Investment Management
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Lecture - 25
Risk Indicator of a Mutual Fund (Contd.)

Hi there. So, we are discussing about Mutual Funds and previously we have discussed about the benefits and disadvantages of investing in mutual funds. We know that mutual funds are attractive asset class particularly for retail investors. And in last session we talked about the way to indicate the riskiness of mutual fund. In this session we will continue the discussion.

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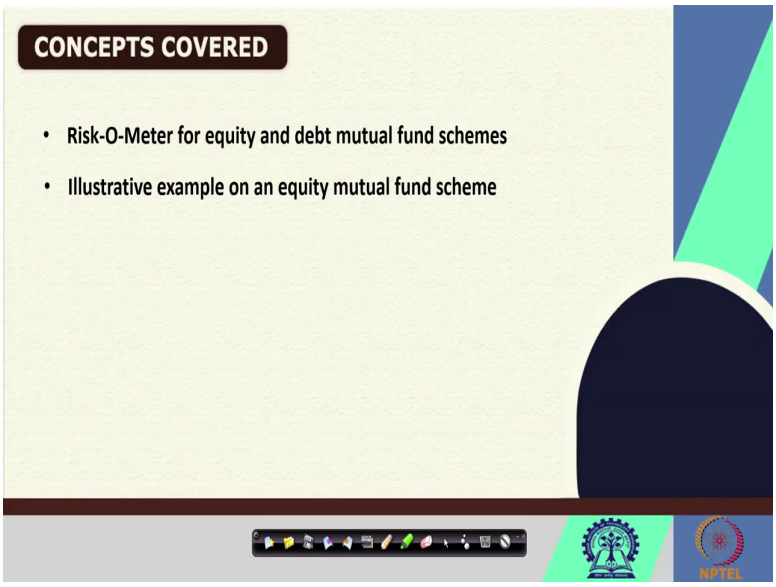

And we will try to see how we can calculate the Risk-O-Meter for equity mutual fund scheme and I will also try to explain if it is debt mutual fund scheme what could be the parameters that can be used for calculating the Risk-O-Meter for mutual fund scheme.

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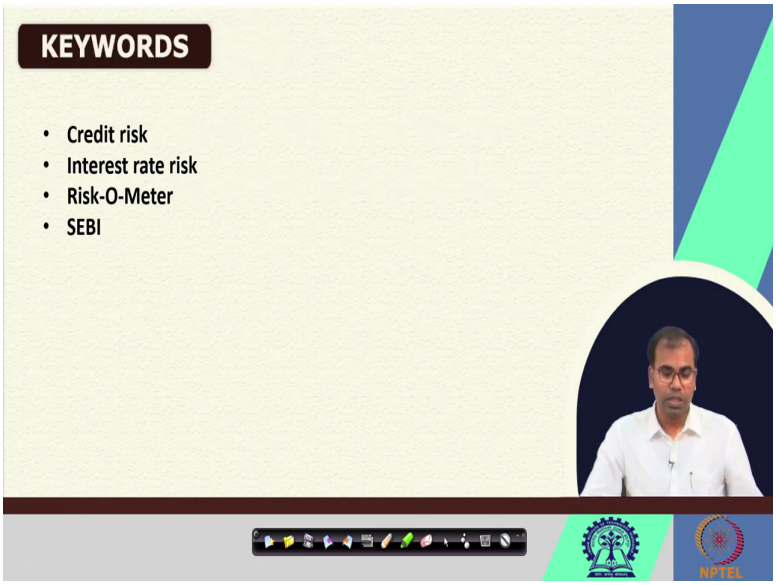

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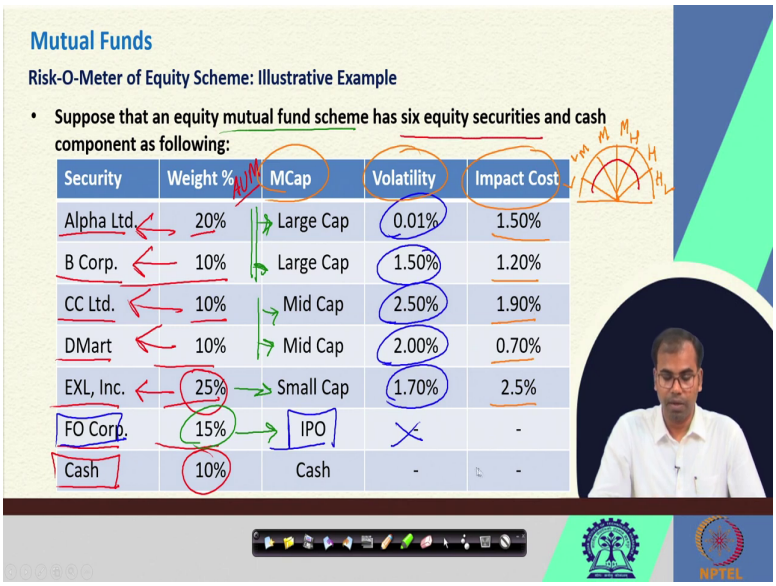

So, let us start with the Risk-O-Meter argument. We know that a mutual fund can have multiple assets. For example, a mutual fund can have many assets belonging to one particular asset class or sometimes more than one asset class as well. For example, if it is an equity mutual fund scheme then the mutual fund scheme portfolio will have equity securities.

