Management of Fixed Income Securities
Prof. Jitendra Mahakud
Department of Humanities and Social Sciences
Indian Institute of Technology, Kharagpur

Module No # 01
Lecture No # 02
Risks in Fixed Income Securities Investments

Welcome!

Again, Good morning to all of you,

So, in the previous class, we have just discussed about the overview of this particular subject on fixed income security. We have seen that different broad instruments like bonds, we have the structured products, 0 and we have the fixed income securities derivatives. So these are the major instruments which are available in the fixed income securities market.

But, as all of you know that whenever, we always go and invest in the fixed income securities market, we are also exposed to certain amount of risk or certain types of risk always we look at or we face. So today, we will be discussing about it: what are the different types of risks generally always associated with the fixed income securities and how these risk are basically defined. And gradually, we will be discussing that how those risks can be managed or this can be mitigated by taking the different portfolio positions or by using the different strategy by that the income maximization will be possible.

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So today mostly, I will be discussing with you regarding the different type of risk which are associated with the fixed income securities investments. Whenever, you are making the investment in the fixed income securities market then what are the different probable risk we are exposed to or we may face. And always we should be careful about those type of risk by that this will not largely affect our expected return what we are trying to derive from this particular market.

So these are basically the basic objective or basic thing what always we keep in mind. So that is basically what we are going to discuss today.

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So from this, we will discuss certain concepts, certain keywords basically you can keep in the mind like market risk, Bid-ask spread, currency risk, credit risk, inflation risk. There are many types of concepts basically we will be discussing in this particular session and which are nothing but different type of risk what the investor always may face whenever they are trying to invest in the fixed income securities market.

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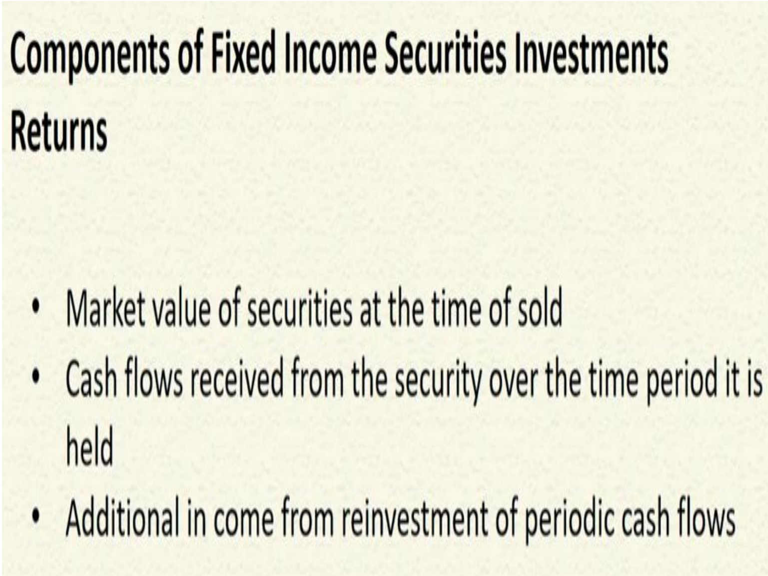

So, let us see, that what are the broad types of risk we face are and how basically we are going to define them. You see, whenever we invest in a fixed income security market, the basic objective of the investor is to get some return.

So what is the return? What are the different components of that particular return what they are going to expect from that particular investment? Obviously, whenever you have purchased a particular bond then obviously you are going to sell that bond. The first cash flow, first component or first income component will be receiving whenever you will sell the bind that is the market value of that particular bond. If you are selling that bond in the market then what is the price you are getting? What is the market price of the bond at that particular point of time? So that is the first component.

Second, obviously, the cash flow which is nothing but the coupon payment whatever you have received whenever you are basically with or you are holding that particular bond up to the maturity or up to the selling point, you are getting certain kind of periodical cash flow from this. So that is the cash flow received from the security over the time that is basically nothing but the part of the coupons. Then whenever you have received the coupon, the coupons also can be reinvested in the market at a market interest rate.

