Economics of Banking and Finance Markets

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Lecture - 23
Moral Hazard Problem in Finance Markets - I

Welcome to this session. In this session we are going to discuss another aspect of market failure, resulting through from asymmetric information, called Moral Hazard.

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Moral hazard is the asymmetric information problem that occurs after a financial transaction takes place. So, when the seller of a security may have incentives to hide information, they engage in activities that are undesirable for the purchases of the security. Moral hazard has the important consequences for whether a firm find is easier to raise funds with the debt than with the equity contacts.

So, let us discuss this concept called moral hazard in detail.

What does it mean. To explain this, let me take the case of how the problem of moral hazard exist in the insurance market.

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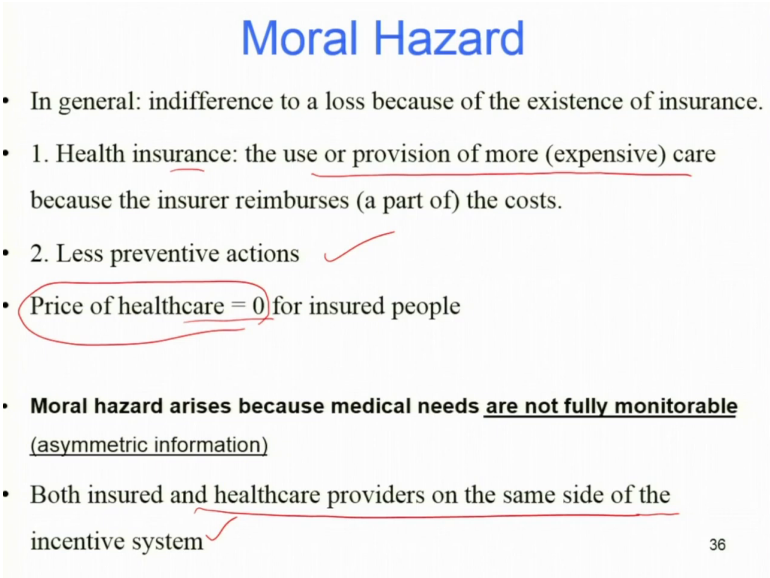

After buying health insurance product, moral hazard occurs by an exposed behavior or indifference to a loss, by those who bought insurance because of the existence of insurance.

Once you got insurance coverage, your medical bill will be paid by the insurance companies, and you tend to utilize healthcare resources even if it is not even required, we could see that the use or provision of a more expensive care because the insurer reimburses the cost.

So, you put in a very simple language, suppose if you have health insurance coverage, then even for some small illness or a minor disease condition. you will be visiting a hospital and even get hospitalized some of the illness episode that may not need hospitalization, but since you have insurance coverage you think that anyway the insurer is going to reimburse, insurer is going to pay your bill, you have an incentive to use the hospitalization facilities even if it's not necessary.

Another one is taking fewer preventive actions; that means, since you have insurance coverage you know that the price of healthcare is going to be 0 for you. So, you will be willing to take more risk, even in driving or taking some more risky activities you will be getting engaged because you think that you have been covered with a health insurance for your health-related aspects. So, the issue of moral hazard arises because medical needs are not fully monitorable because of asymmetric information.

Moral hazard arises because medical needs are not fully monitorable mainly because asymmetric information. So, an insurance company cannot really monitor or assess or how much care an insurer is required because these are the not fully monitorable, there is no clear-cut information about it, because only the individual who using it know whether and how much the care he needs.

There is asymmetric information between the providers of the care and insurance company about the medical needs of patients. So, both insured and health care providers on the same side of the incentive system; that means, for the insured because for him the healthcare cost is 0 because of insurance coverage.

And for healthcare providers, because they are also a business entity, they have the incentive to maximize their profit. So, there is a saying that, all the built beds are always occupied bed right so; that means, the healthcare providers would like to ensure that their healthcare facilities utilized at full capacity.

