Security Analysis and Portfolio Management
Prof.J.Mahakud
Department of Humanities and Social Sciences
Indian Institute of Technology, Kharagpur

Module No. # 01
Lecture No. # 07
Market Efficiency - Concepts and Forms of Efficiency

Good morning. So, after discussing about the different environment for investments and as well as the basic concepts of risk and return and as well as also, the brief idea about the different markets, where the different types of investments are available.

(Refer Slide Time: 00:31)

Then, we should know more about that which are the different markets and how the different markets are basically helpful for investment or what are those conditions, which are generally required to get a maximum return from the different markets.

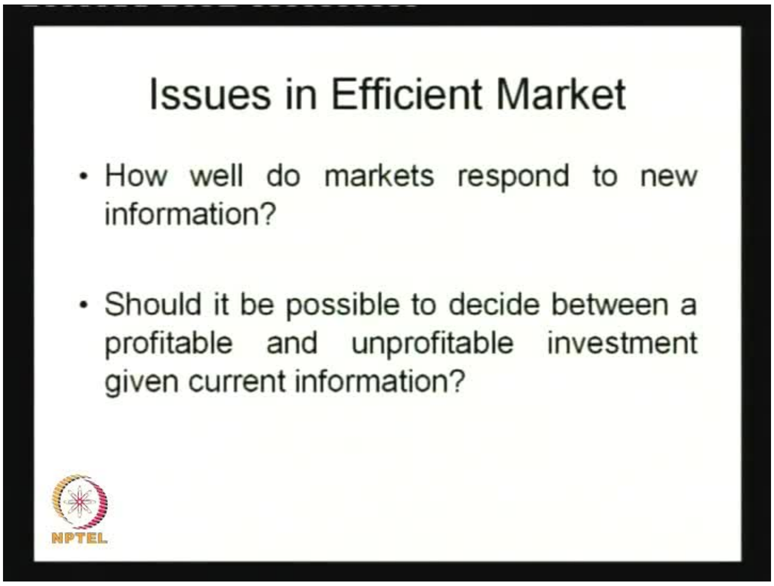
In this context, from the beginning, we should very much thorough about or we should know about the concept of market efficiency. The concept of market efficiency is not a new concept, which is started since 1958 by the famous economist James Tobin, who talks about the efficiency in whole financial system.

He talks about the different types of efficiency and if the financial system really works properly, then all those systems are basically the different instruments, different markets which are available in the financial system, this should be highly efficient. May be that efficient, may be in terms of the fundamental valuation efficiency, may be the insurance efficiency or maybe it is efficiency in terms of the information.

So, in this context, after around 12 years in 1970, Fama was taking about market efficiency in the capital market. And whenever we talk about the investment management or whenever we talk about the portfolio management in a capital market, we should be much aware about the market efficiency in terms of capital market; we may not talk about the efficiency in other markets.

So, here, in this context, in this course, whenever we talk about the security analysis and portfolio management, we are much more concerned about the efficiency in the capital market. So, in today's discussion, what we are going to do is that, basically deals with the market efficiency in the capital market or in general, in a very layman prospective, we talk about the market efficiency in the stock market.

(Refer Slide Time: 03:25)



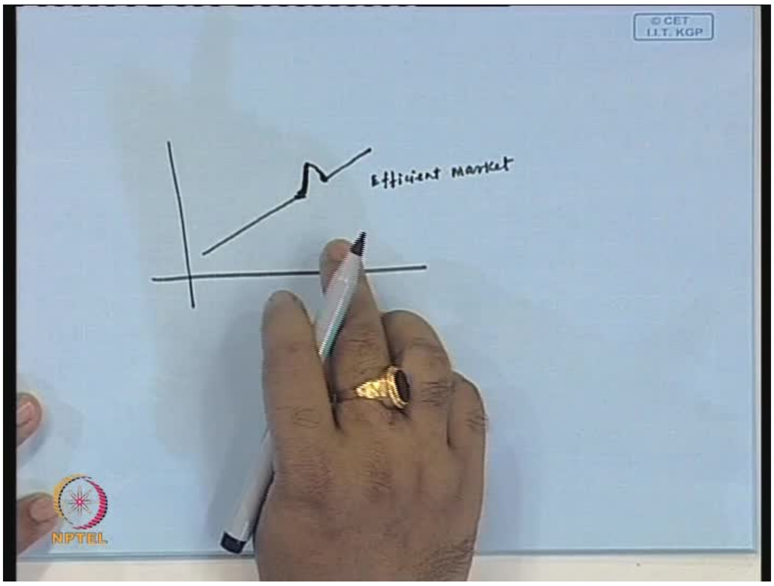
So, here, before going to discuss about in detail what exactly the market efficiency is, and how this market efficiency is defined, or where when we can say that market is efficient and when we can say market is not efficient, we should know that what are those different issues generally we discuss whenever we talk about one efficient market.

Whenever we talk about the different issues in efficient market or whenever we discuss about efficient market, there are some of the fundamental questions basically comes to our mind or we should examine certain points if we analyze the market efficiency for a particular market context.

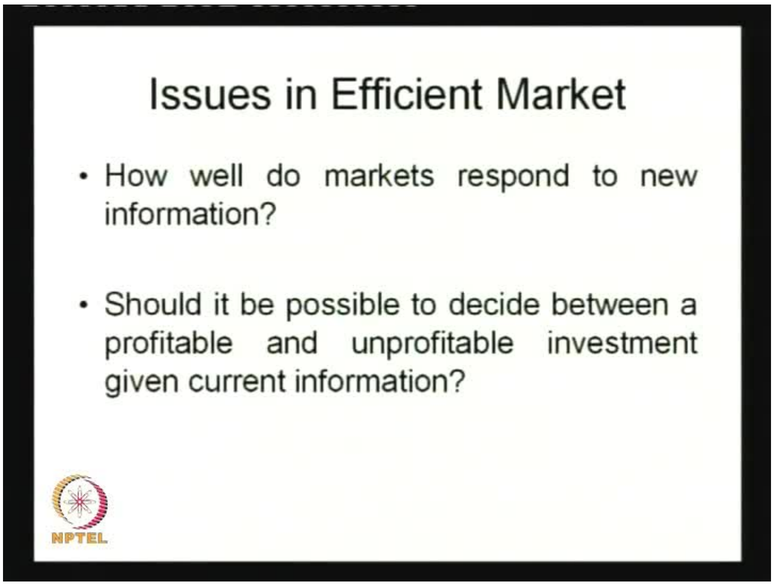
So, here, if you see, there are two fundamental questions comes to our mind whenever we discuss about the concept of efficient market. One issue is that how well do markets respond to new information? And should it be possible to decide between a profitable and unprofitable investment giving current information? Let us elaborate these two points.

