Mergers, Acquisitions and Corporate Restructuring
Prof. Chandra Shekar Mishra
Vinod Gupta School of Management
Indian Institute of Technology – Kharagpur

Module No # 04
Lecture No # 18
Valuation in M and A: Valuation of Synergies - 1

Hello friends welcome to one more session on mergers accusation corporate structuring in this session we will be talking about valuation.

(Refer Slide Time: 00:35)

In the previous sessions we have discussed about valuation from different method using different methods specifically using cash flow approach. In that we talked about multi-stage growth single normal growth zero growth model and we discussed about cash, flow using dividend discount model and free cash flow approach. Or valuation as such there can be several methods of evaluation and there is no end to that.

Particularly in the context of equity there are several methods of violation of equity shares and also violation of the enter enterprise in the context of margin acquisition we focus more on the valuation of company. Then for the purpose of, transaction like exchange of share or give any consideration we have to also find out the value of equity share. So that the acquiring; company can pay the price to the target company.

In one of the important reason for merger is that post-merger there will be synergies. Synergies means possibly they will be able to do same work with less effort or the same effort they will be able to do more work. So, standalone company will be able to together are able to achieve x rupees of revenue possibly when they combine together and become one company. Because of complementary of operations because; of sharing of knowledge sharing of skills because economies of scale and scope.

It is possible that there will be having more revenue or the growth in revenue can be higher compared to pre-merger period. Similarly there could also be lot of reduction in the cost so that is this reason why the M and A is justified by certain most of the companies actually so in that case one must know what the value of this energy. Then only we can see whether you go for the accusation or not and by valuing this energy one can say how much extra the company can create for these stakeholders.

And accordingly that much, extra or something little less than that can be offered as a premium over the existing value to the target company so that is why this synergy valuation is very important. So in this particular session will talks about synergies we will talk about 2 types of major 2 types energy are operating synergy. And final synergy we will also do some exercises with respect to value synergies particularly, the operating synergy in that revenue enhancement and cost reduction synergy will do small exercises.

(Refer Slide Time: 03:21)

So the keyword that we have in this session the synergies operating synergy in that or revenue enhancements synergy, cost reductions synergy finances synergy and the cost of capital. Because the cost of capital is going to affected because of merger and we expect the cost of capital is to go down post, merge and that leads to a type of financial synergy.

(Refer Slide Time: 03:46)

So come to generic definition of synergy assets so synergy is nothing but the extra value that is generated or created by combining 2 firms. And if they are remaining standalone those extra values is not going to be there so that is a generic definition. So the extra value for this extra value the companies go for mergers and acquisition and, when if you look at any merger equation announced on by different companies or company's executives they will be harping on that torn synergy very often.

So if you look at the announcement text of merger accusation made by different companies in the recent past or earlier also you will find the synergy arguing there. And they will also explain about what type of synergy is going to possible because, of the combination of 2 companies or because acquiring another company. So maybe revenue enhancement cost reduction may growth in revenue is going to more maybe there will be more of competencies which will lead to lot of synergy.

So that is definitely discussed at the time of deal announcement so let us have recently the 2 examples that we have here.

(Refer Slide Time: 05:02)

When L and T Infotech acquired my entry on this, company has emerged asses. So that time when the approval came from the company lord tribunal the concern company law tribunal because merger acquisition has to be approved by the company law Tribunal. We will discuss about compiler tribunal in legal aspects on M and A so after this approval came the CEO of the mind tree mentioned that LTI Mindtree as a combined company they are talking about will, benefit from revenue synergies and upselling and cross selling.

