Working Capital Management
Dr. Anil K. Sharma
Department of Management Studies
Indian Institute of Technology-Roorkee

Lecture - 04
Approaches of Working Capital Management - 1

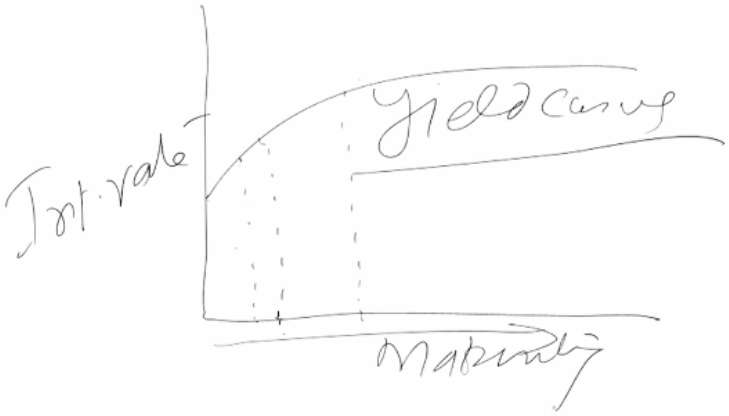
Welcome students. So we were talking about the trade-off in the last part of discussion, trade-off between the profitability and risk right. So as I told you just I will recoup it back that if you borrow more funds from the long term sources what will happen? Your cost will increase, borrowing cost will increase and your borrowing cost will go up and your returns will be less.

So in this case, when you are talking about the trade-off between the profitability and risk, so what will happen? If you are borrowing the fund from the long term sources in that case your cost will go up but your risk will go down because we have sufficient funds available and we have borrowed those funds for a longer period of time for the longer duration. So in that case, we not need to pay it means more quickly.

So you are means at ease to make the payment, to return the funds back to the source. So in that case anytime any funds becoming due to be paid to the suppliers, to the electricity company to water supply company or to any other source, we have the funds available. But what is happening? The cost is increasing. As I told you that in India we have the term structure of interest rates. Now what is the term structure of interest rates?

That the term structure of interest rate is that longer the duration or the longer the maturity period, higher will be the cost of the fund. So when you talk about the term structure of interest rate you can show it something like this that you can have say the term structure you can show it something like this that.

(Refer Slide Time: 02:00)



Say for example this is your structure. So we are talking here we have the maturity of the funds. Here we have the interest rate and it is the yield curve right. We call it as the yield curve. So it means longer the duration means as the maturity is increasing here from this to this side when the maturity is increasing your interest rates is increasing. So initially it was going up and up but after some period of time it becomes stable.

So it means if you are borrowing the funds for this much period of time your interest rate is this much. If you are borrowing the funds for this much period of time your interest rate is this much. If you are borrowing the funds for this much period of time your interest rate is this much. So it means because of this term structure of interest rate it is still say till July 1991 we had the reverse of the term structure of interest rate.

But after July 1991 after the liberalization of the Indian economy we have now the term structure of interest rates. Earlier it was the reverse of the term structure of interest rates but now it is a term structure of interest rate. Why it was reverse of the term structure of interest rates means lesser longer the maturity period lesser is the interest cost. Or the yield curve was say moving differently, it was not going up but rather it was going down.

So in that case if you talk about the yield curve it was going down like this. So it means if you are borrowing the funds for the longer duration you have to pay the lesser rate of interest. Why

that was happening in this economy that is a long story. It is a different reason, different story. But now we have the term structure of interest rate because in the entire world all the businesses, financial institutions they follow the term structure of interest rates.

