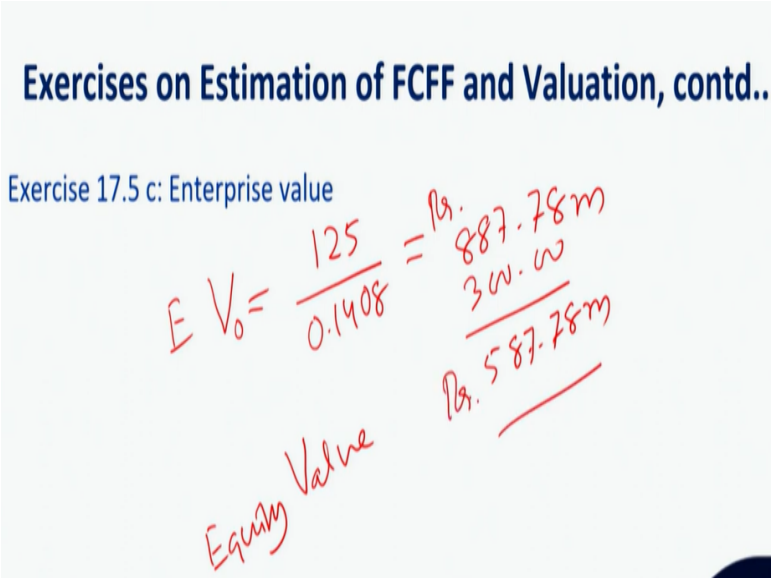

So the pre-tax cost of date in this case is 10% which is nothing but YTM the post-tax will be how much then pre-tax into 1- t so 1- t 1 – t. So t is nothing but 30% so 0. 30 so cost of date post tax is 7% and cost of equity it is given that relevant information is stock of beta is given risk premium is given risk free is given that means impliedly we are going to use capital asset pricing model which is nothing but Rf + beta into risk premium.

So Rf is 8% or x premium 9% so 8% + beta is given as 1.20 into 9% is premium so 8% +1.20 into 9 comes to 10.80%. So that gives us 18.80% cost of equity and we know the date weight of date is given as 40% and the pre in the problem then weight of equity will be 100 - 40 that comes, to 60%. So we have weight update weight of equity we have cost update cost of equity.

With that we can find out weighted average cost of capital that is work nothing but weight of debt into cost update post tax plus weight of equity into cost of equity. So that gives us weight of debt is 0.40 40% into cost of that is 7% + weight of equity is 60% 0.60 into cost of equity is 18.80% so that gives us 2.8% + 11.28%. So that gives us 14.08% is the whatever average cost

of capital so once you have the cost of capital 14.08% the next bit is to find out the value of the company assuming that free cash not, going to grow.

So in that case the value of the company will be value of the enterprise value now enterprise value is nothing but at the EV zero. The free cash flow is 125 divided by the cost of capital that is the purpose it is a purpose nothing but cash flow divided by discounting factor so discounting factor is 14.08% so 0. 1408. So, that gives us 887.78 that is enterprise value and the company has to 300 million of debt.

So in that case value of equity will be enterprise value we calculated previously is 87.7 million less date as given you can see check cross check yes it has 300 million updates. So remove 300 million dead so that value of equity or equity value is nothing, but 587.78 million in rupees that is equity value.