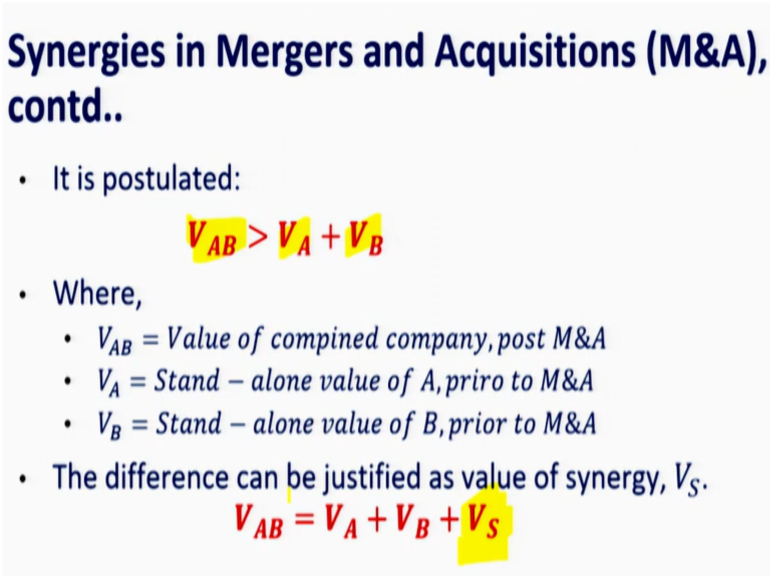
That means more they can sell cross selling means Mindtree people can sell the products or services of L and T Infotech. L&T Infotech people can also sell the core production services of Mindtree. So that is called the cross selling and they can also growth in sales and so that is they highlighted similarly there is one more company that you, would have here called FMCG fund the TATA consumer products.

They acquired big basket and big basket is an online grocery shop and TATA consumer products wanted to expand in the online segment also and they also mentioned that and is online platform e-commerce platforms. So TATA group the TATA consumer products they said that it is going to drive win-win synergies in terms of both cost as well as, top line means revenue.

So win-win means the cost is going to go down for big basket and TATA conjure products and also revenue is going to be grow growing for at higher rate compared to pre-merger for both TATA consumer products as well as big basket. So that is what they mean so that shows that we can you one can look at any other M and A announcement and find this to be emphasized open by, the company's management while announcing an a M and A deal as a matter of justification.

Because that is one of the part of the strategy for going merger acquisition that is we want to reduce the cost and that is we can also go for a M and A or we go for a M and A which leads to reduction the cost as an example of cost reduction or operating synergy.

(Refer Slide Time: 07:36)

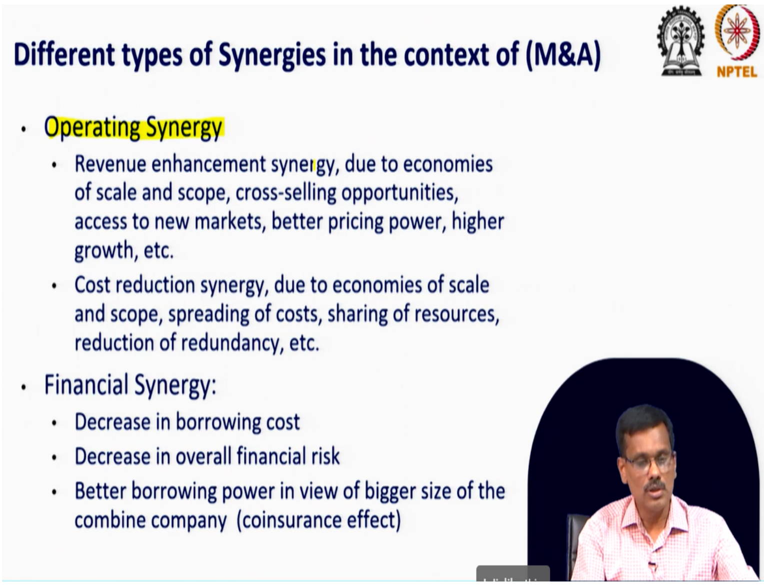


So generally when you look at the company's value so, what is postulated that? That values of combined company that value AB is supposed to be more than value of standalone plus value of standard and B company together. So AB together should be more than standalone value some simple summation arithmetic summation of A company and B company value. So that is where so value of AB is nothing but the post-merger accusation the value of the company combined, company and value of A and B are actually standard value prior to a M and A.

So in that case if the value AB together; is going to more than value of A and value B two plus in that case so the difference can be taken as the value of synergy. So that is where the it is expected post-merger that value of the company is going to higher post margin and that value of synergy is there. So in that case if, you want us to find the value of synergy in that case one can take the value of AB estimate the value.