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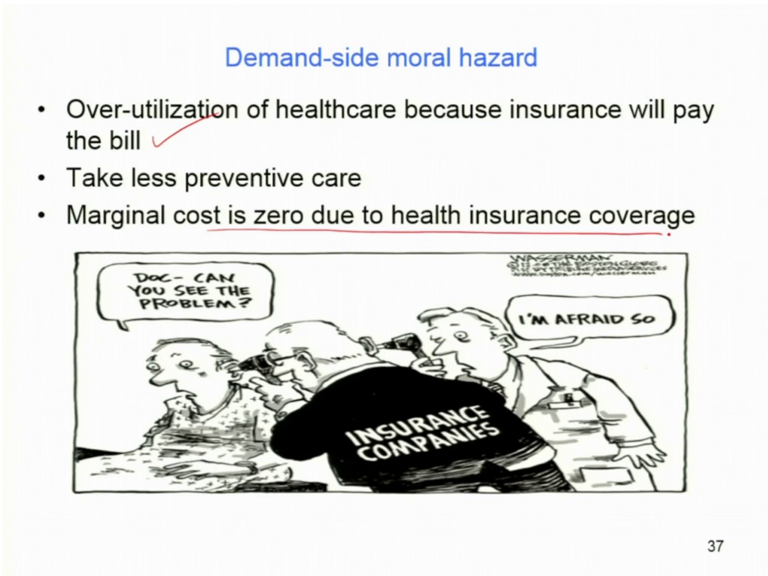

There is both the demand side and supply side moral hazard that we can identify in the case of insurance market. One is on the demand side, its called over utilization of healthcare because insurance will pay the bill, and the second one is take less preventive care because you have been covered with the health insurance. So, here the marginal cost is 0 due to the health insurance coverage.

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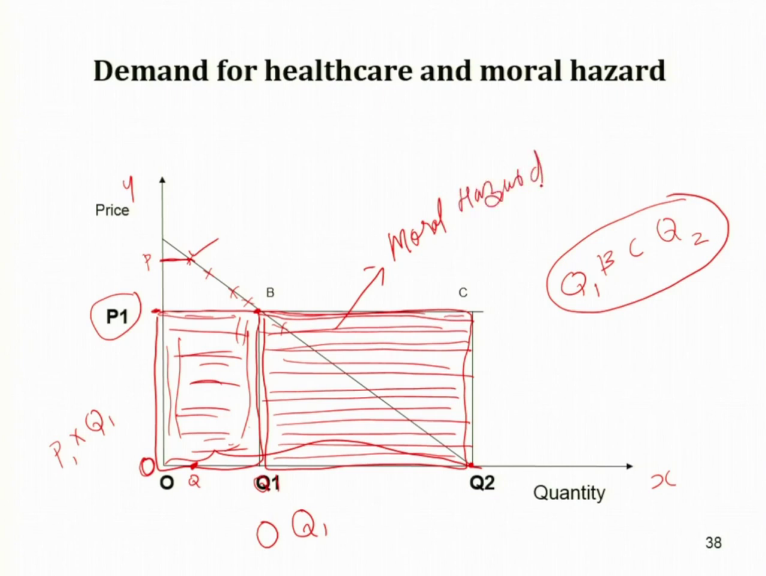

So, let us look at this diagram, where the price is given on the in the on the y axis and the quantity of healthcare products on the x axis are given. So, this one is the demand curve, this is the demand curve of this a particular individual, for example, or we can also make it as a market demand curve as well. So, the demand curve also says that this is the willingness to pay for the healthcare product, and suppose the price is this much, a consumer will be buying this much healthcare products if the price is this much, for example.

So, each point, we can see that when the price keeps on declining, that is, when the lower the price you can see that the consumers will be demanding more health care, when the moment the price keep on declining, that means, there is an inverse relationship between price and quantity demanded.

