Financial Management for Managers
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Lecture 50
Cost of Capital-Part 4

Welcome all, so now we will learn about the different approaches to calculate the cost of equity. The one important source of finance, we call it as generally the internal source of finance, for financing the investment projects or the investment proposals by the firms. So, out of the two broad sources internal and external sources equity capital is the main internal source because preference capital provides the say only a fractional amount, a larger part of the finance comes from the equity capital.

In case of any form of the business organizations I would share with you that whether it is a sole proprietorship or a partnership firm or even a private limited company and public limited company, larger component has to come from the internal sources because, first if the owner is ready to make investment in the business, then only the outsiders will believe or the outsiders will trust the business.

But if the owners is not investing anything from the pocket and largely depending upon the external sources, that does not happen, right. So, certainly more in case of the sole proprietorship, more funds come from the internal sources, internal equity is very high. In case of the partnership firms, yes, the internal funds are very high and Private Limited companies, largely more funds come from the internal sources.

Once the efficacy of the internal funds is approved, then the external sources or maybe the borrowing from the external sources will be allowed or they will be inclined to make investment in any company otherwise not and same is the case with the public limited companies that normally we call it as that debt equity ratio is 2 is to 1, standard debt equity ratio is that 2 is to 1 in the say capital structure issues.

So, what does it mean, that if we invest minimum 1 rupee from our own pocket, then we can borrow 2 rupees from the market, right. So, minimum investment has to come or sometime it becomes a maximum investment also, if the overall profitability profile is not up to the mark or the volatility of earnings is very high then sometimes what happens more funds come from the internal sources which we call it as the equity capital.

So, as I told you in the previous class that because of the and non-fixed nature of the dividend, which is the return on the equity paid to the equity shareholders or investors into the equity shares, because that is not fixed that is uncertain, sometime it is more, sometime it is less, sometime it is zero. So, it makes very difficult for us to calculate the cost of equity.

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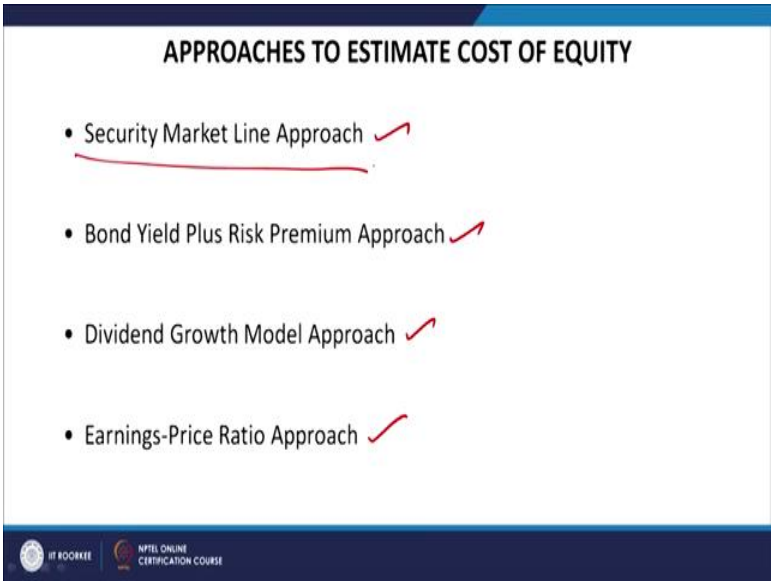

So, I told you that before the 4 approaches here, one is the CAPM approach Capital Asset Pricing Model approach, then is we have the bond yield plus risk premium approach, then it is the dividend growth model which is given to by the Gordon, Professor Gordon and then it is we have the fourth approaches as the earnings price ratio approach.

So, if you look at these 4 approaches, the major difference is only first approach here it is this is the most objective approach, security market line approach. Whereas other 3 approaches to some extent or maybe to a significant extent they involve the element of

subjectivity. And when the element of subjectivity comes, then sometimes trusting that particular method or component becomes difficult or that estimate becomes doubtful that what is that you can call it as the acceptability of those subjective estimates that is a million dollar question, right.

So, let us discuss these approaches one by one and then we will say conclude which one is going to be the best one, which normally firms use in practice in the market. And even as a new entrepreneur or any manager of any or any financial manager of any company, we should suggest to the company that which approach is more prone to use or likely to use or going to give us the best results. So, first is the security market line approach.

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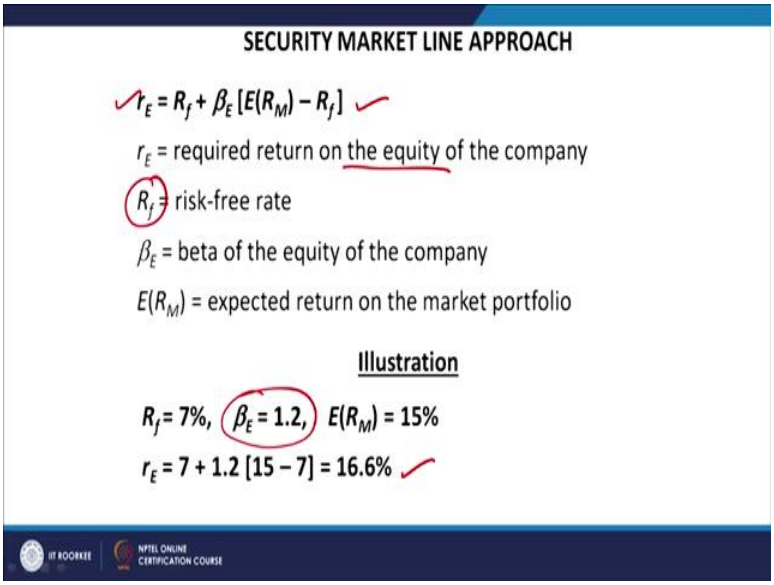

Security market line approach is basically you call it as I told you, that it is based upon something which is called as the capital asset pricing model, capital asset pricing model and the capital asset pricing model CAPM model is this model basically you call it as the equation of the CAPM is this one, and with the help of this model, you can calculate the cost of equity.