What basically in the efficient market context the researcher or the people or the investor discuss? That whenever we do the investment in the market, for example, your market was going in certain direction, if your market was going in certain direction, for example, this if you see that this is the way that the market is moving. If this is the way the market is moving and all of sudden, some of the things or some of the new instruments which are available in the market or some of the new information is which are coming into the market, so then how fast, for example, because of the new information the market (()) increase like this.

(Refer Slide Time: 04:50)



(Refer Slide Time: 03:25)



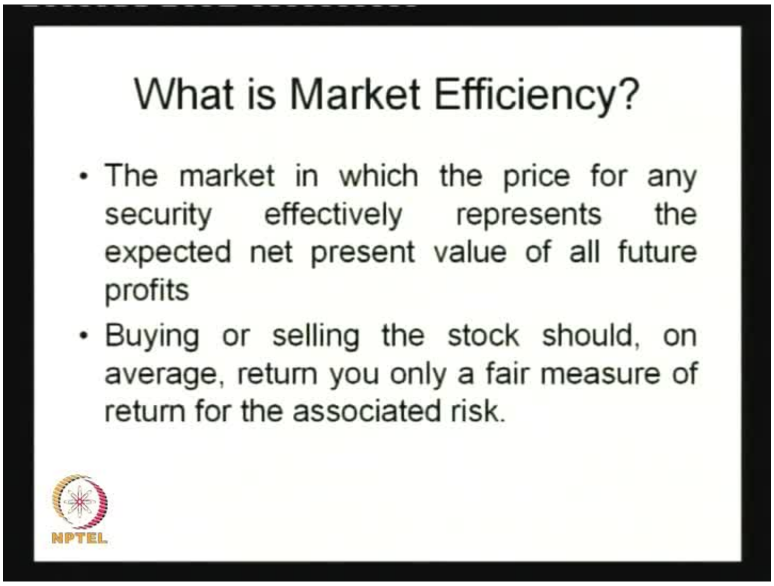
So, whenever the market has increased like this, may be that trend will not continue for a certain period of time, but exactly how fast the market can respond to this information? If the market can respond to that information, by which this particular market has gone up and automatically after certain time it has been stabilized, then we can say that market is an efficient market.

That means, what basically we refer in this context, that how fast this particular market can accommodate or can respond to the new information which is available to the system. Then another question here, should it be possible to decide between a profitable and unprofitable investment with given current information?

That means, here if you refer to this particular discussion, what we were doing is that whenever there is some new information is available to the market, so that time definitely what you can see that, if that information will be available to certain people, and that information is not available to certain people. Then, obviously there would be difference between the return gain by these two types of the people or two types of the investor. The people who has the information, they will get more profit than the people who does not have that information.

So, basically, whenever that is why whenever we talk about the efficient market, we should see that how many people or how the different people can get this particular return or can maximize their particular return and whether we are in a position to distinguish between those investors.

(Refer Slide Time: 07:35)



We can distinguish between which type of investment is profitable and which type of investment is unprofitable, that issue basically is raised whenever we discuss about the concept of efficient market. Then, coming to our core discussion, what we are going to do today is that what exactly this market efficiency is. Exactly if you find that the market is efficient or we can say that market is efficient, in which the price for any security effectively represents the expected net present value of all future profits?

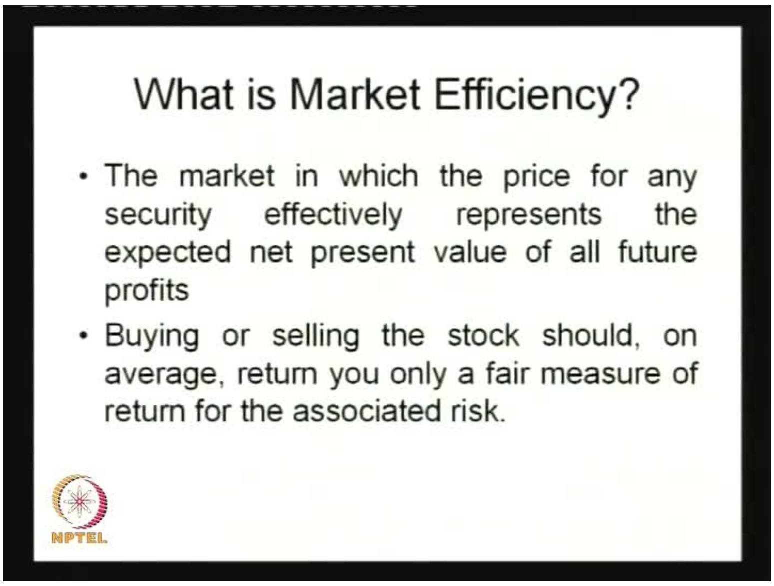
That means, if we see the price of the particular security or particular stock that represents everything, that reflects all the possible information's which are available in terms of that particular security in the market. That means, we can judge from that security that what kind of security it is, what is the risk available in that particular security, how much return we are going to get from that security, as well as also we can expect that how much return we are going to get if we invest in that security. That is why in an efficient market, basically what we can conclude or we can say that the market in which the price for any security effectively represents the net present value of all future cash flows.

So, here, what generally we can say is that, in a perfect market or we can say in an efficient market, the security price reflects about all the characteristics of that particular market about that security. That means, if we have the price data of that security, we can say that how this particular security will behave in the future. And if we stick to that investment in that particular security, then how much return we are going to get from that and as well as also that how much cash flow or how much return in the future also we are going to achieve or we are going to gain if we invest in that particular security.

Another point also we can see that buying and selling the stock should on an average return, you only a fair measure of return for the associated risk which is very important point in this context while we talk about this. For example, if you refer to the discussion what I made in just two minutes back, what we discuss is that whenever the information is or new information is are coming to the market and the information is available to certain people and the information is not available to certain people, then what happens?

The people who gets that information, they get high return, the people who does not get that information, they get low return, but if your market is highly efficient, what does it mean? It means that obviously whatever information are available in the market that is available to everybody, that means nobody can use that information or nobody can use that extra form of information or extra form of data to maximize their return.

(Refer Slide Time: 07:35)



That means, what we can say is that all the people can maximize their return with that information, may be the some group will maximize and some group will not maximize that kind of situation, which is never prevailed in inefficient market. If that situation arises, then what will happen is that, not a single group or not an individual group can attain the abnormal returns from the market, which it is beyond the expectation of the investor. That means on and always if the return is distributed among all the people who are participating in that particular market, so everybody can maximize their return or everybody… or the abnormal return what can be attend from the market due to the new information can be distributed between all the investors, which are available in that particular time in the market. Then, they may not get very high return or the return is very much normal return or it is a fair measure of the return with a given amount of the risk.