So, based on this, suppose the price is P1 in the market. Given this given P1 price, the quantity demanded in the market is going to be Q1, this is going to be the quantity demanded.

So, what will be the total medical bill? You know that it is P1 times Q1, all this area; these are the all the healthcare bill that the P1 times Q1 right. You know once the individual is having insurance coverage, though the market price is P1, but he or she has to pay the price only 0 because the marginal cost becomes 0.

So, look at when the price is 0, this is the maximum quantity he or she is going to demand. (Refer Time: 07:34) O Q 1; O Q 1.

You know that market price is still P1, without insurance he will be demanding only this shaded area, this is the total healthcare expenditure, but since the marginal cost is going to be 0, you know that this area, this rectangle area is going to be utilized by this individual because he has insurance right.

So, you can see that the area represented the rectangle area represented by Q1BCQ2, this are you can see that this is going to be additionally utilized because the person is having insurance coverage, this in fact represent the moral hazard effect.

So, this is the moral hazard, this much area that, this consumption this much, additional consumption of health care demand can be called as a moral hazard. This is also called as demand side moral hazard because this much additional consumption is happening because of behavioral change due to insurance coverage.

We can see that he will be consuming only this much area, but because insurance coverage this much additional he or she is going to consume; this area, this is the due to the moral hazard behavior.

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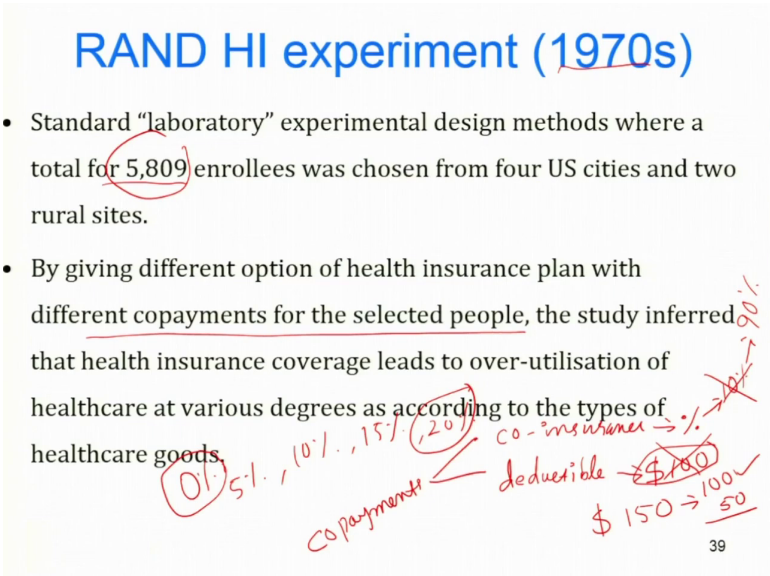

What we have discussed so far is the theoretical forecast, there are several experiments, there are lots of research to establish that moral hazard is a reality.

So, one experiment was conducted by a rand corporation, this was in 1970s, they carried out a standard laboratory experiment where a total of 5,809 enrollees was chosen from four US cities and two rural sites. Giving different options of health insurance plan with a different copayment for the selected people. Copayments means out of the total health bills, some portion the insured also need to pay.

There are two types of copayments; one is called coinsurance one is called coinsurance where a certain fraction of the total medical bill should be paid by the insured and the remaining will be paid by the insurance company.

Suppose the co-insurance is for example, 10 percentage; that means, of the total medical bill, 10 percentage should be paid by the insured and this is in addition to premium; this is to discourage the insured people from using unnecessary healthcare and thereby to reduce the moral hazard.

Another copayment tool is called deductibles. Deductible means, instead of percentage, there is a fixed amount of the total bill, whatever the bill at a certain fixed amount, it should be paid by the insured individual for example, 100 dollars, this is the deductible. Suppose the individual is making a healthcare payment bill of a dollar 150. Out of this, 100 should be paid by the insured individual and only the remaining 50 will be paid by insurance company, so; that means, the initial cost, that the certain fixed amount must be paid by the insured people. This will discourage the insured people of utilizing health care for unnecessary purpose. if it is not necessary then they will not go for utilizing healthcare, because then you know that they already have to pay 100 as deductibles.