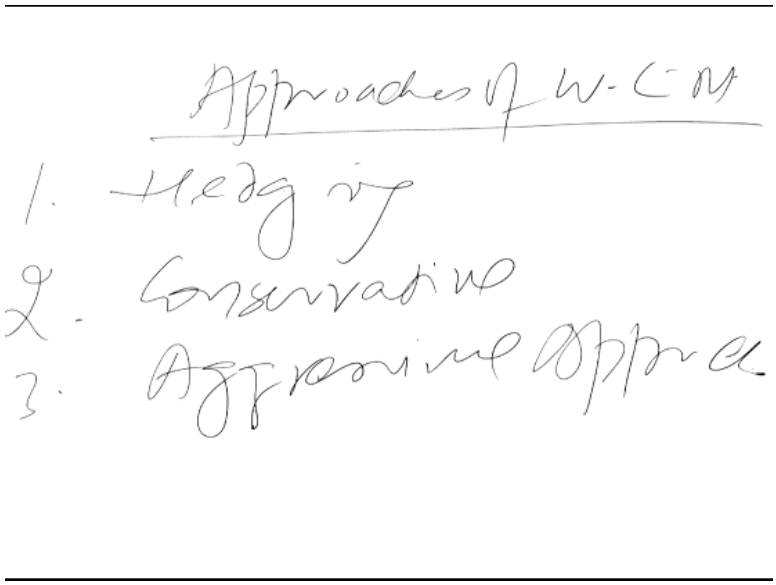
So India also has to align, Indian companies, Indian businesses, Indian financial institutions also have to align with the term structure of interest rate so we have now the same structure and if you are borrowing the funds for the longer duration you are paying the higher amount of interest and because of that reason if you are investing long term funds for the short term purposes for the financing of the current assets, in that case what is happening?

That you have to pay the higher interest rate your financial cost will increase but the risk will go down. But if it is reverse, if you are borrowing funds from the spontaneous sources short term sources in that case what will happen that your risk will be more but the financial cost will be under control or that can be easily managed or that will be manageable. So now I will discuss with you.

Before we move to the trade-off as I told you in the last class that we will have to have the trade-off that 2 extremes are not good that having the funds from the short term sources and increasing the profitability by increasing is also not good. Similarly, borrowing the funds from the long term sources and reducing the profitability as well as the risk is also not good. So I told you that we should go for the trade-off.

So what is the trade-off and how we go for the trade-off before that I will take you to some other concept. We will discuss something before say talking about the trade-off and in that case I will talk to you about the approaches of working capital.

(Refer Slide Time: 05:20)



Approaches of working capital, management you can say. Approaches of the working capital management. If you talk about the approaches of working capital management, we have 3 approaches. One is the hedging approach and second one is the conservative approach. Second one is the conservative approach and third one is the aggressive approach. Next one is the aggressive approach. So we have the 3 approaches.

One is the means hedging approach, conservative approach, and aggressive approach. Conservative approach says that most of the short term financial requirements of the firm or the financial requirement for funding of the current assets will be fulfilled from long term sources. We are more conservative toward the risk. We can compromise with the profitability but we cannot take more risk.

We are more conservative and we are borrowing funds from the long term sources and we are investing those funds for managing the current assets or the short term funds so if that is the approach the firm is following or the business is following then that business will be called as the conservative in nature or following a conservative approach of the working capital management. Third approach is that is the aggressive approach.

Aggressive approach says that more and more funds will be arranged for financing the short term or current assets from short term sources, spontaneous and short term sources. So it means if you

are following a aggressive approach so what will happen? That your say more funds are coming from the spontaneous finance and the short term finance and we are not borrowing from the long term sources at all. We are not utilizing the long term sources at all.

So that we call it as the following the aggressive approach of the working capital. So it means by borrowing funds from short term sources you are financing total current assets and even sometimes the part of the long term assets also. That is why we call it as aggressive approach. The result of this aggressive approach is that your cost of funds will be lowest and risk will be highest but the profitability will be highest.

In case of the conservative approach there will be the other extreme that the cost of funds will be very high. Profitability will be low but the risk at the same time will also be lowest. So what you want to choose? As I told you that conservative and aggressive approach, both these approaches as per the experts and financial experts as per as the business experts, both these approaches have some limitations because both these approaches talk about the extremes.

So we have to have something in between and if you want to have something in between then that approach is called as the trade-off approach or the third approach or the other name of this approach is the hedging approach. That is the trade-off. You can have hedging approach or maybe exactly not trade-off but hedging approach is that you are managing the risk to some extent. You are managing the financial cost to some extent and you are trying to have the optimum profitability which is expected to be there from the business.