But, if your market is inefficient, then what happens is that the information which is available to certain type of people or certain groups of investors they can get high returns and the information which are not available to certain people, they get low return. So, in a particular group, for a particular group, they always attain the high return from the market, but the risk what they are going to face from that may be is not perfectly trade off with their return what they are going to get.

That means may be the same type of group or same type of people or same type of investor who has same level of the risk, but the return levels are different. So, in this context what we can say, it is quite difficult, it is quit we can say impossible to get very high return from an efficient market.

So, here, in this context, what we can say is that, if your market is efficient, nobody can get very high abnormal return, and as well as also we can say that whatever return they will get, it is highly compatible with risk level of that particular security. That means, with the same level of the risk nobody can get high return, and nobody can get low return which is perfectly trading off with that particular security. With a given amount of the risk everybody can attain the same level of the return, so that is why we can say that in an efficient market it is quite impossible to attain the high return or to earn their abnormal return from the market.

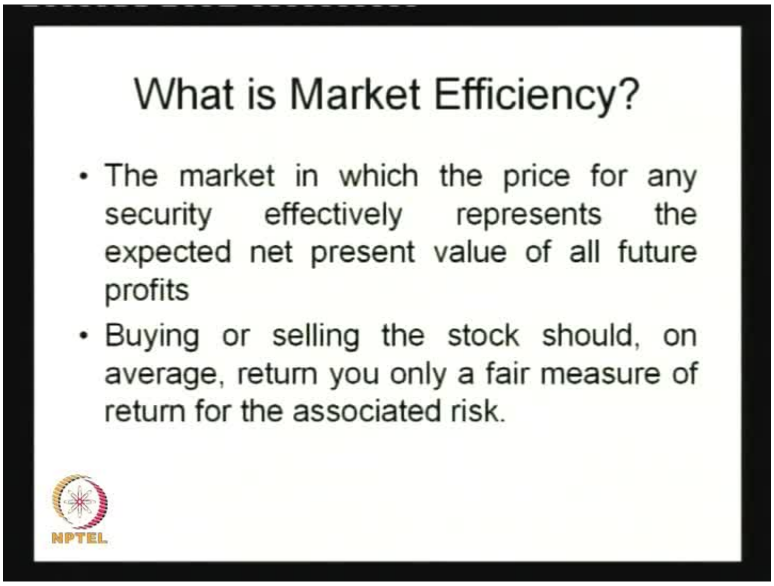
So, if you summarize this discussion, what basically what we are discussing, what we can see here is that, basically whenever we talk about the efficiency in the capital market, we give most attention to the information efficiency or the market should be efficient from the information point of view.

The informational efficiency should be there, there should not be any gap between the different investor regarding the information is available in the market, that means all the investors should have the same level of information by which they cannot get any abnormal return from the market or some group can get abnormal return, some group will not get abnormal return, those kind of situation never prevailed in an efficient market.

So, market efficiency basically deals with the informational efficiency in the market, and it is much more important in all the markets including the securities market or including the capital market. So, whenever we talk about the efficiency in a capital market or efficiency in a bond market or efficiency in any of the markets in the financial system, we should much concern about the informational efficiency or there should not be any kind of arbitrage opportunity which should prevail in the market, fine.

Now, we can have the discussion on about the arbitrage, what exactly the arbitrage means? Because, it is highly linked to the market efficiency, the concept of arbitrage is basically leads to the market efficiency. What basically the arbitrage means? Arbitrage means that without risk you can get return; how it is possible, definitely the question will arise.

(Refer Slide Time: 07:35)

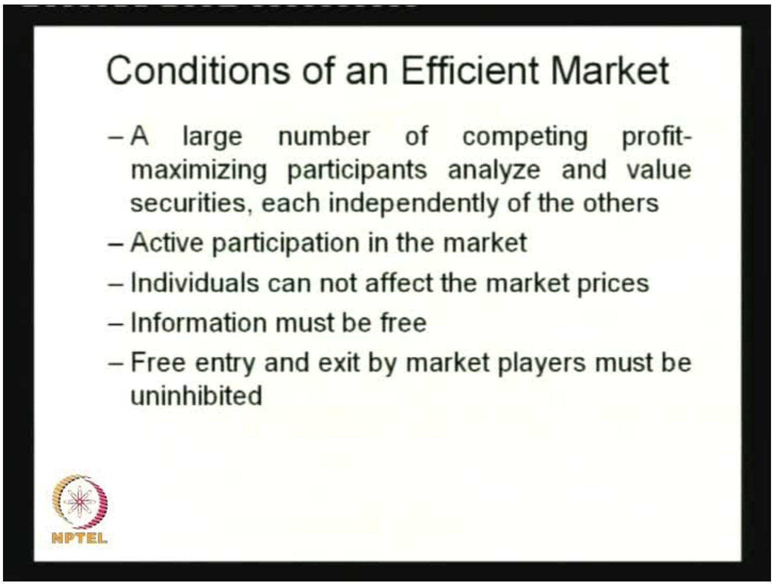


How it is possible? You take the example. If a particular stock, there are two prices available in two stock exchanges, then what the investor can do? The investor can take position in both the stock exchanges. In one stock exchange he will buy, in another stock exchange he will sale where the price is high. So, in this context, what is the investor generally get is that he did not take any extra risk to get that return, what he has got by selling that particular security in another stock exchange.

So, that is why what basically we should say is that the law of one price should prevail in all the markets at a time that means that should not be, the different price that should not be and the availability of different price level for the same security in two different markets at a particular time. At a particular time, if the price seeing is different in two different markets, then it is very easy for the investor to get that arbitrage opportunity, and by which, with same level of the risk, or we will we can say without adding any extra risk, he can add some more return, that is also one of the biggest concept or biggest issue in the efficient market.

Generally it never happens in an efficient market, in the efficient market, the law of one price always holds good and we cannot find any security where the price of that security is are differently priced in two different markets. So, therefore, this is basically the concept of market efficiency. So, in this context what we can say is that with a given amount of the risk, all the investors should get the fair measure of the return, nobody should get high return and nobody should get very low return by which the whole system he will lead to the inefficiency.

(Refer Slide Time: 18:39)



So, therefore, in the market efficiency, if your market is efficient, everybody should get a fair amount of the return with a given amount of the risk. Then, we talk about the conditions or we can say that whenever you talk about an efficient market, what are those different conditions or assumptions are prevailing in that particular market?

When we can say that, what are those different characteristics of an efficient market? If some of you are aware about the different market conditions in the general sense, for example, we talk about perfect market, we talk about monopoly, we talk about oligopoly, and we talk about monopolistic market in basically in the different subjects in economics.