So, in this experiment people have been allotted into different copayments starting from 0 copayment. 0 copayment means they do not have to pay anything. That is, for some individuals they have complete insurance, the entire hospital expenditure will be covered by the insurance companies.

But some individuals have been allotted at different rates of coinsurance and deductibles. Coinsurance for example, some for example, 5 percentage, some samples giving 10 percentage or some sample for example, 15 percentage, 20 percentage, like that.

So, what happened here is that based on the experiment, it was found that those who paid 0 copayment, there was over utilization of healthcare, which is much higher than those who are paying this copayment so; that means, moral hazard is a reality as per this rand health insurance experiment.

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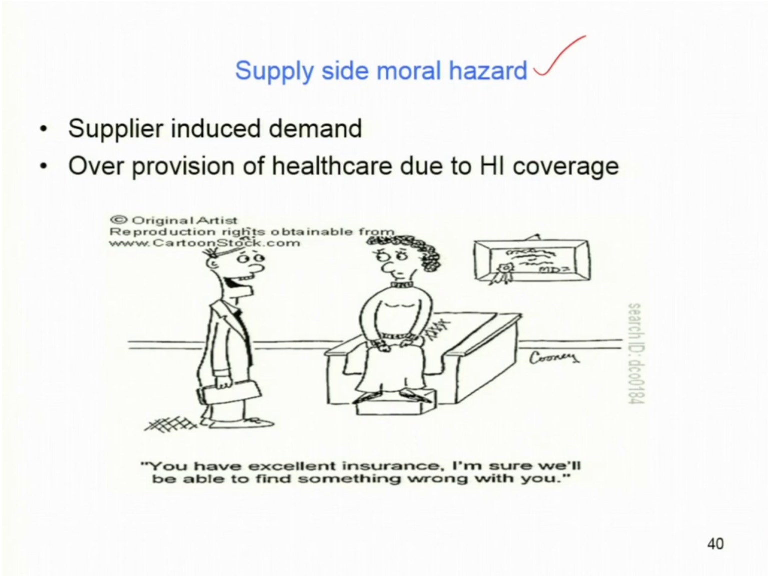

What we have discussed so far is the demand side moral hazard. Similarly, there is supply side moral hazard as well in the insurance market. You know, supply side moral hazard means, that is supplier induced demand you know that this is mainly because if somebody is having insurance coverage, sometimes some doctors or hospital encourage them to use more healthcare. They might have gone to the hospital for some minor ailments, minor health conditions, but the hospital or doctor will encourage them or will make them to more and expensive healthcare.

For example, more diagnostics and encourage them to use hospitalization not just for one day. Suppose what we can see that some of the most insurance companies they will pay only for hospitalization but not for outpatient care. So, because of this supply side and demand side moral hazard behavior, what it what will happen there that to get insurance coverage, even the ailments that is requiring only outpatient care, they will be taking inpatient care as well; that means, they will be getting hospitalized.

Not only that, some cases may be needing only 1 day hospitalization, but since they already have insurance coverage, sometime hospitals will prolong their stay in the hospital and they will also be undergoing some more expensive healthcare because all they think that anyway this individual is not paying the bill, the insurance company is going to pay. You know that since medical care needs are not fully monitorable, these patients have no clear-cut information how much care he or she needs.

Another thing is that it does not matter to the insured person because, anyway, the insurance company is going to pay the bill. So, both, the hospital, that is, the healthcare supplier and the insured, that the patient, both are on the same incentive system. For insurance company, it is very difficult to monitor how much care one individual needs. This is the supply side moral hazard problem.