And then find out the value of A and B separately standalone add them up and remove that deduct from the value of AB and find out the value of synergy. So this is a justification for merge acquisition that yes combined company is going to more valuable than summation of standalone value and that, extra is known as the value of synergy. So in that case one can also look for what could be the method to find out the value of synergy.

(Refer Slide Time: 09:20)



And we discussed synergy in terms of different things like we have got already discussed in the merger accusation theory or the reason say M and A. But you can always go back to that and find out what are the opening synergy and wave answer is example. So as far as, operating synergy is concerned we can have revenue enhancement because of because of economic scale and scope because you will be size is bigger so cost can go down as well as revenue can be higher growth can the revenue can be higher.

Like you talked about L and T Mindtree the cross selling opportunities can be there companies can access new markets. And when the company become bigger together they, may have a higher bargaining power and they possible able to charge a higher price to the customer and also they can achieve a higher growth compared to premerger period. Similarly there could be cost reduction because you can have scale you can use a scope and what happens?

Certain cost not repeated cost may go down also or if there is a fixed cost may come down per unit so that way spreading of, cost is going to be there. So the cost per unit is going to be lower post-merger and then sharing of resources can be there sharing of resource in terms of manpower or technology machine capacity everything can be there. And also there could be some redundancy can become repeated work and both the companies may be one particular facility can take care of both the company's operation.

In that case one, may dispose of one facility and reduce the cost as well as reduce and get some extra cash flow because the disposed often redundant asset. So that is also going to be there as part of operating synergy coming to financial synergy what happens? Financial synergy something where essentially the company is able to reduce the cost of capital of the company overall so pre-merger cost of capital and, post muscle casual compare.

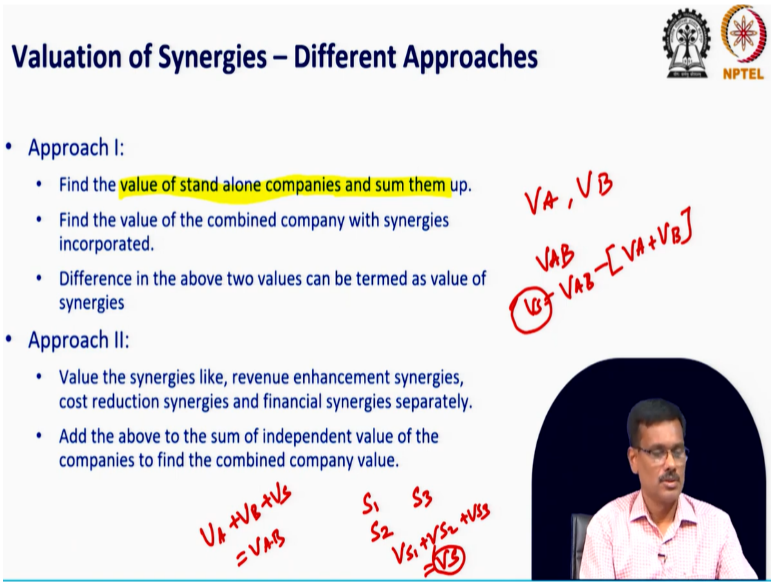
So post-merger cost at capital is going to be lower than the pre-merger cost so that reduction in the cost of capital can be a because of financial synergy why it happens? Because the companies come together they have more access to land sorry place or mortgage and more strength will be there. So they will be able to have a better bargaining power with the lender so that, they can command possibly a lower interested prior to what they used to have interested pre-merger that is called coinsurance effect.

That means the company's asset of one company a is like an also as an insurance for company B or company B for company E so the coins are each other and they will able they will be able to get a lower interest rate from the banker or the lender. And that reduce the, cost of debt and the cost rate reduces means overall cost capital can go down. Similar is possible the overall company gets diversified together more diverse per the risk involved in business may be lower.

Because of that the cost of equity also can be lower so in that case the cost of liquid is going to be lower cost update is going to be lower in that case overall cost of capital is going to also, lower. That means the expected rate of return from the investor is going to be lower and that is nothing but reduction in the cost of capital is also nothing but a saving impliedly in the financial cost for the company. Explicitly in the interest rate goes down because the marginal acquisition definitely there is a savings in the interest rate.