But if the mutual fund scheme is hybrid, then it will not only have equity securities, but also it will have debt or other asset class security as well. If a mutual fund scheme is only debt scheme, then it will have only debt securities as part of the portfolio. So, to start with here we are going to take an example where a mutual fund scheme is based on the equity securities and it comprises of six equity securities and also it will have some liquid asset in the form of cash.

So, if you look at the component of the mutual fund scheme or mutual fund portfolio this like looks as following. So, a particular mutual fund has six securities basically the securities or equity securities are shares of Alpha Limited, B Corporations, CC Limited, DMart, EXL, Inc and FO Corp. These are the six equity securities in which the mutual fund scheme that we are talking about right now will have investment.

In the proportion of 20 percent in Alpha Limited, 10 percent in B Corp, 10 percent in CC Limited, 10 percent in DMart, 25 percent in EXL Inc and 15 percent in FO Corp. This makes it to 90 percent and the remaining 10 percent of the portfolio is kept as cash which means the mutual fund scheme is also having liquid asset in the form of cash to the tune of 10 percent of the total holding or total portfolio.

So, we can say that this percentage of asset under management is 20 percent of asset under management is invested in Alpha Limited, 10 percent is invested in B Corp, CC Limited, and DMART Limited in each. 25 percent of investment under asset under management is invested in EXL Inc and 15 percent of asset under management is in FO Corp.

Remaining 10 percent as highlighted earlier will be kept in the form of cash. Many a times this cash is retained or cash is kept to just make sure that the mutual fund has some liquid asset. Sometimes they may have to provide honor the withdrawal or they may have to have liquidity as part of different reasons because we all know that cash can be held for multiple reasons. We know that cash is typically held for the purpose of transactions or for security or for emergency.

So, sometimes companies might find an interesting opportunity to invest in and if they do not have sufficient cash then they might as well lose the opportunity. And that is why many of the times financial institutions would like to keep certain proportion of total portfolio as cash.

Now, other additional information that are required here or that are provided here is Alpha Limited and B Corp they belong to large cap category, CC Limited and DMart belong to mid

cap category and EXL Limited is small cap category and FO Corp is a newly listed IPO company which has been issued which has issued its initial public offering recently.

And this mutual fund has invested in this to the tune of 15 percent of the total asset under management. We know that we require this information because we need to assign certain value for designing the Risk-O-Meter. This is with respect to market capitalization.

If we look at the historical data of these stocks, we can get the historical data for Alpha Limited, B Corp, CC Limited, DMart and EXL and using the historical data of last 2 years we have calculated that Alpha Limited has a volatility of 0.01 percent, B Corp has a volatility of 1.5 percent, CC Limited has a volatility of 2.5 percent and DMart has a volatility of 2 percent and finally, EXL Inc will have a volatility of 1.7 percent.

Again, just to reiterate the volatility can be calculated using the historical data and we are assuming that historical data are available. So, we can calculate using the historical data historical price data to assign the volatility that has been seen observed in the past. Since FO Corp is a newly listed company through an IPO, we do not have historical data. So, we do not have any volatility value.

And finally, if you look at the impact cost or the liquidity measure Alpha Limited has an impact cost of 1.5 percent, B Corp has 1.2 percent, CC Limited has 1.9 percent, DMart has 0.7 percent and EXL Inc has 2.5 percent of impact cost. Now, with this information we are ready to calculate or rather assign value to these three parameters MCap that is market capitalization, volatility, impact cost.

And once we have the score assigned, we will use the weight as a percentage of asset under management to calculate the weighted average value for each of the parameters and subsequently find the simple average of these three parameter score to calculate the riskiness level or riskiness value that will be featured in riskiness Risk-O-Meter.

So, as if you could recall we have a Risk-O-Meter where we have 6 categories of riskiness or risk level. One is low riskiness, another is low to moderate, then we have moderate riskiness,

then we have moderate to high, then we have high and then we have high to low. And according to the simple average of the three parameters for this equity scheme, market cap, volatility and impact cost we will assign a value and accordingly we will see where does this particular mutual fund scheme belong to in this space.