So whenever you are making the reinvestment in the market then obviously you can earn some additional income. So what is the additional income from the reinvestment you are basically getting? So that also you have to keep in the mind. The additional income from the reinvestment of the periodic cash flows which is nothing but the coupons always we look at.

So here, it is income there is a space so you keep that thing in the mind. It is basically additional income. So, additional income from the reinvestment of the periodic cash flows is nothing but the interest on interest. The coupon you got as a part of interest and utilizing that particular interest again in the market, you are getting some interest against that. So over and above the interest whatever you are getting that is called the interest on interest. So that is basically the additional income what we get.

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So whenever we are investing in the fixed income securities, what are the different types of risk probable risk which are associated with that? We have many risks. we are exposed to market risk or other name of the market risk also can be called the interest rate risk. So the interest rate risk is related to the price risk and the reinvestment risk. Then we have the default risk or the credit risk that bond issuer at any point of time can go for default. So that is why we are exposed to credit risk. We have a maturity risk because we have the certain bonds of the long term bonds. So the yield variation may happen, the return variation may happen across this type of the bonds. There is a difference which may arise between short term and long term bonds that is why there is a maturity risk involved.

Inflation risk, at any point of time, the inflation can increase can decrease. So, accordingly, your real value of that particular return what you are getting from the bond that may change. That is why we are also exposed to the inflation risk.

Liquidity risk, whether really the bond is really marketable or not, at lower transaction cost we are able to sell the particular bond or particular fixed income securities in the market. So that is the part of the liquidity risk.

Then if you are holding the foreign bonds, there is some foreign exposure then we are also exposed to exchange rate risk. So if there is a fluctuation in terms of exchange rate then the values of the cash flow are also going to be changed. So that is why we are exposed to the exchange rate risk.

Then if the bond has any kind of features or the fixed income securities has any features call features or put features. So then those kinds of bonds are also relatively riskier from the investment point of view. So in that case, we can expose to a call risk.

So at any point of time, the bond can be called back by the issuer and that will be more problematic for the bond investor if at that particular point of time, the interest rate in the market is very low. They could have sold the bond in the market at a higher price. And whatever money they will get back from the issuer whenever they are going to invest in that particular money in the market, it will not be profitable for them. So that is why there is a huge risk we are also exposed to, that is called the call risk.

Then you have the volatility risk. The volatility risk means, due to the fluctuations of the volatility of the interest rate and all these things, our value of the bond also gets affected and that is more appealing or more suitable of the bonds which have embedded options.

Then we have the political risk or the legal risk what we can call. Then we have event risk. A typical event can happen to a particular company which may affect the other type of aspects of the bond investment. That is called event risk.

Then finally, the sector risk means that a particular sector whenever you are investing for some reason if the sector has not performed well then in that particular context, we are also exposed to certain type of risk of that particular investment. So that is called the sector risk. So these are the broad lists, we have classified certain type of risk which are associated with the fixed income security investment. So we will see how those particular risks are defined.

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Already, I told you that the market or the interest at risk the market risk is basically has two components. There is a combination of the price risk and the reinvestment risk. Because, whenever, the interest rate increases the price of the bond declines that means the investor is exposed to more price risk. That is why there is an inverse relationship between the bond price and interest rate.