Here, what we have seen is that, whenever you talk about the perfect market, one of the major characteristics of the perfect market is that there are number of buyers and sellers are more. And there are many buyers, there are many sellers and everybody participate in the market, nobody influence anybody in that particular market in the same line of action.

If you talk about the different assumptions or different conditions of an efficient market, what you can observe? In a typical efficient market a large number of competing profit maximizing participants are available, and what they do? The all those aspiring profit maximizing participants, they analyze and value the securities and they each independently work each other.

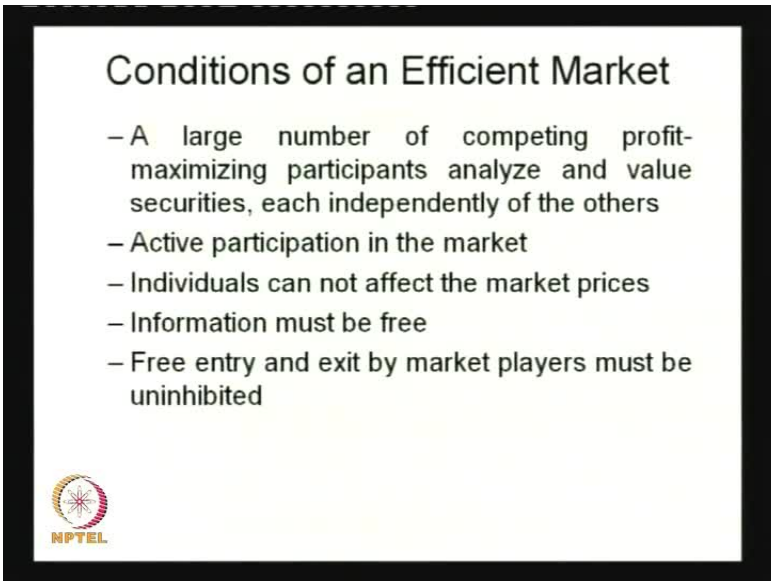
Means, basically, what it means is that there are many investors which are available in the market, and all the investors wanted to maximize their return, that means everybody's objective is to get the return in a very high amount or with a given amount of the risk, or they want to minimize their risk with a given amount of the return in the beginning what we are discussing.

As well as to get that return, or to minimize that risk, what they do? They continuously analyze and value the securities which are available in that particular market. What exactly it means? Definitely the question generally you can raise is that some of the investors buy the security; some of the investors sell the security, why it happens? It happens that everybody's objective is same to get high return from the market, but what generally happens is that in some of the participating investors in that particular market, they generally feel that the value of that particular security what is available in that particular market is already high, it is over value, or we can say the market value of that particular asset is more than the intrinsic value what they supposed to get from that security. What generally happens in that time? That time if they are expecting that already this particular price of that particular security is already overvalued, definitely they would expect that the price will go down.

So that time their position will be different, but if they only expect that still there is chance, that the price will go up, still that particular security is undervalued in the market, then what will happen in that case, they generally, basically, take a different position expecting that the price will go up, that is why we can find the different types of investors in that particular market in different time period.

They all busy with their analysis, they were busy with their valuation of the securities, and another assumption also here if you observe which is very important, that all those investors which are available in that particular time, in the market, they are not basically depending on each other, basically they are not biased by the decision of others. They independently work, they independently analyze or we can say that one investor's decision is not influencing the other investor's decision.

(Refer Slide Time: 18:39)



That is why they independently work each other that mean they take the position in the different on the basis of their own analysis, on the depending upon their own valuation of the securities and they are not biased by the decision by the other investors. And number two, if you see that active past participation in the market, what does it mean? For example, there are certain investors which are available in the market, but they do not participate market frequently or they are not the prime movers in the particular market, they do not actively take part in the trading process in the market.

So, that in that situation what will happen? That if they do not participate in the market frequently or they do not participate actively in the market, then their decision or their analysis or valuation of the securities do not effect this market price of the security or market price of the security do not fluctuate that way, do not behave in that way by which you may not reflect, you may not get actual behaviour of the particular securities, particular security in the market in that particular time.

So, that is why if really you want to analyze the behaviour of the security in the market, in that particular time, all the investors should actively participate in the market, if they do not participate, then the behavior of the security or the actual behavior of the security cannot be analyzed in that particular situation, in that particular market.

Then another point, individuals cannot affect the market prices, you should see that which is very important in today is world, what it basically means? There are certain investors, if your market is inefficient, then what will happen? There are certain investors or there are very big investors which are there in the market, they can regulate the market, they can control the market.

How they can the control the market, because only that investor has the information and if that investor has the information because of so and so reason or maybe he is close to the manger or maybe he is close to the regulator and whatever it may be, then what will happen in that case, he can take the extra advantage to maximize his abnormal return from the market.

That means, what we can say in this case is that, because of that particular investor the disturbances arises and because of him, he controls the market in larger extent and if he controls the market in larger extent, then automatically other people cannot maximize their return.

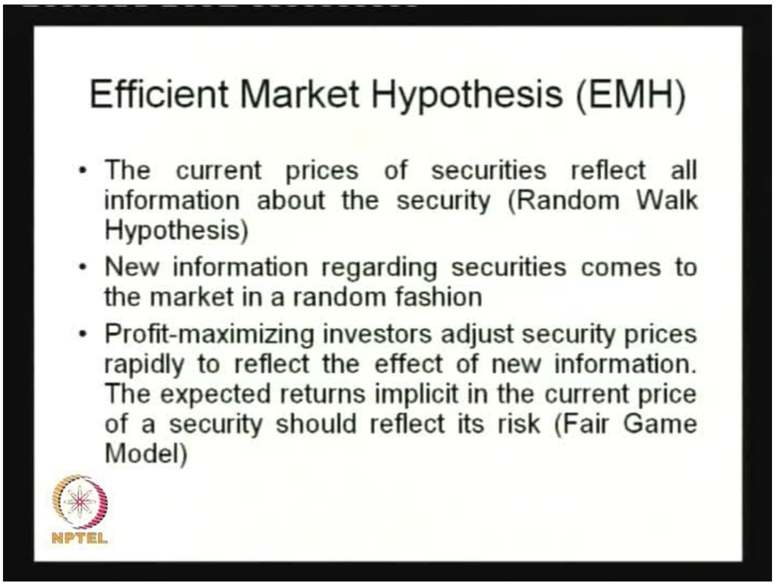
So, that is why if your market is efficient, nobody should control, any individual should not control the market behaviour in that particular time. So, in nowadays, it is very important in this case, because there are certain cases which are happening every day that because of so and so reasons some of the people get the extra advantage from the market, and once they have the extra advantage from the market, then whole system collapsed.