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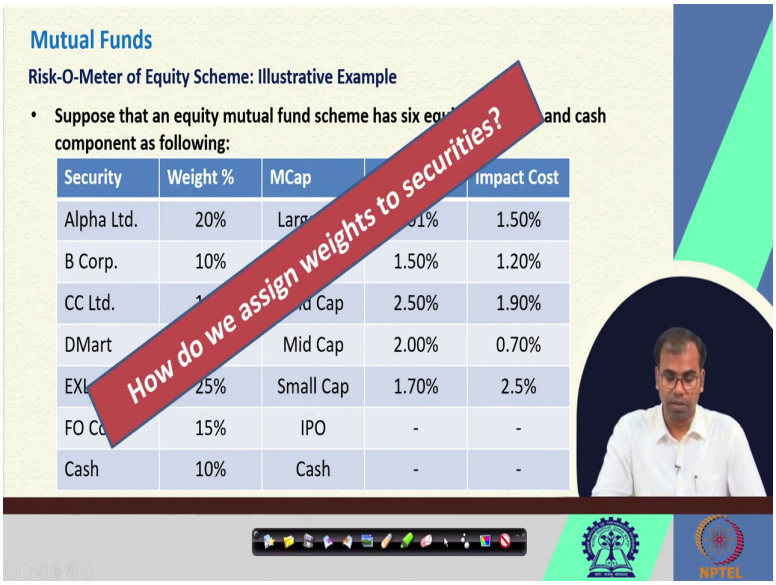

So far so, good. However, what about the weight to be assigned? If we have to find weight or we have to assign weight to each of the securities held in the portfolio, how do we do that? Remember we learnt about the portfolio theory which tells us that we can assign weight or we can try to find weight of the total investment fund or total investible fund to be invested in each of the security at as part of the portfolio on the basis of risk return tradeoff.

Which means if we have historical return data and the riskiness, we can use the risk return tradeoff and follow the Markowitz portfolio theory to arrive at the optimal weight in which

part of total investment portfolio should be invested in each of the securities that we are holding as portfolio.

So, whenever it comes to the proportion of money or proportion of total portfolio to be invested in individual securities, we always go back to the portfolio theory and we try to find what should be the optimal weight or optimal percentage of total investment portfolio that we need to invest in individual securities in order to maximize return or minimize risk. And that is how we do this weight assignment for individual securities as part of the portfolio.

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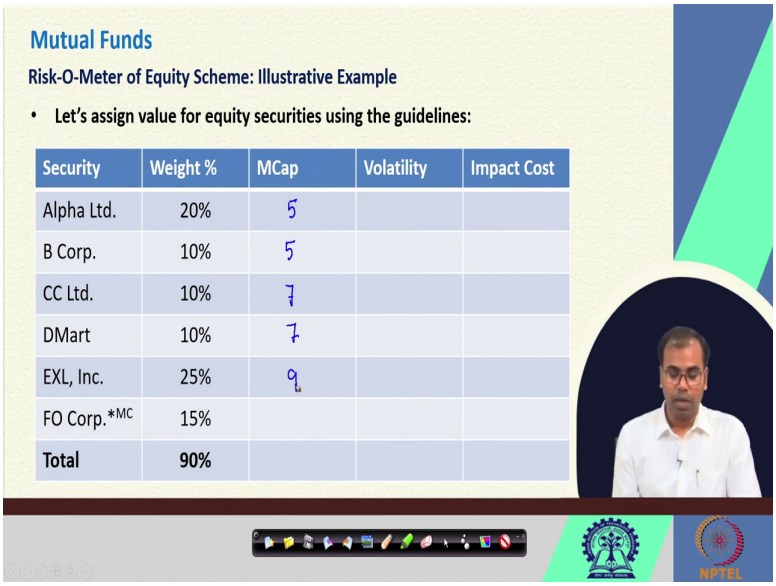

Now, let us work out with the numbers. So, first we have to see we have the weight and we know that earlier we had this first two stocks Alpha Limited and B Corp as large cap. We know that we could recall from previous session that if it is large cap then we assign a value of 5.

