Financial Management for Managers

Professor. Anil K. Sharma
Department of Management Studies
Indian Institute of Technology Roorkee.

Lecture 17

Capital Budgeting Part 1

Welcome all, so now we are moving to the next part of discussion in this financial management and after having discuss the financial planning and the time value of money in detail. Now I will take you through the say the process of Capital Budgeting. Capital budgeting is a very interesting process, were we are we evaluate the different capital investment proposals.

And you would agree with me that say when any investment has to be made in the market. Especially in the businesses or the business organization or by the business organization. Whether they are new or they are adjusting ones. Evaluation of the projects is a very important criteria, evaluation of the project is a very ,very important consideration.

And they will try to find out that how much investment we are going to make in this project and how much return is expected to be there from this project over the number of years. What is the life of this project, means for how many years is going to sustain or going to remain to active and say the investment which we are going to make in how many years we are going to get this investment back.

And there when you talk about the capital budgeting. We do not simply say compare the cash-outflows with cash-inflows or the series of the cash-inflows. But we have to use a concept of discounting, discounting of the future cash flows. So, when I was discussing with you the time value of money. I talk to you that how the time value of money is important.

Now you see that now the use of the time value of money we have started making, different uses different application of the time value of money. Now we will be making in the future say a different evaluation processes, decision making processes and investment processes in the business organization. So that is why I discuss with you in detail that what is the process of say compounding.

What is the process of discounting and how the time value of money is important. Because in this concept of the capital budgeting, or in the different techniques or the processes of the capital budgeting. The time value of money is going to play a very, very important role, very, very major role.

When you talk about evaluation of the project, simply we do it on the basis of the cash flows. Not on the basis of the profit and loss, but on the basis of the cash flows. How much investment we are going to make. That investment that which goes out from the investors or from the promoters of the project. That is called as a say cash-outflow or that is normally done in the current period and that period is called as a 0 period.

And when we start working on that because it takes time to build the project. When we go for making the investment it will take one full year to give shape to the project or to that new firm, new project, new organization. It may be the replacement project it may be the say conglomerate diversification or may be the horizontal diversification or it may be may be say addition of a new project product in the adjusting product lines or anything.

We have to say try to find out, that when you are going for the say diversification it can be vertical, it can be horizontal. You can means say add up one more step in the entire process or may be sometimes you can say go for the horizontal just say horizontal integrations of the different products. It may be possible that currently we are say manufacturing the finished product.

And for the raw materials or may be semi finish products we have to depend up on the market or up on the suppliers. But it may be possible that we are evaluating that if we start manufacturing or creating the raw material also. So our dependence up on the say the external suppliers will be going down, and the vertical integration will also be possible.

So, it means we can think of that if we make this investment, with that we start making the raw materials also or may be the semi process material also which we get from our suppliers. So it will give you many or the multifarious advantages. So itself it is a new project for us, it is a new investment proposal for us.

So whether it is a vertical integration or the horizontal integration or diversification, or whatever it is, means if there is a question of new investment, let us say new project for the firms, and if it is a existing firm it is a new, but if it is the say new firm itself for the first time the firm is coming to existence.

For them the capital budgeting is very, very important, because when you say that you have the say certain limited amounts of funds. When you talk about the funds when you talk about the finances always funds are very limited in the amount. They are always cares in the quantity and our objective is because in every business or the objective of every business is the value maximization.

So, when the value maximization will occur, when you make the best utilization of the given amount of the resources which are very scares. For example, we have 3, 1, 2, 3, 4 projects in our mind and until unless we evaluate them that which project is going to give us the maximum returns or the maximum say net present value.

In the capital budgeting language. Now I will talk to you is that which project is going to give you the maximum NPV. So, if you do not do the proper comparative evaluation of the projects. It may be possible that the project 2 was much better as compared to project 1, or the project 4 was much better as compare to the project 2 or 3. But we did not evaluate all those 4.