So, here what is it included in this model, r E that is on the left hand side cost of equity or the rate of return on the equity right, but how to calculate that depends upon the components in the right hand side, which is R f plus beta E into E R M minus R f right.

So, what is this R f, let us see all these components one by one they are given here. So, it means now, if you want to see that r E is basically the required return on equity of the company.

And R f is, R f is basically the risk free rate, risk free rate is that rate on which the element of risk is almost negligible, you can assume that if you are making investment into any say avenue of investment, where the rate of return being provided is a risk free rate. So, it means you can assume that at the end of that investment period or investment horizon, that much of the return will be certainly available from that investment avenue.

For example, you talk about the investment into the government securities, government bonds, government issue two kinds of bonds, treasury bonds which has the short term investment instruments, and the long term bonds, which are long term investment instruments. And whatever the rate of interest government promises that is normally paid on the maturity that is why they are called as that guilt edged securities.

Because the element of the security associated to those bonds is called as the guilt edge securities. So, guilt edge securities are going to give us the certain return which is a promised return and at the end of that maturity period, come what may that much of the return is available, simply you talk about the bank rate.

When we give our funds to banks or we make our investment in the bank in the form of the fixed deposits or maybe in case of the recurring deposits. So, whatever the rate of return banks promises to us, it is a guilt edge deposit, it is a guilt edge security and that much of the return is available from the bank. So, that rate of interest is called as or that rate of return is called as risk free rate, this is called as R f plus beta of equity, beta of the stock, individual stock I am talking about.

Because we are going to talk about the cost of individuals security, we are not going to talk about the costs of the entire market stocks. So individual security means it is called as the beta of the individual security. And with the beta you are multiplying the difference between the expected market return minus the risk free rate, expected market return minus the risk free rate.

So beta is basically, the beta of the equity of the company, beta of the equity of the company is the beta E, now what is beta, how do you define beta? Beta is basically the measure of riskiness of an individual security as against the riskiness of the whole market, element of the risk involved in the risk of say individual security or the security or the stock an individual company as against the market in the risk, element of the risk in the market as a whole.

So, this is a relationship which is exhibited by beta for example, you say the beta is 1, beta value is 1, it ranges from 1 to more than 1 or sometime less than 1. So, for example, the beta 1, beta 1 means the security of the company or the stock of the company is as much as risky as there is a total market risk, it means what is the average market risk is there, the security of this company is also that much risky and the individual security is not less risky or more risky as compared to the market risk.

So, beta explains about the relationship of the risk between the individual security and the market risk or the risk edge in the individual security and the market risk. For example, beta is 1.2 right, so you can see that individual company whose stocks you are going to evaluate or the cost of the equity you are going to calculate is riskier as against the total average risk available in the market.

Because beta 1.2 but for example, beta 0.8. So, in that case, you can say the security of the company, the stock of the company in question of which the cost we are going to calculate is less riskier as compared to the total market risk, it means, if you calculate the total risk in the market of all the securities being traded in the stock exchange, they are more risky, average risk of all those securities is more as compared to the risk associated with the individual security.

So, beta is basically the indicator of the risk associated to the individual security as against the market risk. Expected R M is, E R M is basically expected return on the market portfolio, expected return on the market portfolio that total market return means much? Because this is the difference and this is a difference is basically why, because if you want to have the risk free rate of return, then why should you go to stock market.

You should not go to stock market then it means that much of the return is available from the government, say bonds, short term or the long term depending upon the investment horizon. It is available in the bank deposits. So, if we are going out in search of the higher rate of interest or the higher rate of return that is why we are into the stock market.

And when you are expecting the higher rate of return by going to the stock market, you are prone to the higher amount of the risk also. So, this basically you call it as a risk premium, expected market return minus risk free rate of return is the reward for that particular risk which the person, the investor is going to take by investing his surplus savings, not in the risk free rate of return, but in the stock market.

So, he is ready to take the higher amount of risk and for that he needs to be compensated by that higher amount of return. So, expected market return means expected return from that security minus in the market minus the risk free rate of return is called as the E R M. Basically it is talking about the risk premium that is a E R M minus R f is basically the risk premium, which will largely depend upon the element of the risk associated to that security. If the element of risk associated to that individual security is high, then the risk this premium will be affected accordingly.

And if the risk or the beta is low, then certainly the risk will be much less as because individual securities are less risky as against the market risk. So, we are multiplying the risk premium that is the E R M with the R f with the beta and ultimately we are going to decide about the riskiness of the security, by taking into consideration or calculating the beta or beta in the same way you call it as basically the variance of return available from the companies or the investment in the companys stocks.

Now, for example, we have taken a simple illustration here, R f we are assuming risk free rate of return is 7 percent, beta of the security is 1.2, 1.2 means security is 20 percent riskier as compared to the market risk, average market risk, this security in question of this company is 20 percent more risky as compared to the general market risk and E R M is expected market return available in the stock market is 15 percent.

And r E if you want to calculate by using this then it works out as 16.6 percent. This security is going to give you the higher returns as against the market returns by 1.6 percent. Because beta is higher, because the riskiness of the security is higher. So, the volatility is higher, volatility of the return in the security is higher, but since you are going to take the more amount of risk, that is why the return also is higher as compared to the market return because the risk and return are directly correlated.