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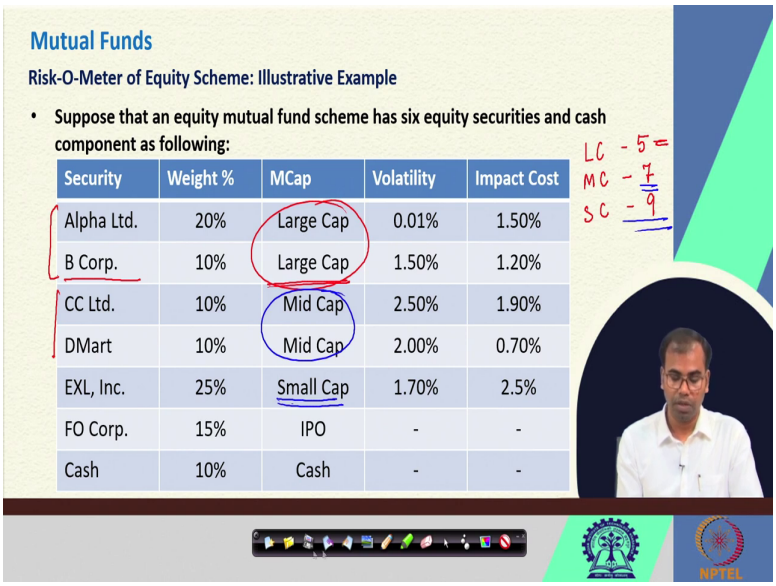

If it is mid cap then we assign a value of 7 and if it is small cap then we assign a value of 9. We know that the first two securities as part of the portfolio are belonging to large cap. So, we will assign a value for market cap parameter as 5. Then we have mid cap these two companies CC Limited and D Mart as mid cap.

So, we will assign a value of 7 and then we have EXL Inc which is a small cap company. So, we will assign a value of 9. As we discussed earlier small cap corporations are more riskier than the large cap and mid cap. So, we assign a higher value here. We also learnt that if we have an IPO then accordingly, we will have to assign a value of 5 because of the historical data on availability.

So, we use this range to find the value of market cap for these companies. So, 5, 5 then 7, then 7, then 9. Now, if you look at the volatility parameter, if you could recall we know that if

the historical using the historical data of past 2 years, if we have the volatility ranging from anywhere between below less than 1 percent then we will assign a particular value and if it is more than 1 percent then we assign a different value.

And here in this example we have the data which shows that we have volatility ranging from 0.01 percent to 2.5 percent. Now, if you try to classify this particular stock Alpha Limited has volatility of less than 1 percent and all other remaining stocks have the volatility of more than 1 percent. So, there are only two categories.

And subsequently if we try to understand the impact cost parameter, then we know that if it is less than 1 percent then we assign 1 value, if it is between 1 to 2 percent then we assign a different value and if it is more than 2 percent then we assign different value. In case of IPO, we have to follow a certain convention. And using those conventions we know that this table will look something like this where we have large cap.

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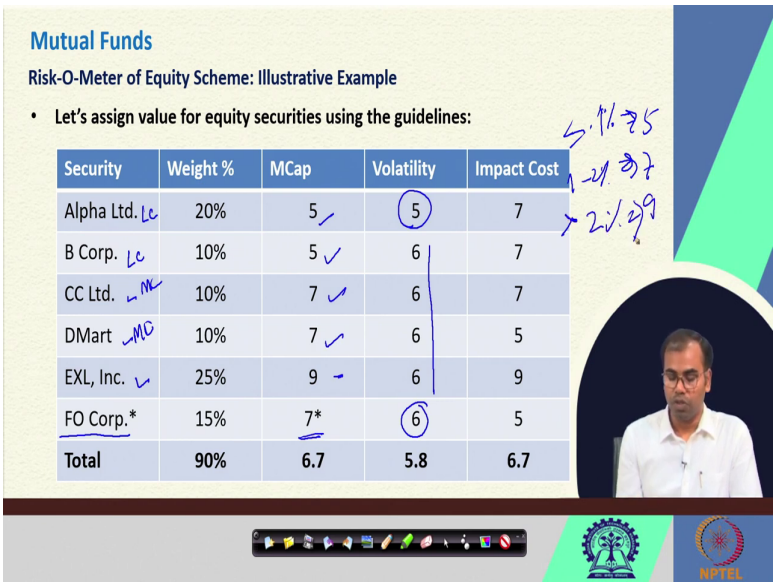

So, we assign a value of 5 large cap assign a value of 5 then mid cap these two stocks are mid cap. So, we assign a value of 7 and then we have EXL Inc [FL] we assign a value of 9. Since FO Corp is an IPO and we know that we have to calculate the market cap as on the last working day of the month last trading day of the month for which we are calculating riskiness. We assume here that this stock belongs to mid cap stock and based on that assumption; we assign a value of 7 for this particular stock.

Then we calculate the volatility estimate, volatility parameter. So, if it is less than 1 percent then value of 5 is assigned and if it is less more than 1 percent then a value of 6 is assigned. IPO has a higher value so we always assign for first 3 months 6 value and subsequently we will calculate the same and assign whether 5 or 6 value for volatility parameter. And finally,

for the impact cost we calculate on the basis of the impact cost being less than 1 percent between 1 to 2 percent and above 2 percent.

