Economics of Banking and Finance Markets
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Lecture - 24
Moral Hazard Problem in Finance Markets - II

Welcome to this session. In continuation to the previous session, where we had discussed the problem of moral hazard, how moral hazard problem influence the financial structure in debt market and equity market.

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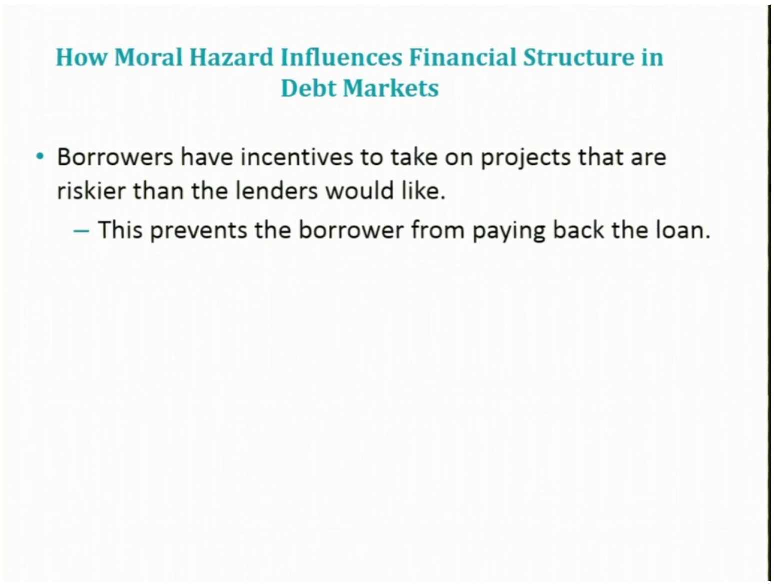

In continuation to that, in today's session, we are going to discuss what are the tools to reduce the moral hazard problem in both equity and debt market. We have seen that borrowers have incentive to take on projects that are riskier than lenders would like to because of the moral hazard issues. So, let us go one by one; what are the tools to solve the moral hazard problem; in debt contracts to begin with.

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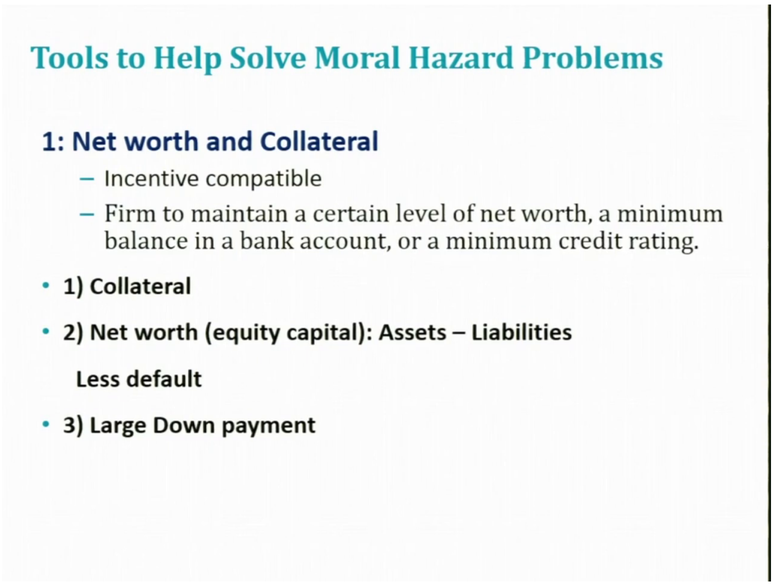

One of the solution is to increase the net worth and collateral; that means, when borrowers have more at stake because of their net worth, net worth is high or the collateral they have pledge to the lender is valuable, the risk of moral hazard that the temptation to act in a manner that lenders find objectionable is greatly reduced, because the borrower themselves have a lot to lose. So that means, these are incentive compatible; that means, high net worth and collateral provide to the moral hazard problem is to say that it makes the debt contract incentive compatible.

That is, it aligns the incentive of the borrowers with those of the lender; the greater the borrowers' net worth and collateral pledge, then, the greater the borrower's incentive to behave in the way that the lender expects and desires, then smaller the moral hazard problem in the debt contract.

Conversely, also you can see that, when the borrowers net worth and collateral are lower; obviously you know that the moral hazard problem is greater; because borrowers have nothing to lose, they have very little things to lose. So, that they will engage in moral hazard problem.