So, in this case, you can easily calculate the cost of equity that is basically the required return on the equity of the company r E can be calculated by taking into consideration the risk free rate of return beta of the security and the risk premium, which is available and that can be calculated by subtracting the risk free rate of return from the market return and r E is equal to 16.6 percent in this case.

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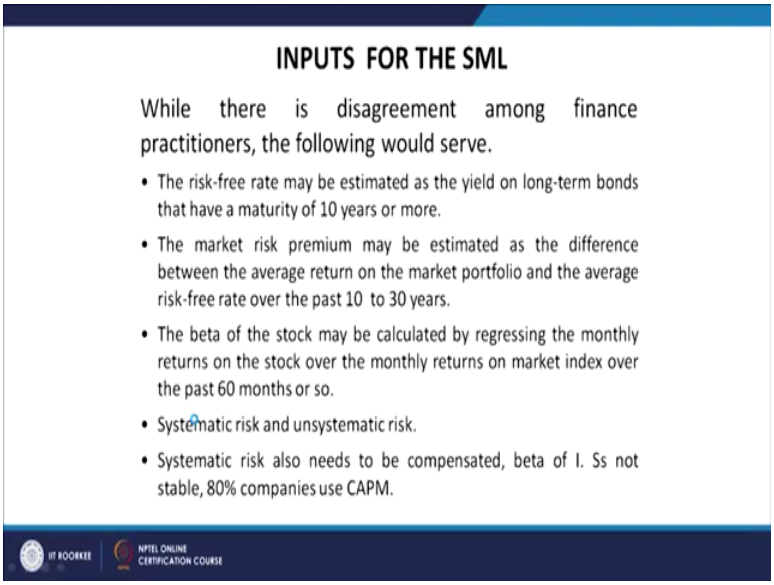

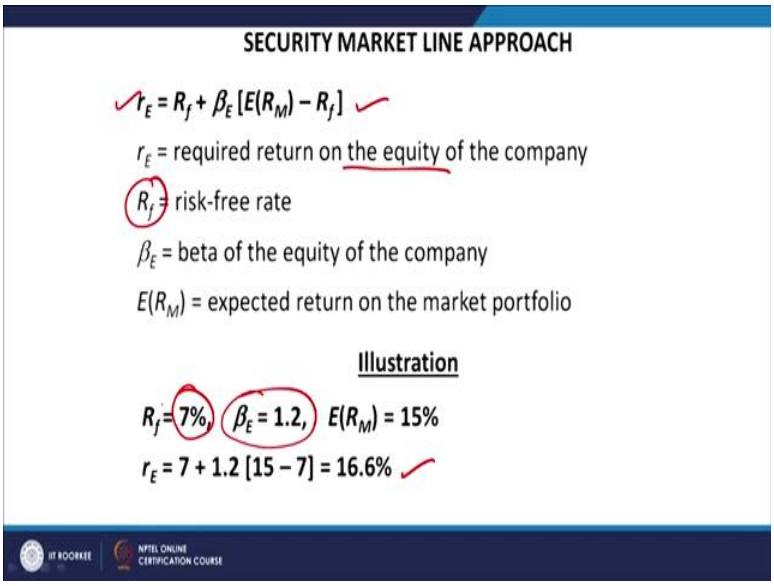

Now, for calculating this model or means using this model or calculating the cost under this model, the cost of equity under this model, we need certain inputs and from where the inputs come? That is we are going to talk about in this slide or this particular say presentation here. Different inputs can come from the different sources or different estimates are there and there is a complete disagreement in the market between the, among us the financial practitioners.

But important finally we arrived at the best estimates which are acceptable to all. So, despite the significant disagreement existing in the market amongst the finance practitioners, there are some common points which are of the quite helpful or reasonable help and we follow these points then certainly we can find out all the input variables required for the security line model or the CAPM model, right.

So, first thing is the risk free rate may be estimated as the yield on the long term bonds that have a maturity of 10 years or more, means the question here is that when you are talking about the risk free rate of return the 7 percent, from where this has come? Why should you take it as a 7 percent, currently for example, it is 6.25 percent right. And previously it was maybe sometime 8 percent in the future also it is expected it may go up or it may come down.

So, how can you say that risk free rate of return is always 7 percent. How to arrive at this risk free rate of return, this is a point regarding this that the risk free rate may be estimated as the yield on long term bonds that have been maturity period of 10 years or more. So, you can calculate the average of this yield on the long term bond for the period of 10 years. So, that if you predict about the next year on the basis of the yield on any bond for the period of the past 10 years.

So, it means a larger you have adjusted for all ups and downs and you can say that whatever we are expecting the rate of interest for the coming year will be means rightly anticipated, or will be able to calculate it correctly. Second point is the market risk premium may be estimated as a difference between the average return on the market portfolio and the average risk free rate over the past 10 to 30 years.

You can find out because market portfolio is easily available for example, you can take the Sensex value right, how the Sensex is changing. So, market index is easily available, you have the different indices are there, different market indices are there and for say you can take the Sensex value, you can take the Nifty value. So, that can be considered as the representative of the market return.

And for the individual security or for calculating the risk free rate of return you can take the average risk free rate over the past 10 to 30 years. So, you have to subtract from the market returns the risk free rate of return and the time period is so large 10 to 30 years we are talking about. So, that difference between the market return, market return can be say used means the market index can be used as a proxy of the market return.

And the risk free rate can be used from the long term bonds for a period of the past 10 to 30 years, maybe 10 years, 15 years or 20 years or maybe 30 also depending upon the information available. So, if you are taking such a long period and you are getting two proxies easily available, the market index as well as the say the risk free rate of return so premium can be satisfactorily worked out.