We saw that 4 opportunities are there in the market, and we randomly selected 1 and we started going ahead with that but ultimately, we could not get the desired amount of the results. So the purpose of the business is to maximization, getting the maximum return from the minimum inputs or the maximum output from the minimum inputs.

So, in this process we should be knowing that it is s relationship between the input and output. What is the relationship between the cash-outflows and cash-inflows and here comes up the say the importance or relevance of the capital budgeting? Capital budgeting is as I told you is more important for the say entrepreneurs also.

Because, they also have the limited resources with them. If they want to say invest their resources in such a way where they get the maximum return from the minimum investment or the optimum investment. Then again, they should be knowing that what is the relationship between the cash-outflows and cash-inflows and what is the going to be the final outcome.

One more important here, which we apply here is that, when you calculate the cash flows. We when you talk about the cash-outflows they are normally means they occur only the current periods, so that period is called as a zero period. But when you talk about the inflows they come back to the firm over the number of years, the subsequent years.

So, maybe they are coming back in the next 4 years or next 5 years or next 6 years. So we try to find out, what is the foreseeable period of that project. It may be possible that the project is going to last for the next 20, 30, 40 years, but we cannot means predict for the say next 30 years or next 40 years or next 20 years.

But the foreseeable period can be maximum up to 10 years. We can estimate that yes, in the next 10 years the project is going to behave like this, this is going to be total performance this much investment we are going to make in the current year period. It may be required that over the subsequent years also, may be in the first year we are making investment of certain amount.

Then second year no investment is required, third year no investment is required but in the fourth year the investment may be required, then sixth year again the investment may be required. So, there can be cash-outflows going over the number of subsequent years also. So there also we can address that kind of problems but if we assume that cash-outflows is going to occur in the year that is the current or the zero period.

When you are going to build the project, that period is called as a 0 period or the year 0 which is a current period and the inflows are going to come back to us in the subsequent periods year 1, 2, 3, 4, 5, 6, 8, 7, 8, 9, 10. So now because they are going to come back to us over a say future period of time. After 1 year after 2 years after 3 years, so you understand now if you recall the say concept of the time value of money you would understand that now those inflows have to be discounted.

Because the cashflow which is currently with in our hands. The value of that is 100 but 100 percent but if the cash any cash-inflow which is expected to come back to us after 1 year means 100 rupee in our hands today cannot be equal to 100 rupees coming after 1 year. So, what you have to do here is? Now you have to apply here the concept of the discounting, discounting the cashflows.

If you remember we have discussed one thing in the time value of money and that was discounting of the uneven cashflows, discounting of the uneven cashflows. So, in the projects normally the cashflows which come back to us, the cash-inflows specially which come back to us over the subsequent years, they are normally, they are normally the uneven in the amount.

You cannot expect that every year same amount of inflow is coming back to us. Say 1lakh rupees 1lakh is coming at the end of the first year, second year, third year, fourth year nothing like that. Because, cashflows means ultimately, anything which is coming back to us. Cash-outflows means whatever the investment we make in the market.

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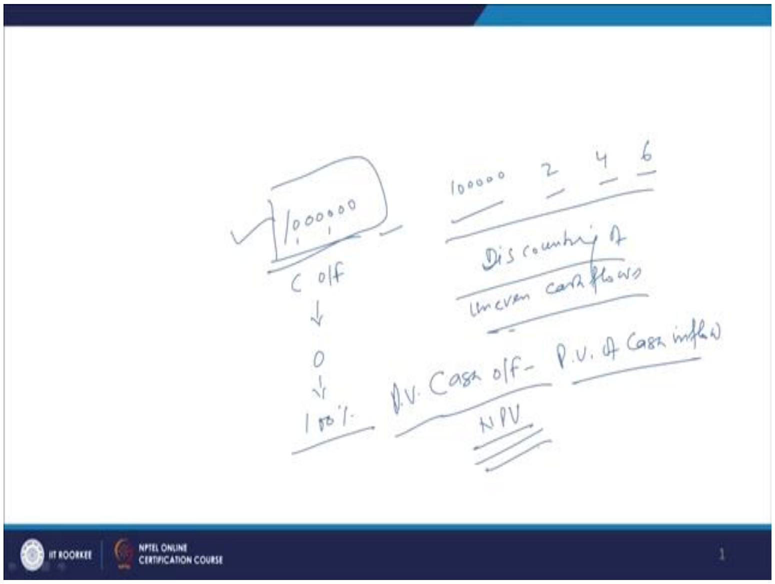