So in that case, what will happen that the once the interest rate is increasing if you want to sell the bond at any point of time whenever the interest rate is increasing then price of the bond in the market goes down. So that is why the value of that particular investment goes down. But, at the same time, whenever you are getting the coupons these coupons whatever you are getting, you see, coupon rate are fixed, you will be getting a fixed amount of coupon in very month or every quarter or it can be every 6 months or every year and that money can be reinvested in the market; you can use it for some other investments. So, whenever you are using it for the other investment if really that interest rate has increased then getting some better return from the reinvestment will be always higher. So the reinvestment risk goes down, that is why what basically we can say that if the rate is increasing we are exposed to more price risk but at the same time we are less exposed to the reinvestment risk. Reinvestment risk is basically going down in that particular context so the price risk and reinvestment risk is basically that is why opposing each other. It will always basically compensate the reinvestment return whatever we get due to the high interest rate that will compensate the loss in the value of that particular bond in the market. So if you look at the reinvestment risk, it is generally higher for the long maturity and high coupon bonds.

So in that case if you are talking about the high coupon, let the coupon rate is 15% at the same time the interest rate has gone down. Then you are getting a high cash flow in the periodical basis. But, you do not enough revenue, you can generate by the reinvestment process. So in that case that is why the reinvestment risk is higher for the high coupon bearing bonds. So in the long maturity bonds also because the interest rate cannot be predicted accurately at any point of time the interest rate can change or interest rate can move in a particular direction what you have not expected. In that case, what will happen, that we can also face certain problem with respect to the value of the bond because of the interested fluctuations. So that is why the reinvestment risk is generally higher for the long maturity and the high coupon bonds. That actually you can always keep in the mind.

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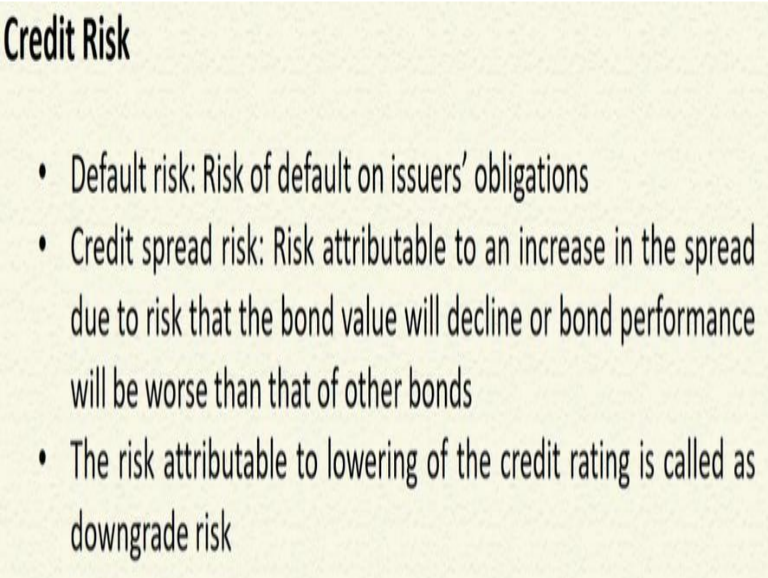

Then we have what basically you call it, the credit risk, it is a major risk. Whenever we invest in the fixed income securities, we are very much exposed to the credit risk. So credit risk means it is the mostly the default risk which is basically the risk of default on issuers obligations. Let company X has issued the bond because of the certain problem, the company X was not able to repay the interest or the principal to the bond holder. Then we are highly exposed to the risk of default or the credit risk exposed is quite high. So that arises due to the risk of default of the issuers obligations they are obliged to pay you interest in the form of coupon and they should also pay you the principal amount at the end. But because of some reason if they are not able to repay either coupon or the principle or both then we are always exposed to the default risk which is basically major part of the credit risk.

And another component, another thing also which basically arises credit raise that is called the credit spread risk what exactly it means? It means the risk aspect or the risk which is basically arises due to an increase in the spread between the particular bonds what basically you have invested are the comparative bonds which are basically traded in the market.

