Financial Management for Managers
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Lecture No: 38
Estimation of Project Cash Flows - Part X

Welcome all, so as I told you in the previous class that after completing the conceptual discussion on the estimation of the cash flows in the capital budgeting decisions. Now, we will do one or two more problems, where we will learn about the estimation of the cash flows and after that we will close the discussion on this particular topic. So, in this class I will discuss one problem, similar to what we did earlier also and we will learn that in say this case also how we can estimate the cash flows for the capital budgeting decisions.

So, again first of all I will read the problem for you and you can understand first of all, this is my say suggestions to you also, that before solving any problem whether in the examination or otherwise in the class room, first you read the problem carefully, try to understand what kind of the inputs are given, what kind of the information is given and then say try to move forward to solve it. So, let us read it, try to understand what is the requirement of this problem and then how to go for solving it, and estimating the cash flows for this particular cash, capital budgeting decision.

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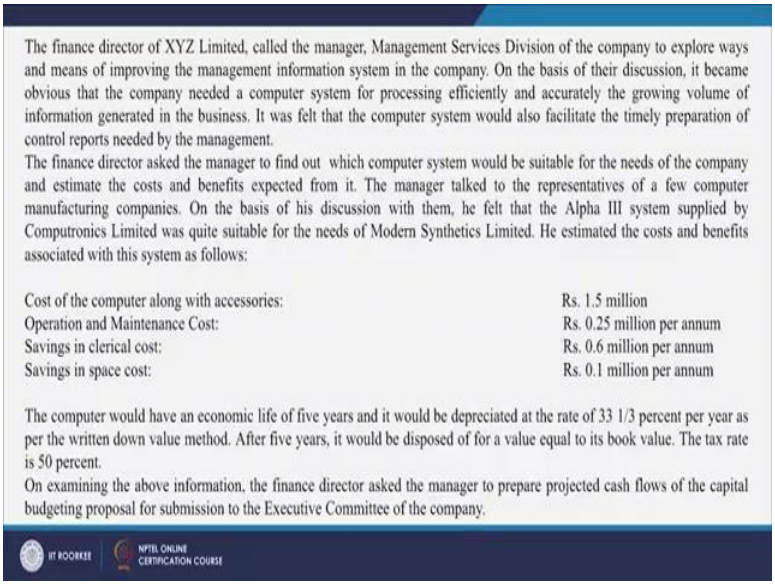

For example the problem is that the finance director of XYZ limited, the finance director of XYZ limited called the manager, management services division of the company, called the manager, management services division of the company to explore way and means of

improving the management information system in the company, to say explore ways and means of improving the management information system in the company. On the basis of their discussion, it became obvious that the company needed a computer system, the company needed a computer system for processing efficiently and accurately the growing volume of information generated in the business.

It was felt that the computer system would also facilitate the timely preparation of control reports needed by the management. Finance director asked the manager to find out which computer system would be suitable for the needs of the company and estimate the cost and benefits expected from it. So, in the companies, normally when you talk about the computer systems, they want to install the bigger IT systems, means full flashed IT systems which say completely take care of their accounting process, the financial decision making process.

And when they follow that kind of the computer systems when they use that kind of the computer systems naturally their very expensive decisions and many times you can call them, they are the decisions which fall in the category of the capital budgeting decisions. So, the manager talked to the representatives of, means after getting the instruction from the finance director, the manager talked to the representatives of a few manufacturing companies.

On the basis of hospital discussion with them, he felt that Alpha 3 system supplied by the Computronics Limited was quite suitable for the needs of the XYZ limited. What the, what he found? On the basis of his discussion with them, he felt that Alpha 3 system supplied by the Computronics Limited was quite suitable for the needs of the XYZ limited. He estimated the cost and benefits associated with this system as follows. He estimated the cost and benefits associated with this system as follows.