The beta of the stock may be calculated by regressing the monthly returns on the stock over the monthly returns on the market index over the past 60 month or so. It is basically

the regression equation means, if the market return is this much, how much will be the return from the individual security? So, it is the basically the regression analysis we do it by calculated by regressing the monthly returns on the stock.

Individual security whose costs we are going to calculate over the monthly returns on the market index, over the past 60 months or so. And next thing we talk about the systematic risk and the unsystematic risk, these two risks are very important risk to be taken care of, as far as the say unsystematic risk is concerned, unsystematic risk is basically the company level risk you call it as.

The company level risk, which can be largely taken care of with the help of diversification of the investment right. Say, for example, if we are investing into the stocks, maybe we have the, as an individual also or as an institution, if you have to invest a certain sum of money, it is always advisable that do not put all your eggs into one basket.

So, what should we do? For example, if somebody want to make investment of 100000 rupees into the stocks or in the stock market, he should choose a different securities, he should make a good portfolio of the 3-4 securities 3-4 stocks of the 3-4 companies. So, that if the stock of any company or the return on the stock of any company goes up and on the other goes down.

So, ultimately net results remain the same, he has not lost anything and if the proportion of the growth and the proportion of decline is equally same, so, at least you are at the state of the no profit no loss or sometimes if the proportion of the growth is higher and the proportion of declining other securities lesser ultimately you end up making some profits.

So, with the help of I mean to say diversification, the unsystematic, the company level risk can be taken care of. But the other risk which you call it as the systemic risk and the risk which you say may come because of the industry risk or the market risk. So, we have the 3 kinds of analysis, EIC analysis we call it as, we call it as the say EIC analysis.

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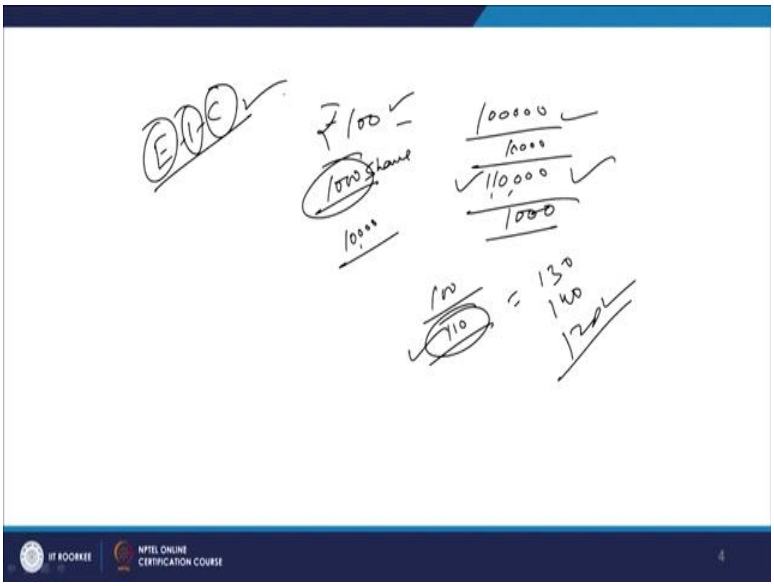

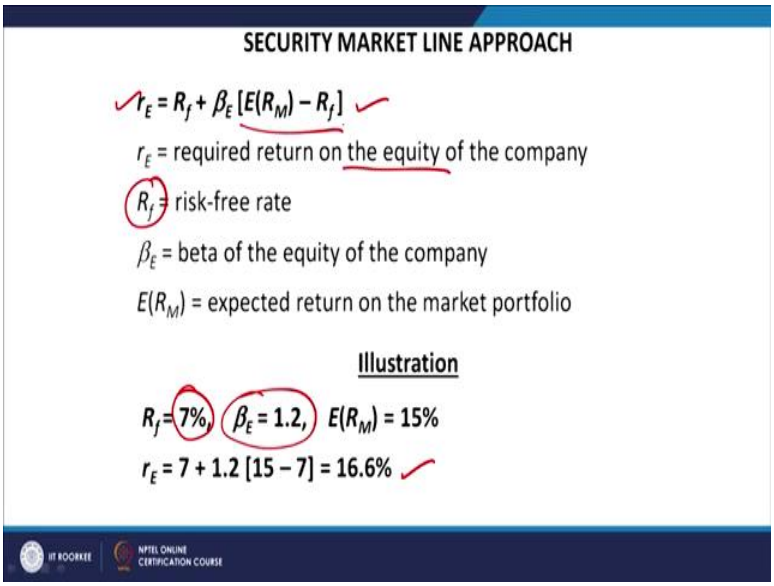

EIC analysis means, this is EIC analysis. It is economy, it is industry and it is company as far as a company level of the risk is concerned by analyzing the companys stocks over a number of years, the product type, the companys background, you can easily take care of that what is the riskiness involved. So, with the help of diversification, this risk which is called as largely the unsystematic risk can be taken care of and for taking care of the systematic risk, you have to then use the different strategies.

And for say this systematic risk means because largely the market premium depends upon, expected return from the market depends upon the systematic risk and for that systematic risk we have to know the different things given here and for that what you have to do is, you have to calculate the beta, because individual security, the risk associated you have already nullified by going for diversification.

Systematic risk, which is represented by beta needs to be taken care of because it comes from the factors which are beyond the control of any individual, any company also. They are caused by the industry as a whole, they are caused by the economy as a whole, economic system, industrial situation, recessionary situations, inflation rates in the market or maybe the demand supply situation, world economic scenario.