So that is why the risk attributable to an increase in the spread due to the risk that the bond value will decline or the bond performance will be worse than the other bonds at that particular point of time which are traded in the market. So that basically is a created a kind of spread between this returns what you are expected from that particular bond wherever you have invested and the bonds which are available in the market; the competitory bonds or the bonds which are comparable to the bonds where you have been invested earlier. So that basically happens when? That happens basically whenever the credit rating of the bond declines or some kind of forecasting made by the company or made by the some kind of the analyst about the company which is not a positive kind of news or positive kind of impression creates in the mind of the investors.

So the risks which are attributed to the lowering of the credit rating are called the downgrade risk. So there is a possibility because of the certain financial parameters, because of certain kind of exposure towards the market, there is a possibility that the rating of the bond can go down. So if the rating of the bond can go down then that also creates a kind of impression in the mind of the investor. The return or the bond may not do well in the market or the return will be lower. There is high chance that the bond, this particular issuer is going to be defaulted. So in that case the credit risk is basically going to be increased.

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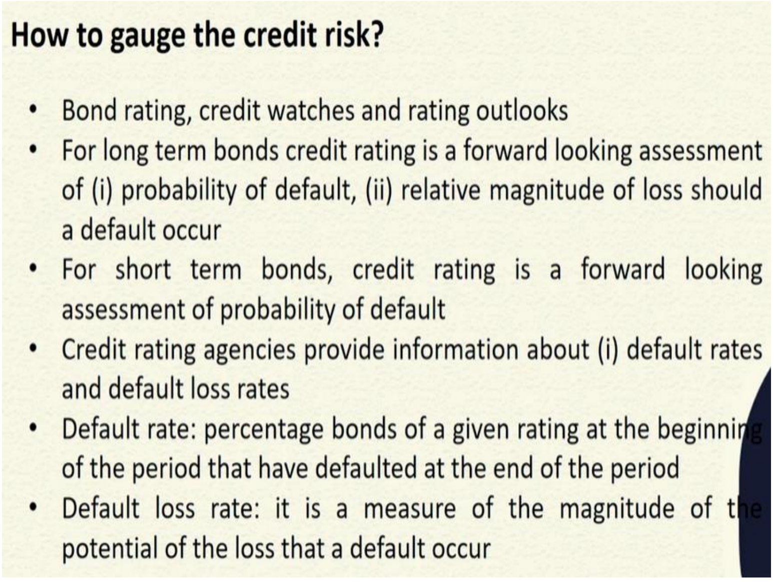

So, here, if you see, how do basically judge or how to gauge the credit risk? You see that you can use your bond rating or credit watches or credit outlooks; you can use all to understand that what kind of issuer it is or whether there is any possibility of default. So for long term bonds credit rating, it is basically a forward looking assessment for the probability of default and the relative magnitude of loss which basically a default can create. If there is a default then what kind of loss basically can be incurred? But for short term credit rating, it is basically assessment of the probability of default only. So the relative magnitude of loss is not there because it is generally the shorter bonds are maturity period is less than 1 year. So at any point of time, before real thing can happen, the particular bond can be redeemed and accordingly, you can get back your proceedings what you are expecting from that particular bond. So that is why risk of default is the only concept in that particular context. But, whenever the long term bond, because you have to hold it and in that case, the loss basically comes into the picture. The magnitude of loss basically comes into the picture with this probability of default. So the credit rating agencies generally provide the information about the default rates and the default loss rate.

They provide the information about the default rate and the default loss rate. What is the default? The default rate is nothing but is the percentage of the bonds of a given rating at the beginning of the period that have defaulted at the end of the period. Whenever they have basically issued the bond whatever rating was there and in the end of the period basically how many companies or how many percentages of the bonds which are basically available then which are going to be defaulted. So percentage of bonds of a given rating at the beginning of the period which are defaulted at the end of the period, that is basically called the default rate.

And default loss rate is what? It is basically a measure of the magnitude of the potential of the loss that a default can occur. So the credit rating agencies can provide this kind of information to you and this information can be assessed or can be utilized by the investor to understand that what kind of credit risk is exposure this particular company has? Or what kind of exposure a credit risk exposure the bond has? Accordingly, you can decide that whether it is a good candidate for investment or not?