Another object characteristics if assumption if you see, that the information is free, that means, what it means? That does not mean that all the information is are free, but whatever information is are publically available, that is it should be available to everybody. May be if the company is going for its annual report or company announces something, so that information to should reach to all the investors irrespective of their characteristics.

If this particular information is available to somebody and the information is not available to other investors, then obviously that problem arises and market cannot be efficient. So, therefore, the whatever information are available, that should be available to everybody in the free of cost. Then another is, there is free entry and exit by market players must be required, must be uninhibited.

That means that anytime somebody can exit the market or anytime somebody can entry the market, the free exit and free entry is very much required if your market wants to be efficient or the market is going to be efficient, so that characteristics is quite relevant, quite important from the investor point of view.

(Refer Slide Time: 27:45)



In this context, in 1970, Fama has formulated the concept of efficient market hypothesis. What exactly Fama has explained in 1970? He was talked about some of the things he has used, some of the words, some of the concepts which are widely used whenever we discuss about the efficient market.

What first observation what Fama has told? That the current prices of securities reflects all information about the security, that means whatever price the security has or whatever pricing is available about that security, it reflects everything or all the information about the security, there is no extra thing which is available in the market to conclude about that security.

That means, if you see the price of the security, you can say that how the pricing will be made and how what kind of valuation can be done and what kind of return we can get out these, how much risk is involved in that security. That means all the characteristics of that security can be attained if you only see that particular price.

The new information regarding the securities comes to the market in a random fashion, that means if anything, any new thing which is coming to the market about that security, that is should not be known if you analyze the security or if you analyze the past prices of that security, that means it comes very randomly, everybody has that kind of ah impress on that, we cannot judge anything about that security in a systematic manner. That means, whatever the security price has, the same thing will be prevailing in a particular time and if any new information will be coming to the market, that comes in a random fashion very randomly, so this particular concept is widely known as random walk hypothesis, that means the particular security prices does not follow any kind of very deterministic trend or anywhere any kind of deterministic path, always this particular securities follows a random walk.

That means, any information about that security which comes to the market, it comes very randomly, there is no such kind of pattern, there is no such kind of very regular trend can be achieved or can be received about that security in that particular time. Another thing also Fama has discussed regarding this efficiency, the market, that the profit maximizing investor adjust security prices rapidly to reflect the effect of new information, the expected returns implicit in the current price of a security should reflect its risk, which he defined as faire game model.

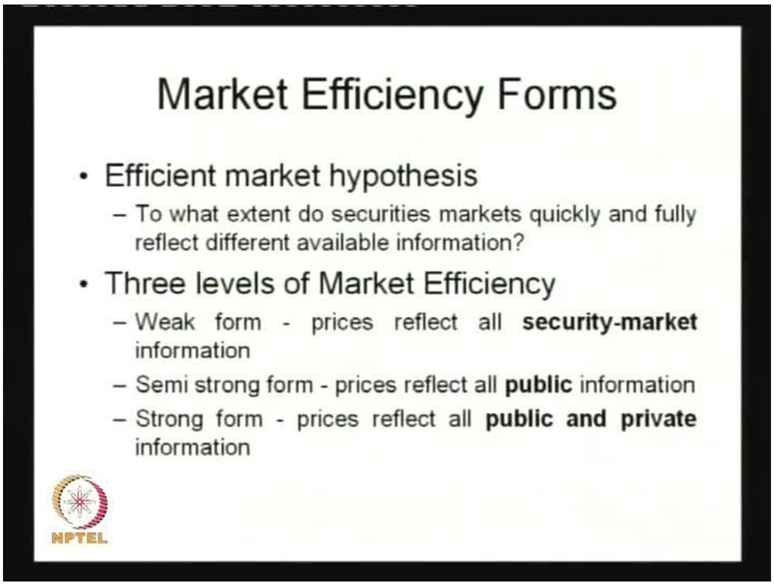
What it exactly means? If you minutely analyze these things, what basically it shows is that if some new information is are available in the market, then the investors who always in the process of analyzing and valuing the security, he can get that information very rapidly.

Once he can get that information, that information will be already reflected in the price of that particular security, or whatever changes will be happening in that particular price of the security, that will happen very rapidly, there should not be any kind of lag, by which may be in that particular time lags somebody may get high return, somebody may not get high return, that thing never happens.

Always these investors are in a position to capture that particular information, and once that information is captured, that is already reflected in the price of the security, that will be automatically reflected in the price of the security.

So, in this context, what generally we can say that there is no such information which are available in the market where the profit maximizing investor cannot capture it immediately. So, there should not to be any kind of time lag, there should not be any kind of things available by which somebody may get information, somebody may not get the information, that is why this concept is defined as the fair game model.

(Refer Slide Time: 32:23)



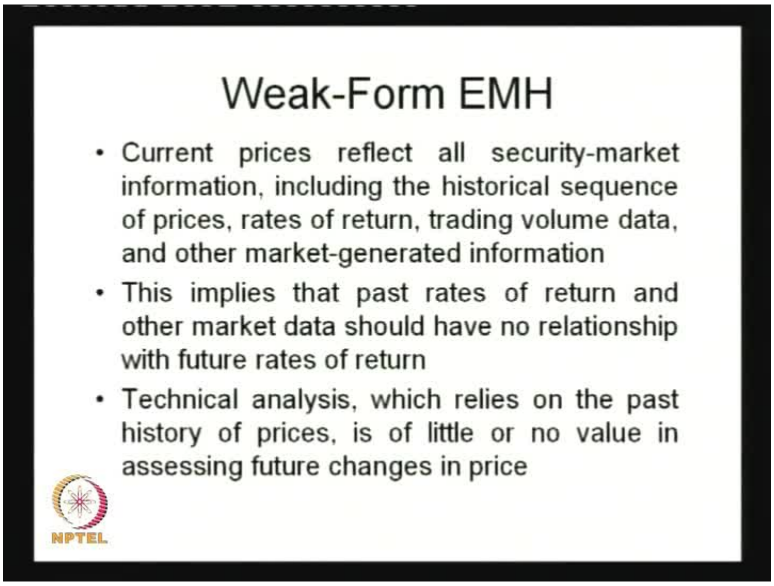
So, that is why in this form the efficient market hypothesis has been formulated, so here what this efficient market hypothesis in overall said, that to what extent do securities market quickly and fully reflect different available information, and in that context also Fama has explained about the three levels or three forms of market efficiency. What basically there are three forms? one or one is defined as the weak form of efficiency, another is semi strong form of efficiency and other one is the strong form of efficiency.