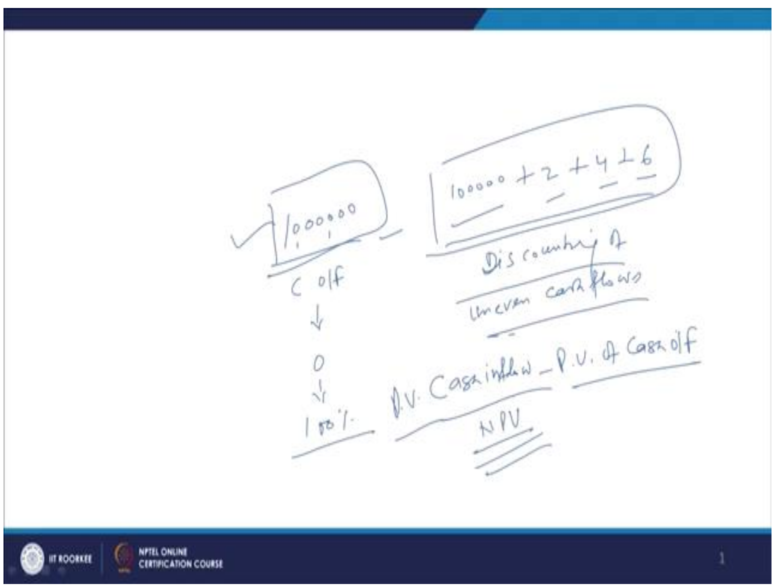

For example, if we are say investing somewhere a sum of rupees say 1 million, 10 lakhs. This investment we are going to make in the market, this is a cash-outflow. This is a cash-outflow which is going to take place in the current period this period is called as a zero period and the value of this zero period, 10 lakh equal to, this is 100 percent.

But when you talking about the inflows, it may be possible that in the first year at the end of the first year. You are getting back 1 lakh rupees. Then you are getting 2 lakh rupees, then you are getting 4 lakh rupees, then you are getting 6 lakh rupees. So, it means these become the uneven cash-inflows. So, in total if you call it as over the subsequent years over the next 10 years the inflows going to come back to us from the, at the end of the first year till the end of the second, tenth year.

So, in this case you can say that the uneven cashflows, cash-inflows are going to occur for a period of 10 years. Starting from the first year till the next 10 years, why we are talking about the 10 years because 10 year is the normal foreseeable period. The period which we can foresee now is up to next 10 years. It may be possible project is going to last for the next 20 years.

But we are not talking about the next 20 years and our main objective is what, when you talking about the capital investment, or the capital budgeting. Our main objective here is this investment of the 1 million rupees. I am more concerned about in how many years, this amount of investment is going to come back to me. First I am more concerned about it, and this 10 lakh rupees comes back to me. After that whatever the cash-inflows are available from the projects that is my surplus, that is my net present value. So, I am totally indifferent that whatever the amount comes to me.

First of all my question is in how many years, I am going to get my investment back and after that over the next say foreseeable period remaining foreseeable period, how much surplus is available from the project. So, the decision making under the capital budgeting techniques because different say methods and methodology are there different techniques of the capital budgeting are there.

It may be the say simple your NPV technique, net present value technique. It maybe the benefit cost ratio, it may be the internal rate of return. Whatever the techniques you apply or may be simple payback period, whatever the techniques we apply in the capital budgeting. We are more concerned about that first my investment should be recovered.

What investment I making that should come back to me. After that whatever the cash-inflows are coming to me they are going to be my surplus. So, here we were talking about the say discounting the concept of discounting. So, this is uneven cashflows and in case of the see, in the series of the uneven cashflows, now we have to calculate the value.

