Investment Management
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Lecture - 36
Behavioral Anomalies in Investment

Hi there. Welcome back to the course Investment Management and so far, we have discussed about several asset classes, how we can value them and consider them for the purpose of inclusion in an investment portfolio. Now, the discussion on different assets tools and techniques will remain incomplete if we do not touch upon two important aspects - one, the behavioral issues, which goes along with the investment selection and two, the performance evaluation.

If we have invested something, first we have to counter the behavioral issues that comes along with the decision making. And once we have invested, we need to understand whether our investment is doing well and if so, then how we can figure out whether it is doing well or worse compared to my peers or market on an average. In this session we will talk about behavioral anomalies that are associated with investment decisions.

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Particularly, I will talk about prospect theory and emergence of behavioral finance as a tool for understanding behavioral aspect of investment management. And I will also touch upon certain behavioral anomalies that investors typically experience while making investment choices.

When we make investment choices particularly let us say asset selection of securities such as equity or debt, mutual funds ETFs or for that matter cryptocurrencies, it comes along with some sort of behavioral anomalies, which might be evident in our decisions. If we are familiar with these anomalies, probably we will be able to make better informed decisions.

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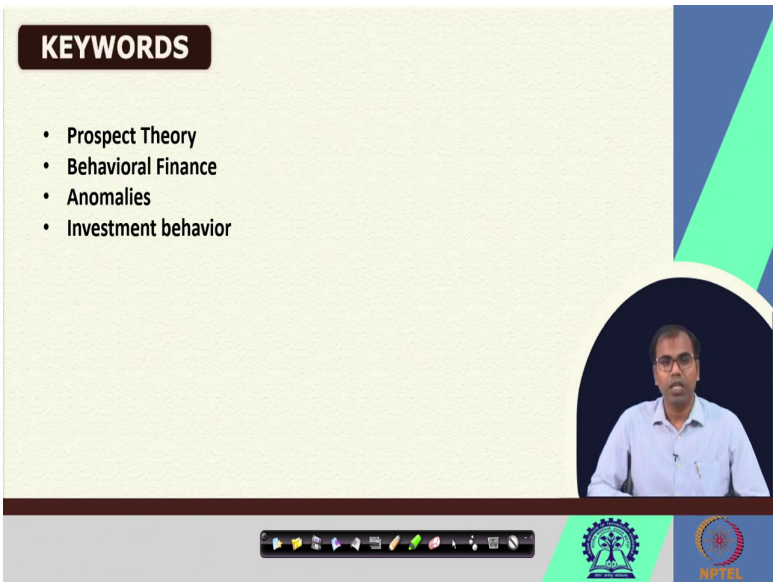

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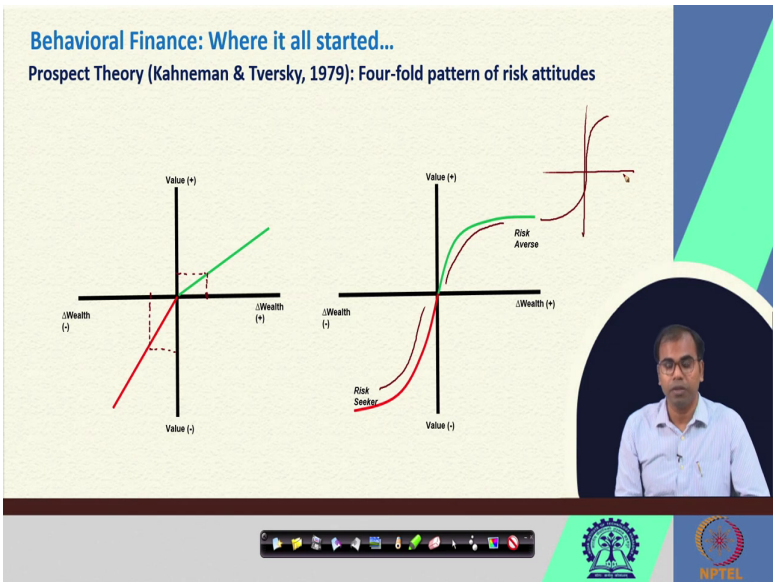

But where it all started? Let us try to understand from the theory that gave the emergence of this new stream called behavioral finance. We know that in 1979, Kahneman and Tversky proposed a theory called Prospect Theory which essentially proposes a fourfold pattern of risk attitudes. It assumes that investors are no longer perfectly rational economic agents rather they are quasi rational.