So, all these factors, which are going to create the problems and going to affect the returns of the stocks of individual companies, which is calculated in the form of the beta, we have to now say calculate the beta and with the help of beta, you can try to find out if the amount of the beta is high, then certainly we want the higher premium for the compensation against the systematic risk.

So, with the help of beta the systematic risk can be measured and for handling of non-systematic risk, we can use the concept of diversification and people can use both means the prediction of the systematic and the unsystematic risk involved in the riskiness of the security and if you look at the model.

We have taken care of both the things that if we want to increase that return from the market, sorry, return into the individual security. Then you first you talk about the unsystematic risk. So, there we use a diversification and for the systematic risk, you can use the beta and with the help of beta you can understand how much riskiness is there or how risky the security is.

And depending upon that, you can assign the premium expected from the that investment and finally we can decide the say the cost of capital by applying this model of the CAPM. There are some limitations in the CAPM also that for example, the beta of the individual

companies do not remain same over the number of years, there can be the one important reason.

Even sometime the unsystematic risk is not also completely possible to be reduced by simply diversification. So, we need some premium for unsystematic risk also. So, despite all these limitations, 80 percent of the companies in the world use this method, this model for calculating the cost of equity, despite the beta is not going to remain stable, which is reflector of the systematic risk.

Despite the fact that unsystematic risk cannot be fully handled by the diversification, still this model is most objective and most useful model and you call it as because of the element of objectivity associated in this model, largely the companies in the world use this model for calculating the cost of equity. right.

So, this is the most objective technique and you have understood how to calculate the cost of equity, that is by using the equation or the model given, that is the cost of equity is equal to that depend upon this r E is equal to R f plus beta of the individual security into expected market return minus risk free rate and this is basically the risk premium associated for taking the risk while going to the stock market.

So, it means if you are taking the additional risk, we need the additional premium also for getting compensated for the risk we are taking. So, this can be measured by using this model, which is largely called as the security market line approach, which depends upon the model called as the capital asset pricing model CAPM given to us by the noble laureate, William Sharpe.

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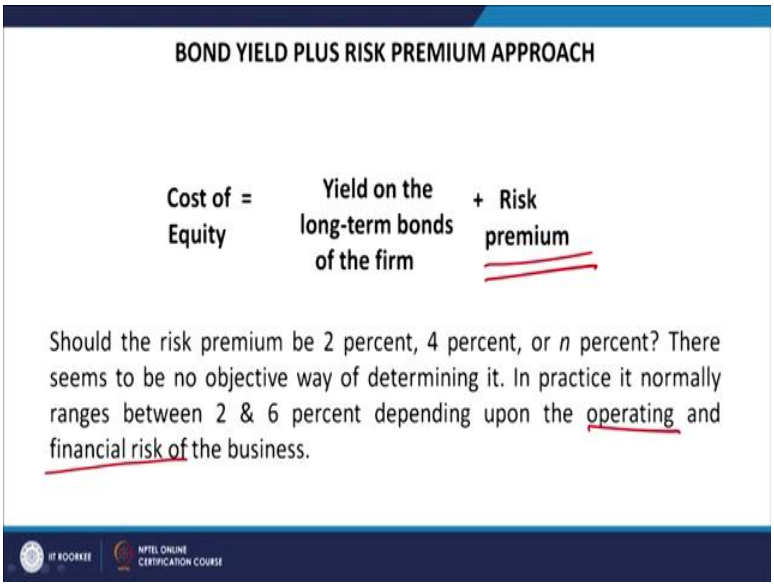

Now, we go to the next this approach, which is quite subjective approach, Bond Yield Plus Risk Premium Approach and the cost of equity can be calculated with the help of this approach. So, if you want to use this approach, what we do here is, as the say this formula says cost of equity can be calculated with the help of yield on the long term bonds, yield on that long term bonds plus risk premium.

So, yield on the long term bonds of the firm plus risk premium, so, yield on the long term bonds can easily be calculated, you call it as a risk free rate of return right which is being used in the security market line approach also that is R f that is the yield on the long term bonds right, that is easily available from the market, since it is a risk free rate of return.

So, with certainty that you can say this much of the return is available plus, because we are going to stock market for making investment into the equity of the companies. So, we are going to take additional risk. So, we need to be compensated by the risk premium for the risk we are taking, and here this factor of the risk under this approach is added to the say risk free rate of return on the basis of subjectivity or experiences of the market experts.

So, should the risk premium be 2 percent, 4 percent or n percent? How much should it be, 2 percent, 4 percent, and how much we should add here? Because, that will depend upon

the risk in the market and how much risk is going to be there in the market. For example, if the economy is growing at a very faster rate and the growth rate is very high. Sensex is growing, Nifty is also growing all the companies are stock stocks are doing very well in the market, market return is very high.

So, in that case risk is very low, but the situation can be reversed also, situation can be in between also, it can be means volatile also right. So, what percentage we should add here, there is no standard formula, no standard mathematical model or approach only subjective approach depending upon the past experiences and the understanding of the financial experts in the market.

You can add some premium here and it is clearly written here. There seems to be no objective way of determining it. In practice it normally ranges between 2 and 6 percent. In practice normally depending upon because what has been seen in the market practically it ranges between 2 and 6 percent depending upon the operating and the financial risk of the business, depending upon the operating and the final financial risk of the business.

If the operating and financial risk of the business is high, then we assign high amount of premium, but if these two risks are lesser or lower than minimum premium which has to be added in the risk free rate of return is 2 percent, for example, risk free rate of return is 7 percent then the cost of equity will be adding 2 percent is 9 percent or maximum it can go up to 13 percent, if it is 6 percent premium we are adding right, but that depends upon the riskiness of the individual company and their stocks.