If this 10 lakh is, 10 lakh in the current year in the period zero. So, it means this 1 lakh coming back to me at end of the next year, or the at the end of the first year is not 1 lakh. It is something less than that because time value will reduce it is value. 2 lakh rupees coming at the end of the second year, 4 lakh rupees coming at the end of the third year, and 6 lakh rupees coming back at the end of the fourth year.

They are not in the same on the value. So, it means now here the 1 thing you have to start doing is you have to go for discounting. The concept of discounting is more important here and discounting of uneven, discounting of uneven cashflows. That we have to do this is a series of the uneven cashflows. We have to go for the discounting of the uneven cashflows series and what is objective?

This total of the next 10 years cashflows which are foreseeable this should be discounted value of that, we will compare with this amount of the 1 million rupees and then we try to find out, what is the net present value. Net present value is basically what the total amount is you can calculate is the cash-outflow minus present value of cash-inflow, present value of the cash-inflow.

This is the or you can call it as a present value of the cash-outflow minus present value of cash-inflow and the difference is going to be the NPV net present value. So, this is going to be, we are going to learn that the net present value, the present value of cashflow and the present value of cash-inflow. It means net present value is going to be what?

We have to put it now for this, in the reverse relationship that you can say, if you want to calculate this net present value in this case you have to do one thing is that is, in the reverse order you have to it, because we have to find out which one is bigger for us. So, in this case we have to do it reverse and if you do it reverse in this case.

Present value of cash-inflow, present value of cash-inflow, minus present value of cash-outflow, and then we want to find out. So, say for example, when you are going to do it that we are having this 1 lakh plus 2 this plus this. So, it means how much we are going to have 1 lakh plus 2 lakh, 3 lakh plus 4 lakh it is going to be 7 lakh plus 6 is 13 lakh. So, if you discount this 4 cashflows for certain discount factors.

And compare with this cash-outflows, so the value which will be there with us, that is called as a NPV. So, present value of the cash-inflow means all these are cash-inflow 4. We will sum them up means discount them sum them up and that will be known as a present value of the cash-inflows. Present value of cash-outflow is equal to 10 lakh rupees or the 1 million rupees, we will try to find out the net present value

So, this is the one technique of the capital budgeting likewise different techniques of capital budgeting we will, say like to learn here and ultimate objective is that whatever the investment we are making in any project. Whether it is existing or new, it is expansion or diversification or maybe it is a existing form or it is a say any project by any new entrepreneur or may be a startup.

Our objective is that in how many years we are going to get investment back and after that whatever the cashflows are available that is our surplus available over the project. So, capital budgeting is a technique which helps us to understand all this evaluation of the different investment proposals and if you want say yes or no for any investment proposals that largely depends up on the say evaluation of different projects on the basis of the say different techniques of the capital budgeting.

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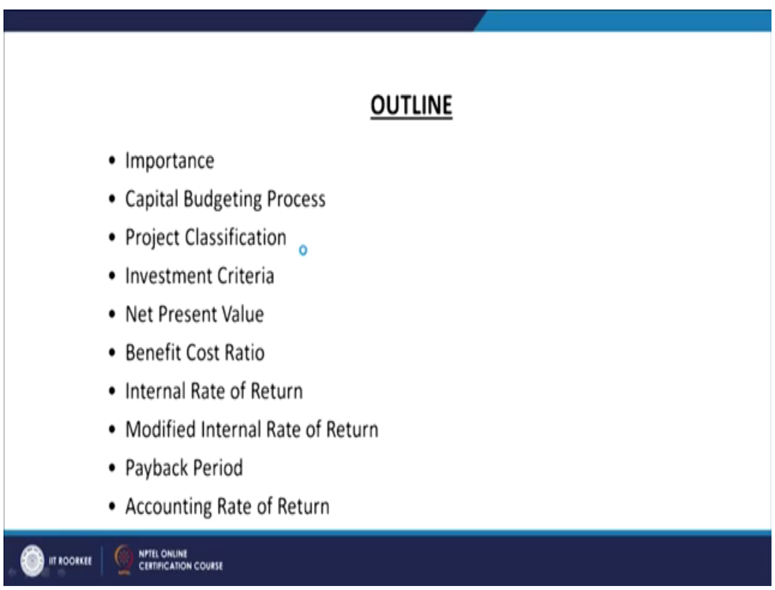