Cost of the computer along with accessories was 1.5 million or 15 lac rupees. Operations and maintenance cost was 0.25 million per annum. Third important information he found was savings in the clerical cost that is 0.6 million per annum and savings in this space cost was 0.1 million per annum. It means, what is the total savings? One is a 6 lacs of the savings, 6 lacs worth of the savings they are going to have in the clerical cost, because, computer is going to take care of the clerical cost and the 1 lac worth of rupees they are going to save upon the cost.

Because so many people must be sitting in a big hall, which has a big cost, 1 lac rupees per annum, so when a computer system you have or a IT system you have, that requires a minimum space so, we can save upon the use of the space also and that is equal to 1 lac

rupees, so total savings we are going to have that is 7 lac rupees or 0.7 million rupees. And the cost is going to be how much, 1.5 million for the say purchase of the system and operations and maintenance cost because you need the, say technical people to take care of that.

Very few people not large number of peoples and somewhere 0.25 million per annum you have to spend for that, it means roughly 2.5 lacs you have to pay for this say as the operation and the maintenance cost. The computer would have an economic life of 5 years and it could be depreciated at the rate of 33 and 1 by 3, equally depreciated at the rate of 33 and 1 by 3 per year as per the WDV method - Written Down Value method.

After 5 years, it would be disposed, it would be disposed of for a value equal to its book value, equal to its book value, the tax rate is 50 percent, the tax rate is 50 percent. So finally, on examining the given information means, finally on examining the say above information or the given information, how the finance director and the manager have projected the cash flows that we are going to do here.

Means we have to assume that we have the finance director and the manager of the company and we have to means say project the cash flows taking into account the information given here, which is with regard to the cost of the system, operations of the system, savings because of the introduction of the IT systems or adopting the say computers or the IT systems. So, how, means you picturize in your mind that how the finance director and the manager would have done it, same way we are going to estimate the cash flows for the company.

In this capital budgeting decision or in this capital budgeting proposal which means finally they would have submitted to the say executive committee of the company, they finally might have say submitted it to the executive committee of the company because they have to take the decision to provide the finances, 15 lac rupees they have to provide and then the operations cost is also 2.5 lac per annum.

So, finally the decision had to be taken by the executive committee of the company but this all evaluation and estimation of the cash flows had to be done by both these peoples, so finance director and the manager, management information systems division, they have predict or they have to estimate the cash flows for this capital budgeting decision. So how it has been done by them?

Let us do it, and let us try to find out what is the net cash flow available from this capital budgeting decision. So, we are going to means estimate those cash flows. It is going to be very simple process but, you have to learn it and you should be practicing that how to estimate the cash flows. So, gain we will prepare this cash flows treatment.

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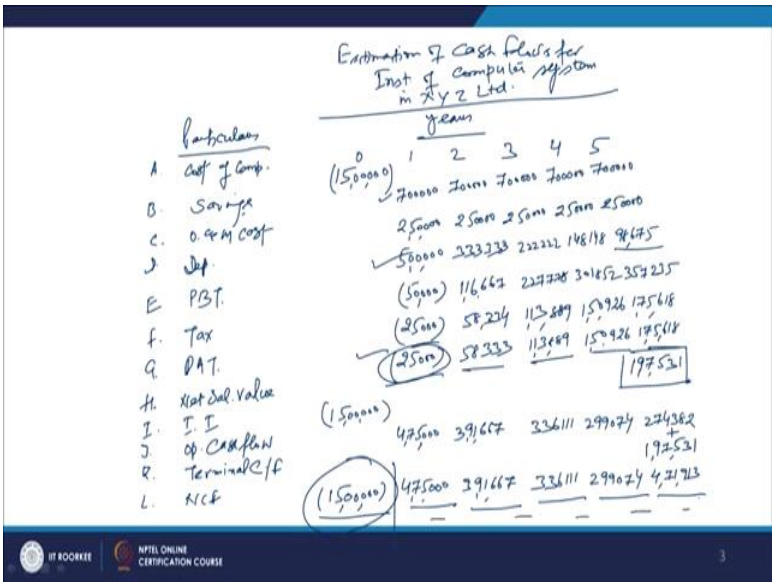