So, operating and the financial structure or the risk associated, which is called is operating and the financial risk are going to play the part. But the limitation of this approach is that risk premium to be added here has to be based upon the subjectivity and largely upon the estimates, best estimates of the financial experts, though we are going to supplement this information with the operating and the financial structure of the firm or the operating and the financial risk associated with that security but still this approach remains largely subjective approach.

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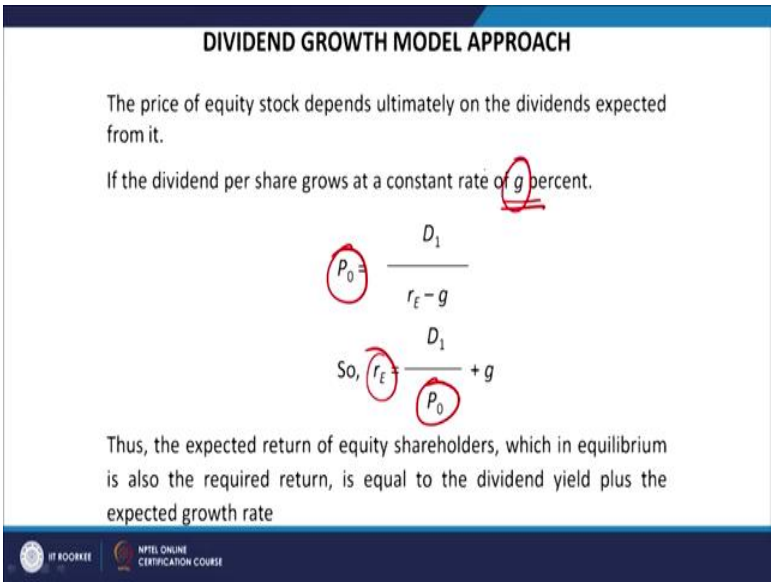

Next is dividend growth model which is given to us by Gordon. This one you can call it as mathematician, means a person, you call it as a person not mathematician, I would correct myself. He is the Myron J. Gordon. He is a financial expert. So Professor Gordon, he is basically the say professor of financial economics.

So, Professor Gordon has given this model and this model is basically called as, how it is explained it is given here and this model is called as the dividend growth model. And Gordon says that cost of equity largely depends upon the growth rate of the dividend, largely depends upon the growth rate of the dividend that at what rate the dividend of the company grows, that is going to decide the cost of the capital of the company.

So, here it is written clearly, that is the price of equity stocks depends ultimately on the dividend expected from it, higher the amount of a dividend, higher the price you are ready to pay, lesser the amount of dividend lower the price you are going to pay for the stock of that particular company and if the dividend per share grows at a constant rate of g percent right.

So, it means this is again a bone of contention constant rate of growth, which is called as g percent right. So, it means, you have to now find out that constant rate of growth. So, this is a major limitation of this model that can you expect that the dividend will be

growing at a constant rate over a period of time? It is very-very important, we will be having the question of this constant rate of growth, we can try to find out how to means find out the handler to find out g that is also discussed in the next slide.

But for example, if you assume that this model will be followed for calculating the cost of equity, then this model says that depending upon the dividend being paid on the investment, the costs of equity can be decided and in this case, how it is being done P 0 depends upon D1, dividend given in any year divided by r E minus say the g, that is the cost of the, return from the equity minus growth rate right.

So, it means this dividend it will depend upon that is the return on the equity minus g, this is a growth rate. So, it means for calculating the r E, r E will depend upon what? That is r E is basically the return from the security or the say rate of return of the security. So, in this case, if you talk about the expected return from the security, it will depend upon how you calculate it D1 divided by P 0 plus g.

P 0 is the price of the security in the current year, P 0 is the price of their stock in the current year, D1 is the dividend expected at the end of the year and plus the growth rate is the g. So, here it is the growth rate here, that at what rate the dividend is growing over the number of years, the price in the current year and the dividend in the current year and plus at what rate the dividend is expected to grow, with the help of that you are going to decide this value of r E.

So, from this rate of return from the equity r E if you subtract the g and say this dividend is divided by the r E minus g, then you will be able to find out the price of the stock or the price of the equity capital or the equity stock. So, in this case, does the expected return of equity shareholders, which in equilibrium is also required return is equal to the dividend plus the expected growth rate right.

So, the expected, this basically, when you are talking about this r E this is expected return of the equity shareholders. And this expected return of the equity shareholders will depend upon what? This depend upon which is equal to the dividend, which is equal to

the dividend plus the expected growth rate. So, it means, at what rate that dividend of this companys growing in the subsequent years, P 0 will depend upon this.

So, P 0 is largely depending upon what? This is depending upon the dividend being paid on that stock by the company and that will depend upon the growth rate over the number of years. So, it is written clearly here, if the dividend per share grows as a constant rate of g, then the cost of equity, that is P 0 price of the share, equity shares can be calculated by this model, and this largely depends upon the growth of the dividend. Now, the million dollar question here is how to calculate g? How to calculate g?