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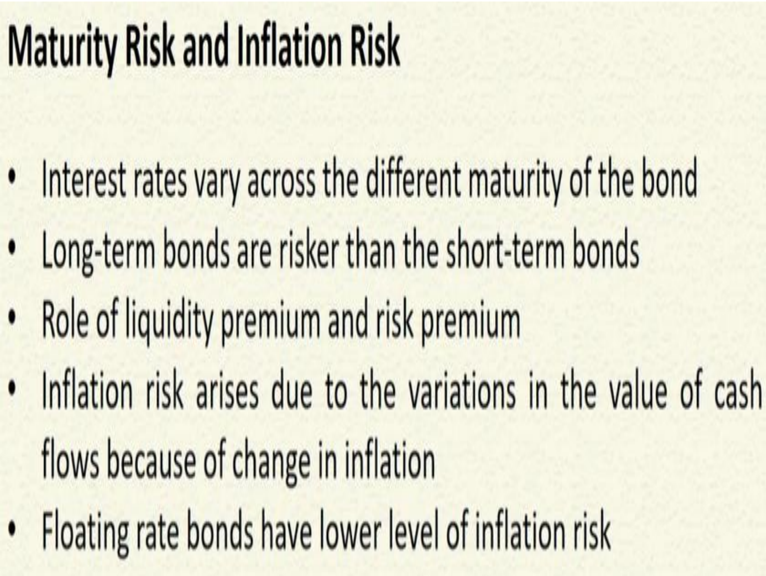

The next is your basically maturity risk and inflation risk. What is maturity risk? So I already told you interest rate very across the different maturity of the bonds. The yields basically vary across the different maturity of the bonds. Long term maturity bonds and short term maturity bonds you will find that there is a return differentials. Why there is a return differential in all these things? That basically we will be discussing further which; is part of the term structure interest rate theories.

Then they the long term bonds have a different interest rate than the certain bonds, why also we can say that the bonds have the same maturity also have the different rates or different interest rates, why that thing happened. That basically will discuss. But if you observe, longer term bonds are riskier than the shorter term bonds. The long term bonds are riskier than the short term bonds. The reason is that the future cannot be predicted perfectly or interest rate prediction cannot be done accurately. In that case, there is a high chance that anything can happen in the long run and the bond market is going to be affected by that. So because of this we say that investment in a long term bond is always riskier than investment in the short term bonds. So that is why we can bring this liquidity premium and the risk premium because of high risk the long term bond should give more return. Because we are forgoing our liquidity in today's context to invest in the long term bond, we should get some premium. So those nitty-gritty, the mathematics of that, the conceptual understanding of that, will be discussing in future sessions. That why basically this thing is added, how this is added, how to measure that and all type of concepts we will be discussing.

And the next thing is that the inflation risk. What is inflation risk? The inflation risk basically arises due to the variations in the value of cash flow because of change in the inflation. For example your bond is giving 10% coupon and the interest rate was fixed from the beginning so that is why you know that every year or every 6 months you will be getting 10% coupon from that particular bond.

But let, the inflation rate while investing in the bond the inflation rate was let 5% but now because of some reason in the market the inflation rate has increased from 5% from 11%. You are getting a return of 10% and in the market the inflation rate is 11%. What does it mean? It means that your real rate of return what you are getting from that particular investment is negative.

So that is why that will affect the value of that particular cash flow. So that is why there is a variation in the value of the cash flow due the change in the inflation rate, due to change in the purchasing power in the particular market. And if you observe, that is why there are different type of bonds: let the coupon is fixed in some cases and the coupons may not be fixed the coupons may be floating. There are some inflation linked bonds also that will be discussing further. But whenever you will find that a fixed coupon bonds, the fixed are more exposed to the inflation risk. In the long, run the inflation can go or the direction of the inflation can go to any extent or it can move any direction that cannot be predicted before. But if you are going for a floating rate bonds then there is a chance of changing the interest rate due to the change in the inflation and other kind of macroeconomic parameters.

