Security Analysis and Portfolio Management

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Module No. # 01

Lecture No. # 40

Portfolio Performance Evaluation – II

In the previous class, we started discussion on the portfolio Performance evaluation and here, what we have observed that, there are different methods what we use for portfolio. Portfolio Performance evaluations are basically, we start with the Sharpe measure, Sharpe ratio and we also discussed about the Jenson's Alfa and also the another ratio, we discussed about the Treynor ratio. Treynor's ratio and also we discussed about the Fame's net selectivity and here, what we have observed that how this excess return from the portfolio can be decomposed into two things. One is due to the manager's ability, manager's ability and another one is we can say because of luck or market. So, after discussing these different measures through which the equity portfolio Performance can be measured. Then, we can move towards, also to see that how the portfolio Performance evaluation can be taken place for the bond portfolios.

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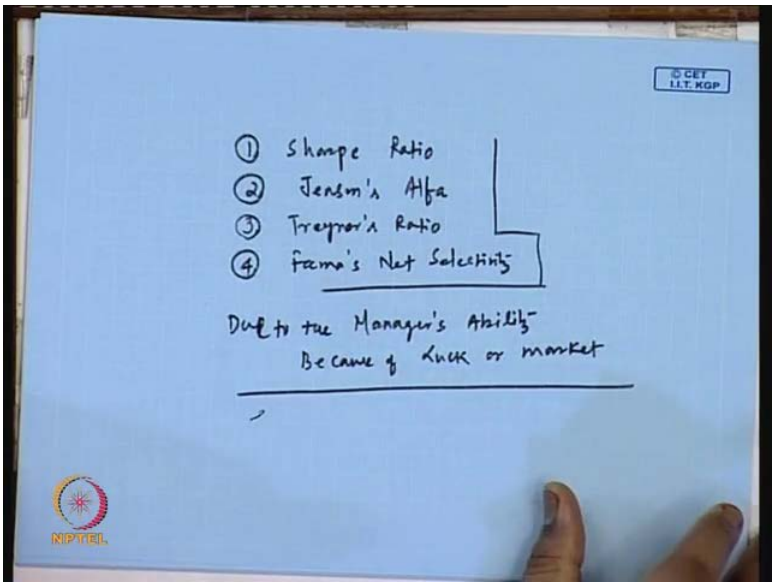

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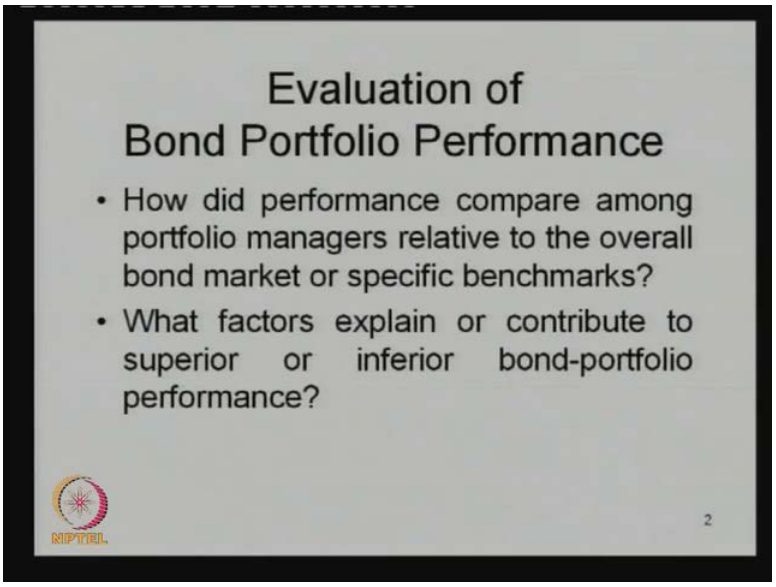

So, whenever we talk about the bond portfolio Performance, we try to answer these two questions: How did Performance compare among the portfolio managers relative to the overall bond market or the specific Benchmarks? And number two which are the factors which explain or contribute to superior or inferior bond-portfolio Performance over a period of time? So, these are the two things, always we look into whenever we discuss about the portfolio Performance in the case of a bond. So, today we will be discussing about generally how the portfolio Performance of a bond portfolio is evaluated and after all also we discuss in practical things how this portfolio Performance basically, will be used by the analyst to know that how much Performance we are getting because of the proper asset allocation of the funds and how much is coming because of the selection of this particular assets within this market.

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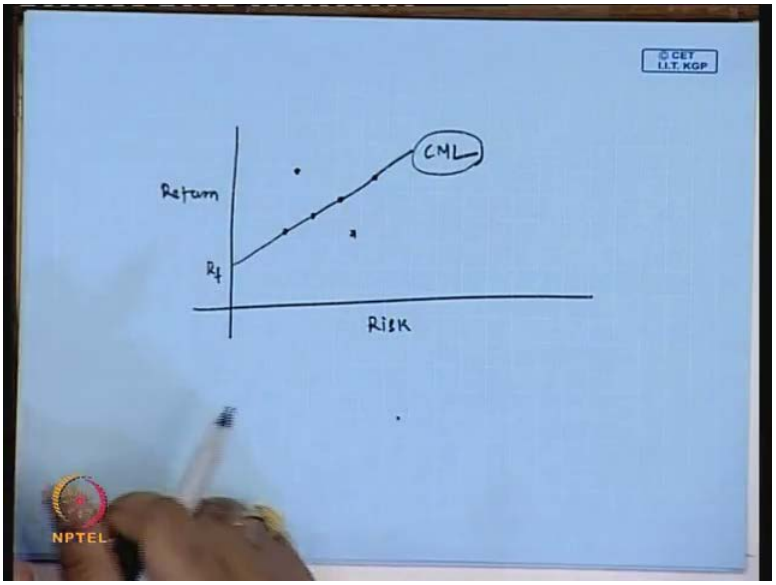

So, let us start with this bond portfolio. Here, whenever we discuss about the equity, if you remember that whenever we deal with the efficient portfolio in the case of equity, we talk about the capital market line or the CML and here, the each point in the CML, basically, are the efficient portfolios and this basically, your Risk free rate. And here, what we observed that this is your we can say, this is your Risk and this is your return. And using this capital market line, we can use this which one is overvalued and which one is undervalued and etcetera. So, therefore the capital market line is the reference point to evaluate this fund Performance or the portfolio Performance of a particular portfolio which is talking about the which is consisting of the equities only. So, like that whenever we talk about the bond, we also need a measure of Risk such as beta coefficient for equities because we have to make it tradeoff between the Risk and return of the bond portfolio like the Risk return tradeoff of the equity portfolios. So, therefore, the first question always arise in the mind investor or the minds of the fund manager how generally this equity portfolio like the equity portfolio, how the bond portfolio Risk measure can be highlighted or can be measured by which we can compare or we can make analysis tradeoff between the Risk and return of the bond portfolio.

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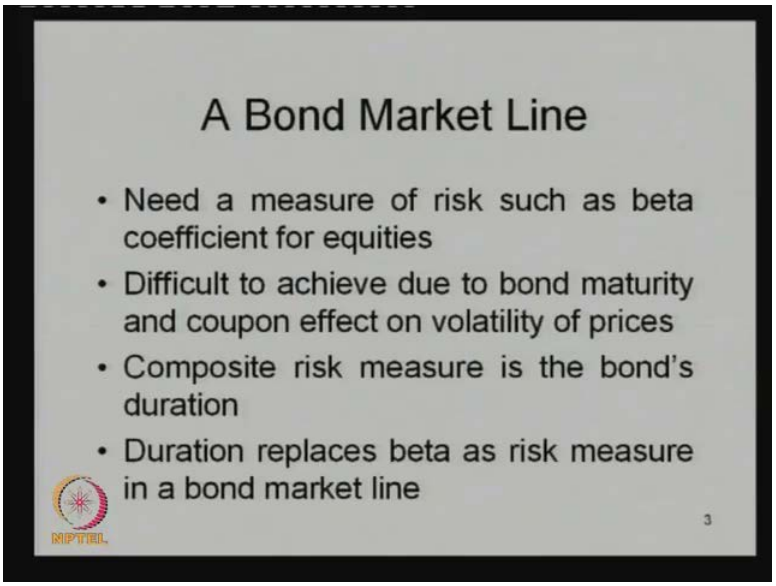

But here one observations or one difficulty always we face, it is because that or we can say better Risk measure for a bond portfolio will be little bit difficult. It is because that the bond maturity and coupon effect on volatility of the prices. Because we know that, once the maturity of the bond changes, let this was 2 years, then 4 years, then 6 years like that and as well as the coupon also changes then, obviously the price of the bond changes. Price of the bond changes, that we have discussed whenever we talk about the bond pricing. The pricing of the bond is determined by the term to maturity and the coupon which is your Ct, which is the regular cash flow what we get from the bond.