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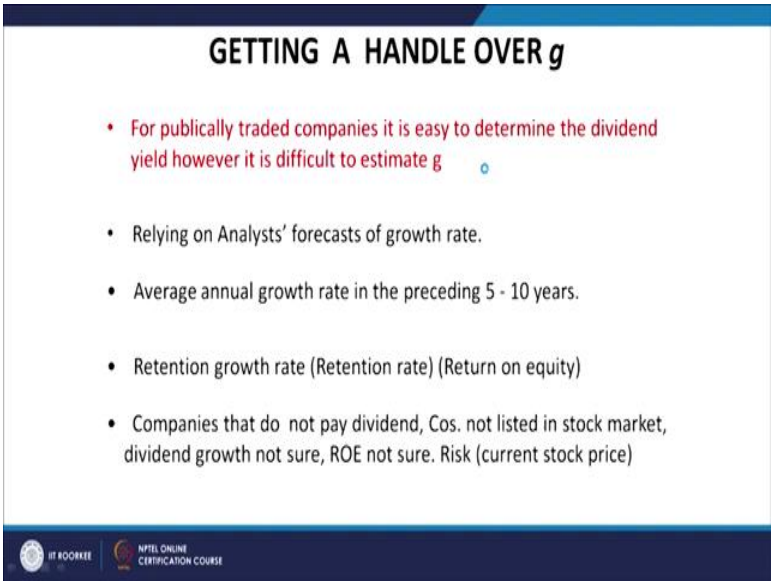

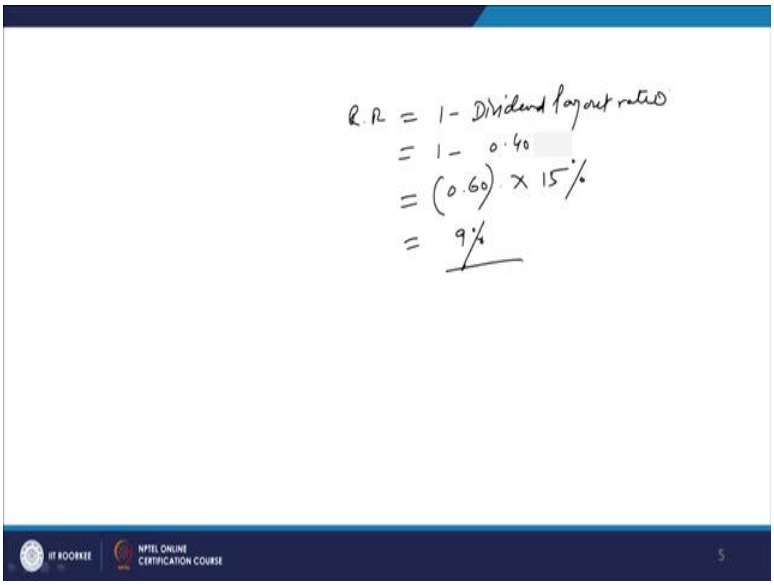

Getting a handler over g this is the question because growth rate, at what rate the dividend will grow, we have to find it out. So, first thing is written here, for publicly traded companies it is easy to determine the dividend yield. However, it is difficult to estimate g right.

So, in this case, because for the Private Limited Company it is very difficult because cost of equity problem comes normally in case of the public limited companies, there also we have to calculate the cost of equity. So, the dividend is easily available right, is easily available that it is easy to determine the dividend yield.

However, it is difficult to estimate g, so for estimating g, what we have to do is, number one, relying on the analysts forecast of the growth rate. Different companies, different secondary estimates are available in the market, from the different researcgencies who keep on forecasting depending upon the previous number of years 10, 15 years, they predict that what will be the growth rate of the dividend, in case of the different stocks, so we can make use of that.

Average annual growth rate in the preceding 5 to 10 years can also be used right, if you do not want to depend upon any secondary estimates, then we can take the, we can calculate it ourselves, retention growth rate, that is the retention rate means we can easily

try to find out with the help of the retention growth rate also, which can be calculated by the retention rate into the return on equity.

Retention rate and the return on equity it can also be done like that. So, it means if you want to follow that, if you want to use the retention growth rate, how can you calculate the retention growth rate? Retention growth rate can be calculated easily by say retention rate is basically, how can you calculate the retention ratio? That depends upon the dividend payout ratio right.

So, if you want to see the dividend payout ratio, so it means a retention rate, how to calculate the retention rate? That depends upon the say 1 minus dividend payout ratio, that depends upon the dividend 1 minus dividend payout ratio that depends upon the retention rate right. So, in this case for example, the dividend payout ratio is 40 percent, that 40 percent of the profit is being paid.

So, it means your retention rate is going to be how much? 60 percent, right? So, retention rate is going to be 60 percent and if you want to find out the say retention rate is 60 percent and the return on equity is for example 15 percent, this is 15 percent in that case, sorry we will have not to us here the this percentage because we are using it otherwise in the fractional form. So, you have to call it as this particular part that is 0.6 into 15 percent.

So, if you call it as, so, what is the g? g will be 9 percent here. So, you can use the retention rate also with the help of the retention rate, you can calculate the g, either you depend upon the analyst or the secondary sources in the market or we can calculate g our self by taking the growth rate for the preceding 5 to 10 years or we can use the retention growth rate which is basically the retention rate into return on equity, right.

How to calculate I have explained it to you and the companies that do not pay the dividends or the companies that are not listed in the market, dividend growth rate is not sure. So, return on equity is also not sure, so there comes a problem. So, it means, here we are going to talk about is that in case of the listed companies in the market, either you

use the analysts forecast or you use the annual growth rate or you use the retention growth rate.

Either way, the g can be calculated and if you are able to calculate g, so, it means, if the dividend per share means, the cost of capital will be calculated as the price of equity stock depends upon ultimately on the dividend expected from it. And if the dividend per share grows as a constant rate of g, then the cost can be calculated this way. So, for calculating g, 3 estimates can be used, problem only comes in case of the companies which are not listed in the market.

For example, the companies they are not listed in the market or sometimes the companies who do not pay dividend, the company is listed in the market, but they are not paying dividend then there comes a problem. So their means cost cannot be easily found out so, there we have to be very careful, because growth rate will not be possible to be known. And the return also the also will not be possible to be known.