So, here one of the things, as I mentioned here that, one is to increase the collateral. Another related tool is to ask is to give loans to debt to only those firms who have high net worth. Net worth means here the equity capital, that is the difference between assets and liabilities. So, overall based on this, we can see that higher the net worth and collateral the firms are having, they will be having less probability or less likelihood of making default right.

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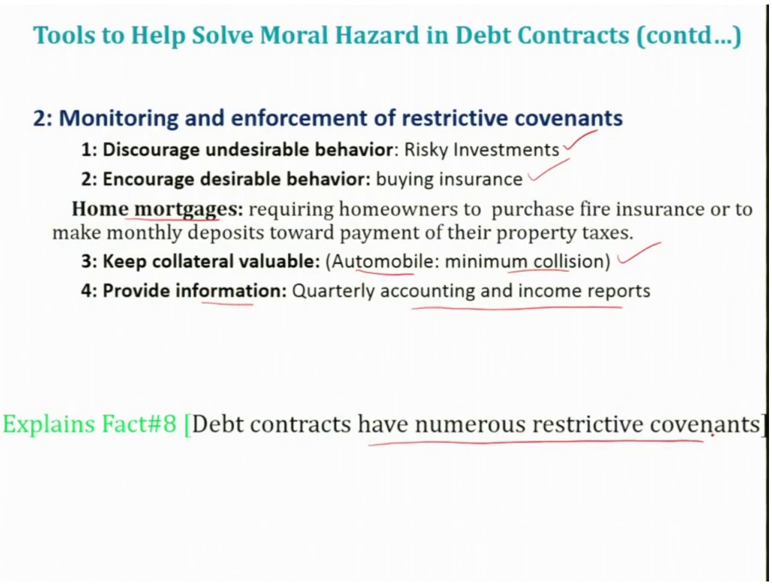

And the second tool is monitoring and enforcement of restrictive governance; we have seen that the debt contracts are full of restrictive covenants. There are lots of restrictive covenants.

What is meant by the covenants here? The covenants to discourage undesirable behavior is one. The covenants can be designed to lower moral hazard by keeping the borrower from engaging in the undesirable behavior of undertaking risky investment projects.

In the debt contract, the lenders include all these covenants; that means, do not engage in undesirable behavior. Some covenants mandate that a loan be only used to finance specific activities such as the purchase of a particular equipment or inventories. So, what is the exact purpose for which the loan is taken, it can be used only for that specific purpose. Then, only the loan amount will be disbursed.

The lender also restricts the borrowing firm from engaging in certain risky business activities such as purchasing other businesses. And second one is to encourage a desirable behavior; for example, it can encourage a borrower to engage in desirable activities that make it more likely that the loan will be paid off.

We can give one example- buying insurance. Suppose someone has taken a mortgage, a mortgage loan, and one such a restrictive covenant requires the owner of the household who has taken this mortgage loan to buy life insurance.

So, for businesses, the restrictive covenants focus on encouraging the borrowing firm to keep its net worth high. Because higher borrower net worth reduces moral hazard and makes it less likely that lender will suffer losses. The home mortgage requires homeowners to purchase fire insurance or make monthly deposits towards payment of their property taxes. All these will be a part of the debt contract there.

And the third one is to keep the collateral valuable. So, collateral valuable here means because collateral is an important protection for the lender. So, restrictive covenants can encourage the borrowers to keep the collateral in good condition and make sure that it stays in the position of the borrower. So, this type of covenant ordinary people (borrower) encounters most often.

So, for example, in the case of automobile loan. Suppose if you have taken an automobile loan, it requires the car owner to maintain a minimum amount of collision and buy theft insurance and prevent the sale of the car unless the loan is paid off.

You need to complete repayment of full loan to get the certification or no objection from the lending bank. similarly minimum collision and keeping the property in good condition. Similarly, taking a mortgage, there also you have been asked to keep the property in good condition.

Another thing is that provide information; that means, quarterly accounting and income reports. That means, it also requires a borrowing firm to provide information about its activities periodically in the form of quarterly accounting and income reports. So, thereby making it easier for the lender to monitor the activities of the borrowing firm. The overall objective of all these things is to reduce the moral hazard problem. So, all these factors which we have seen in the beginning of the session, the debt contracts are with lots of covenants, lots of restrictive practices. These kinds of restrictive covenants are included in the loan agreement have been included to reduce the moral hazard.