So, in this case when you talk about the techniques of the capital budgeting, we will discuss all these things under this process of capital budgeting. We will talk about what is importance of capital budgeting, then what is the process of capital budgeting, we will talk about the project classification. We will talk about the investment criteria.

We will talk about the different techniques like net present value, benefit cost ratio, internal rate of return. Then is the modified internal rate of return, payback period, accounting rate or return. These all are the techniques of the capital budgeting and we will learn all about this techniques and by using any of the techniques or jointly some of the techniques, how to evaluate the different investment proposals.

That is the important point to be answered or different question that is the important to be answered in this discussion on this case. So, here I will take you to the now the say formal discussion on the capital budgeting. Capital budgeting means, it is more linked to the capital expenditure. We do two kinds of expenditure in the businesses or in the businesses organization.

One expenditure is called as a capital expenditure, another expenditure is called as the revenue expenditure or you can call it as the long term investment or the short term investment or the long term any expenditure. The benefit of which accrue for a longer period of time and any expenditure the benefit of which will accrue shorter period of time.

And when you say differentiate between the longer and shorter period of time. Longer period of time is any period of time, which is more than a year and shorter period of time is maximum up to 1 year that is 12 months. So, when you talk about the capital expenditure, capital expenditure means any expenditure the benefits which are going to be accrue to the firm or to the sponsor of the project for a period of more than 1 year.

That is called as a capital expenditure project or that may be the long term expenditure or that may be called as a maybe medium term expenditure. But not at all short term expenditure and when you talk about the short term expenditure that is the help of the working capital and for the short term requirements maximum of 1 year and say with in a period of 1 year. How much are going to financial requirement of the firms, and how they are going to be fulfilled that question has to be answered in a different way, in a different process and there we do not make use of the capital budgeting process.

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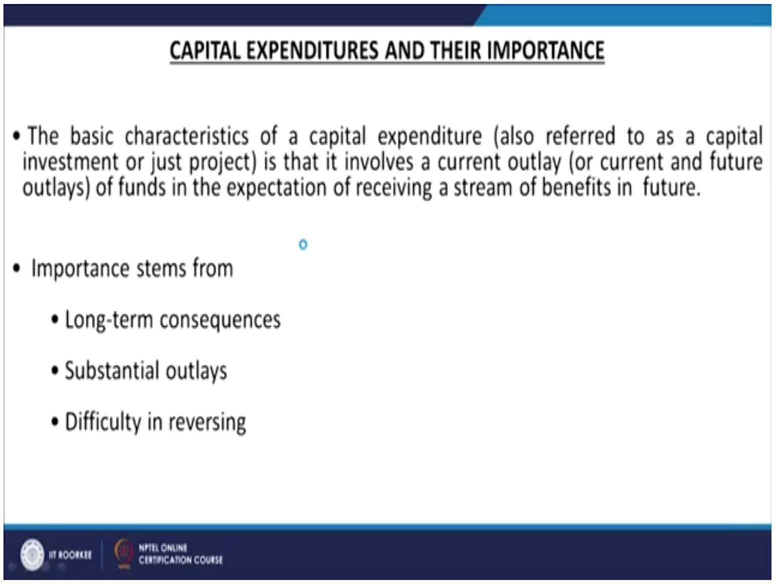

So here if I take you to the formal discussion, so you can understand here is that the basic characteristics of capital expenditure. Also referred to as a capital investment or just project, also referred to as a capital investment or just project is that, it involves a current outlay it involves current outlay or maximum is current and the future outlays of the funds in the expectation of receiving stream of benefits in future.