What do you mean by this weak form of efficiency? In the weak form of efficiency, already we discussed in the random walk hypothesis, it is basically related to the random walk hypothesis. In the random walk hypothesis generally what we have seen is that, the prices reflect all the security market information and all the new information what comes to the market, that that comes in the random fashion.

That is why nobody can expect, or nobody can predict about the future of the market by analyzing the past data. So, that is why in the weak form of market efficiency we can say that prices reflect all the security market information, that is why everybody has the same level of information, nobody can get any extra information from that, by which they can earn some high returns.

Then another one is we call it the semi strong form of efficiency. In the semi strong from of efficiency, basically what happens is the prices reflect all publically available information. In the strong form of efficiency, we say prices reflect all public and private information. What exactly this public information, what exactly this private information are, we will see one by one.

(Refer Slide Time: 34:25)



In the weak form of efficient market hypothesis, what it happens is that already we discussed about this, that the current prices reflect all security market information including, what are those information? It includes the historical sequence of prices, rate of return, trading volume data and other market generated information.

That means, whenever we invest in a particular security, whatever information are required to invest, may be the company characteristics, may be about the historical return of this particular security, about the how many times it has been traded in the market, and as well as the other information is which are related to this particular security, which are already there, means already reflected in that particular price, that should not be any extra information or any extra kind of data should be available apart from this particular price. That is why what generally this weak form efficient market hypothesis implies, it implies that past rates of return and other market data should have no relationship with future rates of return. That means, already we have discussed about that, that if the current price of the security reflects all the available information about the security in the market, then if you analyze this past data, then it is very difficult to predict about the future.

Because, it does not follow a systematic pattern, it does not follow a systematic trend. If it does not follow a systematic trend, then is it possible to predict anything by analyzing the past data to get certain thing in the future, it is not possible in that case. So, here, what we can say in this context, that if your market is weakly efficient, then the information which are available to that particular security price or already whatever information is are captured in that security that comes in the random fashion and the price itself reflects all the available information if something is coming new, that also can be captured by that particular price very fast or can be captured by the profit maximizing investor very fast.

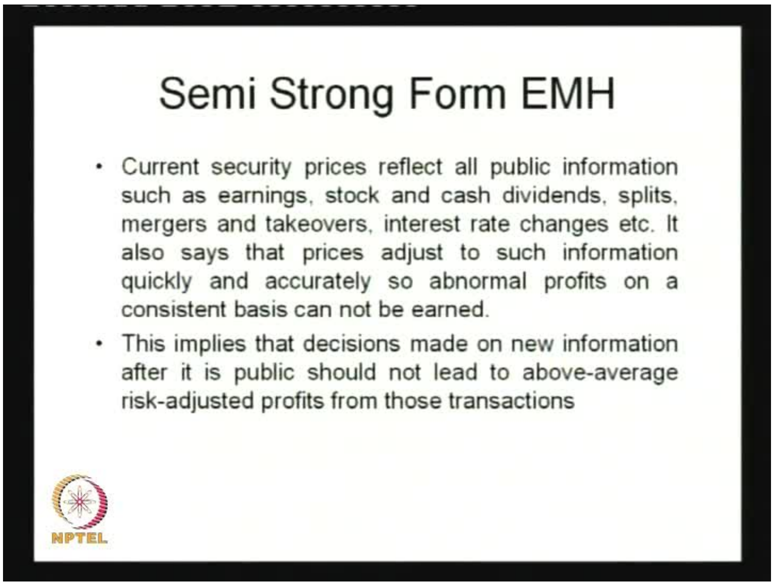
That is why in this particular time period, nobody can get high return, nobody can get low return. So, that is why historical analysis of the particular pricing of the security cannot help the investor to maximize the return in the markets. That is why in this context one of the thing what we said that the technocrats, the technical analyst which are always there, basically we will extensively discuss about what the technical analysis is in the further lessons.

But here, I will just give you some idea about that. In the technical analysis what we do, we make the certain bar, certain charts, certain diagrams and etcetera, and we have certain kind of indicators which are available, if those kind of things prevails in the market, from that we can conclude whether we should take a buying decision, or whether should go for selling decision.

But, here, if you observe that whenever we plot those bars charts, diagrams, etcetera, by using this historical data of the stock prices, we are expecting that this trend will again we will be prevailed in the future. That means by analyzing the past trend, we are predicting what is going to happen in the future, that is why here we are saying that your market is not efficient. If you assume that your market is not efficient, then the technical analyst analysis will be helpful for you to maximize the return in the market.

But, it never happens in the market in the time, so that is why sometimes the technocrats or technical analyst fail, but still that kind of technique is widely used by the different equity research forms and the other investors to take the decision in the market about their investment.

(Refer Slide Time: 38:48)



Then, another one is, this semi strong form of efficient market hypothesis. In this form what generally…, already I told you that in this form basically the current security prices reflect all public information such as earnings, stock and cash dividends, splits, mergers a takeovers, interest rate changes, etcetera.

It also says that prices adjust to such information quickly and accurately, so abnormal profits on a consistent basis cannot be earned, what exactly it means? What do mean by the publically available information? Publically available information means, if company goes for announcing the dividends, company goes for a stock splits, company goes for any kind of publishing the annual reports, company goes for announcing some kind of very unusual things about the particular company, so what here we assume that all those information which are announced by the company to the public should be available to everybody. That means we should assume that some of the people who invest in that particular security we will have that publically available information and somebody who is not investing that security, they do not have that information that leads to market inefficiency.

So, if everybody has the same level of the publically available information, then nobody can get abnormal return, because everybody used their information is such a way by which they can either maximize their return or they can minimize their risk.

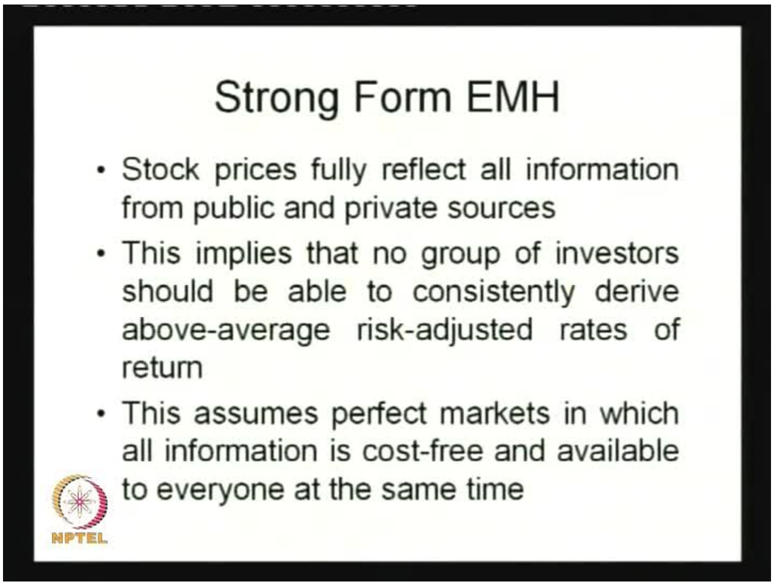
So, in this context, if in a particular market any kind of event has occurred to the company or any kind of incident has occurred to the company or company has gone for announcing any kind of public announcement, so in that particular time, we should assume that all the inventors, all the people who are link to that particular stock or particular company should get that information, by which no group of investor can maximize their return or can get abnormal return out of this.