So, if it is less than 1 percent, less than 1 percent then we assign a value of 5 if it is 1 to 2 percent then we assign a value of 7 and if it is greater than 2 percent then we assign a value of then we assign a value of 9. So, we know previously that the value that we had here only one case is less than 1 percent these 3 are between 1 to 2 percent and this is more than 2 percent.

So, accordingly we calculate the value we assign the value for these cases for IPO where the fund has invested in IPO the value of impact cost will begin with 5 and after that it will be calculated subsequently. Now, here these numbers are assigned on the basis of the ranges for which CB has guidelines.

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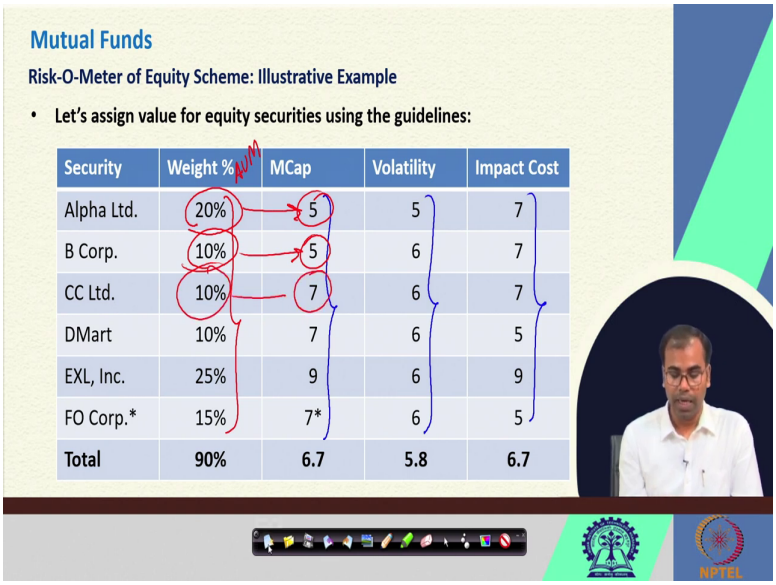

This particular is basically the percentage of AUM which is Asset Under Management to be invested in individual securities. So, now we calculate the weighted average of or weighted value of each of these parameter value. So, first we calculate 20 percent with market cap, 10 percent with market cap for second security, 10 percent weight for the security and then we calculate the weighted average.

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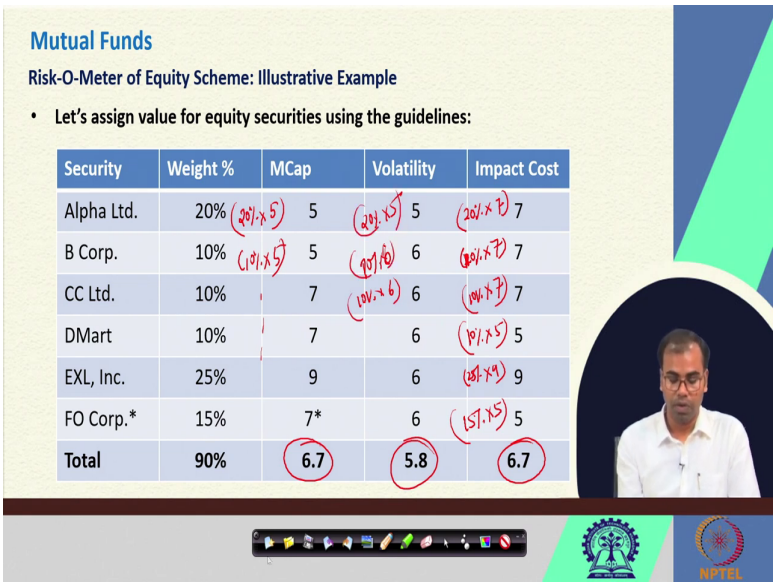

So, basic weighted value of this. So, 20 percent into 5, 10 percent into 5 and so on and this gets us some value. Similarly, here we calculate 20 percent into 5, 10 percent into 6 and so on and this gets us this value. Similarly, for the impact cost also we have 20 percent into 7, then we have 20 percent sorry, 10 percent into 7, then we have 10 percent of the weight into 7, 10 percent of the weight into 5, 25 percent of the weight into 9 and 15 percent of the weight into 5.

And then we sum it up to find the value of weighted score. Remember the weight to be assigned for each of the security is used for calculating the total impact cost for the scheme. So, here we have 10 percent into 6 and so on.