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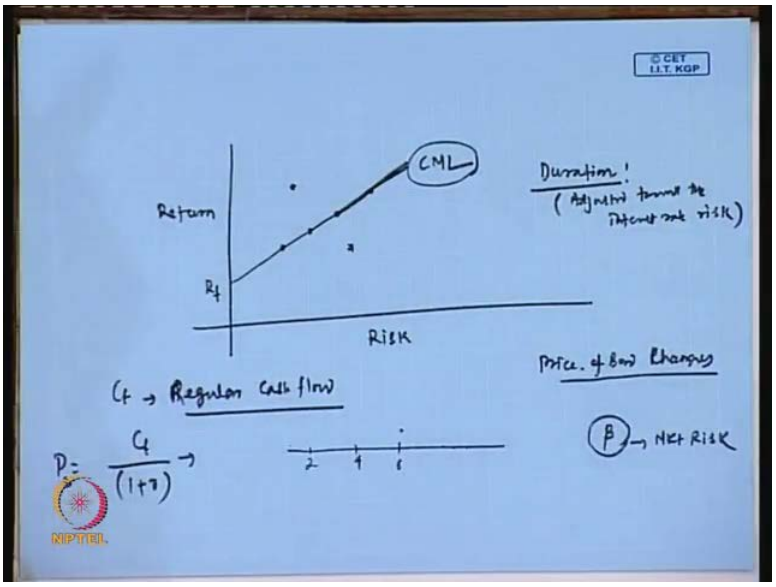

So, what we can say here that once these two are changing frequently, we can observe that always we can say that the price of the bond changes and if the price of the bond changes then, what we can observe that getting a particular amount of the bond or getting a particular pricing which can be used to calculate the Risk will be difficult in the case of the bond portfolio. So, that is the practical problem always we face whenever we deal with the bond portfolio in the market. Some of the people says that the composite Risk measure is the bond's duration because duration basically, what we have seen whenever we talk about the duration. Duration is nothing but, it is basically a measure which basically adjusted towards the interest rate Risk. So, what we can see that if you want to use this bond portfolio instead of using the maturity, we can deal with the portfolio duration which can be used as a Risk measure for the bond portfolio. So, that is why like your equity whenever we are using the beta which is your market Risk, we can use your beta which is your market Risk. So, here the duration basically can be used as a proxy for a beta for the bond market line. So, we can say that, after all we get a proxy like duration which can be used for the bond portfolio Performance measurement.

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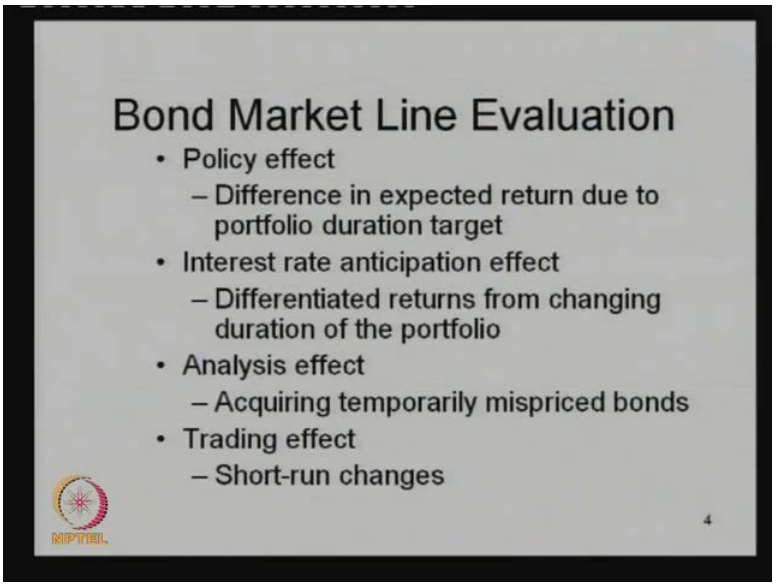

So, whenever this line can be established or we can say the bond market line can be established. Here, if you observe this, how this line can be evaluated or when the line will be changed or whether the line is doing good or the particular portfolio's which are on this particular line are the efficient portfolios or not how we can come to know those things? So, there are certain factors which can affect this particular line on the basis of the bond characteristics or on the basis of the market fluctuations. So, let us see one by one, how this particular line will be affected once those variables will be changed in the market at a time particular time period.

So, the first factor which can affect this bond market line is the policy effect. What do you mean by this policy effect? Basically, whenever we can say, that our target is or the investor's target is particular duration of let 10 years. He has targeted his investment horizon period as 10 years. So, to minimize this interest rate Risk in the market what he has done? He has invested in such a bond or such a portfolio which is consisting of bonds where the duration is 10 years. But, he has not incorporated or he has not predicted certain changes with respect to the market interest rate. For example we know the market interest rate is nothing but for the interest which determined by the market cannot be predictable, that we know. But, because of certain government policy changes the market interest rate may be affected.

So, that particular realization was not there whenever the bond portfolio investor has started investing in that particular bond by the term to maturity is something else where the duration is 10 years to minimize the interest rate Risk. So, in that time what will happen, if certain because of certain policy changes the market interest rate also will change then, what he will observe there is a difference in expected return because the portfolio duration will be changed. Once this interest rate will change, his target was to reach 10 years duration but now the 10 years duration will not fulfill his requirement because the market interest rate has changed. So, that is why the investor will face some kind of extra Risk in the market because of change in the policy measures by the government or by the regulator to enhance the productivity or we can say because of certain factors because of certain changes of the market, we always face that particular changes in terms of the duration calculation. And once this duration calculation which taken place then, this target rate duration what has been fixed by the investor will be fluctuating.

Then another one is your interest rate anticipation effect. What other things also happen sometimes, even if you draw a bond market line you will find that due to change in the interest rate because of certain external factors. Let because of the financial crisis, let you take the examples of the high inflation then, what will happen or because of the change in the aggregate demand in the economy. Then, what we can observe the time the expected interest rate in the market or the market interest rate again changes because of that. And when this will change the portfolio duration will change. So, if the portfolio duration will change the Risk of the portfolio also will change. So, if the Risk of the portfolio will change then, the bond market line what we have drawn on the basis of the existing or targeted portfolio duration, that also will be changed.

So, like that another factor apart from the policy changes, the other factor which are highly responsible for since in this portfolio duration is the interest rate anticipation. As you know, that interest change is the or anticipation of interest rate strategy is the Riskiest strategy by the investor, always use for investment in the bond market. So, therefore, what we can observe here that once this policy changes, your portfolio duration will change, if the portfolio duration will change, then obviously, the proxy whatever we have taken for the measurement of the Risk, that also will change. So, then we are in the dilemma that, what to be used and what not to be used. And second part is,

if the anticipation towards the interest rate what before this happening, whatever this fund manager or the investors are part of, the same way if the interest rate will not fluctuate, then, also the portfolio duration will change, then automatically, the Risk profile of the portfolio also will change.