So, here, what we can say in this context is that, whenever we talk about the different type of market efficiency, in the semi strong form of efficiency, we are assuming that the investor who earns the abnormal return from the market by using the publically available information, that means we can say that investor is not, or we can say that market is not efficient.

So, that is why we can say that every investor or all the investor who are link to that particular company or particular stock or particular security should get the same amount of the return or normal amount of the return once they take part in the investment process in the market. And another one here also, that is what it implies, it implies that decisions made on new information after it is public should not lead to above average risk adjusted profits from those transactions. Already we discussed about this, that if that information is available to certain group and that information not available to certain group, then what will happen that those people or the people who has that information, they can gets the abnormal return.

But, in this context, if you assume that your market is semi strongly efficient or we can follow this semi strong form of efficient market hypothesis, then we can say that these cases, in that cases, the people cannot get any extra return out of that and the new information which is publically available that will be available to everybody by which the cumulative average abnormal return, the average abnormal return of that particular security will be 0. That means, we can say that nobody can get any above average risk adjusted profit out of that particular business.

(Refer Slide Time: 42:57)



Then, the most strong form of efficient market hypothesis or we can say this is the highest level of highest form of efficient market. Here, what generally happens is that stock prices fully reflect all information from public and private sources.

Here, the question will arise, what do mean by the private sources? Public sources are understandable, the public sources lead to basically the may be stock split, may be dividend announcement, may be annually report publication, may be the some of the information is which are basically always available in the market.

But, whenever we talk about the private sources, what exactly the private source means? The private sources means, it basically lead to the concept of the information which is available to some of the people and it is not available in generally to the public, what exactly it means? May be some information is available to the inside managers, may be some information is available to the stock exchange people, may be some information is available to the regulators and once that information is available to those people or may be some of the mutual fund experts, mutual fund (( )) managers, etcetera.

So, if those people have that extra information, what will happen in that case? Those people consistently can outperform in the market, they can get high return from the market. So, in that case, what we can say? That some of the group which are link to that particular people, which are related to that particular people, maybe it is the inside managers, maybe it is the stock exchanges people or maybe it is the regulator bodies; what generally will happen in that case? Those people will consistently out perform in the market, so in that case, we cannot say that market is efficient, may be the people who have publically available information they can get the same amount of the return, but a particular group who as accessible to that particular private information they can get high return.

So, in this context what we can say is that if your market is strongly efficient, then even that kind of people also cannot get any kind of abnormal return from that particular stock. So, what we can say in this case is that the private information also who are there that already also reflected in the stock price.

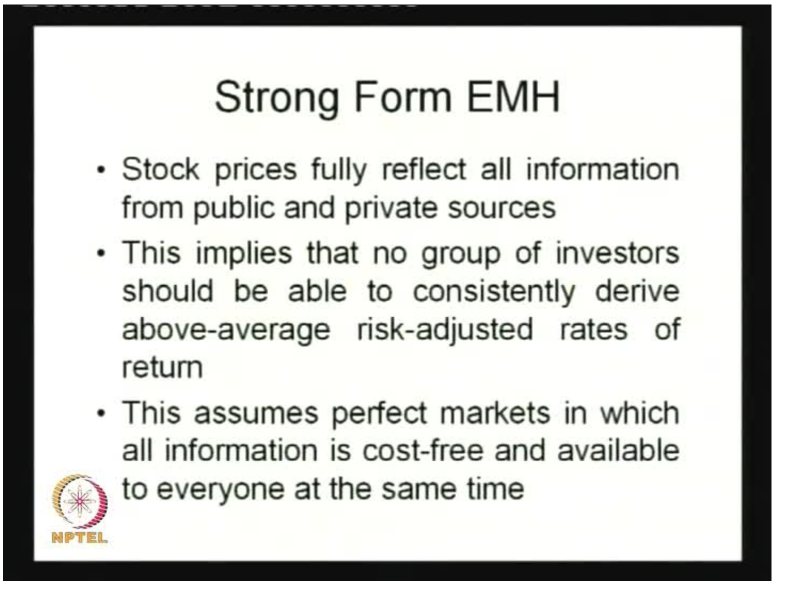
That means, the there is no such kind of private information which is hidden there and by which somebody can get abnormal return. If you read those stock prices, it reflects everything, it reflects the publically available information, it reflects the market information and it also reflects the privately available information.

So, that is why it implies that no group of investors should be able to consistently derive above average risk adjusted rates of return from that particular investment, so no group which are linked to those people who have the private information or the people who does not have the private information, there should not be any kind of difference between these two group of the people.

That means, everybody should get the same amount of the return or more or less the fair amount of return out of this, nobody should consistently get more return, nobody should get consistently low return. So, this form of efficient market hypothesis assumes the perfect market in which all information is cost free and available to everyone at the same time.

So, here, what we can conclude? We can conclude that there is no such information which is privately available, so all the information should be available publically, if the regulator has the same information, what this normal investor has or the stock exchange people has or the any other mutual fund experts has? The nobody can get high return, nobody can get low return.

(Refer Slide Time: 42:57)



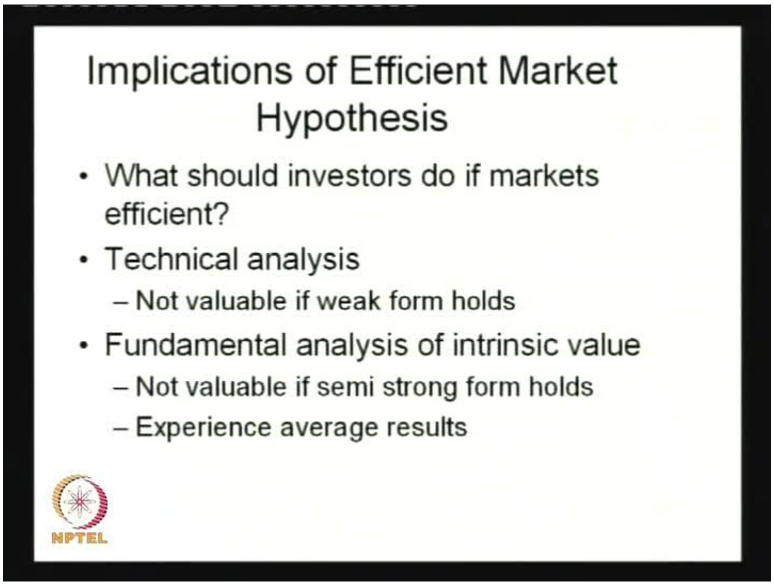
So, in this context what we can say, that everybody will get the same amount of the return from the market and all the information is is costless, cost free and it is available to everybody in the same degree, everybody has the same level of information. But here, for your information, I can say no market in the world which are basically we can say strongly efficient.