If we look at the expected utility theory, we know that investors are believed to be an economic agent that is perfectly rational, which means investors are supposed to be taking decisions in their interest alone; whereas, in real world, we do not see that kind of investor or economic agent for that matter. Most of the time our decisions are influenced by several factors including our past experiences, our demographic characteristics or sometimes market environment as well and that is what Kahneman and Tversky proposed.

They gave a fourfold pattern of risk attitude where if we look at the decisions or the value derive derivation from the perspective of value and wealth. In terms of both positive and negative, were realize that the typical relationship of change in value or change in wealth depends on a very linear non-linear fashion.

Where we can see that the steepness of the curve with respect to the negative change in value and wealth is different from the positive change in value and wealth; if we look here, we see that if there is this much percentage of change in value particularly in terms of negative change. And the same percentage of change in positive direction, then the extent to which the value is derived or utility is derived, are different for these two sets of scenarios.

Essentially, it can also be looked at from this point of view where the behavior of investors or individuals as an economic agents under risk and uncertainty or under situation where, we have to experience negative gains or negative change in value or its wealth will be different compared to the situation where we have to experience positive gains or positive change in wealth or a value.

Particularly, when it comes to take choices or make decisions in case of certainty or when there is a positive gain or positive change in wealth or value, we become risk covers and our utility curve shows an a pattern like this whereas, when it comes to the choices or decisions that are to be made under situations where we have to receive negative gains or loss to say.

So, or negative change in value or wealth, then we become risk seeker and our utility curve exhibit this kind of slope. So, this particular S shaped curve is basically the crux of portfolio a prospect theory given by Kahneman and Tversky. Let us try to understand this different behavior under different circumstances exhibited by investors or individual in general with the help of certain examples.

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Suppose investors are supposed to be affected by heuristics and biases and this argument comes from our understanding of human psyche. We know that traditional economics and finance models or theories have certain limitations. They are formulated as if individuals have unlimited cerebral RAM which means they have unlimited information processing capabilities.

They are expected to consider all information and come up with the best choice that is in their best interest. So, essentially, they are supposed to be doing constrained optimization in order to achieve a final optimal decision. For example, if you look at a theory such as capital asset pricing model, here investors study the universe of securities that are available in the market, their returns, variances, co-variances. And then only they arrive at the appropriate optimal portfolio choice, which cannot be possible for any rational or general investor.

Most of the time investors in particular and individuals in general are loaded with information and decision constraints. Many a times we realize that people see what they expect or desire to see. Basically, the there is a perception many a times we also realize that past experiences written in brain and that essentially affects our choices because memory is reconstructive.

So, we can say that heuristics and biases are intertwined with decision making process. If you talk about certain types of heuristics and biases that might be leading to anomalous behavior in stock market or investment decisions.

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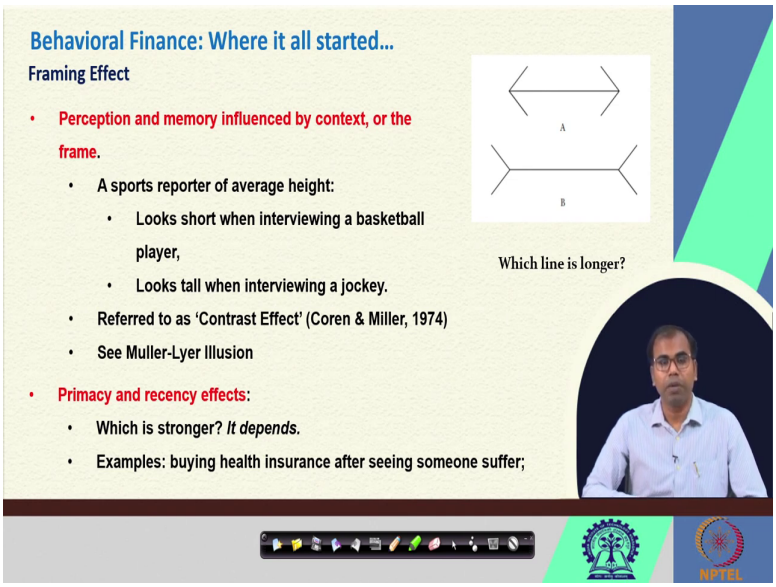

One of the first and important as well as interesting anomaly or heuristics that we can come across is framing effect. Essentially, we know that perception and memory influenced by context or the frame more so, if we look at examples like this for let us say a sports reporter is

of average height, but when she is interviewing a basketball player, she would look short, but when she is interviewing a jockey, she might look tall.