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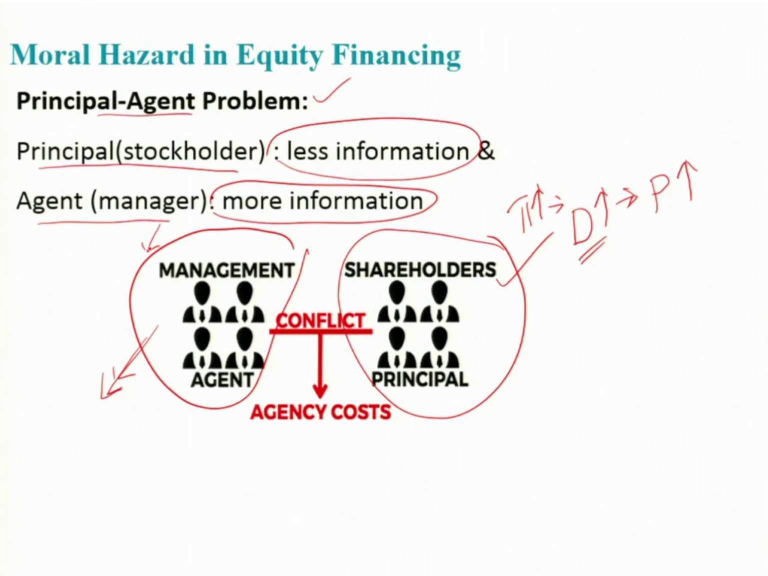

So, when we apply this concept in other forms of market, not only insurance market, but in equity financing. So, in the case of equity financing, the equity contracts such as common stocks, common stocks you are familiar; that means, are claims to a share in the profits and assets of a business. So, equity contracts are subject to a particular type of moral hazard called principal-agent problem.

According to principal agent framework, the principal here is the stockholder, and the agent is the manager (the employees) of the company.

Suppose they (mangers) do not own the firm at all, that is one, and, but mostly most of the managers, they will be getting some share in the company. So, you know when the managers own only a small fraction of the firm, they work for the stockholders who own most of the firm's equity.

Thus, the managers are the agents of the firm, this separation of ownership and control involves moral hazard. The managers may act in their own interest rather in the interest of stockholders or that the owners of the firm because the managers have less incentive to maximize profit than the stockholders (that the owners do). Actually, there is a conflict here: what the management wants in the equity firms whereas what the shareholders want.

And you know that the shareholders are interested to maximize profit they are interested more in the dividend or higher the dividend. Suppose if the company earns more profit, obviously, you know that the dividend also increases, when the dividend increases, the formula that we have studied in previous session, you know that the stock price is going to increase then they are going to make more capital gain.

So, that is what the shareholders want. So, they want more dividend plus they can also make more capital gain as well; but about the management, they have less incentive because they are not the owners of the firm.

So, their objective function may be for getting more fame for them, maybe the top management may be interested in doing some experiment, and to introduce new reforms, may be acquiring new market, acquiring new firms, and expanding their market to new areas, new geographical area, and expanding their business to new area. The management will try to maximize their objective function, but what the shareholders want? They want to maximize their profit. So, both are on the different pages. This would lead to moral hazard issue in the equity financing firms.

Why? Because the principal (shareholders) is having less information as they are not actively involved in the day to day operation of the firms, but at the same time agents who are having more information they sometime manipulate the information, sometime they hide the information.

Just to summarize this point, in equity financing the agents (managers) will sometime invest in more risky business activities while maximizing their objective function.

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The main reason that we have seen here is the separation of ownership and control of the firm so; that means, managers pursue personal benefits and power rather than the profitability of the firm. So, there is conflict of interest.