Similarly implicitly the cost of equity goes down there is an implicit benefit for the company because the cost of equity has gone down. So these are the types of different synergy in north shell operating and financial synergy.

(Refer Slide Time: 13:20)



And we will do now look at that how do values energy for that matter the 2 approaches can be there approach one we can find out the standalone companies and sum them up. Suppose the merger has not taken place the 2 companies are there so find the 2 companies value separately as if the demand has not taken place. Then add those 2 values whatever you get then find the combined value combustible modular acquisition taken place.

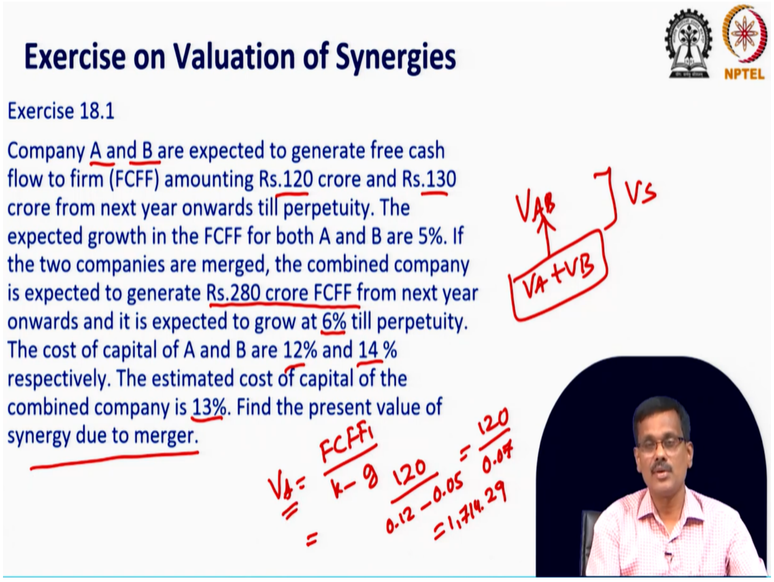
Then find the value of the company separately so whatever value that you get in the second step from that if you remove the summation of the individual value. So that value can be, taken as the value of synergies so like we discussed in the previous one so I find out the value of A separately I find the value of B separate. Assuming A and B are getting merged then I find the combined company value of AB separately and my value of synergy will be value of AB that combined company minus summation of value of A plus value of B.

So that gives value of synergy so that is where, one can say yes there is the value of synergy. Second approach is that finds out what leads to synergy for the company the combined company and estimate the cash flow related to those synergies. And take the present value of them then are those different synergy value to the stand annual value of the company and then that can be taken as the value of the overall company post-merger, acquisition.

So there could be synergy related to aspect one synergy related to aspect 1, aspect 2, aspect 3 like that. So one can find out valuation of synergy; one valuation of synergy 1, synergy 2 violation of synergy 3 that gives you overall valuation of synergy. And if you have validation of A valuation of B then you can up the value of say that will be going to value of AB together.

So synergy can be, calculated multiple approaches these are a suggested approach in this case there could be some other approaches other than this also. So one is advised to go through different other text and books that we refer in this presentation.

(Refer Slide Time: 15:45)



So let us now approach solving different exercises on revenue enhancements energy, cost reduction synergies and also finances synergy. So in this particular session we will talk focus on the value in revenue enhancement synergy and cost reduction synergy let me operating synergy validation will be considered. So let us look at this company there are a simple generic evaluations synergy here.