So now in this case how these approaches will be or how they can be depicted or how these approaches will be looking like we will be talking about the different 3 approaches. So in this case what we will be doing is that we will have to say show with the help if a structure that how the different 3 approaches will be something like right.

(Refer Slide Time: 09:14)

So this is your you can call it as say this is the time. This is the or oblique output and here we talk about the investment. This is the investment. Time, oblique output, and on the this axis y axis we have the investment. So in this case, we have say this is the level of assets which you call it as fixed assets. This is the level of assets which is some other assets and then the we have the next level of the assets.

So in this case we have the first level of assets is the this is the fixed assets; fixed assets or long term assets. This level of the assets is called as the PCA or the permanent current assets and after this we have the level of assets which keeps on increasing that is called as the fluctuating current assets or this is you call it as the FCA fluctuating current assets. So we have the fixed assets in the firm. We have the permanent current assets in the firm and here we have the fluctuating current assets in the firm.

Now you come to this side. If you have this much level of your time and output in this case what will happen? If you are following a conservative approach in the working capital management, if you are managing the working capital by following a conservative approach so what I will be doing? In that case I told you most of the financial requirements will be fulfilled form the long term sources of the funds.

So it means this is the fluctuating current assets. In between we are dividing it with the with a dotted line and you call it as this is the half of the fluctuating current assets. You can call them as the real current assets also. These assets are the real current assets also. Fixed assets plant, building, machinery, land everything is called as the fixed asset. You understand it? Permanent current assets.

Permanent current assets are the current assets like inventory, like your credit sales, like your cash, like your prepaid expenses or advance deposits, bills receivables. But we call them permanent current assets why because that is the minimum level of these assets the firm always maintains. The level of inventory, the level of credit sales, the level of advance payments, the level of your say cash never goes below this level of the current assets.

So they are called as permanent current assets or in the other way around they are as good as the fixed assets. So we treat them differently as compared to the current assets which are called as fluctuating current assets. Then you have the minimum level of inventory maintained. After that if you take up the level of inventory then that will be called as the real current asset or fluctuating current assets. You are selling say, 10% of your sales are permanently on credit.

But more than that if you increase the credit sales that will be the fluctuating current asset. So we have 3 categories of the assets; fixed assets, permanent current assets, and the fluctuating current assets. Now if you are following the conservative approach, how these 3 categories of the assets will be financed means what will be the source of funds for financing these 3 categories of the assets.

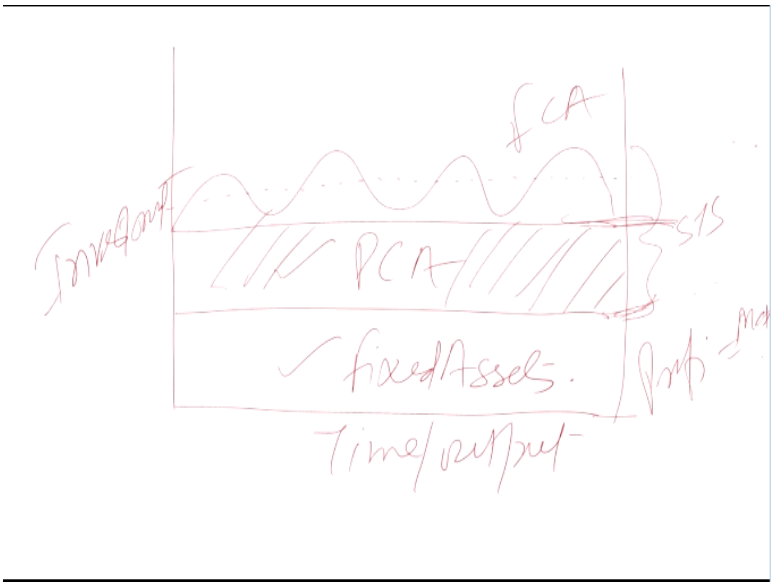
Under this means the conservative approach, I told you conservative means more funds coming from the long term sources and from the short term sources minimum investment is being made. So it means what will we be doing? We will be up to this level. We will be financing from the long term sources, long term sources of the funds. Your entire fixed assets, entire permanent current assets, and half of the fluctuating current assets will be funded from the long term sources.