So, the frame or the context essentially makes her look tall or short compared to the person she is interviewing and this is also known as contrast effect. If you look at a Muller Lyer illusion, we know that if we ask whether this whether of the two lines A and B is longer, which of the two lines A of A and B is longer, many of us might say that B line is longer than A, but effectively we know that these two lines are same only the context has been changed.

Similarly, there is primacy and recency effect, for example, if we have certain recent experiences that might have some influence on our decision, sometimes some previous experiences might have certain influence our decisions, which one is stronger, it depends on the context depends on the frame. For example, if we see someone suffering from certain illness or certain situations and based on that we are going to buy insurance, here probably recency experience recency effect is more important or more prevailing.

On the other situation, let us say we had experienced bad stock market experiences or we have observed bad stock market movements during our growing years and that has created some sort of impression in our mind, then that might be in included in our decision whenever we talk about investment decisions.

So, people who have seen bad market movements or recession particularly in the stock market during their growing years might refrain from investing in stock market for many years to come. This type of heuristics and biases are prevalent and we can see their impact on investment decisions as well.

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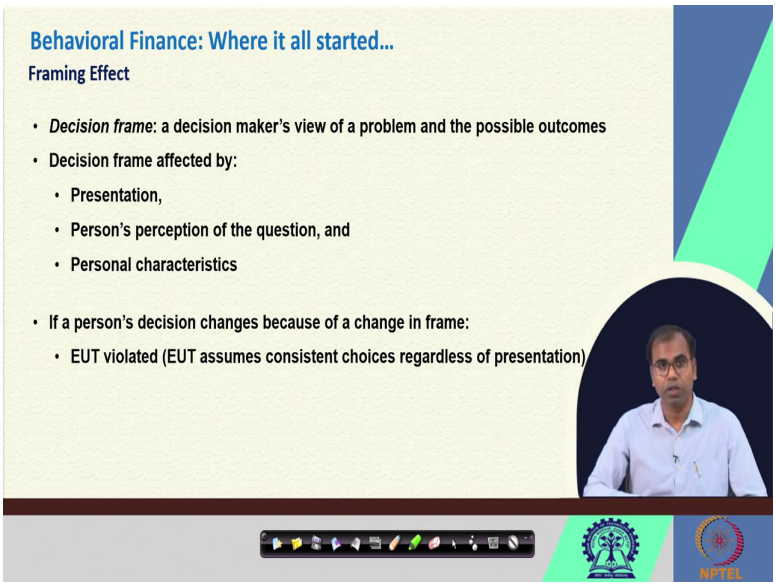

So, continuing with the decision continuing with the investment decision in as an impact of framing effect, we know that decision frame is something that any individual, any decision maker might have. It is typically a decision maker's view of a problem and the possible outcomes, but decision frame is typically affected by the presentation, the way the information is presented.

People's perception of the question, what we want to see, what we desire to see out of that question and personal characteristics, which means what where we come from, what we have experienced, what we are will also determine the decision frame. And if a person's decision changes because of a change in frame, we know that the traditional economic theory that is expected utility theory is violated. Expected utility theory assumes consistent choices regardless of presentation.

If you remember economics 101, you know that if there are, if A is better than B and B is better than C, then A is going to be better than C. That is what the consistency expected utility theory talks about. But if the frame is changing, then probably the perception, the decision frame of the individual will also change and accordingly the decision might be affected because of change in frame.