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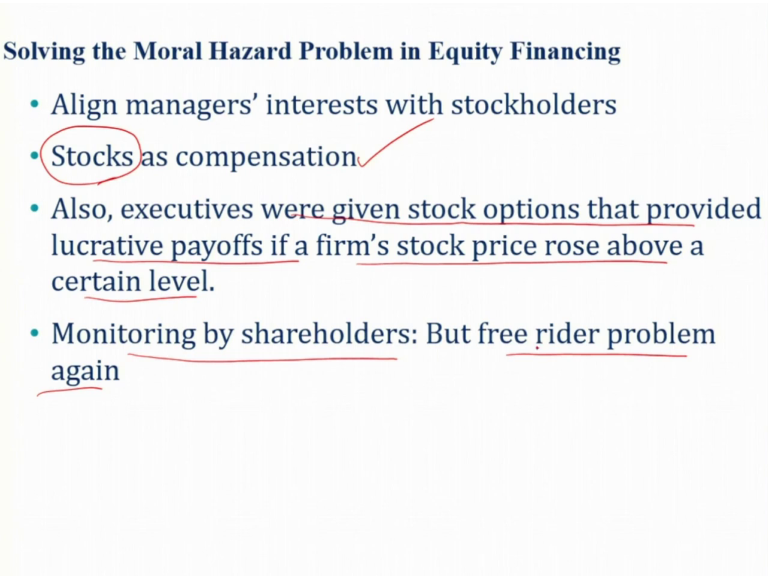

And how to solve more hazard problem in equity financing? Some of the tools is that align manages interest with the stockholders. So, bring both of them together to reduce conflict of interest and align their interest, that is, align managers interest with stockholder's interest.

One solution is stock as compensation. Stocks as a compensation because, in the payment package, that most employees get not only the salary, but they also get stocks as become part of their package so; that means, executives were given stock options. In addition to stocks as a part of their salary package, further lucrative payoff was given to managers if firms stock price rose above a certain level. The managers at different levels were given further stocks and cash incentives if the firms stock price rose above a certain level.

This has been done to reduce the moral hazard problem. Then, the management will be carrying out their business activities in a way to maximize profit for the firm so, that high dividend and high stock price will increase their own earnings as well.

Monitoring by shareholders that is another option; that means, monitoring the business activities of the firm by a group of shareholders, but you know that this will create free rider problem again, as monitoring involves resources, that is, it is expensive. Because of that if some shareholders of a company are monitoring the business activities of that firm, then you know that, there will be a free rider problem because the other shareholders think that anyway someone is monitoring. So, why should I do?

So, I am going to benefit out of it anyway without monitoring, which is nothing but the risk of free rider problem.

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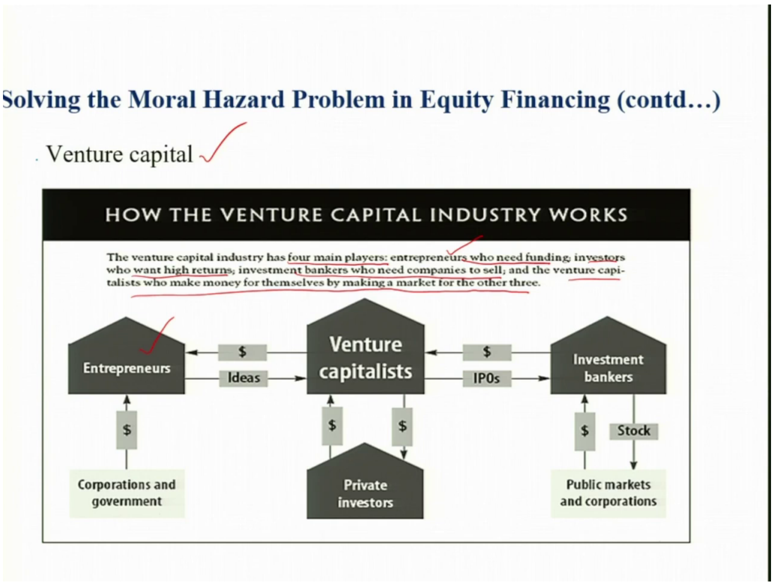

Another solution to overcome this problem in equity financing is the venture capital.