No problem, you can fund your fixed assets from the long term sources, even your permanent current assets from the long term sources. But you are funding your half of the current assets, fluctuating current assets or real current assets from the long term sources, it means here is a mismatch right and only this part, particularly this part smaller part, only this part will be financed from the short term sources of the funds.

Half of the fluctuating current assets will be financed from the short term sources of the funds above this dotted line and up to this dotted line right from the first base line up to the dot half means up to this dotted line all the funds will come from the long term sources. We are highly conservative. So what is going to be the result that the cost of the funds is going to be maximum and the risk is going to be minimum and the profitability is going to be minimum.

This is one extreme. Now if you are not following this approach and if you change your approach in this case what will happen? We will now changing our approach and if you are changing the approach it means we are moving towards the aggressive approach. I am not taking to the hedging approach right now. We are moving towards the aggressive approach means aggressive approach is just reverse of your is just reverse of your conservative approach.

(Refer Slide Time: 14:36)



In this case aggressive approach as the name indicates what you were doing under the conservative approach? We were up to this level from the long term sources. Now you are doing

reverse. Most of the financial requirements of the firm will be fulfilled from the short term sources. To minimize the financial cost, maximize the profitability and to earn the maximum return on the investment.

In that case what are you doing? In this case total of your current assets and of your permanent current asset and even sometimes part of your fixed assets are being funded from short term sources. Up to this much extent the investment is coming from the short term sources. Part of your even say I would say that even the plant, building, and machinery are being funded from the bank loans which are short term in nature.

Or even that much level of the aggression is not there. At least you can be easily up to this level. Your total current assets and your total means fluctuating current assets and total permanent current assets many firms are funding their total not up to this level but at least up to this part they are funding from the in this case means if you talk about then what is happening up to this case you are easily up to this level you are funding your requirements, investment requirements from the short term sources.

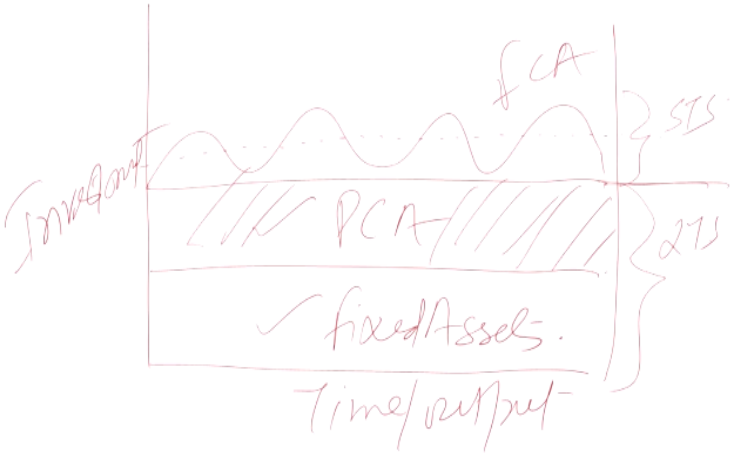
So it means short term funds which you have to pay after some period of time, maximum within a period of 1 year if you are investing those funds in to fund the permanent current assets which level is always maintained by the firm in that case is little risky proposition because these this part this particular region of the permanent current assets that will never become liquid. You will not be selling the inventory below this line right? You will not sell credit sales less than this line.

It means when this much of the credit sales are always there it means this much of the funds are always blocked in the credit sales they will not come back to us. But we have to return these funds maximum after a period of 12 months. So it means it is little aggressive because you are investing short term funds which are available for a few months for fulfilling the requirement investment requirement of those assets which are almost maybe considered as fixed asset or which are as good as the fixed assets. So this is called as aggression.

So but what will happen that your cost will be financial cost will be lowest, your risk will be highest but the finally the result will be that your profitability will be the maximum. You will have the maximum profits. Your profitability will be the maximum. So these 2 approaches we consider them they are the 2 extremes.

And the third approach when you talk about here is now if you talk about the third approach which we call it as the hedging approach or we call it as to some extent not exactly trade-off but it is called as the hedging approach or the matching approach means the 2 names which are given. Hedging approach we normally use in the trade-off but it is called as hedging approach it is called as matching approach and under hedging or matching approach what we do?