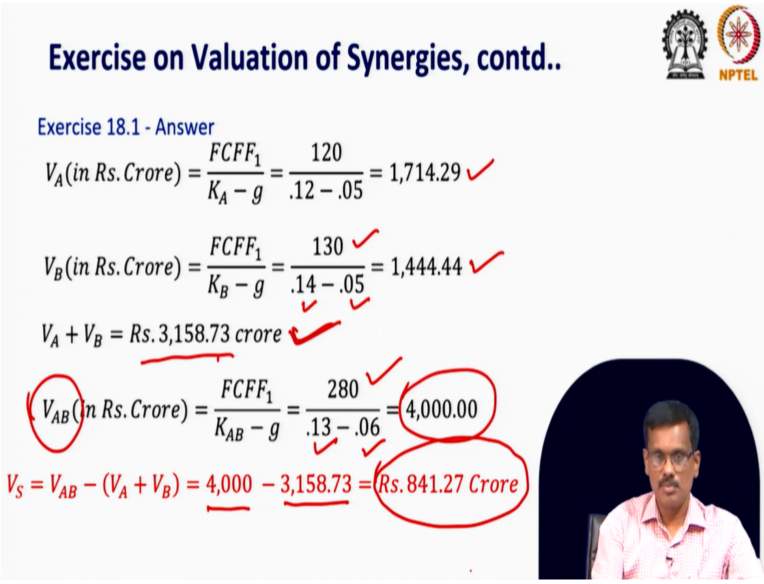
There is a company A and company B to there they are expected generate 120 crore and 130 crore of cash flow in till perpetuity. And their cash flow is going to grow at 5%, for both the companies and if they are combined together they are going to generate 280 crore of free cash flow from the next year onwards. And which is expected growth so combined company grower FCF grows 6% similarly the cost of capital of A and B today at this point pre-merger are 12%, 40% respectively.

But the combined because the company gets combined, then their cost of capital is going to be lower is going to be 13%. So we have to find out the value present value of synergy due to merger and we are talking about the overall generic synergy value neither operating or finance specifically for that matter. So what you do here in that case we will find out the value of AB we will find out the value of A will add find the valid, value of B whatever we get if you remove from this particular value so that gives us the value of synergy.

So if you look at value of A we are looking at free cash flow with growth we have already got the free cash flow for the next year FCFF 1 divided by k - g k for the cost of capital for A and g for growth of A. So FCFF 1 for company a is 120 crore rupees 120 crore cost of capital for, company a is 12% so 0.12 and growth for this company 0.05 so 120 by 0.07. So that gives us around 1714.29 the value of this company A this is an example.

So similarly you can find the value of AB and then look at the difference so let us look at the solution here.

(Refer Slide Time: 18:20)

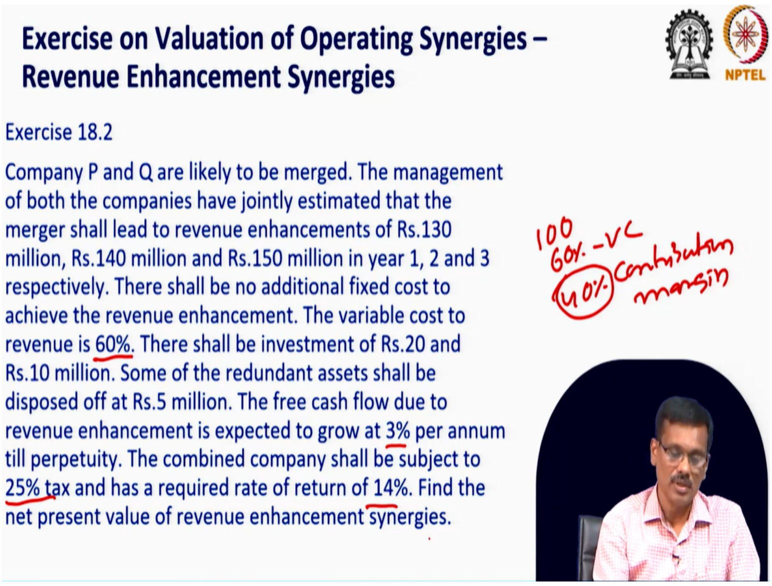


So as you disc as you discussed we found out so, 1714.29 so we got the value here that is FCFF 1 by k cost of capital of a – g. Similarly value of B is FCFF 1 for company B 130 crore and the cost of capital further companies 0.14 and growth is 0.05. So that gives us 1444.44 crore and combinely this company A and B stand alone together comes to 3158.73. And similarly we can find out the value of AB separately by looking at the as you know the combined company is going to have 280 crore FCFF.