So here we will take the, we will write here as the estimation of cash flows for computer system or for installation of computer system in XYZ limited. So, this we are going to learn, we are going to do and what we are going to write here, that is the first of all you take here the particulars. This is particulars and then we are going to write here as the years, particulars and years,

So, in the particulars you have to put all the items which are required here and when we talk about the years here, how many years, the life is given to us that the system will have a 5 years life after it is put into the place, so we are starting with the 0, 1, 2, 3, 4, and 5 years, 0, 1, 2, 3, 4, and 5 years we are going to take here all the years and now we are going to start with the particulars.

So, first thing we are going to do here is the part A, you can number it is better because sometime we have to add or subtract something, so it is better to explain what we have added up to arrive at a figure, what we have subtracted from what, to arrive at the final figure, so we are writing here and first thing is the cost of the computer. So if you talk about the cost of the computer here, so calculating this cost, means we are already given the cost of the computer and for say taking this cost into account, cost of computer and what is the cost of the computer that is the 1.5 million or 15 lacs.

Write here 15 lacs, this is the cash out flow in the year 0, so this is the cost of the computer which is going to cause a cash out flow of the 15 lac rupees or 1.5 million rupees. Next is B savings, we are going to have the savings, so how many savings are going to be there, it is clearly written here if you look at the problem which is given that savings in the clerical cost will be to the tune of 6 lac rupees and savings in the space cost will be to the tune of 1 lac rupees.

So, total savings will be how much, that is 7 lac rupees every year, this is 7 lac rupees, every year we are going to write here. This is 7 lac rupees, this is 7 lacs, 7 lacs, 7 lacs, 7 lacs because all the 5 years till the computer will be there we will have the savings in terms of the clerical cost and in terms of the space cost. Then we talk about the C and the C component is, C component of the information is what?

C component of the information is we take here as this, so C is operations and maintenance cost. Operations, I am writing here O and M cost, so how much is going to be O and M cost? O and M cost is going to be we have to find out here which is given to us, O and M cost is he is saying that it will cost the operation and maintenance cost will be 2.5 lacs, so this is going to be the cost here, 250,000, 250,000, 250,000 again 250,000 and 250,000. This is the operation and maintenance cost.

Next cost head of the cost is what depreciation? So, what is a depreciation 33 and 1 by 3 so if you take the cost this here, the means say the depreciation cost here, so the rate we have to apply here is, in the first year it is going to be how much? 33 and 1 by 3, the rate of depreciation means one third of the computers cost will be depreciating in the first year, it will come down.

So, it means the depreciation amount will be how much? 500,000 here. And because, it is a written down value method, so next year the depreciation amount will be this much amount, 333,333. So we will be taking this 333,333 so, this will be the amount of depreciation in the second year. Third year will be how much, it will come down to 222,222, then it will come down to 148,148, and last year the depreciation amount will be how much, 98675.

So, this is the depreciation cost. Cost of the computer is 15 lacs, savings are going to be 6 plus 1, 7 lacs, operation and maintenance cost is going to be 2.5 lacs per annum, and depreciation cost is going to be, we have calculated as per the rate, that is 33 and 1 by 3 and the method depreciation is the WDV that is the written down value method. And now the E.

There is no other head of cost, so it means we have to calculate now the profit before tax that is called as PBT.

So, what is a profit before tax? This is the savings we have going to have 7 lacs and the cost are 2, so it means in the first year I think there is going to be a loss. First year there is going to be a loss and this loss is how much, 50000 rupees. This is going to be a loss and this loss is going to be how much, this loss is 50000 rupees. So, because why the loss is there? Because the amount of depreciation is very high, one third of the cost is going to depreciate in the first year, so we are ending up with the loss.