Where the companies which are listed in the market or which are, whose shares are being traded in the market, in those companies cases, finding out the cost of capital will not be difficult by following this method that is called as the dividend growth model given to us by the financial economics expert, Professor Myron J. Gordon. So, this model can be used which is called as a dividend growth model or dividend growth approach.

So, these two approaches which are called as a subjective approaches we have discussed apart from the say your this CAPM approach which is the most objective approach.

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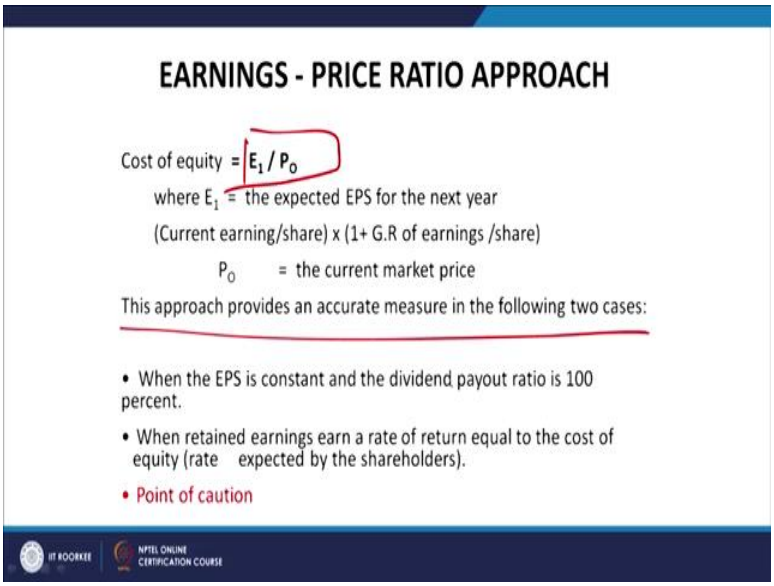

And last approach I am going to discuss here quickly in the say next 2 minutes is, earning price ratio approach right, earning price ratio approach is the, with the help of this, you can calculate the cost of equity, that with the help of this particular model that is E1 divided by P 0, E1 is expected earning per share.

So, it means earning price ratio approach, earning to price ratio approach, it means, what is the base price in the current year and what is earning expected by on the basis of that you use this say ratio and with the help of this ratio, the cost of equity can be calculated where E1 is expected earnings per share for the next year. And now, you can easily calculate the earning per share for the next year is current earnings per share into 1 plus growth rate of earnings per share.

Again now, the problem will come for assessing the growth rate. But depending upon the past number of year growth rates we can estimate this also and P 0 is the current market price. So, current market price will be dividing the expected return which can be calculated on the basis of the current earnings per share into 1 plus growth rate of the earnings per share. So, with the help of this model you can calculate this approach is called as the earning price ratio approach.

So, you can use this also, this is the third approach, subjective approach third, in total it is a fourth approach and point of caution here it is, if you look at this line, point of caution here is this approach provides an accurate measure in the following 2 cases, number 1 when the EPS is constant and the dividend payout ratio is 100 percent, which is quite unlikely in the market.

Second is when the retained earnings earn a rate of return equal to the cost of equity. That is the rate expected by the shareholders, when retained earnings earn a rate of return equal to the cost of, equal to the cost of equity that is the rate expected by the shareholders. So, in these two situations, if these two situations are held good, then means when the dividend payout ratio is 100 percent, whatever the profit we are earning, we are distributing as dividend which is quite unlikely.

And second thing is retained earnings earn the same rate as expected by the equity shareholders or which is equal to the cost of the capital, which is also again going to be very difficult. So, since these two conditions say do not hold good in case of this application of this approach, so this approach is not used in practical sense.

So, in case of the subjective approaches either you use the second approach or you use the third approach means second approach is basically the bond yield plus risk premium approach. There if you know this risk premium, you can easily apply because the first part is stable, we can easily find out which is a risk free rate of return. Whereas, in this case, if you look at the risk premium, you can if you are able to find out the risk premium easily, then we can easily means use this model which is again the subjective approach, but still usable.

Or we can use if you know the growth rate of the dividend over the number of years, then the dividend growth model can be used, but earning to price ratio approach is not possible to be used. So, as I told you 80 percent of the companies use the CAPM the security market line approach, which is most objective for calculating the cost of equity, but if other approaches have to be used, then you can use either the bond yield plus risk premium approach or the dividend growth model approach given to us by the Gordon.

So, these two approaches can be used or the most objective CAPM can be used. So means because of the dividend problem or the dividend issue, this calculation of the cost of equity becomes complex, but ultimately we have to calculate it because we want to calculate the weighted average cost of capital. So, till now, what I could discuss with you is that how to calculate the cost of capital of the different sources.

First we discuss the cost of capital of the borrowed capital, that is a debt, then the preference capital and then the cost of equity by following the say or by using either of the four approaches, in these approaches, one is the most objective approach and three are the subjective approaches.

So, depending upon the resources available, and the information available, any of these four approaches can be used. So, this is how we calculate the cost of can you call it as the cost of individual sources of the capital. But now, next part will be that how to decide the proportions and then on the basis of these proportions, how to calculate the WACC weighted average cost of capital and how to deal with the problem of the flotation cost that all I will be talking to you but in the subsequent classes, in the next classes.

So, in the next class we will learn about how to determine the different proportions that is largely dealing with the problem of the capital structure and then say the flotation cost. And then finally calculating the weighted average cost of capital that I will discuss with you in the next subsequent classes, till then thank you very much.