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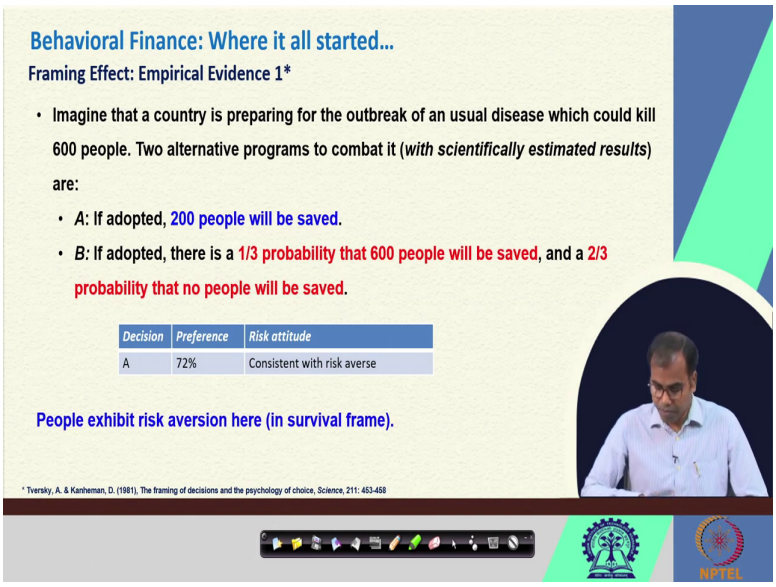

Let us take a look at some empirical evidences that are available in research. I am referring to the research carried out by Kahneman and Tversky in and published in reputed journals and I am drawing examples from there. Here one of the examples of framing effect is as following. Imagine that a country is preparing for the outbreak of an unusual disease, which could kill 600 people.

Two alternative treatment programs are there to combat it and these two programs are equally proven through scientific estimated results and the results are - if program A is adopted, 200 people will be saved and if program B is adopted, there is a one-third probability that 600 people will be saved and two-third probability that no one will be saved. Kahneman and Tversky in their experiment, they presented this problem to a set of people and they found that 72 percent people, 72 percent of the respondents were going for program A.

They wanted to make sure that 200 people will be saved. If effectively if you look at the utility theory argue argument, we know that one-third probability of 600 people being saved plus two-third probability of no one will be saved will have equal value that is 200 people should be might be saved.

But here people do not want to take a chance that one-third probability of 600 people being saved rather they want to behave like risk aversion, averse and they want to go for program that gives them guarantee of 200 people being saved. So, here people exhibit risk averse behavior, let us call this survival frame.

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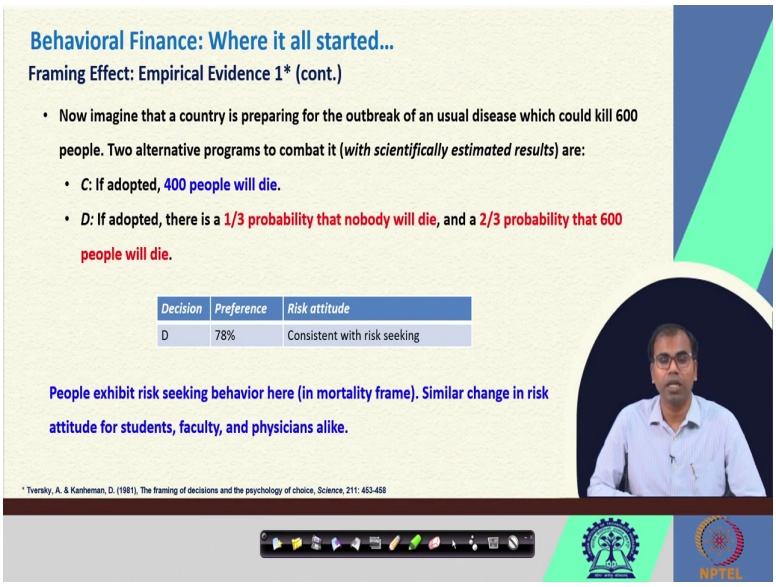

Kahneman and Tversky changed the situation a little bit and they presented the problem in a slightly different way where they say that now imagine that a country is preparing for the outbreak of an unusual disease, which could kill 600 people. There are two alternative programs to combat this unusual disease and these two programs have scientifically estimated results as following.