(Refer Slide Time: 18:11)



That under this approach we have clear cut demarcation. Up to this level we call this level of assets as the long term investments or the long term or the fixed assets. Fixed assets are fixed assets. Permanent current assets are also considered as fixed assets and both these assets, means fixed assets and permanent current assets are as good as fixed assets. So both these assets will be being long term in nature will be funded from long term sources, LTS.

They will be funded from the long term sources, no risk of liquidity, no risk of say making the fast payments or means defaulting in terms of the payment, no risk of the financial or the technical insolvency nothing. Our requirement is long term. Our source is long term and both the

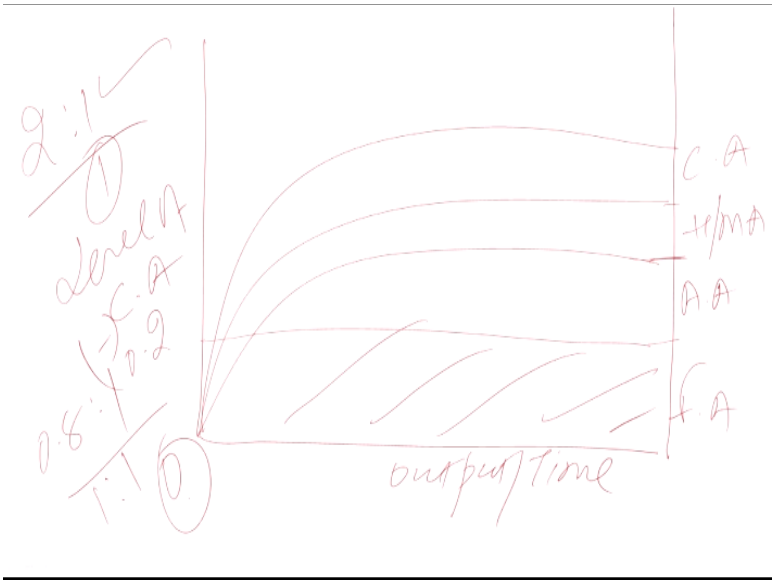
maturity period of the loan as well as the utilization of the loan period are matching with each other. But here this level is called as the real current assets or the fluctuating current assets.

So since they are short term real current assets it means they will be funded from the short term sources. This is hedging. You have created a hedge. This line is creating a hedge here. This is called as the hedge. Hedge between the short term requirements, hedge between the short term and the long term requirements.

If the requirement is long term, requirement is permanent, more funds will come from the or larger chunk of the fund or the total funds will come from the long term sources and if the requirement is short in nature then the total investment will come from the short term sources. This is called as the hedging approach or you call it as the matching approach and this approach we use in trading off between the profitability and the risk.

So in this case if you talk about this case or these approaches, so we have talked about the these 3 approaches of that how to use the funds and how to utilize the different sources of the funds for fulfilling the financial requirements of the firm. Now, we will see the level of current assets under the 3 approaches. If you talk about the level of current assets under the 3 approaches let us see what is the level of current asset under 3 approaches.

(Refer Slide Time: 20:16)



This is the level of going to be the level of current assets under the 3 approaches. This is the output or time. And this is called as level of current assets right? This is the level of fixed assets. This is the level of fixed assets and this is the level of current assets under one approach, level of current assets under second approach, level of current assets under the third approach. You can easily understand what approaches we are talking about here.

This is the fixed assets. This is the level of current assets under the aggressive approach. This is the level of current assets under the hedging oblique matching approach and this is the level of current assets under the conservative approach. This is the fixed assets. This is always fixed, plant, building, machinery, land. Aggressive approach, you are keeping the minimum level of current assets and your current ratio is that is the 0.8 : 1.

You are maintaining the lowest current ratio, minimum level of current assets. Minimum level of cash, minimum level of inventory, minimum level of credit sales, minimum level of marketable securities and you are following a negative working capital approach. Your current assets are less than the current liabilities because we are following the aggressive approach. Under this hedging or matching approach, your current ratio is 1:1.