So that is why the floating rate bonds have the lower level of inflation risk in comparison to bonds having the fixed coupon rates. That is another risk always we are exposed to whenever we are investing in the fixed income securities market.

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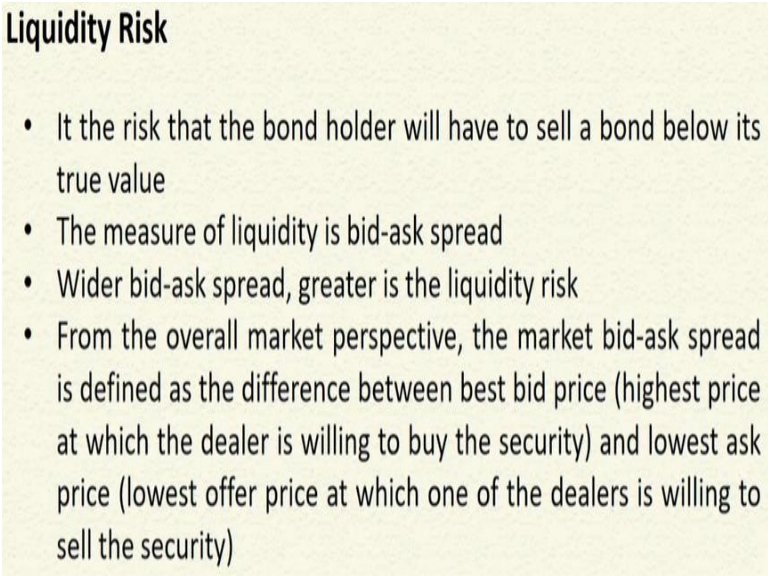

Then we have the liquidity risk that already all of you might have known. Liquidity risk is the risk where the bond holder basically always exposed to or will have whenever they the problem in terms of selling the bond or they will have to sell a bond below its true value. What should be the true value of the bond? Either they are selling it below the true value because there is no such market for that or they are not able to sell it for some reason. Even if they want to sell they cannot sell it. There is no proper market available for that or this particular bonds cannot be easily converted into a liquid asset like cash. So in that case, we are facing the issue of liquidity risk and whenever we in the overall market, whenever we look at the liquidity mostly always we refer to the transaction cost. So if the transaction cost is low then the marketability of that particular asset will be high, the market is more transparent. So in that case, the trading in all these things will be easier. We have the proper buyers, we have the proper sellers and always we can sell that particular asset or we can buy that particular asset with the minimum cost. So in that case, one of the best measures of the liquidity is the bid-ask spread. The bid-ask spread can be used as the measure of the liquidity. So wider will be bid ask spread, wider will be the spread, greater is the liquidity risk because spread higher means there is a high transaction cost in the market. So that is why it is difficult to make that particular asset marketable. So in that particular context, the liquidity risk will be higher. From the overall market perspective if you look at because the many traders or many kind of investors who are there or many kind of brokers who are there they basically quote the different prices: different bid price, different ask price. So from the overall market prospective, the market bid-ask spread is generally defined as the difference between the best bid price- the best bid price in the sense it is the higher price at which the dealer is willing to buy the security and the lowest ask price which is nothing but the lowest offer price at which one of the dealer is willing to sell the security. So that is called the market bid ask spread which is the difference between the best bid price and the best ask price. That is the way overall market liquidity can be judged or can be examined. So this is basically about the liquidity risk.