If program C is adopted 400 people will die, if program D is adopted there is one-third probability that no one will die and two-third probability that 600 people will die. Again, if you look at the utility theory perspective and we calculate one-third into nobody will die which means 600 people will be saved and two-third probability that 600 people will die, which means effectively there will be 400 people who might be dying because of this disease.

But apparently when the problem is presented to the respondents 78 percent people chose D option and it is consistent with risk seeking behavior. Here the people are behaving like risk seeker and this particular frame is referred to as mortality frame. Here similar change in this attitude for student's faculty and physicians alike that are evident from the experiments carried out by Kahneman and Tversky in their research.

Now, what is happening here? In case where there is possibility of saving people, people want to go about sure sought options. In the previous example previous illustration people want to go for option A the one option where they have the guaranteed outcome. But when it comes to people dying which is just opposite of people being saved, but since they want to make sure that more and more people could be less and less people could be dying could be dying.

So, they go for risky choice which is the probability based choice, which says that one third probability that no one will die which means people are going for even one third probability which makes sure that more and more people can be saved. So, the moment you change the frame or you change the context people's behavior, people's preferences might change and this can be prevalent in stock market or financial decisions as well.

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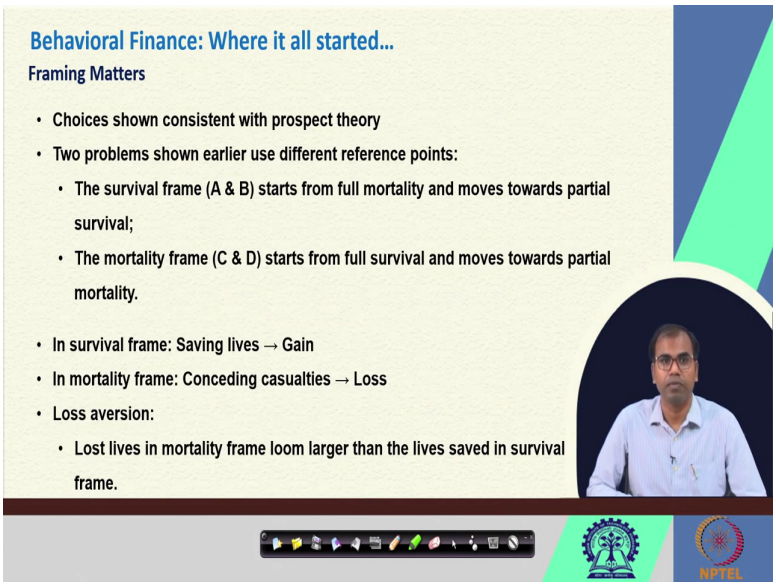

Because choices shown are consistent with the prospect theory, the two problems shown earlier uses different reference point in survival frame where option A and B were presented starts from the full mortality and moves towards partial survival. In second situation where mortality frame was presented with option C and D, it starts with full survival and moves towards partial mortality.

In survival frame saving lives is considered to be a positive gain in mortality frame, conceding causality well is considered as loss and that is where loss of version argument comes in the picture. Lost lives in mortality frame loom larger than the lives saved in survival frame. So, people's behavior change when it comes to facing losses or situations with losses and uncertainties compared to the situations where gains and profits are there.

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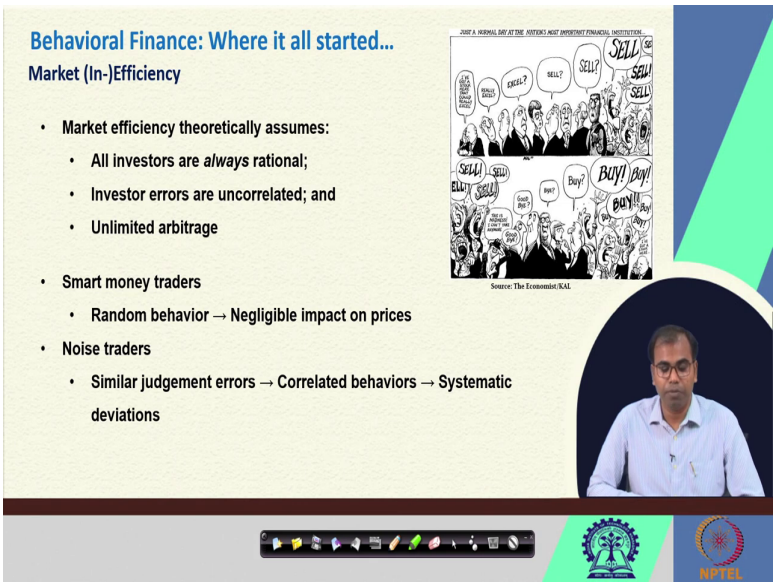