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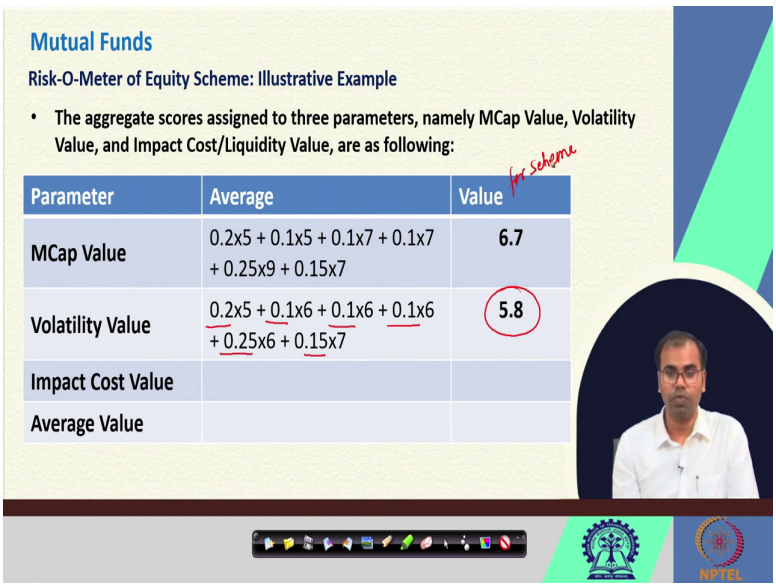

So, this is the way we calculate the value for market cap, volatility and impact cost. Remember here we are talking about equity scheme, we are not talking about any other scheme, here we are talking about mutual fund scheme that have invested in equity securities only. And that is why we are considering only market cap, volatility and impact cost or liquidity as the parameters for which we are calculating the value and subsequently we will use these value to arrive at the riskiness score.

So, to begin with we have the market cap value. So, we calculate the market cap value with 20 percent in first asset, first security that is Alpha Limited, 5 score then 10 percent; 5, 10

percent; 7, 10 percent; 7, 25 percent into 9 and 15 percent into 7. And this gets us a weighted value of market cap for the scheme.

Similarly, we will calculate the process for volatility value and here also we use the same weightage 20 percent, 10 percent, 10 percent, 10 percent, 25 percent and 15 percent and respective volatility value for individual security to get us the weighted value of volatility for the scheme. This is value for the scheme which means we have calculated the weightage value for each of the security and combined together.

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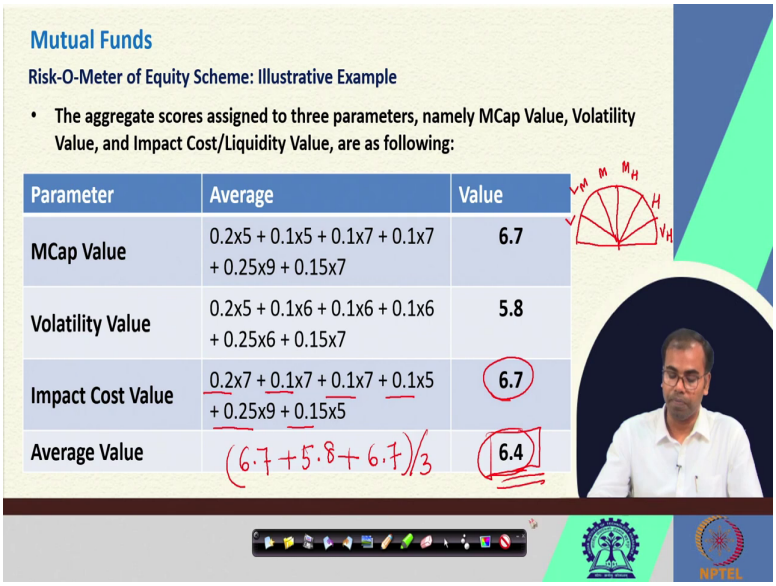

And finally, we calculate the same for impact cost value. Here also we use the same weightage 20 percent, 10 percent, 10 percent, 10 percent, 25 percent and 15 percent and the respective value of impact cost for individual securities. And subsequently we calculate the weighted value of impact cost for the entire scheme.

And as we know we have to calculate the simple average of the individual values for calculating the total value of riskiness for the entire scheme and we arrive at a score of 6.4 percent. Now, the so far, the process is pretty much simple and subsequently the inference is even more simple.

Now, we know that we have to start with the first task that is assigning weightage for the individual securities as part of the mutual fund scheme portfolio. And once we are able to identify the weight or the proportion of total investment portfolio in individual securities, we have to see whether the asset is the assets where the mutual fund has invested or the mutual fund scheme has invested is belonging to equity asset class or debt asset class or hybrid asset class.