Then analysis effect also another factors that is basically the sometimes we acquiring the temporarily mispriced bonds. We take some kind of a faulty measures or faulty kind of cash flows by which this kind of problem arises but these are not the regular problems what the investors always follow because sometimes some of the certain variables which is related to the market or the certain variables which changes irrespective with the market will not be taken into consideration whenever we deal with the bond portfolios. Then, another one is the trading effects. Already, I have explained to you that there is a difference between the trader and the investor. Basically, the traders all are always in favor of the short term gains. They are always want very huge return in the short term. They cannot wait for a reasonable period of time to maximize their return in the market.

So, in that context what will happen that if one trader is there in the market, he wants to maximize the return from the market, then he changes the position frequently, his investment position frequently in the market to enhances return in a particular short period of time. So, that actually creates the problem. Why this problem has been created? The problem has been created, it is because that this, there is short term changes in the total portfolio or the composition of the portfolio changes in the short term and if the composition of the portfolio will change, automatically the cash flow will change. If the cash flow will change, automatically what will happen the Risk profile of the inputs total bond portfolio will change because the duration also will change. Because duration also depends on the cash flows, what we are observing from that particular or what we are realizing from that particular portfolio for a reasonable period of time. So, therefore, the trading effect which is very much volatile in a short period of time, that also has the impact on the Risk profile of the bond portfolio at a particular time period. So, that always we should look into whenever we deal with the bond market line Evaluation.

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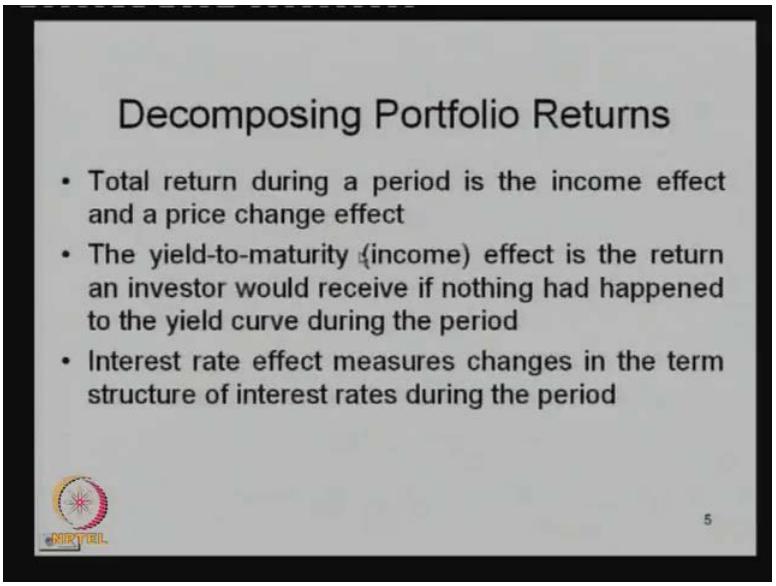

So, now, coming back to which are the factors or how this particular portfolio return will be calculated and which are the different sources through which the portfolio return has been realized. So, if you observe here certain things, what generally we have seen that portfolio return already we know that, this is the summation of if your bond, one bond is you have invested in 3 bonds. Let you have invested in 3 bonds and you have invested 50 percent in first bond where, your expected return is 10 percent. Second bond you have invested let 20 percent and the return is let we can say 8 percent. And third bond is 30 percent where the return is expected as 9 percent. So, then how we calculate this is basically 0.5 into 0.10 plus 0.2 into 0.08 plus 0.3 into 0 .09, which is basically the return from the return from the bond portfolio.

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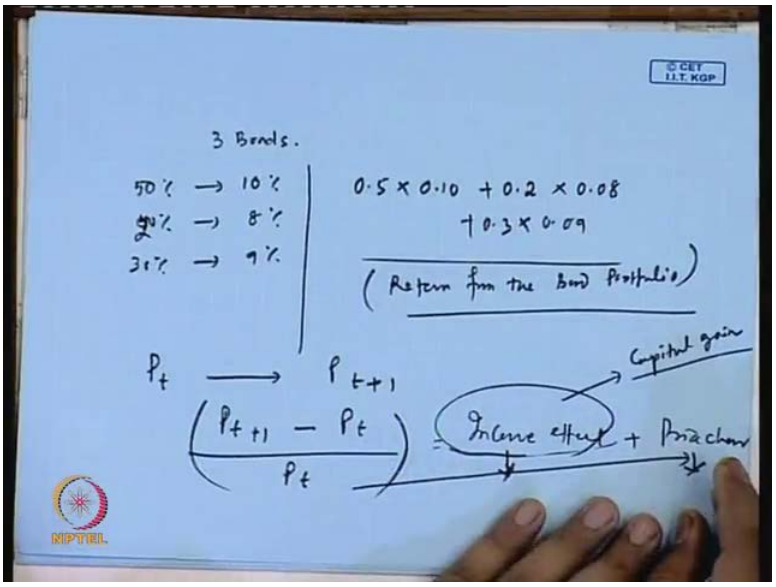

So, like that we know that. But here the question arises which are the different sources through which the return can be calculated. So, we know that whenever we change the return for example, your bond price was Pt and it was changed to Pt plus 1. So, then what will happen that the return will be basically your Pt plus 1 minus Pt divided by the Pt. So, this is your return what you are calculating from there and what basically we know that, this has been divided into two parts. One is your income effect and plus the price change. This is comes because of the price change and this income effect is nothing but, this is the capital gain. So, there are two components always we observe whenever we talk about the return from the bond. So, which are the factors which affect your income and which are the factors which affect your price. These are the factors basically are more responsible for calculation of the bond returns. So, one is your basically the income effect which is basically nothing but the yield to maturity is a return on investor would receive if nothing will happen to the yield curve during the period.

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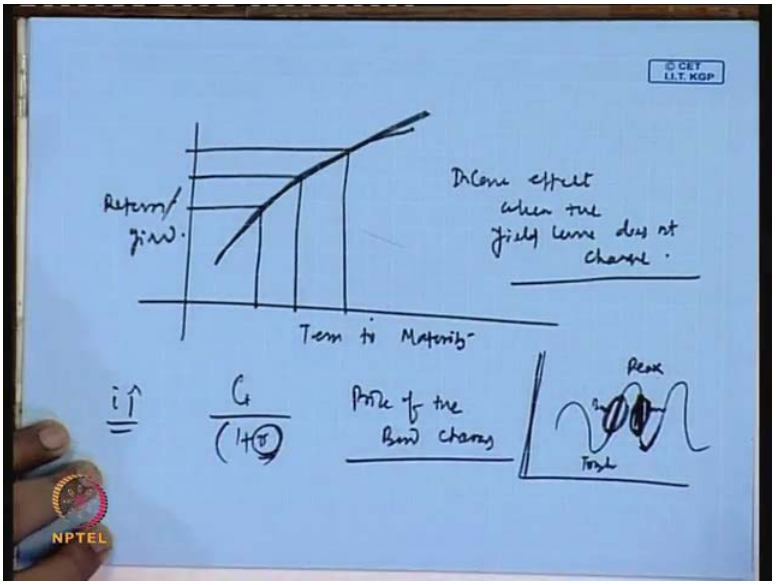

If you know that this is your term to maturity, this is your term to maturity and this is your return or the yield. So, what we have observed that for example, we know that the term to maturity is increasing then it also your return also will increase. So, let you are observing this kind of curve, once the term to maturity is increasing the return is also increasing. But, what he is saying that each the income effect is the return on investor would receive let over the period of time the same yield curve will be prevailed in the market, there is no change in the shape of the yield curve because of so and so factors. Then, what will happen then, obviously the return what we get that is because of the income effect when the yield curve, yield curve does not change. And this, basically, happens in the period when the market is more or less stable and we do not expect any kind of very kind of specific or unforeseen problems in the market or unforeseen situation in the market like the crises and etcetera.