Current assets are equal to the current liabilities. There is a zero net working capital. Nothing is coming from the long term funds to fulfill the requirement of the short term assets of the current assets. And under this your current ratio is 2:1 I would say 2:1. Your current assets are two times of your current liabilities. How much is due to be paid? Two times of that we had kept with us as a cushion you call it as, as a safety measure you call it as, or as a measure of maintaining the sufficient liquidity.

We do not want to take any risk in terms of making the payment. We do not want to see the firm becoming technically insolvent. Maybe it is affecting the profitability of the firm. We can tolerate that. We can earn the lesser profits but we should not be earning bad name or bad reputation in the market.

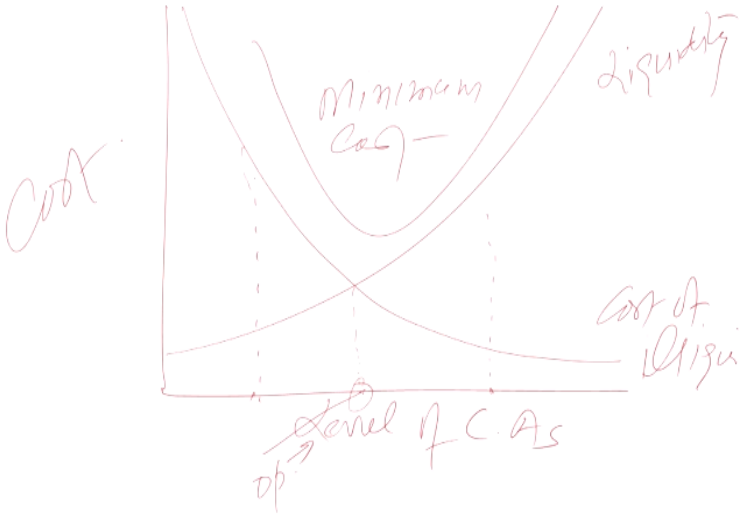
So the level of current assets, under the current conservative approach current ratio is 2:1, under the matching approach current ratio is 1:1, zero net working capital. Maximum net working capital under based under 2:1. So net working capital is 1. Here net working capital is - 0.2. And here the net working capital is zero. Means no requirement from the long term sources to fund the current assets. No requirement from the long term sources to fund the current assets.

Current assets are just equal to current liabilities and 100% of your current assets are being financed from the long term sources of the funds. So this is the level of your current assets under the 3 approaches. Now choices of the business, finance people and the different department of the firm what type of the approach they want to have whether they want to maximize the profitability or they want to take some risk or they want to have a approach in between.

So at least when you talk about this your conservative and the aggressive approach, either of the two is not good. Means if you use them solely then in that case that is not going to serve the purpose. So we have to have something in between or we have to follow the middle path. So it means I say that if you are following the conservative approach, level of current asset is 2:1 that is too high we are on the safer side but the profitability is being unnecessarily compromised.

If we are keeping very low level of current assets under aggressive approach our profitability is maximized but we are taking huge risk. So in this case how to solve the problem of having the level of current assets which is called as optimum, neither too high nor too low. Let us see it. We will find it with the help of another structure. You can find the level of optimum level of the current assets we would call it as and in this case the optimum level of current assets here we will call it as the level of current assets.

(Refer Slide Time: 24:54)



This is the level of current assets this is the level of current assets. On the x axis you take the level of current assets so in this case level of current assets and here we take the we take the cost, level of current assets and the cost. Now if you see if you are moving like this, this is called as the cost of liquidity which will go like this. And this will be called as the called as the cost of illiquidity. This will be called as the cost of illiquidity.

So it means either of the cost is not good for us. So this is the cost of illiquidity right. If you are increasing the level of current assets what is happening? Your cost of liquidity is going up like this. If you are keeping the level of this is the level of your current assets. So what is there? This is the cost of your liquidity. You are increasing the level of current assets because you want to have the maximum liquidity. So this is the cost of your liquidity.

And if you want to minimize it that my level of current assets because they are least productivity I will keep the minimum level of current assets your cost of illiquidity this is the maximum. This is the cost of liquidity. This is the cost of liquidity and this is the cost of illiquidity. This is the cost of illiquidity. So it means if I am going from this side to this side my cost of liquidity is going up. If I am going from this side to this side my cost of illiquidity is going up.