Current outlay as I told you in the, some moment back, that the expenditure may be only the current period that is called as a zero period or it can be in the subsequent years also, that in the first year, zero year we made the investment of 1 million rupees. So first and second year no investment is required, only inflows are coming. Third year again you have to make investment. Fifth year again you have to make investments.

So, it can be possible that for keeping the say project going on the firm going on the investment going on giving you the best results. You have to go for the updation also, upkeeping also. So some capital expenditure is required in the subsequent period also. So, whether it is required in the subsequent periods also.

Or it is done in the zero period it has to be compared with the inflows available over the subsequent year or number of say years going to come and in the expectation of receiving stream of benefits in future, streams of benefit in future means in the coming years. The benefits means the cashflow. So, in the simple language it can be called as it is a simple comparison of the say present value of the cash-outflows with the present value of the cash-inflow.

And when you make comparison of these, that to in the present value sense, it is called as the process of a capital budgeting. Capital budgeting means when this capital budgeting technique was not there, even then say our forefathers were evaluating the businesses or the businessmen were evaluating the capital investment proposals. When people never knew about the time value of money or the discounting criteria.

At that time also we were evaluating and in the simple layman's language ,means any investor would ask a genuine question that okay, if you are asking for a investment of 1 million rupees in how many years this investment is going to be recovered What we are talking about is, we talking in terms of the payback period, and payback period is very important technique of capital budgeting.

So, people knowingly or un knowingly have been using this capital budgeting process in the past also. But now we have a very formal and very useful process of evaluating the projects or the say capital investment proposals which we called as the capital budgeting.

Now what is important here, importance of the say capital budgeting. Now why we give so much of importance to the capital budgeting? Because, when you talk about the any investment proposal is not only one day job, it takes some time even months time or sometime up to 1 year. Because, we are going to take a very, very crucial or important decision for the firm, very, very crucial or important decision for the firm and it is a question of investing hard earned money, scares resource finance.

We are going to invest the finance very hard earned money in the firm or in the business and ultimate objective is the value maximization of the firm not value erosion of the firm. So, value maximization only be possible if the present value of the cash-inflows or series of the cash-inflows, out ways the present value of the series of the cash outflows.

So, we have to make a thorough process evaluation process for that capital budgeting say that capital expenditure and we any point of time we find that investment is going to be doubtful outflow or the doubtful investment we can, means the simply decide against the making the investment or not going for the project.

So, that is why very, very say serious investment process and whenever go for this kind of the process we have to be very careful, that it is a question of millions of rupees we are going to invest and it should not be something like I discussed with you in the beginning lectures about the say fruit bear project of the Anchor industry.

They invested 350 crores and finally they say ended up with just nothing because that project failed. So, it should not be a proposal like that, if it is it happens like that the firm is going to lose very scares and limited resources and we have to be very careful while making the investment that is why now a days. When I am talking comparing the current say business environment with the older days.

At that time the say the future was more certain. Because, market was not very competitive and the requirements of the people could have been easily means forecasted and whatever the price you are going to charge for 1 unit, if you manufacture and sell in the market, that was easy easily determinable but all this things become totally you can call it as a say uncertain in the market.

Uncertainty has increased because of the competition because say want and requirements of the people income level of the people. Business environment is dynamic, so every day changes are taking place. It may be possible that we started making any investment by the time project has become ready to deliver the benefits, it has become obsolete maybe within 1 year, new technology has come.

For example, you talk about the that if you say talk about the LCDs, this colour tvs. We had two kinds of technologies sometime back we talked about the LCD technology but how many days it lasted in the market it is, means very soon it was replaced by the LED technology. So, people who invested into that means they could not reap the benefits out of it and LED technology means within no period of time over took the LCD.

So, it means you can understand that how quickly the changes are going to take place. Today we make the say investment in the market and I think by the time our project is ready to deliver the results. Your things have changed in the market, the environment has changed in the market, the say people requirement has changed in the market.

New product has come and in case of the IT products, for example, this situation is very, very say desirable that means that life of the project, or may be any product or service which we are say going to generate out of the IT sector, in IT sector. The means you have to recover the investment very quickly otherwise it is not going to be safe investment.