So, there is a negative cash flow you can say in the first year. Then is the next year is how much? There is a positive cash flow profit before tax is positive 1,16,667 is the profit in the second year, third year is 2,27,778 in the third year, and then fourth year is going to be how much, fourth year is going to be if you subtract this, is going to be 3,01,852 if you subtract this from the 7 lacs, if you subtract operation and maintenance cost and depreciation, this is going to be the figure here, 3,01,852 and last year is going to be 3,57,235. So, this is going to be the PBT.

Now, we take the next part and we are going to take here as that is the tax, next we are going to take here as tax. So, what is the tax rate? Tax rate given to us in this case is the 50 percent. So, it means if you talk about this is going to be the negative tax if at 25,000 and in this case it is going to be tax is how much, it is going to be 58,334 half of this, 58,334. Then is how much, 1,13,889, then is 1,50,926 and then last figure is 1,75,618. So, these are the say figures of the tax out of the PBT you have to pay this much as the tax 50 percent of the amount we have to pay as the tax.

And finally, we are to calculate here the G that is the PAT – Profit After Tax, so we have to calculate the profit after tax here and exactly the 50 percent is left here. So, this is in this case loss of, 25,000 profit means, after tax is 25,000, then here it is 58,334 because it is 7 so we will make it now 58,333, not 58,334, and then it is 113, exact 50 percent. So, 1,13,889, in this case is how much 1,50,926 and then exactly half here 1,75,618, this is the profit after tax. These are the figures of profit after tax only in this year there is the loss which we have to now say means take, it seriously.

Finally, we have to now calculate the say net salvage value. What is the next thing is, that is the net salvage value is going to be how much, net salvage value is going to be how much? We have to find out the net salvage value which is given to us already we have been given

here and that is going to be in the year 5. So, what is the net salvage value? That is going to be the remaining amount. So, it means what was the total? That was the 15,00,000 minus depreciation over the number of years.

So we subtracted it the depreciated the say computer system by 5,00,000, so we are left with the remaining amount of 1 million that is 10,00,000, then next year be depreciated by this amount, this amount, this amount and last depreciation rate was this amount, so salvage value was given to here to us was, the salvage value given to here us was the written down value method. What is the final value which is left after 5 years is known as the means the salvage value, which is the otherwise you can call it as equal to the book value.

So, net salvage value is equal to the book value and that is left the computer in the fifth year is left of worth 1,97,531, so it is the net salvage value we have calculated here and after this what we have calculate here is, that is a now, the final closing of because, we have to calculate the operating cash flow. So, what is the initial investment we have to take here as the initial investment was how much, initial investment was 15,00,000 here and this is again outflow only this much how is the outflow is there.

And then now we calculate the operating cash flow. So, what is the operating cash flow here we calculate the operating cash flow here, so operating cash flow we have to take here is what, we have the two sources of the operating cash flow here and these two sources of the operating cash flow are say one is the profit after tax, profit after tax is how much this column we have to take into account and then, second is the depreciation we have to take into account.

So this is how much you have the depreciation that is a cash flow giving as a cash flow of the 5,00,000 rupees but there is a loss, means profit after tax is not the profit, but, it is a loss so, your cash flow will not be 5,00,000, rather it will come down to 475,000 cash flow will be here and in the second case will be taking care of this 58,333 and depreciation of this 3,33,333, so the operating cash flow total will become how much, 3,91,667.

Similarly, the next year it will become as the operating cash flow 3,36,111, that is in the year 3 and the it is 2,99,074 and then is last is 2,74,382, so these are the operating cash flows. These cash flows are the operating cash flows which we have calculated here by taking into account the profit after tax and the depreciation. So, these are the operating cash flows here with us and if you look at now the operating cash flows now we have to on the basis of it we have to calculate the your net cash flow.