So, how venture capital industry works? In the venture capital industry, there are mainly four main players. One is entrepreneurs who need funding, investors who want higher returns who have money with them and who want higher return, investment bankers who need companies to sell and the venture capitalists who make money for themselves by making market for the other three. The venture capital brings all the other three players together to raising equity fund and making this company to work.

What the venture capital firms do here is that venture capital firms pool the resources of their partners, use the funds to help budding entrepreneurs to start new businesses.

So, in exchange for supplying the venture capital, the firm receives an equity share in the new business. So, when because the verification of earnings and profit, important in eliminating moral hazard, venture capital firms usually insist on having several of their own people participate as members of the managing body, that is the board of directors of the new businesses.

So, they can keep a close watch on new firms' activities. You know that, as a result, they can monitor the day-to-day business activities of this firm, and then reduce the moral hazard problem in this market.

Let us now see how moral hazard problem exists in the debt market. So, I am showing you some pictures here.

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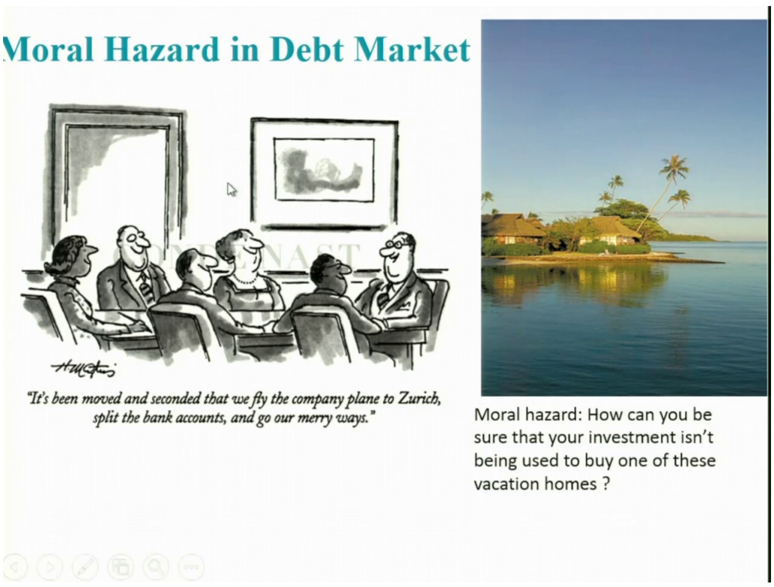

You can see that once the firms borrow money from the market, they clearly show that this has been borrow for specific business activities. But what is the guarantee that they will be using the entire fund for this business activity?

They will be using some of the fund or most of the fund m for something else. Not sure that the fund is not being used to buy one of these vacation homes, it's also possible, right! So, you can see that in India even when you go through the daily newspapers you can see that lots of bank frauds happening. Many fraudsters borrowed money from the banks, but they had utilized these funds for their personal benefit and to finance their expensive lifestyle, I am sure that you are familiar with this kind of activities happening in India.

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So, one of the frauds I am showing you is an extreme firm of moral hazard, it happened in the US. This is one of the biggest frauds happened in the US, Mr. Madoff borrowed from many people and funds, and he ran a Ponzi scheme.

A Ponzi scheme means borrowing from one firm or one source to pay for repay the loan from the other source. Suppose he initially borrowed 100 crores from the market and then he further borrowed to repay this loan, it is nothing but a Ponzi scheme.

Accordingly, he raised lots of fund; he borrowed this money for investment purpose, but it has been utilized for something else; that means, to run a Ponzi scheme. He was also the chairman of Nasdaq, a chairman of organization of US securities.

In the next session, we will continue our discussion on how to reduce moral hazard problem in the finance market.

Thank you.

Keywords: Moral hazard, conflict of interest, principal-agent problem, aligning interest, venture capital