So, this observed in a very, we can say, if you draw this things on a business cycle method. So, basically, this can be observed by may be in this period, may be in this period, like that but somewhere if you observe in this period, may be the changes will be fluctuated, that this is your trough this is your boom, this is your peak and this is your recession. So, either it can observe the same kind of consistency can be this period or this kind of consistency can be in this period, this is the logic what we observe from the bond market in terms of the income effect. Another one is the interest rate effect measures the changes in the term structure of interest rates during that period because, if the interest rate will change what will happen that your Ct by 1 plus r, which is r, is nothing but the

market interest rate that also will change then, obviously the price of the bond also will change. The price of the bond changes and if the price of the bond changes then automatically, also the return will change. So, that is always in common in the particular market.

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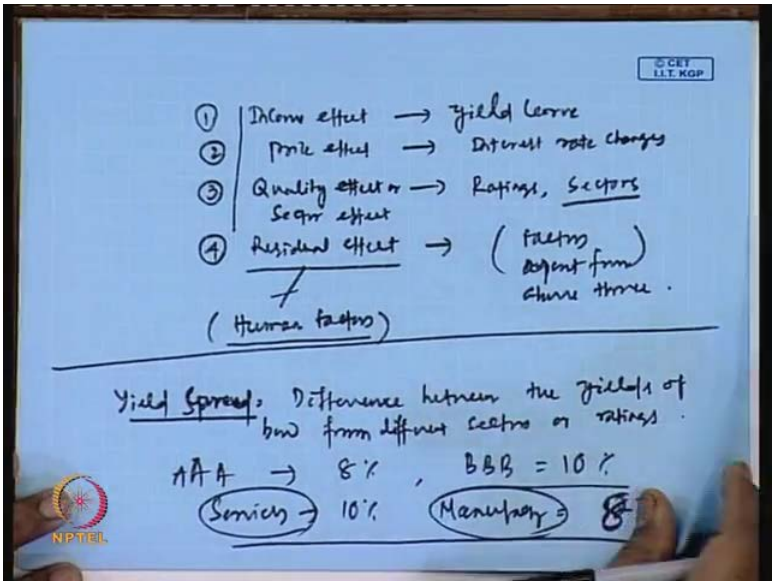

So, another major factor. So, one factor is basically your, what we have observe, which can affect your return that is your, we can say the income effect. And income effect is basically, prevailed from the yield curve. Number two is your price effect and this price effect comes from the interest rate changes. This is your price effect and another effect we have that is the sector or quality effects. The quality effect, we can say or the sectoral effect we can say, quality effect or the sector effect. What it means that, it measures the expected impact on returns because of changing yield spreads between bonds in different sectors and ratings. You know that, what we mean by the yield curve. What is yield curve? Yield curve is basically the, sorry yield spread. Sorry, it is your yield spread. Yield spread is nothing but, it is the difference between the yield, differences between the yields, difference between the yields of bonds from different sectors or ratings. As we know that, let AAA rated bond will give a return of 8 percent, but a BBB return bond may give you a return of 10 percent. Because high Risk is involved in this, that is why, the return is more and also on the basis of the sectors, if it is issued by services sector may be return is let 10 percent, but if it is issued by the manufacturing sector, may be return is twelve percent. Because the or we can say 8 percent it is because, it is more or

less consistent but the services sector bonds are more volatile. Therefore, more Risk is involved in case of the services sector.

But less Risk is involved in case of manufacturing sector. So, the difference between these two is basically the yield spread. So, that is what it is saying that the quality effect also, that means, it is basically the sectoral change, the yield changes because of the change in the ratings of the bond the yield also changes on the basis of change in the sectors of the bond. So, then what will happen this we can say that the major factors are basically your ratings, bond ratings given by the different rating agencies like (( )) etcetera in the case of India, then as well as you have the sectors.

And in a particular time period or if one sector is doing well, so then in that case it is less Risky to invest in that sector as compared to the other sector. Then, another factor is the residual effect. The residual effect is basically nothing but what we have forgotten or what we have not included in our model. After this considering this income effect, price effect and the quality effect for determination of the returns from the bonds. May be because of the market fluctuation, because of the crisis, because of certain other kinds of unforeseen situations. And also we can say that, sometimes also we have observed that because of certain problem, if it is international bond then because of certain problems in other market that market also will be say affecting this bond portfolio returns in that particular time. So, that basically we are incorporated this factors apart from above three.

So, these are things always we should talk about. That means, here if we talk about the residual effect, large positive residual would indicate superior selection capabilities and the times series plot demonstrates strength and weaknesses of portfolio manager. That means, the residuals effect is quite strong, it is quite positive. Then it the role of the manager will come into the picture. It is because that income effect or the residual effect is also determined by sometimes the human factors. Human factors which is difficult to measure but they play very significant role for determination of the bond return in a particular time period. So, like that that also should be taken into consideration whenever we talk about the bond things. So, what generally we do then if you plot this a time series analysis over the period of time then, we can observe that which are the how this bond portfolio manager is performing over a period of time in that particular investment case.

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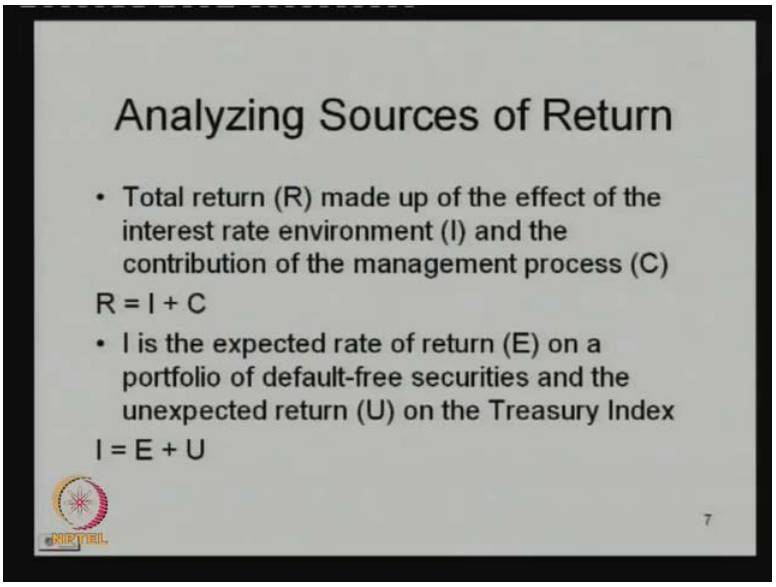

So, as we know that these are the different factors which basically affect this return of the bonds where this particular source comes and how this sources of return is basically determined. And that the in the total return is made up of the effect of the interest rate and the contribution of the management process and the management process means it is the process through which the portfolio manager or the fund manager invest the money in the market in terms of the bonds.

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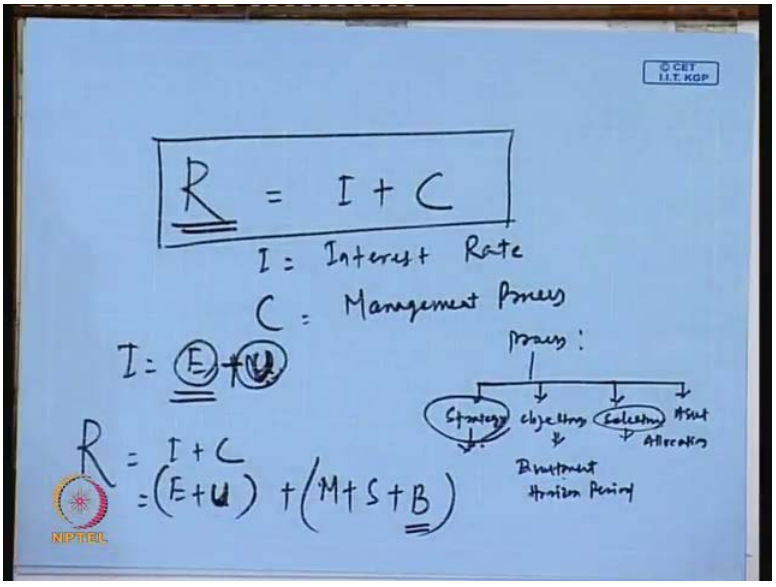

So, therefore, the total return what we get is equal to I plus C. I represents the major factor, your I is equal to your interest rate and another factor is basically C which is your management process or the skill. Management process or the skill of the manager or the process through which this fund manager invest the money in the market. May be the process also involves the process. The process whenever you talk about this basically involves so many things. One is your basically this strategy, your objectives, your selection, asset allocation. So, this if you include all this basically talks about the process. So, the return what we observe from a bond portfolio that is consisting of all the systems or all the particular phases which total consist of the management process.