And accordingly, we will identify the parameters. For example, in this case we have three parameters, market cap value, volatility value and impact cost or liquidity value for which we have to calculate the value individually for all securities as part of the mutual fund portfolio. And subsequently assigning using weight of as percentage of asset under management to calculate the weighted value of individual parameters.

For example, in case of equity scheme it is market cap that is 6.7 percent. Then we have volatility that we arrive at 5.8 and finally, the impact cost value that we calculated as 6.7. And we find the simple average of all these three values 6.7 plus 5.8 plus 6.7 and divided by 3 to find the value of 6.4.

Now, we will go back to the basics. We know that Risk-O-Meter is typically depicted as some sort of leveling of 6 categories where we have low risk, low to moderate risk, moderate risk, moderate to high risk, high risk and very high risk. And for these labeling we have reference ranges as well. And according to the value that we have calculated we will assign the we will refer to the range and assign a value of a particular riskiness for this scheme.

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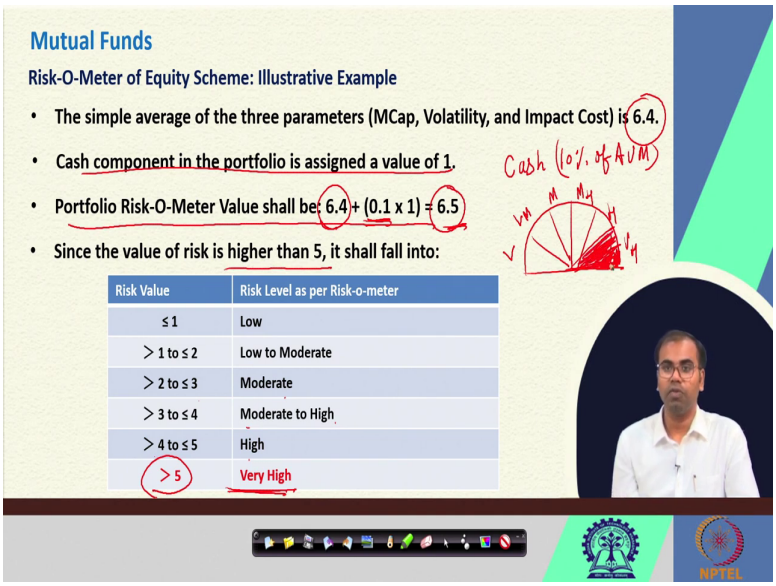

Using the reference value that we have here so, we have a score of 6.4 and we have a reference value of less than 1 being low, between 1 to 2 low to moderate, between 2 to 3 moderate, 3 to 4 moderate to high, 4 to 5 high and if it is more than 5 then very high. So, we know that the score for all the equity securities is 6.4.

But remember the cash to the tune of 10 percent of the asset under management is held as part of the portfolio which means we have to assign cash component a value of 1. And subsequently we will calculate the Risk-O-Meter value for the portfolio for the scheme where 6.4 is for equity securities and 1 value is assigned to cash and 10 percent is the value of asset under management to be invested in cash or kept as form of cash.

So, we have a value of 6.5. And if it is higher than 5 which is 6.5, we know that this is the; this is the riskiness or this is the level of risk that this particular scheme has. Which means if

you refer to that risk Risk-O-Meter where we have 6 different levels, we know that this belongs to this particular level of riskiness which is essentially the very high category.

Remember this is low, low to moderate, moderate, moderate to high, high and very high. So, this is the particular risky risk level of this scheme.

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Just to reiterate we have calculated the riskiness of the individual this scheme. And we know that since it is 6.5, it is going to be very high and very high belongs to this particular range of securities. Now, this is the example where we have seen how to calculate the riskiness or how to indicate riskiness of the equity mutual fund scheme. But what if the mutual fund scheme has investment in debt portfolio?

Can we use the same three parameters? Can we use market cap, volatility and liquidity? Of course not. We will have to modify our parameters according to the assets that are being held as part of the mutual fund portfolio. And here we will use the different set of parameters for debt portfolio or debt scheme.