Another tool is related to the dispersing or releasing the installment. Suppose you have taken got a housing loan for example, 10 lakhs, you will not be getting the entire amount in one go.

What the lender will do that they will be releasing it step by step; that means, each of the agreed activities in the construction of the home is completed, then you will be getting your installment accordingly. So, these are all to ensure that the fund that the borrowed fund will be used mainly for the purpose which is intended to use.

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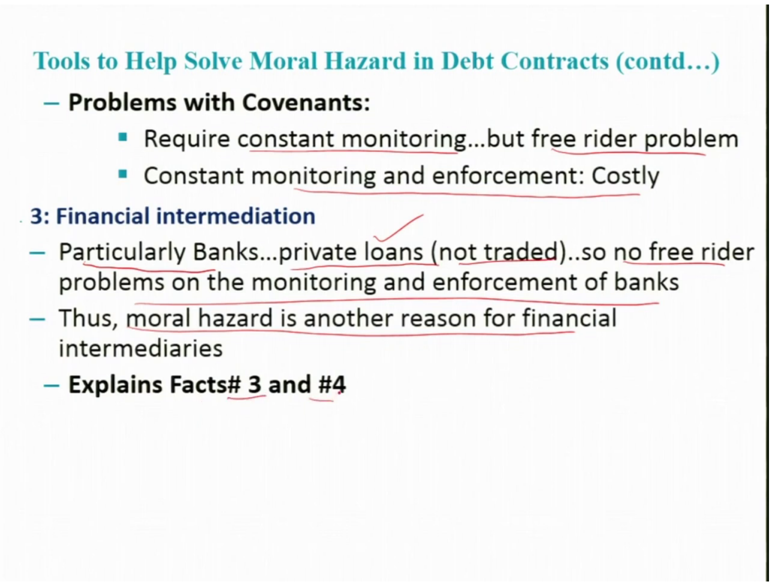

Another solution to reduce the moral hazard problem in the debt contracts is the financial intermediation. As we discussed in just previous slide, the debt contracts involve lots of covenants, it requires constant monitoring. It all requires constant monitoring.

Similarly look at for example, in the case of equity market. You see that it is difficult for every shareholder to monitor what and how the managers are doing, it will be difficult. If a few started monitoring, then you know that there is free rider problem. So, at the end of the day, you can see that because of free rider problem, those who have been doing the monitoring they have less incentive to do. So, because others are simply free riding, what is the outcome of fruits, what because of the monitoring. And the constant monitoring and enforcement are costly for an individual borrower or even individual shareholder. This necessitates financial intermediation.

Instead of lending directly to a borrower, lenders prefer to lend their money to the borrower through banking system or financial intermediaries. Why? Because, financial intermediaries, take the case of for example, banks. They have the expertise in understanding the default risk and, they have the managerial and technical capacity to monitor the activities of the borrower.

And, not only that they have more expertise but that they have the incentive to do so, because they are monitoring the activities of the only of those customers who have taken loans from them actually. This is not traded in the market. So, these are private loans. So, there is no free rider problems on the monitoring and enforcement by banks.

If a bank monitors a customer, those who have taken private loan and then no one is going to exploit it, because this is only for a private loan. So, there is no free rider problem at all for the monitoring and enforcement by banks. Thus, this is one of the reasons that the existence of financial intermediaries in the financial markets. So, this explains; that means, why fact number 3 and fact number 4.

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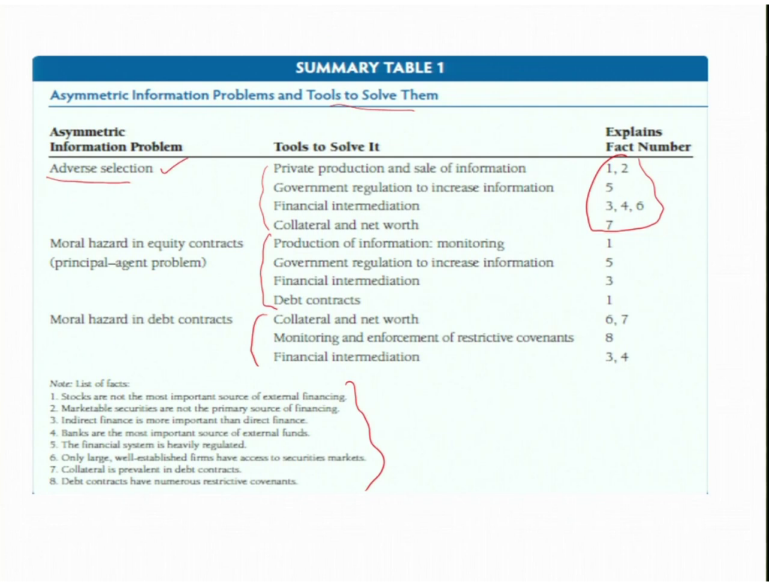