Cost of illiquidity going up means the risk is going up. I may technically be insolvent. I may not be my firm may not be able to make the payment of my short term obligations on the due date or

on the say the time when they become due. So it means and if I am keeping the larger amount of current assets I am following the conservative approach. So what is happening? I am managing the risk of technical insolvency. But at the same time my profitability is also being compromised.

So what is the solution? I say that we will have to have neither too high level of current assets nor too low level of current assets. Neither we have to pay the cost of liquidity nor we have to pay the cost of illiquidity. We have to have something which is called as the optimum level of current assets and you see the optimum level of current assets is here where these 2 costs intersect with each other where these costs intersect with each other.

These costs are called as the cost of these costs are called as this is the cost of illiquidity. So it means they are intersecting with each other here. So when they are intersecting with each other here it means this is the optimum level of current asset. Here the total cost is minimum. You call it as this is the minimum cost. You will say that is the minimum cost. This is the minimum cost right and this is the level of optimum level of the current assets, optimum level of current assets.

And here my cost of liquidity is up to this level. My cost of illiquidity is up to this level. So if I am coming down, I am stopping here and if I am going up I am stopping here and this is the level of optimum level of current assets. This is how you can decide where both the costs are equal where the cost of illiquidity and the cost of sorry cost of liquidity and cost of illiquidity are intersecting with each other. That level that point is the level of optimum level of current assets.

If you are able to decide that, if you have clearly know sometime what happens, their cost of deciding or finding out the cost of illiquidity becomes a problem. If we are able to find out the cost of liquidity which we are easily able to find out and if we are able to quantify the level cost of illiquidity also, in that case it will be much better that rather than following 2 extremes under the conservative or aggressive approach it is better always to have a middle path and follow the middle path.

And we should maintain the level of current assets where both the costs are equal or they intersect with each other. Point where they these costs intersect with each other that cost is called

or that level is called as the level of optimum current assets and you keep this level of current assets always with you in the firm. If you go from this point to this point what will happen? Your cost of your liquidity will increase, cost will also increase.

But if you go from this point to this point, your liquidity will your cost will go down but liquidity will also go down and the cost of illiquidity will increase so if it means if the firm is paying the higher cost of illiquidity in that case what will happen? The possibility of technical insolvency will be maximum. So we will have to avoid that situation and we will have not to create a situation where we are either paying the higher cost earning lesser profits and taking very low level of the risk.

Similarly, we are also not to create a situation where we are paying a very low cost, we are taking very high level of risk for the sake of increasing the profitability because these are the 2 extremes. So neither conservative approach is good nor the aggressive approach is good. Always have the in between approach that is the hedging approach because that facilitates the trade-off between the profitability and risk that keeps us at the middle level.

Helps us to follow the middle path and that helps us to maintain a level of current assets which are equal to the means which is at the optimum level and there you can have both the costs equal to each other, cost of liquidity and cost of illiquidity they are equal to each other, they are intersecting with each other. If you maintain the level of that much level of the current assets then we will be able to have the optimum level of current assets and if the level of current assets is optimum everything will be optimum.

Your profits will be optimum, your risk will be optimum and your liquidity will be optimum. There will be a least risk of technical insolvency and we should look forward for that kind of situation where we are optimally able to manage everything. Practically how to do it and how we can facilitate that optimum situation in the business or in the business organizations.

And one more thing here I would like to say that if you are saving upon the financial cost while managing the while managing the working capital that directly adds up to the profitability of the

firm because time period is very short. You are you are managing the current asset sometime on the daily, weekly, or monthly basis. So you are saving upon the cost directly. There is no leakage of that cost and that is directly adding to the profitability of the firm.

But if you are not saving so that is affecting the profitability of the firm if you are following the conservative approach. So how the profitability of the firm is impacted by saving the investment to be made into the current assets or optimum investment to be made to the current assets and if you are not following the principle of optimization in that case we are wasting our say scarce resources by investing them into current assets.

And that will add up to the say reducing the profitability of the firm or sometimes making the firm a loss making proposition. So how that does how that takes place and how say following the optimum approach contributes into the profitability of the firm that I will discuss with you in the next class. Thank you very much.