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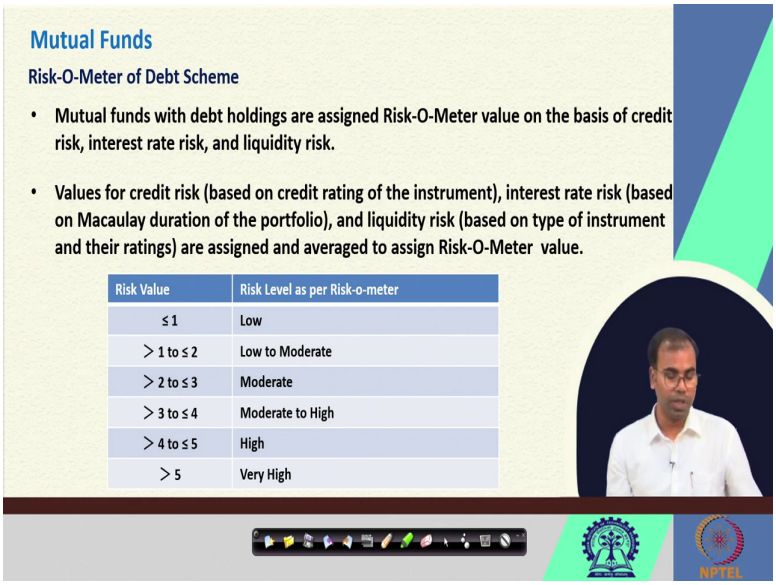

For debt scheme we use three different parameters related to the debt instrument of fixed income securities, credit risk, interest rate risk and liquidity risk. And accordingly, we will use these three parameters for the values to be assigned for credit risk that will be based on credit rating of the instrument, interest rate risk that will be based on the Macaulay duration of the portfolio. And liquidity risk that will be based on the type of instruments and their rating by different rating agencies are assigned.

And similarly in a similar fashion we will assign a value for each of the parameter. We will identify the weights and subsequently calculate the weightage value and assign a Risk-O-Meter value for the total scheme. Here we have already been familiar with interest rate risk or Macaulay duration earlier. We know about the credit risk. So, we will assign a value, we can refer the CB document for further guidance. And we will assign a value of Risk-O-Meter or riskiness for the instrument.

And according to this range where less than 1 will be low risk, 1 to 2 will be low to moderate, 2 to 3 will be moderate, 3 to 4 will be moderate to high, 5 will 4 to 5 will be high and more than 5 will be very high. Same process is followed for schemes that will have investment in derivatives or equity derivatives or gold or cash or any other type of assets.

And accordingly, the Risk-O-Meter has to be indicated. If you refer to different mutual fund offerings or advertisements offering mutual fund products or scheme, you will always find this Risk-O-Meter as part of the advertisement or as part of the communication brochure. And this will help as an investor to decide whether the particular mutual fund scheme is falling into her preference of riskiness or her level of risk bearing capacity.

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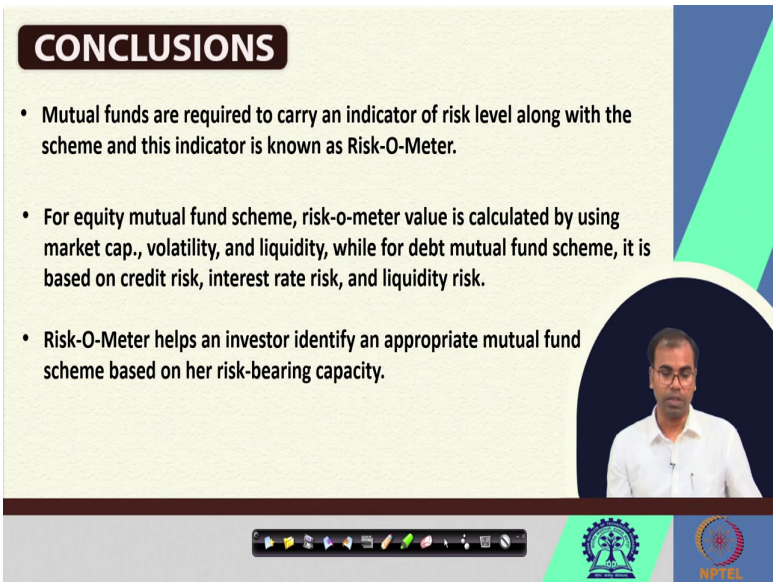

So, to conclude, we have discussed that mutual funds are required to carry an indicator of risk level as we were just discussing that we can see the Risk-O-Meter as part of the communication brochure of mutual fund schemes. And this Risk-O-Meter indicates about the riskiness of the portfolio based on whether it is holding equity assets or debt asset or different other type of assets.

If it is equity, equity scheme, then we know that the Risk-O-Meter value is arrived by following the market cap volatility and liquidity parameters. If it is debt scheme, then Risk-O-Meter value is assigned on the basis of credit risk, interest rate risk and liquidity risk. And this Risk-O-Meter helps an investor to identify a suitable mutual fund scheme for investment based on her risk bearing capacity or risk preferences. With this, I end the session.

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Thank you very much.