Then, if you talk about the interest rate environment or interest rate that we know which is our major factor, which affect the bond return, this the expected rate of return on a portfolio of default free securities and the unexpected on the treasury index. That means, this interest rate changes will have two components. One is your expected change and another one is the unexpected change. Because expected part is incorporated in our strategy but the unexpected part is not incorporated there. So, this unexpected part basically will change the total return of the portfolio at a particular period of time. Then if you talk about the C, already I told you that there are different process it goes and see basically is composed of return from the maturity management, which is basically depends on the objective. If your objective and depending on the objective the investment horizon period will be changed, investment horizon period will be changed that affects your return.

Then, your S which is return from the spread or quality management, which is basically talking about your asset allocation and also the selection of the particular stocks and also we can talk about the strategy. Strategy basically talks about S and which kind of better strategy you are using to maximize your return at a particular period of time then also you have incorporated the B which is the return attributable to the selection of the specific securities. So, these basically talks about the selection of the stocks within a particular market. So, these are the different things or different sources, actual sources which basically talks about the different sources of the return from the bond. So, if one particular portfolio investor who will look into those parts then, obviously the total return can be maximized but out of them, we remember that there are certain factors which are human in nature which varied from time to time depending up on the emotions,

depending up on the appetite Risk, appetite of the investor. So, that part may not be incorporated easily into the portfolio or into the model consideration for calculation of the portfolio return.

So, therefore, some kind of fluctuations sometimes we observe but in most of the cases what we have observed that these are the different major factors or major sources which affect the bond portfolio return at a particular time. So, therefore, what we have observed finally, your return from the portfolio should be I plus C and I represents basically E plus U, the expected component and the unexpected component. Then, if the C component basically your M plus S plus B and M stands for the maturity management which talks about the objectives and your S which basically the quality management, which basically strategy and as well as the asset allocation then, B represent the selection of the stocks in a particular period of time which are the different stocks within that particular category, within that particular market will be better for investment to maximize the return. This totally depends on the portfolio manager's Performance. So, these are the different components always we see. So, finally if you calculate it, so, you can calculate the bond portfolio return. So, these are the factors we should analyze whenever we deal with bond portfolio Performance or bond portfolio return. So, after this we have to measure it.

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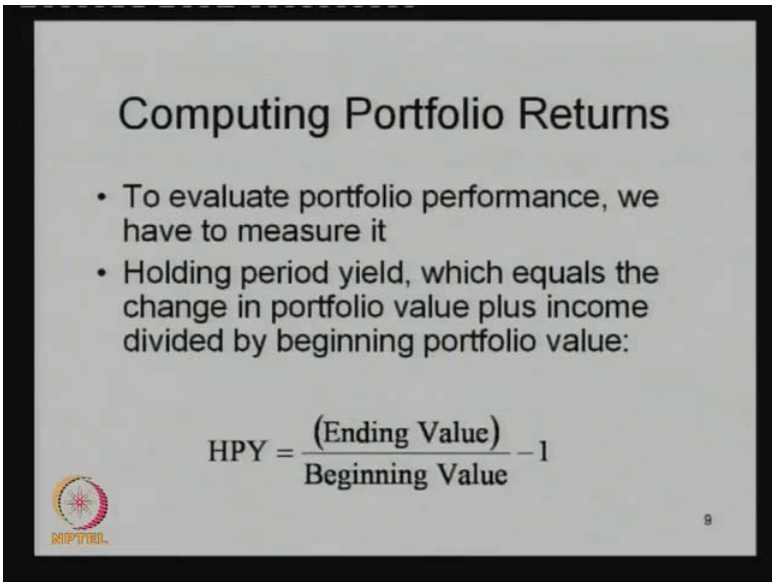

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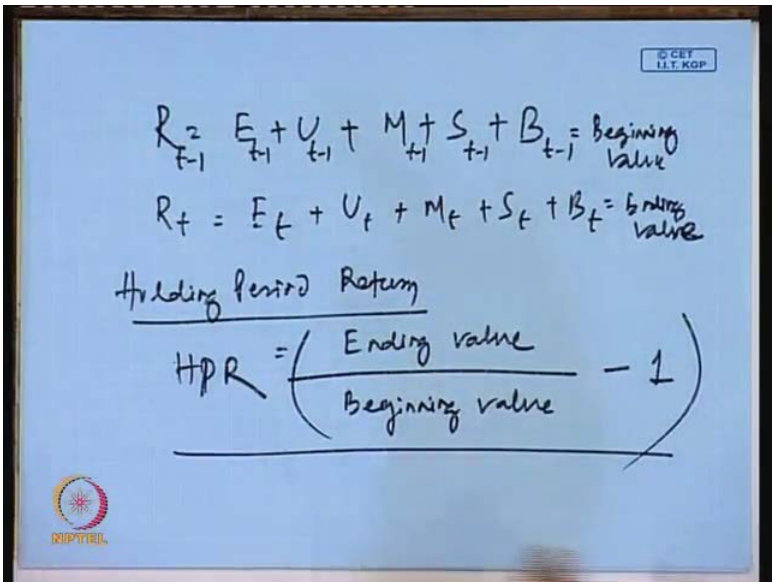

So, how we can measure. So, these are the values your R is equal to E plus U plus M plus S plus B. We know these things then, what we know this for the period of let Rt minus 1 then we have the Rt, also may be t minus 1, t minus 1 you can write, t minus 1 in the lagged period. And also we have calculate our calculated this value of Et plus Ut plus Mt plus St plus Bt. That means, it talks about the period which we are calculating this bond return then within this is if you for holding this particular bond for a particular period of time. May be let one year then we can calculate this holding period return. And the holding period return is nothing but, so, Rt minus 1 is basically the, your beginning value of the bond whenever you started the investment. Beginning value and this is your ending value. So, if you know the beginning value and the ending value then, the holding period return can be easily calculated. This is your ending value divided by the beginning value. So, ending value divided by beginning value minus 1, that will give you the holding period return or the HPR. HPR of the particular bond at a particular period of time. So, now, it is we can calculate that how this holding period return can be calculated for a particular bond and then, we compare it with a Benchmark portfolio or a Benchmark index in the market to know that whether this particular portfolio manager has performed well above this particular Benchmark index which is prevailed in the market at a particular period of time. So, then we can say that whether the portfolio manager is really performing well or not.

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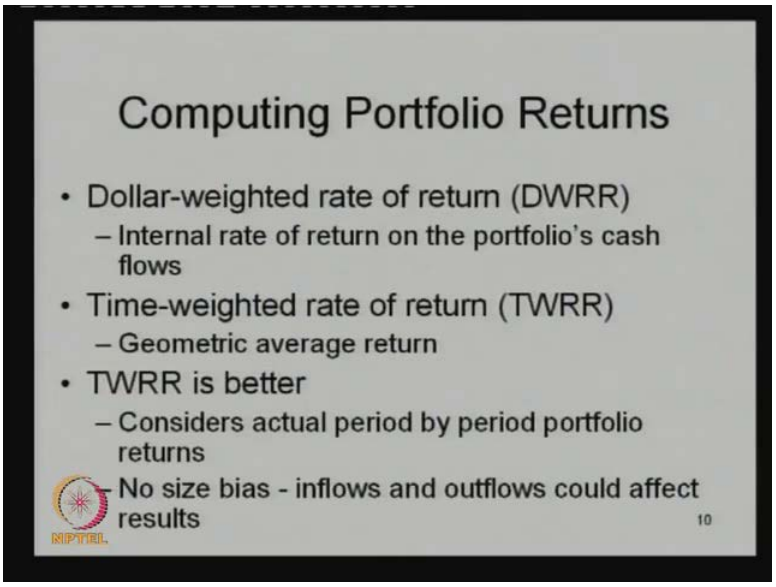

So, here that is why there are different methods we calculate to do this. One is your Dollar-weighted rate of return where the internal rate of return on the portfolio's cash flows. We calculate regularly by putting some of the weight age on the basis of the cash flow, whatever bonds or whatever amount of the bonds you have taken into consideration, depending up on the cash flow what you are receiving from the different bonds we give the weight age. And finally, you calculate the weighted average return from the bonds. And another one is your time weighted rate of return the time weighted rate of return means, it is the geometric average return of the bonds over a particular period of time then, we can say that whether the particular average return is increasing or decreasing or it is really we are performing better in the market. So, according to the experts or analysts always your time weighted rate of return is better because it considers the actual period by period portfolio returns and no size bias it basically inflows and outflows could affect the results.