So 280 crore divided by the cost of capital is 13% that is going to change so 13% - 6% gross that gives us 4000 crore. So 4000 crore minus this figure that is 3000 something 3158.73 so the value of synergy comes to 841.27 crore. So that; is one of another approach to find out the value of synergy for a company overall synergy for that matter. This energy could be because of cost reduction or revenue enhancement or the finances energy for that matter but this is overall synergy that, is called we found out in this exercise.

So now what we will do? We will do another simple exercise for cost reduction and revenue enhancements.

(Refer Slide Time: 19:48)



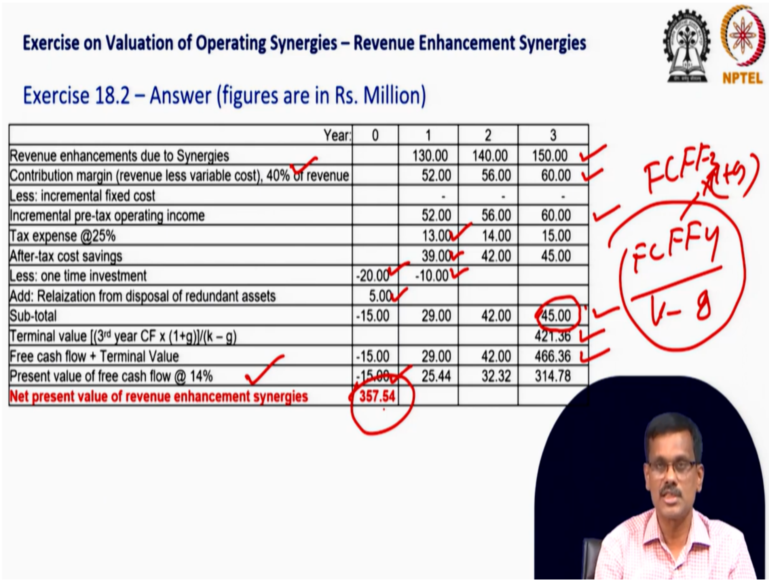
So in the next exercise we will talk about value operating synergy and specifically on the revenue enhancement synergy. So these are 2 companies getting mass P and Q and the merger is going to lead to extra revenue it is extra ordinates whatever their, revenue is there that is there x and y could be there. But extra revenue was a model equation going to be 130, 140 and 150 million rupees in year 1, 213 and that extra f into will lead to extra variable cost and that variable cost comes to 60%.

And so 60% and there will be no fixed cost is going to be nil to have this extra revenue and so, in that case if their company is going to have 100 rupees of revenue. So 60% goes towards variable cost means 40% is going to be contribution margin that is the sales minus variable cost. And when you remove the fixed cost from there that is called the extra operating profit but since there is no fixed cost going to be incurred.

That means the existing fist cost can take care of this, extra revenue in that case the 40% of the revenue is going to be the extra operating profit before tax. And there but there will be some investment required in the year 1 and 2 that is 20 and 10 million and some of the redundant assets are going to be disposed of 5 for 5 million. And the free cash flow whatever free cash is going to be there in the third year because the revenue, enhancement is expected grow at 3% per annum till perpetuity.

And the company subject 25% tax and company has a required rate of return of 14% so you have to find out the net present value or NPV of revenue enhancements energy.

(Refer Slide Time: 21:46)



Exercise on Valuation of Operating Synergies – Revenue Enhancement Synergies

Exercise 18.2 – Answer (figures are in Rs. Million)

Year:	0	1	2	3
Revenue enhancements due to Synergies		130.00	140.00	150.00
Contribution margin (revenue less variable cost), 40% of revenue		52.00	56.00	60.00
Less: incremental fixed cost		-	-	-
Incremental pre-tax operating income		52.00	56.00	60.00
Tax expense @25%		13.00	14.00	15.00
After-tax cost savings		39.00	42.00	45.00
Less: one time investment	-20.00	-10.00		
Add: Relaization from disposal of redundant assets	5.00			
Sub-total	-15.00	29.00	42.00	45.00
Terminal value [(3rd year CF x (1+g)]/(k – g)				421.36
Free cash flow + Terminal Value	-15.00	29.00	42.00	466.36
Present value of free cash flow @ 14%	-15.00	25.44	32.32	314.78
Net present value of revenue enhancement synergies	**357.54**			