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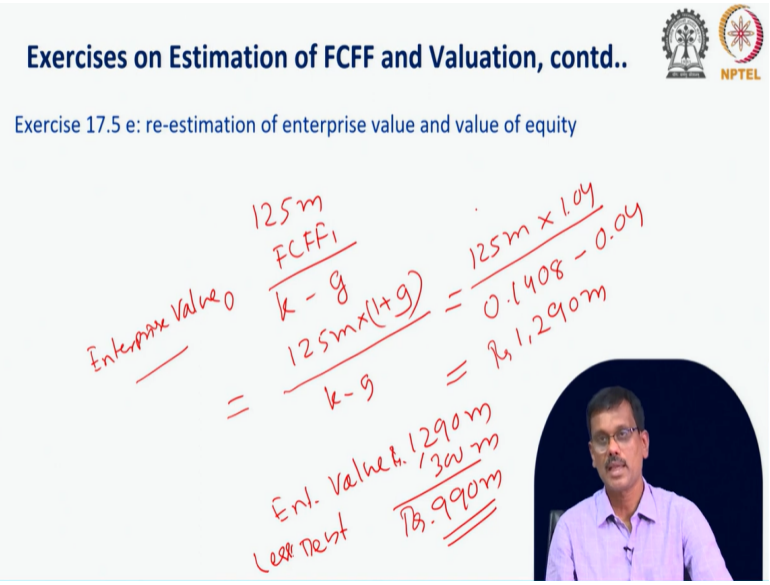

So and then using that it says then what is the next thing is asking is that? If the free cash flow is going to grow at 4% per annum re-estimate the enterprise value. So what you assumed earlier that precast will not growing is going for next we are assuming 4% growth. So that is what will happen we, have already got 125 million so 125 million is the free cash flow this year.

So for the with growth what we do you the enterprise value will be entered value today you can say 0 is nothing but free cash flow for the firm next year divide by cost of capital minus growth. So free cash flow for the firm next year is going to how much 125 million into 1 + g

and then k – g. So 125 million into, 1 + g is 4% gross 1.04 divided by 0. 1408 is our cost of capital minus 0.04 is the growth.

So that gives us around 1290 million is the value of the enterprise and from enterprise value of 1290 million if you take date out that is 300 million. So that gives us rupees 990 million is the value of equity so without, growth the value of equity was 587. 78 with growth the value of equity is rupees 990 million.

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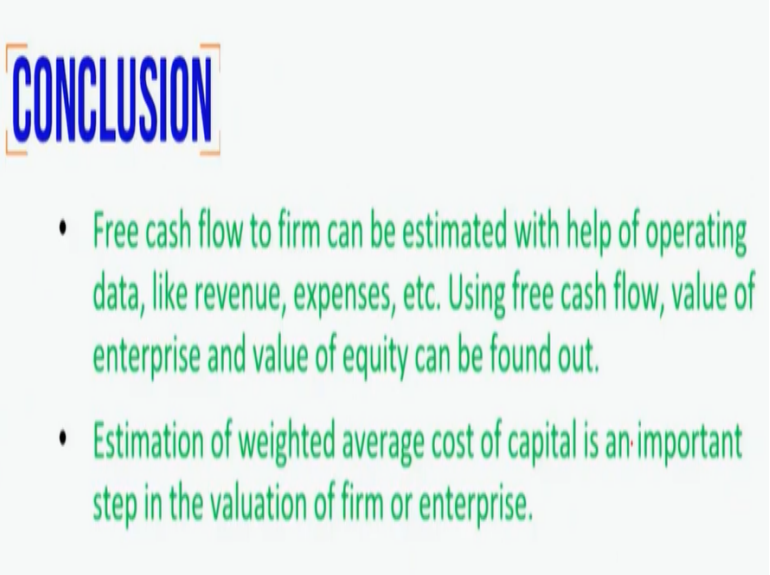

So what we did discuss in this session we estimated the free cash flow in one example we using free cash flow for the firm we found out the value of the firm and using free cash to frequency we found out the value of equity. We also examined the how to the valuation without growth in cash flow we also saw how, to value the find the value of the firm or equity with growth in the cash flows.

Obviously with growth the cash flow with growth in gas flow the value of equity or value of firm is going to be higher than company which without any growth for that matter. And we also saw that the weighted average cost of capital estimation is one important parameter in the estimation of value of any company for that, matter. So we will continue the evaluation session in subsequent sessions and the valuation concepts and also next sessions will try to look at because the merger accusation involves synergy.

So for synergy companies do acquire another company and can we estimate the value of the synergy that will be visiting in the subsequent session. So I hope we had a good learning time and thank you for your time.