SUMMARY TABLE 1

Asymmetric Information Problems and Tools to Solve Them

Asymmetric Information Problem	Tools to Solve It	Explains Fact Number
Adverse selection	Private production and sale of information	1, 2
	Government regulation to increase information	5
	Financial intermediation	3, 4, 6
	Collateral and net worth	7
Moral hazard in equity contracts (principal–agent problem)	Production of information: monitoring	1
	Government regulation to increase information	5
	Financial intermediation	3
	Debt contracts	1
Moral hazard in debt contracts	Collateral and net worth	6, 7
	Monitoring and enforcement of restrictive covenants	8
	Financial intermediation	3, 4

Note: List of facts:
1. Stocks are not the most important source of external financing.
2. Marketable securities are not the primary source of financing.
3. Indirect finance is more important than direct finance.
4. Banks are the most important source of external funds.
5. The financial system is heavily regulated.
6. Only large, well-established firms have access to securities markets.
7. Collateral is prevalent in debt contracts.
8. Debt contracts have numerous restrictive covenants.

So, this is the summary table that explains the asymmetric problem and the tools to solve them. This I have taken from the main textbook, Mishkin text book; Economics of Money Banking and Financial Market. So, here one by one for example, asymmetric information problem, adverse selection problem and these are the tools to resolve solve it.

I want to emphasize that we cannot eliminate this problem, but we can only minimize this problem, the adverse selection problem. Still, if you look at the finance market, you can see that there are always adverse selection problems, more prevalent in the finance market. And, this also explain the fact number, this many facts number which are all mentioned here.

Then, about the moral hazard in equity contracts, these are the tools to resolve it. Then, in the debt contracts these are the tools to minimize the problem of moral hazard. So, these are the two kinds of resulting outcome of asymmetric information that we mentioned: adverse selection and moral hazard. And, as we discussed in previous session that if these two problems are not solved or not minimized; the finance market is going to collapse.

If there are no finance market, you know that the growth of any economy depends mostly on how sound is their financial market. Because, transferring resources from the lenders who are having surplus fund to the needy people, to those who can make the best use of these fund, who can use this capital in an efficient way. To make this flow of fund we need a sound financial system, for that these two problems, adverse selection and moral hazard, resulting from asymmetric information should be reduced.

Then, only we can see ensure that there is a sound financial system which would eventually lead to high economic growth, employment and increase in the standard of living of people. So, now, after discussing all these things, let us see that how financial development reduce asymmetric information problem and can lead to economic growth and economic development.

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So, the recent research has found that an important reason why many developing countries are still poor, or their economic growth is still lagging is because of their financial systems are underdeveloped; that means, a situation referred to as financial repression. So that means, these are all created by an institutional environment this characterized by a poor system of property rights.

Poor system of property rights; that means, unable to use collateral efficiently. So, because we have seen the points that we have discussed here, we have seen that to minimize adverse selection and to minimize the moral hazard problem, one of the solutions is to use collateral and net worth. And, you know in countries developing countries the collateral the legal collateral, the legal title to the collateral is to some extent is non-existent.

So, the legal title to their property or land, for example, is not that strong. So, because of that you know that to get a loan, someone has a startup who needs capital, if he or she wants to take loans from the market and you know that they do not have much collateral, they do not have sufficient collateral. Even, if they have collateral, suppose the lender will be unable to use this collateral efficiently. In the case of default of loan, the lender cannot easily acquire the collateral, the property which is pledged by the borrower. The poor system of property rights is prevalent in developing countries, that is one issue. And second one is that the poor legal system, moreover, the legal title to collateral is weak, sometime non-existent.

You can also see that the legal system is also poor. So, the number of cases pending in the court it will be long, many cases still pending in the court. Suppose someone the lender who is not getting back the loan amount, you know that if he or she approaches the court, it will take lots of time or it will be difficult for the lenders to enforce the restrictive covenants.