$FCFF_3(1+g)$

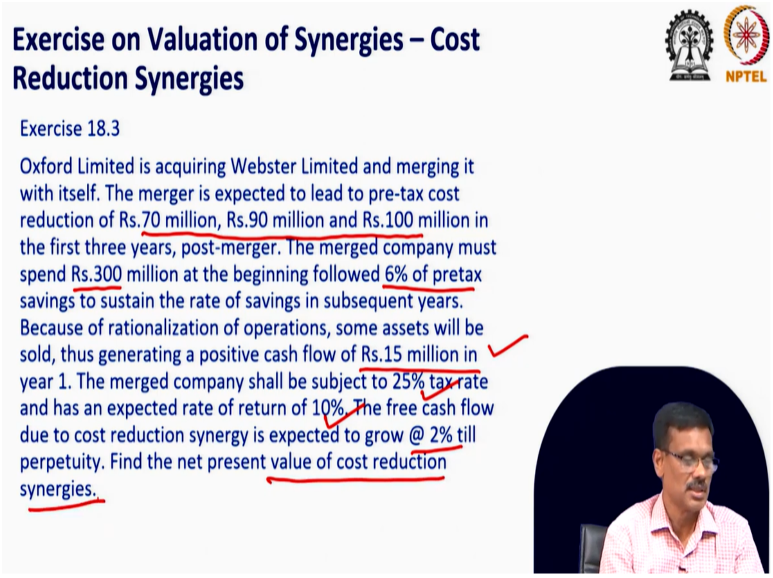
$\frac{FCFF_4}{k-g}$

So let us look at the answer so we have 130, 140, 150 million is your revenue enhancement. And we know we discussed the 60% goes towards variable cost means 40% revenue is our contribution margin. And so in that case 50 there is no fixed cost of 52, 56, 60 are your incremental pre-tax operating income and that on that 25% tax goes. So 13 then after tax you are going to 39 and in year zero and one you are going to one time investment 20 and 10.

And we are, going to realize 5 million rupees in year zero in the beginning by disposing redundant assets so finally the soft total comes to these values. And this 45 the extra cash flow is going to grow at 3% till perpetuity and that gives us the terminal value at the end of third year that is FCFF 4 divided by k - g FCFF 4 is nothing but FCFF 3 into 1 + g. So that when you do, this calculation we get 421.36.

Then these are the cash flow finally 15 million is your negative cash flow and all 29 and like that you have. And so finally you have the cash flow here and then we can find out the present value at 14% discounting rate. So finally the present value of the net present for one time investment comes to 357.454 million. So this is the way one can find out the revenue enhancement synergy similar exercise also you can do with respect to cost reduction synergy calculation so let us go to that.

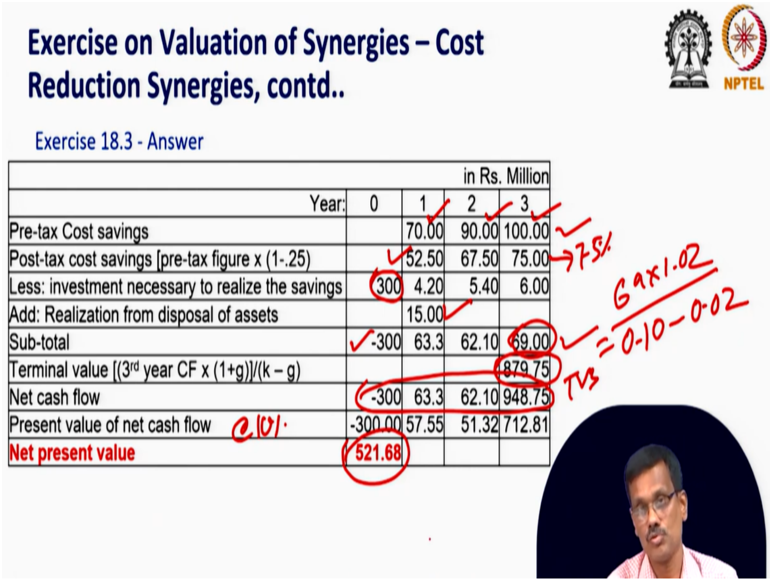
(Refer Slide Time: 23:32)