Like next thing which will we finding out is the net cash flow and that net cash flow will be found out after taking into consideration in the terminal value. So, it means the next thing is the terminal value, or terminal cash flow you can say what is the terminal cash flow means finally we will have the terminal value and terminal cash flow is the this figure which is now the book value of the computer system after depreciation means whatever is the salvage value that will be the, the terminal value the book value is going to be the terminal value, so it means here it is how much, it is going to be it has to be in this year.

So, for calculating the net cash flow you have to take this into account and for taking this into account that is 1,97,531 lastly you have to now calculate the net cash flow NCF. Net cash flow we have to calculate and for calculating the net cash flow in this year, this is going to be the final, net cash flow, so in this year we are going to, 0 year we are going to spend 15,00,000 rupees on the accusation of this computer system and then we are going to have the first year the cash inflow and this is going to be 4,75,000, then it is going to be 3,91,667 and then it is going to be 3,36,111 and then it is going to be 2,99,074 and the last one is going to give us a bigger value which will be this plus this.

So, it means operating cash flows is how much, 2,74,382 and the terminal cash flow is 1,97,531 so finally, this is going to be how much, 4,71,000 total it up 900 I guess and it is 13, so it is 4,71,913 this is going to be the terminal cash flow in the last year. So, 9 hundred. So, it is 4,71,913 so these are the cash flows. This is the cash outflow and in the 0 period, in the current period, when we will buy the computer, first year, at the end of the first year we will get the 4,75,000 we will get this much at the end of the second year, this much at the end of the third year, this much at the end of the fourth year and this much at the end of the fifth year.

So, roughly if you get an idea so, this is going to be what, this is going to be a not a bad propagation I think because, if you look at the total savings available from say this process. This capital budgeting decision 7,00,000 and then the additional cost and finally the cash flow which will be available to us say over a period of 5 years so, if you discount it, though the negative I expect that the NPV should not be negative or if it is negative, it will be a very-very nominal amount.

So, I think because currently it may be not giving us the very positive value, very high NPV or a very positive NPV but in this case our major concern should be in this kind of the capital budgeting decisions our major concern should be that to improve the efficiency of the

organization because replacing the human efforts with the IT, be, I can expect multifarious other advantages also, which we are forgetting at this stage, so finally, whatever the cash flows we have worked out, finance guy will say that okay this I am going to shell out.

15,00,000 I am going to spend for installing the system and over the period of 5 years, which is the foreseeable life of the computer or expected life of the computer, I am going to get this much of the cash inflows, so finally at the some acceptable cost of capital, some acceptable cost of capital as a discount rate will be discounting these 5 cash inflows and then we will try to find out that at least NPV is 0, not positive or very high, it should be 0.

So that how much we are shelling out and how much the benefits we are expecting from this capital budgeting decision, there is no profit no loss situation. But it can be the one possibility that even there is a some negative NPV available from this kind of the decisions. We can expect that overall efficiency of the organization will improve, the performance of the overall form, overall organization will improve, so it means the controlling process will be improving, it will become better.

So, what will happen that it will give us other, say you can call it as the byproducts of taking this kind of the decisions which cannot be quantified in the monitory terms but, otherwise that they are very very useful decisions, they are very-very useful outcomes. And we should also consider them which are qualitative factors you can say not quantitative factors. So, quantitatively you have to compare these cash outflows of the 15,00,000 rupees with this after discounting it.

So, this will be equal to 100 percent and these will be discounted at the cost of capital and then, finally we will take the decision that whether we will, go for this system, installation of this computer system in the firm or not. But, in this case at this particular stage our job was to estimate the cash flows, cash outflows and the cash inflows as the say finance director and the manager of the XYZ limited would have done.

So, here we have practically learned how to do it, and this id way this is the process how to estimate the cash flows in the capital budgeting process or in the capital budgeting decisions. So, with this discussion, with this problem I will stop here for now and one more problem, which is basically a replacement problem, I will discuss with you but, that will in the next class. Till then thank you very much.