So, because of this peculiar nature of the mis the characteristics of any investment. We have to be very careful that because of the special characteristics attached to the capital budgeting process. We have to be careful and that is why we attach lot of importance for the capital expenditure or the capital investment decisions.

Importance you have to attach why, because long term consequences once you lose any money that to in the millions of rupees. It will destroy it will means affect the financial health of if it is existing firm for the years together and if it is new firm or the new group of the promoters they may lose everything.

And ultimately, they may not get the anything back in return of making that investment in the market, because everything went down in the drain. So, consequences we calls the amount of investment we are going to make is very, very high is a very, very serious. So, and once you take the decision you cannot go back.

So, because of this long term consequences you start little late but with the proper all calculation, and whatever risk we are going to take we have to take the calculated risk it is the first important fundamental rules in the finances or in the financial management. That people do not say do not take risk because if you not take the risk you will not say be able to maximize your returns.

Because the risk in returns are inter related, but if you take un calculated risk. So, what is going to happen, you are going to lose investment in the market. So, that has to not to be done, second thing is substantial outlays huge investment we are talking about because, we are talking about the capital expenditure and if it is a capital expenditure is huge investment.

And because of that huge investment you have to be means very careful, because if it is small investment of 20, 30, 40000 to up to 1 lakh rupees. People can bear it but if it is about some say crores of rupees, millions and Billions of rupees then is a very important question, that we have to be careful because of it is being substantial nature.

And third one is the difficulty in reversing, it is irreversible investment say process once we started making any investment, but we are say making a investment short of you can call it as while started building a project is we created a sinking fund. Whatever the fund we are making in the that until or unless if competes and start delivering the results to us it has become like a sinking fund.

And whatever the investment you are going to make it is going to only say absorb that and no return is coming back because is still in the building stage is in the construction stage. So, until and unless if say efficiently completes it is process the construction process and start delivering the goods and services, till then means it is not safe investment and if may be we planned make 100 lakhs of rupees investment or 100 crores of investment.

We invested for example, 5 crores but after that we thought no, we should change it some other area it is not possible. If you want to change it to some other area you have to forget the 5 Crores. And that 5 crores is very big expenditure. So, because of this 3 important say characteristics attached long term consequences substantial outlays and the difficulty in in reversing that investment means we have to be very careful and cautious, while making investment.

Because, once say invested in the market things cannot be reversed no investment can come back to us and that means entire process is going to have long term consequences for the firm. Maybe it is existing or new. So, entire capital budgeting process say helps us to evaluate any investment proposals and take the things say forward.

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Now this is the capital budgeting process, when you talk about the budgeting process step by step, we have to learn about it and we have to go ahead say about each and everything and what are the different steps involved in the capital budgeting process. First, one is a identification of the potential investment opportunities, then is a assembling of the investment proposals.

Then is the decision making, then is a preparation of capital budget and say appropriations, then is implementation and then is a performance review or the post completion audit. So, all this points are very, very important. So this all means 1, 2, 3, 4, 5, 6, these 6 steps make the capital budgeting process from 1 to 6. Every step we have to complete and we have to means understand.

What is the importance of all this steps, what is the relationship and inter relationship, among us these different steps and how to take one step after the another, that is say very important for us and that makes a capital budgeting process complete. So, the detailed discussion over the capital budgeting process and the minute discussion about all the points involve here.

I will do with you in the next class. This is just beginning of the capital budgeting process, which is very, very interesting and useful technique in the financial management. So, we should be very clear about it, we should be means thorough with the process of capital budgeting. Because evaluation of any capital investment proposal is the first important requirement which is expected to be means that capability, that quality that capability is expected to be good see for a good finance manager or a person who knows finance. So, all this inter cases of the capital budgeting and the important points and the issue associated to the process of capital budgeting.

I will discuss with you in the discussion over the next few say, say classes. But for the moment I will stop here and this capital budgeting process . I will discuss with you in the next class. Thank you very much.