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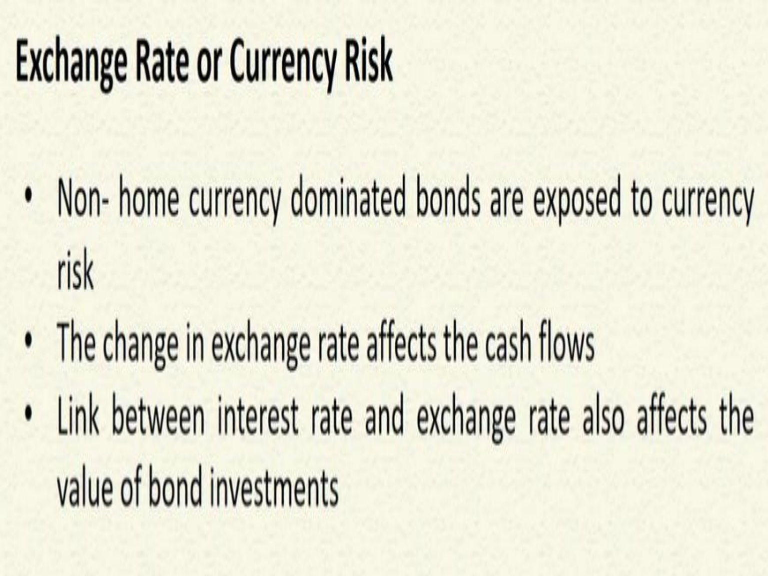

Then already I told you that exchange rate risk or other name of that we can call the currency risk also. Generally the non-home currency or the foreign currency dominated bonds are exposed to the currency risk. Because if Rupee versus Dollar let your particular investment is dominated with dollar, let the value of the Rupee has gone down. Then accordingly what will happen that if you are paying in terms of the dollar, your cash flow in terms of the dollar then you have to pay. Accordingly, your exposure basically is going to be affected by that or your cash flow is going to be affected by that. Let 1 Dollar was Rs.80 and now let Rupee become very strong then it became 1 Dollar = Rs.70. So in that case your cash flow will also get affected. It can go also opposite directions.

So in that case, if any time the exchange rate fluctuates, if your investments are dominated by the foreign nominated bonds then what will happen that always your cash flow gets affected and as well as there is a proper link between interest rate and the exchange rate. If there is any kind of fluctuations in the market then that also creates some kind of supply and demand imbalances with respect to the investments, foreign investments and other things. And because of this, the exchange rate also gets affected. So that is why the currency risk or the exchange rate risk has lot of implications from the bond investments or the fixed income securities investment point of view.

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Then we have the volatility risk and the political risk. Already I told you the bonds which are having the embedded options: they have the call feature and they have the food feature and all these things. Or they have the options; they are more exposed to volatility risk. Because the expected interest rate volatility increases the value of the options and generally the adverse price impact of the change in volatility on the price of the security is called the volatility risk.

So, that we will discuss whenever you go for the valuation of embedded options. We will see that how the cash flows are getting affected due to the volatility of the interest rate and the other factor which are the major factors which drive the price of the underlying assets. Then we have the political risk. Political risk means any kind of we can say that tax structure, any kind of regulation, any kind of stability with the government. All kinds of things basically come into the picture. Political risk includes the tax risk and regulation risk.

So, the bonds which are having the embedded options are more exposed to the volatility risk. Because the price of that particular asset; or value of the particular asset depends upon the cash flow of the underlying assets and all these things.

And the expected interest rate; if the interest rate is going to be volatile which is a major factor that affects the price increases the value of the options. And the adverse impact of the change in volatility on the price of security generally called the volatility risk. So that has lot of implications on the investments of the fixed income securities. Then we have the political risk which includes the tax risk and regulation risk.

Any kinds of regulatory change, any kind of changes in terms of tax rates, will also have implications on the investments of the fixed income securities or the return of the fixed income securities.