At the best, we will find certain markets may be in USA and some other market may be in efficient form, the semi strong form. In the semi strong form they are efficient or the semi strong form of efficient market hypothesis can prevent for them, but there is no such market which are available in the real world, which are strongly efficient, that is proved and thatone by one we will see that who this particular market efficiency is tested in further lesson.

But, here, what we can conclude from this discussion is that, in the three level of efficiency the weak form, semi strong form, strong form, what we can say that all the things are related to the private information and publically available information. Or more or less we can say that every information is linked to the private information or public information or more or less it is related to the information.

So, the people who has more information, they can get more return, the people who has less information, they get high return, with that kind of discrepancy comes to the market, that kind of discrepancy is there, then the market cannot be efficient. If there is no such kind of discrepancy between the different types of investor, then what will happen? That everybody will get the same amount of the return more or less and nobody can get very high abnormal return, nobody would get very less amount of the return.

(Refer Slide Time: 49:01)



So, what are those implications of efficient market hypothesis? If you see these implications, what we can see is that already some of the things I told related to the technical analysis people, but here if you ask this question that what should investors do if markets efficient? If markets are efficient, then what should investors do? How they should analyze?

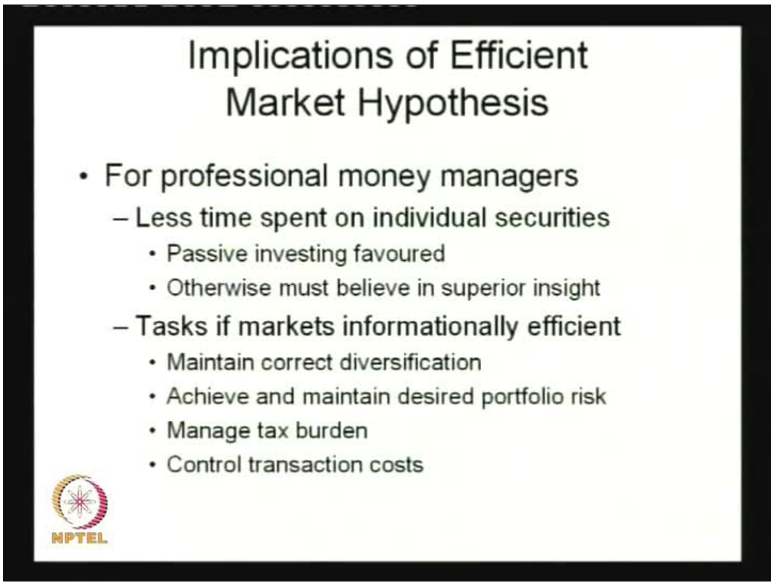
So, here, we will then will have two kinds of data which are available or two kinds of analysis which are available. Already I told that if market is efficient, then the technical analysis is not valuable. The market is weakly efficient, the technical analysis people cannot help you to take any decision in the market, how to maximize their return.

That means, from the beginning, we can we are concluding that the return what we are getting or the price already whatever we have that reflects everything. By analyzing the past data, we are not going to get any extra return out of this. So, here, that means what we can say, that any kind of return which are available in the market or any kind of prices which are already there in the market, that reflects everything, that reflects all the information about the company or about this particular stock. So, out of this historical analysis, you cannot predict anything in the future, that whether we should invest in that stock or we should not invest in that particular stock.

But, if you go for the fundamental analysis, who are we do this in the beginning, in the in the past session, I was talking about that the top up approach, top down approach or the bottom up approach, here also if you go by that, still it is not valuable if the semi strong form holds and it also experience only the average results.

That means, already that information is there in the stock, any analysis will not help you to maximize or to get any abnormal return from the market. That is why either technical, if technical analysis will not be helpful, if your market is weakly efficient and fundamental analysis will not help you if your market is semi strong efficient.

(Refer Slide Time: 51:24)



So, what we can say? You just observe this particular stock price and take the decision for the future. Then for professional money managers, what they do? If your market is efficient, they have very less time spent on the individual securities, so in that context what they do. They generally give the advice to the retail investors that you invest in the passive investment strategy, do not take that much risk, do not take that much very aggressive investment strategy by which you may incur lot of losses.

Because, already that prices reflects everything, so you cannot predict anything in the future, so it is better to go for a very conservative strategy by which some of the returns can be managed. And otherwise, you must believe in the superior insight, means some types of, sometimes the if you have that kind of skill, you have the money manager which has that kind of skill, he can suggest you to do some kind of way or some kind of analysis, by which you can get some extra return, but it is not possible to always out perform in the market.

If market is efficient, what generally they do? They maintain this correct… that is why they always suggest you maintain the correct diversification. You take position in the different markets, you invest in the different type of securities, by which sometimes you may incur loss in for some securities, but for other security it is can be adjusted.

So, diversification principle always follows, always will be prevailed, always is applicable if your market is efficient and achiever maintains the desired (( )). From the beginning, you should be clear that how much risk you are going to get or what is your risk tolerance limit. If this much risk you can take, then accordingly you have to decide that how much return you can expect out of this.

It is better also you should manage your tax burden in such a way that you should not face that kind of problem in the market and also you control the transaction cost, because transaction cost is a major cost, which is a major phenomena in the all the markets, that we should always concerned about how to minimize the transaction cost in such a way by which we can get the maximum return out of this.

So, if your market is efficient or inefficient, it has lot of implications for the people who believes in technical analysis, it also helpful for the money managers and as well as also normal investors or the retail investors who themselves take part in the business.

So, after analyzing this different form of efficiency or different types of our efficient market hypothesis, a different degrees or level of efficient market hypothesis what we can do, that definitely the question the next question arise, that how this different types or different efficient level of or different form of efficient market hypothesis can be tested.

There are different statistical test which are available, by which we can conclude that whether your market is weakly efficient or whether it is semi strongly efficient or it is strongly efficient, that we will be discussed we will be discussing in the next session, thank you.