In the first case what we have seen that we have given more importance on the basis of the cash flow but here we have not given any kind of bias. We have not put any weight age on the basis of cash flow or the income what you are receiving. So, therefore, what we can observe there is no such kind of a size bias we are observing there. So, therefore, sometimes the investors or the analyst believe that the time weighted rate of return where we calculate everything period by period and over the period of time we are observing that average return what we are getting from this particular bond portfolio, that is a better

measure which can be reflected in this particular bond portfolio return case. And that is a better way of calculating the portfolio return than the other type of returns.

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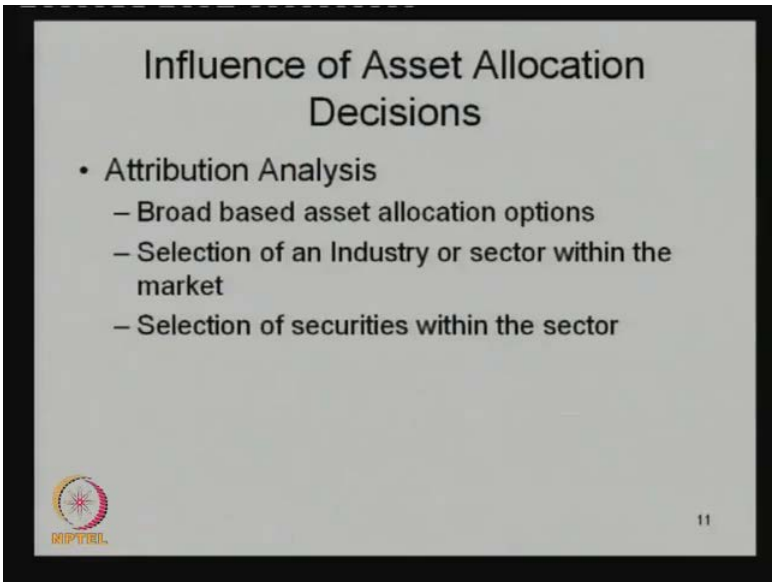

Then, coming to this particular case what generally we can observe that whenever we invest, for example, in a practical case when we can say one particular portfolio manager is performing well and another portfolio manager is not performing well or one portfolio manager is performing better than the other portfolio manager? So, these are the questions always comes into the mind of the practitioners or comes into the minds of the investor, whenever they really do investment in the market or they hire somebody as a consultant for their investments. So, in this case we have to do this analysis and we do what we call it the attribution analysis in this attribution analysis what basically we do? We test that which are the broad based asset allocation options are available with us. For example, you just now you talked about the return or the portfolio Performance of the equity and we know the portfolio Performance of the bonds.

So, after knowing this things may be we want to compose or we want to make or construct one portfolio which is consisting of both bonds as well as equity as well as the other kind of Risk free assets or the like the cash instruments. So, depending up on this so, we have to analyze that whenever we make this portfolio out of this different alternatives which are available in the market at a particular period of time, which are the assets should be taken into consideration and why? And why this particular asset should

be taken and how this particular asset should be taken at what percentage? So, this is the question first comes into the mind of the portfolio manager. So, first he has to decide which are the assets he has to taken into, which he has to take for the construction of the portfolio. And second is if he wants to choose some of the assets, he will choose this assets from which kind of industry and which kind of the sectors, which sectors are performing well.

Once he has decided these are the assets I am going to these are the types of the assets, what I am going to incorporate in my portfolio construction then, the other thing is once I have decided, I have I want to invest some certain percentage in equity certain percentage in bond certain percentage in let the Risk free asset or the cash instruments. So, then he thinks that from which industry he will take off this particular equities or which industry he will take off this particular equities or particular bonds and finally the selection of securities within the sector let after that he has decided these are the sectors I am going to invest and these are the sectors will be lucrative for me for the investment in the next period.

Then the question arises, then which are the, maybe there are 10 or 20 assets are available in that particular sector or 10 portfolios are available in that particular 10 kind of assets are available in that sector then which particular asset I should incorporate in my portfolio case. So, these are the second third question basically comes to the mind of the portfolio manager. So, taking into these things if you analyze that step by step which are the things should be taken, which are the things should not be taken. So, then finally, what we can do? Then we can come to know that these are the sectors or these are the assets should be taken into my consideration. And automatically final part will be we can say that whether the portfolio manager has performed well or not.

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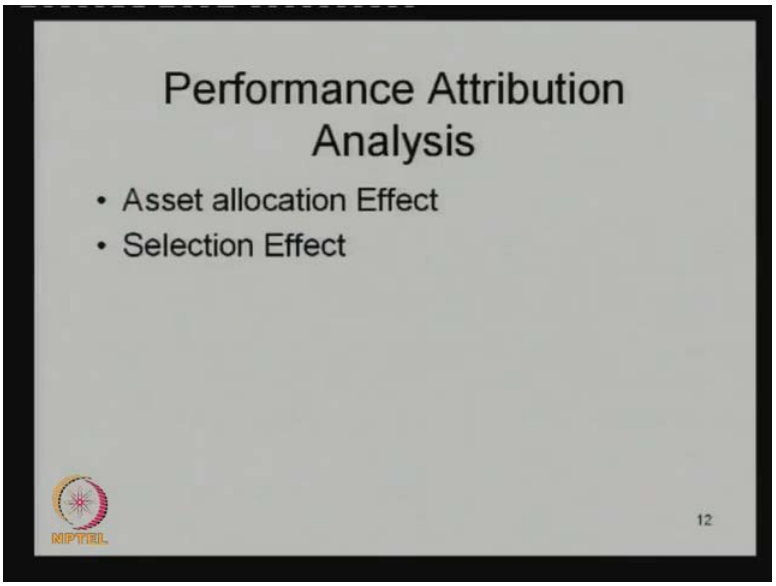

So, once this is decided then we should know that whether the portfolio manager has really performed well or not. But how do you know that whether the manager has really performed well or not. So, in this case what we do that we do this how much return the portfolio manager has got because of the asset allocation, because the main job of the portfolio manager is allocation of the assets. Allocation of asset, which is the major function of the manager and another one is the selections. Selection means within the particular sector which are the different instruments he has chosen. So, in this case we have to see that the how this particular portfolio manager has performed in a particular period of time, in this particular case. So, that will give you a better result to us that how this analysis can be made.