Another as inefficiency, another heuristics or bias that might lead to market inefficiency is basically situations where investors are not always rational. If we look at market efficiency argument, we know that all investors are always rational their errors are uncorrelated and they have unlimited arbitrage.

We know that there are situations where smart money traders are there who exhibit random behavior and their behavior will have negligible impact on the prices. And then there are noise traders who might have similar judgment errors that can lead to correlated behaviors and these correlated behaviors of a particular type of traders can lead or can force the market to have systematic deviations and that might create some more anomalies for the investors in the market.

If you look at these situations these actually create a position of market inefficiency in the in any financial market caused by behavioral anomalies or behavioral biases of investors.

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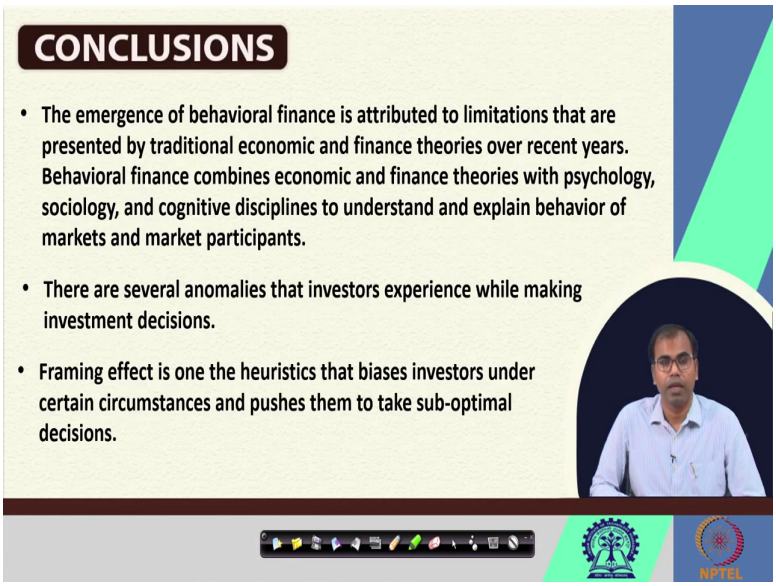

If in order to conclude we started with the argument that behavioral finance or behavioral aspect of decision making is one of the important tools before we to understand before we conclude the discussion on investment management. It is pertinent for an investor to understand or to learn about the implications of behavioral biases and anomalies on their investment decision making.

We know that emergence of behavioral finance is attributed to limitations that are presented by traditional economic and finance theories over recent years. For example, traditional economic and finance theories assume that investors are informationally efficient as the

market as are the markets. Investors are capable of processing large amount of information that are available in the market and they do not make systematic errors or correlated errors.

Whereas in practical world we know that it is not possible for all the investors to process all the information available in the market. And many a times we exhibit behaviors that might be correlated or that might be less than rational or quasi rational. For example, we might take decisions of investment on the basis of some heuristics or thumb rules.

Sometimes we might make decisions for investing in a stock on the basis of just some rumours or news or for that matter following certain advice given by friend, family or anyone else. These three the these issues are essentially deviations from the standard economic and finance theories and that has given the emergence of behavioral finance where, behavioral finance combines economic and finance theories with theories from psychology, sociology and cognitive disciplines in order to understand and explain the behavior of markets as well as behavior of market participants.

There have been several anomalies, heuristics and biases that can be affecting human behavior in financial market and while taking financial decisions. These anomalies of are experienced by investors while making investment decisions.

One such anomalies could be framing effect where we see that biases, that biases in the investor decision under circumstances where situations are changed, the way information are presented to them and that makes the entire difference in terms of making decisions. And then pushes them to take suboptimal decisions that might not be really economically beneficial for the investors.

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With this I conclude this session.

Thank you very much.