So, we have seen that banks are enforcing lots of prescriptive covenants. For example, the borrower needs to buy insurance or borrower needs to ensure the property in good condition. What if the borrower is not doing that? So, then obviously, you know that normally the lender needs some tool: not releasing the installment is one.

However, you know that if the lender needs to approach a court, you know that how lengthy the process is going to be. And, how difficult for lenders to enforce a restrictive covenant, that this kind of issues are more prevalent in developing countries. Then, comes weak accounting standards. So, to make the information clear; that means, revealing the information honestly; that means, the normally independent auditing, auditors and accountants are appointed.

But you know that the accounting standards in most developing countries, as the as per the research and from many reports, it has been shown that the accounting practices are often weak. So, because of that there is less access to information of the borrowers, of the borrowing firms, and about the firms who is issuing IPOs; equity. So obviously, you know that all this will lead to information asymmetry.

And, because of that you can also see that this all hampers the working of a financial market, efficient working of financial market. Then, another thing you can observe that in most developing countries, the government intervention such as direct credit programs implemented through state owned banks. What if most of the banks in a country are owned by the government?

Many researchers have been showing that a public sector works less efficiently, inefficiency is one of the characteristics of public sector enterprises. The state-owned banks, you know that they have less incentive to properly channel funds to its most productive use. Most of the time, they have to follow the order or the directives from government.

Maybe government has its own priorities, maybe agriculture development or some specific sectoral development. Then, it will be asking the state-owned banks to make directed credit programs, maybe for agriculture loan and sometimes for the small-scale industries or encouraging for giving loan for micro finance units. So, this kind of practices or this kind of directives when the banks are getting, they must follow it.

They must follow the order or directives from the government. In the beginning of the course, I said that the financial system ensures efficient use of capital, where the marginal efficiency of the capital will be high. If there is more and more competition and then the financial market is very strong with limited market failure.

Market failure is very low, in that case we have seen that, the funds who will be demanding, whoever is borrowing or issuing raising capital from the market, because they find it the most productive use of those capital as compared to those who are having the surplus capital. Because most household they are having surplus capital, but they do not know how to make the best use of it.

So, normally this will be lent to, this will be borrowed by those who can make the best use of this capital. But here you can see that, because the banks are government owned, they have less incentive to proper channel funds to its most productive use. And banks will be forced to buy government bonds and to lend government at short notice.

You know that most of the developing countries, low in middle income countries; they are having budget fiscal deficit. You know that fiscal deficit is nothing but the borrowing requirements for the government. By the end of the financial year, the government needs to fill the financial deficit. And where they borrow the money from?

Mostly, they borrow from bond market. And who are the main demanders of these bonds? Mostly, these are by the banks, mainly state-owned banks because they are obliged to buy. So, this kind of things lead to a kind of financial repression in these countries and; that means, their financial system is going to be weak.

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So, looking at these, the financial systems in developing and transition countries face several difficulties that keep them from operating efficiently. In many developing countries, the system of property rights whichever I have discussed function very poorly.

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So, let us see this issue, that the financial repression or a weak financial system, how does it affect the economic growth. So, let us take the case of China, for example, here. You know that although China appears to be on its way to becoming an economic powerhouse, its financial development remains in the early stages. You might have observed that it has a weak legal system comparatively and it has a poor enforcement of financial contracts as per some of the available research documents and reports.

And, also it has been recorded that the accounting practices in the country as compared to the western system, they have low accounting standards. Just like almost comparable to India as well, and hard to find high quality information. So, regulation of the banking sector in its formative stages in the country. So, but you are aware that China is one of the fast-growing economies in the world and is almost catching up with the US economic growth.

So, you can see that why high growth rates in the past 20 years in China, is it because of the financial system or is it because of something else? The research shows that is not because of the financial system, it is because of some other factors. For example, high saving rates.

So, before that I said that though the per capita income is growing fast; however, per capita income is only one-eighth of the USA. However, what contributed to the high economic growth or to make China economic powerhouse is one the high saving rates in China.

So, you can see that there was high savings rate, because of that increase in capital formation combined with the labor movement from lower productivity subsistence sector to the high growth sectors, that is to manufacturing and service sectors. That, the surplus labor moved from the subsistence agriculture sector and the agrarian economy gradually transformed into industry and service sector economy. So, research also showed that the China's economic growth would have been even much faster if their financial system is also very strong.