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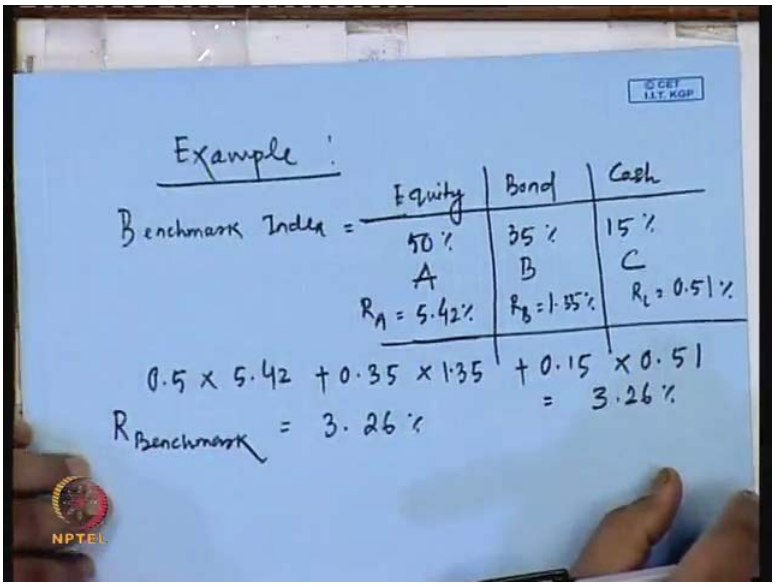

Let we have a Benchmark index let the example. We have a, we should take one example to explain this and what is that example? Let we have a Benchmark index, we have a Benchmark index where, the weightage has been given in this way. Let we have the asset like equity bond then the Risk free assets or we can write cash. And the Benchmark index what they have done, they have invested that 50 percent in equity and 50 percent, sorry 35 percent in bond and 15 percent in cash and the Benchmark index I have chosen let equity number, equity name A and bond B and cash C.

So, what we have observed let the return from the A is what they have observed the return from the A is 5.42 percent, return from the B is let 1.35 percent, return from the C let Rc is equal to 0.51 percent. So, these are the return what this particular Benchmark index has done. As we know that to know this particular Performance we have to see that how this particular portfolio is performing over the particular stock. Then, how much return we can expect from here. That is your 0.5 into 5.42 plus 0.35 into 1.35 plus 0.15 into 0.51. So finally, if you calculate it you will get 3.26 percent. So, what we have seen that the Benchmark index is giving a return. So, R Benchmark is giving a return of 3.26 percent. Let we have one managed portfolio.

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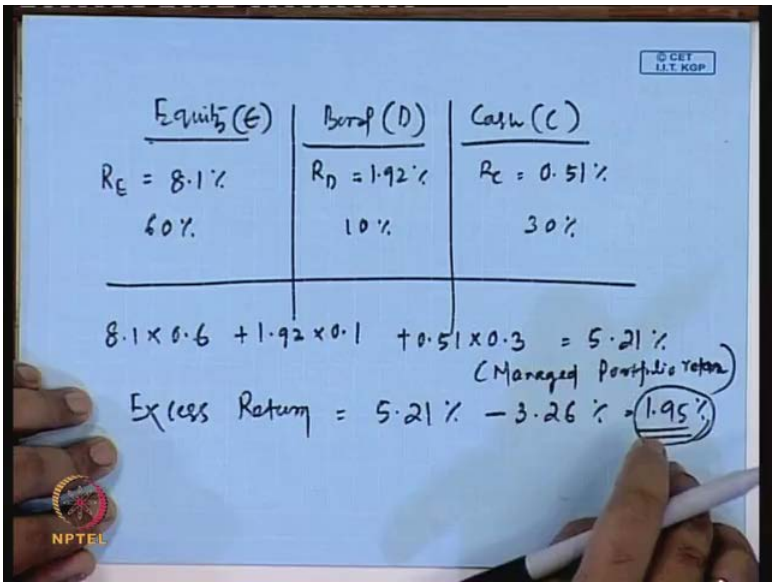

The managed portfolio another in this same case for our comparative reasons we have taken another, let we have chosen one equity which is denoted as let C, then we have chosen another bond which is denoted as D and your equity let E. This is D and this is another your cash, it is the same. It is because it is Risk free asset way we can say which is the return is same for everybody. And here whenever we calculate it, we found the return on from the equity is 8.1 percent the Rd is basically 1.92 percent and the cash what we have taken this is same your Rc is equal to 0.51 percent.

And here the Benchmark index has invested here 50 percent, here 35 percent, here 15 percent. But in our case what this fund manager has done he has invested 60 percent here and 10 percent here and 30 percent here. And if you observe here then what we can see now the return will be 8.1 into 0.6 plus 1.9 to into 0.1 plus 0.51 into 0.3 that will give you 5.21 percent. So, the excess return what we get, this is your managed portfolio return, managed portfolio return. So, your managed portfolio return is giving 5.21 percent and your Benchmark index is giving 3.26 percent then the excess return what you get, excess return what you get, this is your 5.21 percent minus 3.26 percent, that will give you 1.95 percent the excess return.

But the observation what we got from your 1.95 percent, how this 1.95 percent has been achieved and who are the contributing factor for this Performance? So, the contributing factor of the Performance is I told you there are two factors which contribute this. One is

your asset allocation effect, one is your asset allocation and second one is the selection. Asset allocation within the between the different markets and selection within this particular market. Asset allocation means we talk about how much is the equity and how much is the debt and how much is the cash Risk free assets like cash. But second selection means within the equity, which equity should be taken off and within the bond which bond should be taken off and within this cash, anyway cash return will be same for everybody. So, that basically is not our concern. Our concern is basically equity and bond what we are going to take off for our portfolio.

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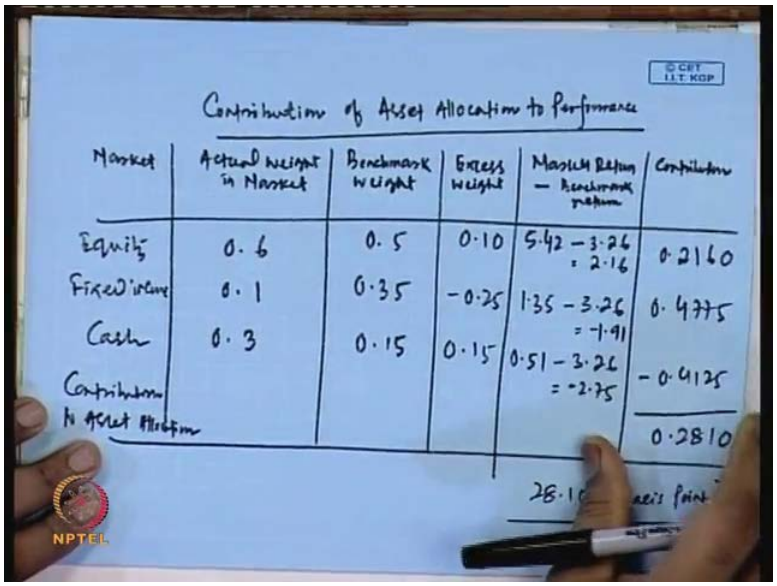

So, like that we have to do separately the analysis. let first of all we should do the analysis the contribution of asset allocation. Contribution of asset allocation to Performance. Contribution of asset allocation to Performance, here whatever the we have taken, this is your let your Market, this is your Actual weight, in market whatever way you have invested, this is your Benchmark weight, Benchmark weight and this is your excess weight, then is your market return minus the, what is that Benchmark return, then contribution. If you observe here what we have taken, it will be clear for you that we have taken equity, we have taken fixed income or the bonds, we have taken the cash and let this is your contribution to asset allocation. Actual weight we have given 0.6, here we have given 0.1, here we have given 0.3. Benchmark weight is 0.5, 0.35, 0.15. So, the excess weight, what we have given it is 0.1 here, it is given minus 0.25, here it is given

0.15, this minus this. Market return is how much it is 5.42 portfolio return and the Benchmark return is given 3.26 that will give you 2.16.

Here, it is a how much your market is giving, that is already you know that, it is in this case, it is 1.35 minus 3.6 that will give you 3.26. If you say that it will be 3.26 into 1.35 minus 1.91, minus 1.91 and this will give you, this will be 1. sorry 0.51 minus 3.26 that will give you minus 2.75. So, finally, the return will be this multiplied by this, this will be 0.2160, this will be 0.4775, this will be minus 0.4125 then the total will be 0.2810. So, what we have observed here, that 28.10 basis point, excess return we get because of the asset allocation process. So, then the next question arises that how much we get because of the selection to the Performance. That means, the selection process.