So this particular company Oxford is going to acquire Webster and the combined company is going to there and combined company is going to have savings in the cost of 70, 90 and 100 million respectively in 3 years. And but the company has to spend some 300 million at the beginning to achieve this cost reduction. At the same time they have to also invest some 6% of the pre-tax saving that means suppose 70 million is going to be saving.

So they have to invest 4.2 million 6% 70 million in that year to sustain this cost savings and at the same time they will also be disposing of, certain assets at the in the year one to the extent rupees 15 million. And the company is published to 25% tax rate and the expected at a return of the cost of capital 10%. And after year 3 whatever free Casper is going to be there because of cost reduction that is going to grow up to percentile perpetuity. So you have to now find out the present value net present value of, cost reduction synergies.

(Refer Slide Time: 24:38)

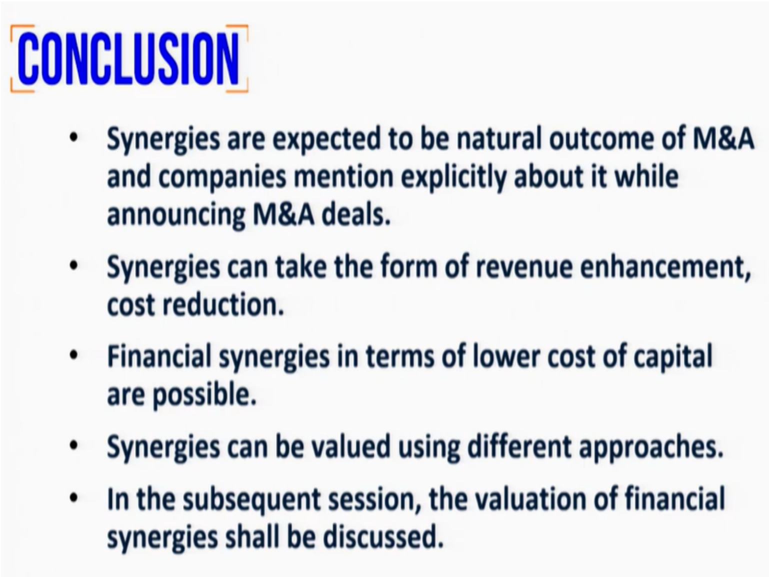


So let us look at that so year 1, 2, 3 the pre-task cost savings post has comes to 75% that is 25% goes towards tax. That means 75% this is 75% of pre-tax and then they have to invest 300 million rupees in the zero year zero also they have to invest 6% of the 70, 90, 10 respectively in year 1, 2, 3 to sustain, this savings. And they will also dispose of to the extent of 15 million worth redundant assets and finally you we have got a subtotal these are the cash flows for the company.

And this 69 that you are going to have in year 3 it is going to grow at 2% that is your perpetuity so 69 into 1. 02 divided by 0.10 cost of capital -0.02 by we are applying the value of perpetuity, growth that comes to 879.75 that is the terminal value at the end of third year. Then you add that and then we got the net cash flow and this net cash flow when you discount at 10%. So that gives us 300, 57.55, 51.32, 712.81.

So together that gives us 521.68 million; rupees of net present value of, cost reduction synergy. So this is like we did revenue enhancement same formula can be applied same approach can be also used for cost reduction synergies.

(Refer Slide Time: 26:21)



So in this class we discussed about synergies which are expected in natural outcome any M and A. And companies do mention explicitly about it while announcing amended deals synergies can be take form or revenue enhancement cost reduction. Finances, energies also can be there in terms of lower cost or capital and synergies can be valid with different approaches. We have discussed the valuation of operating synergy revenue enhancement and cost reduction both of them.

In the subsequent session we will talk about how to value the financial synergy assess so happy learning and have a good time thank you.