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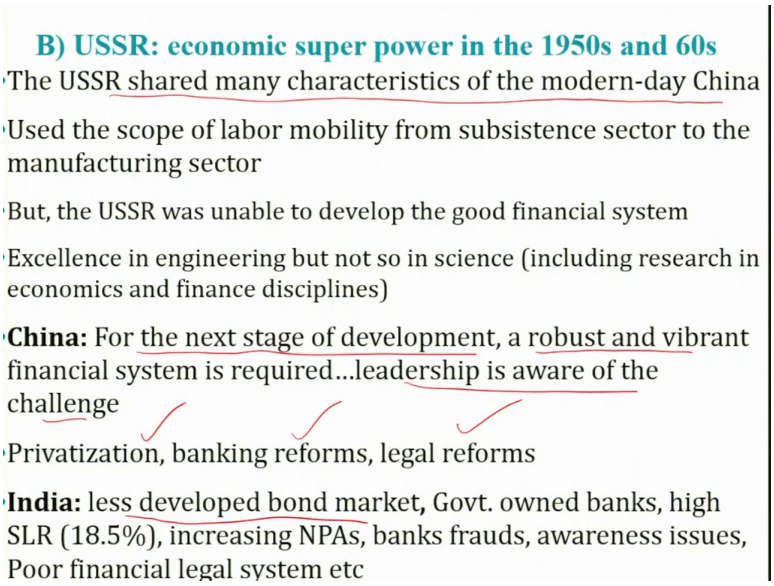

So, when we compare this one, the growth story of China with that of the USSR because, USSR was an economic and defense superpower in the 1950s and 60s. So, what you can see that when we compare these two countries example; USSR shared many characteristics of the modern-day China. And you can see that USSR case, they benefitted from the scope of labor mobility from subsistence sector to the manufacturing sector.

But you know that USSR was unable to develop a good financial system. So, they have been excelling in engineering and other research; however, not much in finance research. So, so maybe that may be one of the reasons, because we cannot say there are so many other factors; social, political, and other economic aspects. But one of the reasons why they could not become a super economic superpower is that perhaps they did not have a strong financial system.

So, you can see here that what happened in China because, they understood I think; and as per the many reports, China learned the lessons from what happened in USSR. Because it is almost comparable with USSR, but China you know they understood the next stage of development. If you go through their reports and research papers from China in the recent period, you can see that there have been lots of discussion about developing a robust and vibrant financial system.

That means, the leadership is aware of that challenge, and they have been working towards that. And because of that, recently, you know till 1980s, China was almost a communist; that means, a public sector economy. But they moved to capitalistic communism, a kind of system where they encourage industrialization, entrepreneurship, and privatization and lots of banking reforms and legal reforms etcetera.

So we can say that the acceptance or the appreciation of the importance of strong financial system is happening in China. So, in India also, you can see that one of the reasons why India's is lagging when it comes to economic growth is our poor financial system.

Though we say that we are the 5th largest economic power, looking at the size of the GDP; India stands at the 5^{th}. However, still you know that the per capita income of country is very poor, low and many people are below poverty line. So, one of the reasons may be the poor financial system.

And, you know that when it comes to India, when we discuss bond market and equity market, you know that the bond market in India is relatively less developed. For example, the households, the households where do they put their money? They put their money in the bank, and bank in fact, put it in the bond market. This is the household money and most households in India especially in the urban area, they are less aware of the bond market in India.

And, because of that itself, you know that Indian bond market is relatively less liquid, because they are not aware of how to invest in a bond market, for example, how to buy a bond treasury bill from government. Because not many people are aware or even, they think that is very practically difficult to participate in bond and equity market.

And, also you can see that most of the Indian banks are government owned banks. So, you know that government owned banks, we already discussed that they will be forced to invest in government bonds. And they were sometime often forced to lend to the government.

One of the things is that the statutory liquidity ratio is high in India. For example, 18.5 percent recently so, that means, of the total deposits they are required to invest 18.5 percentage in liquid assets including bonds, government bonds. Also, you can see that there are increasing NPAs, Non-Performing Assets. You can also see that banks frauds are often happening and there are lots of awareness issues. We also have relatively poor financial system etcetera. So, these are all the factors may be affecting India's economic growth.

Overall, in this session, we have discussed the moral hazard issues, how to resolve it and then we little bit applied by taking insights from previous session, how the development of financial system is important for economic growth as well.

Thank you.

Keywords: Restrictive covenants, net worth, collateral, moral hazard, financial system, legal system.