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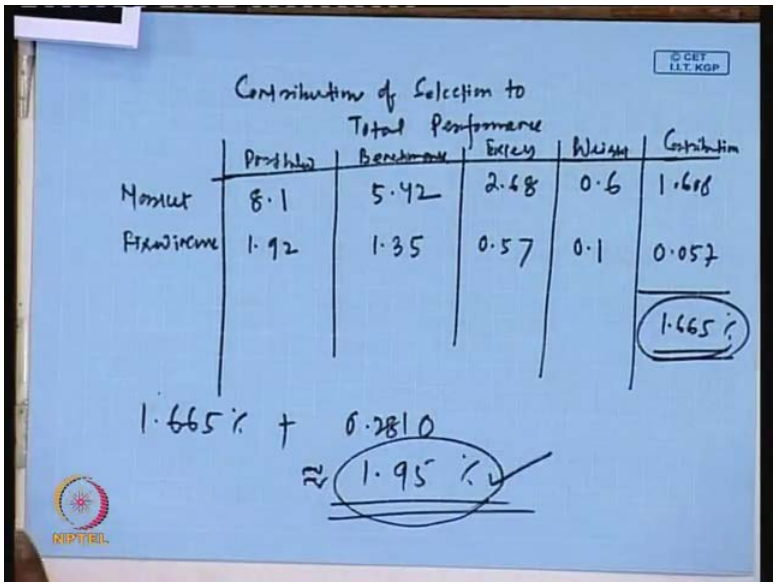

The contribution to selection to the total Performance. Contribution of selection to total Performance. How much we get? This is your market. This is your fixed income. So, for cash it is same. So, there is nothing to be done. So, this is your portfolio Performance, this is your Benchmark or index. This is your excess, this is your weight, this is your contribution. Market it was giving 8.1, it is 5.42, here it will give you 1.92, here it is given 1.35. So, excess is 2.68, here it is given 0.57, weight is 0.6, 0.1 and contribution is 1.608, it is 0.057. So, total will be 1.665 percent. So, because of the selection better selection we get 1.665 percent and because of the excess better asset allocation we got 0.281 percent. So, the total return what we can say in this case will be, we should take

this two then, this will be your 1.665 percent plus 0.2810. That will be giving you close to 1.95 percent. So, this is the excess return what we got from the particular managed portfolio above this particular Benchmark portfolio. So, this is what, this is the way we do this attribution analysis to know that how much extra return we get because of the asset allocation and how much excess return we get because of the better selection.

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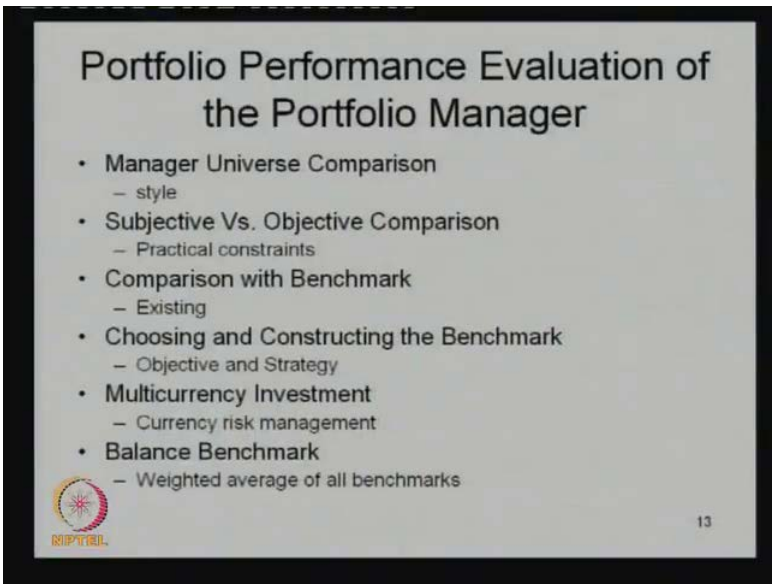

So, that is like whenever we Portfolio Performance Evaluation general we do it for portfolio manager, it varies from case to case. Sometimes we compare with other managers, managers in the universe comparison. In this case, but one thing you have to remember that whenever we compare each manager should follow a same style whenever they or we can say, they go for investing in the market. If you are comparing with one manager with one style with the another style then it will give you the misleading result because somebody is investing in value stocks, somebody is investing in growth stocks and you are comparing between value and growth, that gets the problem. May be somebody is investing in large size stocks, somebody is investing in small size stocks that also gets the problem. that actually we have to look into or consideration. And subjective versus objective comparison, sometimes also we have seen that to get this return how much practical problems this particular manager has faced and that actually, we have to analyze it subjectively by going to the manager and asking the questions and then only we can come to a conclusion that objectively whenever he has

performed something whether, it is really comparable to the Risk or the particular problems what he has faced to get that amount of the returns.

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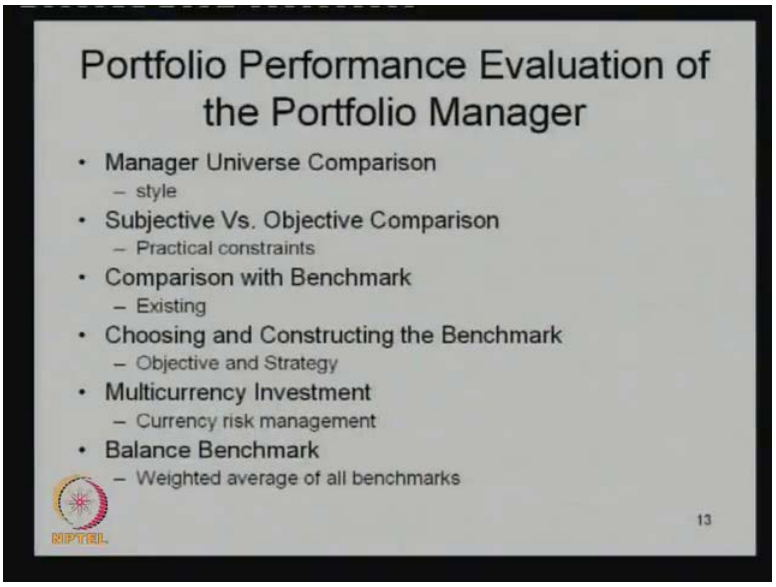

Then comparison with the Benchmark that what we have done here which over the existing Benchmarks, whatever we have in the Indian case, if it is the equity stocks or equity portfolio, we can take BSE changes or NSE nifty kind of thing and if you talk about the bond portfolio, we do not have very proper index but still we can use some NSE bond and other things to find out that whether my bond portfolio is performing well or not. Then also, if there is no such kind of index and you are concentrating in a particular industry or concentrating on a particular type of the stocks and the bonds then you can choose and construct your own index. Let your small cash stocks, large cash stocks, we have some indexes are available also we can construct our own index depending up on the style what we are following.

Then we compare this particular return what we get with this particular Benchmark index. So, that basically varies on the basis of the objective of the investor as well as a strategy because if you are investing in the bond portfolio the objective of the investors which creates is basically the input and role, because depending up on that the investment horizon period changes and the portfolio also changes. Then, if you are investing in the multicurrency investment or you are investing in the global portfolio then the currency Risk also should be adjusted from the actual return that will help and

the finally, you have the sometimes we use the balance Benchmark which basically, the weighted average of all the Benchmarks whatever we have available then, gradually we can say on an average my portfolio is performing, how my portfolio is performing over the other portfolios.

So, these are the different ways the portfolio Performance evaluation can be made. So, after congregating or after concentrating on all the analysis about the selection attribution etcetera and after constructing your own portfolio then, you compare it with a Benchmark portfolio depending up on the style of the management depending up on your style of investing in the market then only you can say that whether the bond portfolio manager or the equity portfolio manager or the portfolio manager who is taking both bond and equity into the consideration is performing well or not. So, this is about the bond portfolio management process through which the or bond portfolio evaluation process through which the bond portfolio manager can conclude whether he is doing well in the market or not. So, this is gives you the holistic idea that how the Performance evaluation of the portfolio management is taken place then, we can come to know that how this things happens in the market. Thank you.