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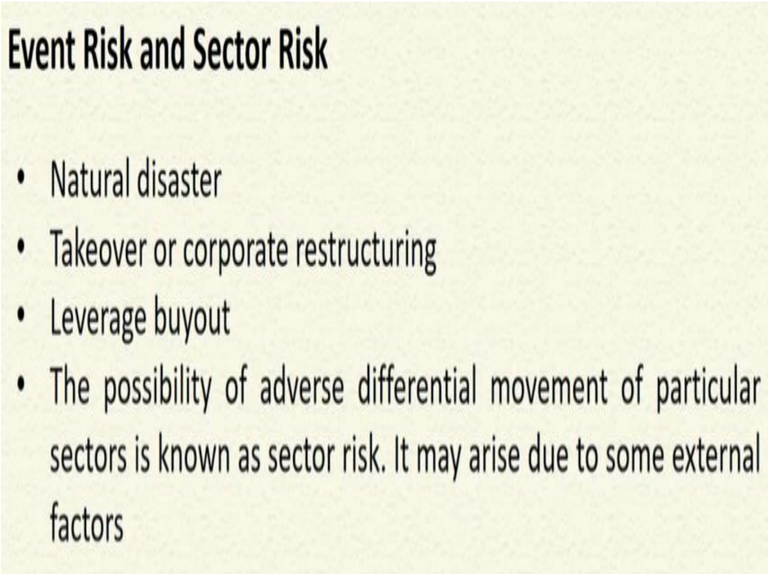

Then event risks already all of you have idea that any kind of natural disaster, any kind of takeover activities, merger activities or any kind of restructuring. Or in the restructuring process we can take example of leverage buyout. For example, any company wants to acquire another company, to acquire that they have gone for very high amount of loans that basically have the implications on their rating and all these things.

So that will have the impact on the value of this particular bonds whatever they have issued on the return of the bonds also whatever they have issued and as well as the credit risk of the particular bond.

And there is a sector risk which is basically the possibility of adverse differential movement of particular sectors generally known as the sector risk. And that may arises because of many external factors like any kind of uncertainty, any kind of fluctuations in the macroeconomic fundamentals.

That will have the impact on a particular specific structure. That is why we should not concentrate on a particular sector, we should concentrate on the diversified sectors, by that, the risks can be diversified and the return can be maximized.

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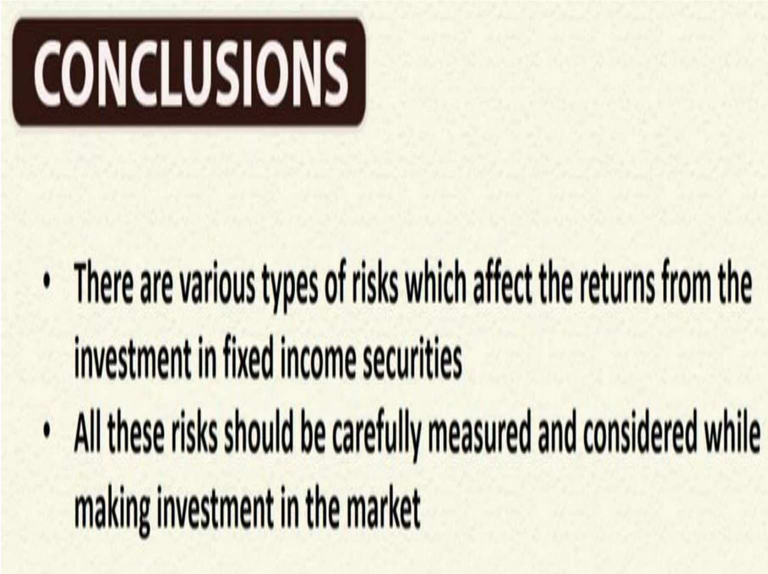

So what basically we have seen here, there are various type of risk which affect the returns from the investments in the fixed income securities. And all type of risks should be carefully measured and considered while making the investment in the market. And basically we will be discussing gradually in the forthcoming sessions.

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So this is the reference basically what you have to see for the detailed discussion on this issue.

Thank you.