Microfoundations of Macroeconomics
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Module No # 08
Lecture No # 38
Financial Crisis and Economy II

Welcome back so let us start with the topic we were talking about financial crisis the topic. So the topic we were discussing, we talking about how we can understand the origin and the consequences of the financial crisis. So the brief outline remain same so we talked about the how management of financial innovations asset price, boom and bust create the height and uncertainty scenario.

In the economy and this leads to the failure of financial institution the appropriate word would be the spread of the systemic risk in the financial the first stage of the financial crisis.

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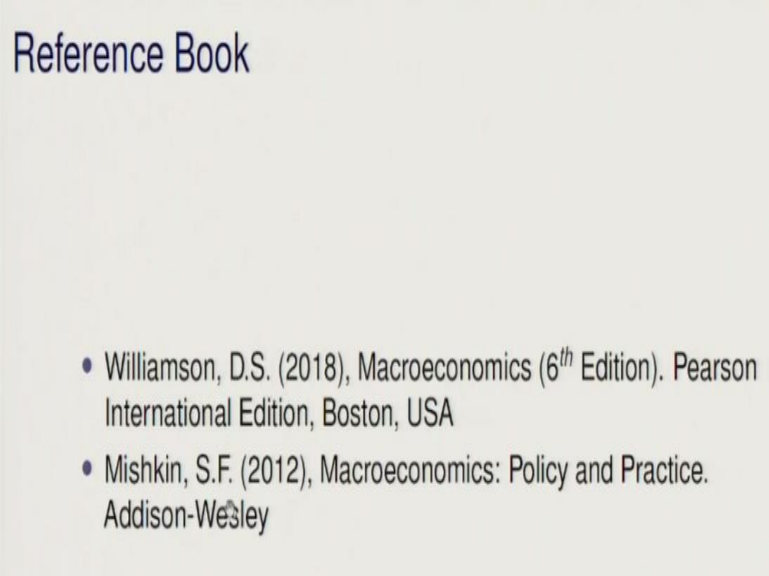

Now we will be moving to stage 2 and stage 3 so here the reference point remains same so here we have the Williamson and Mishkin that I have referred we are discussing from the Mishkin.

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And the brief outline it remains same that we are first trying to understand the financial crisis origin and consequences. Then 2007 financial crisis and Diamond and Dybvig model of the bank runs.

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So we were discussing about the financial crisis and we mentioned that in a stage 1 the mismanagement of financial liberalization innovation create the scenario or sets the platform for the financial crisis. Then you have the asset price booms and burst a general increase in uncertainty cause by failure of major financial institution. So these we have discussed already.

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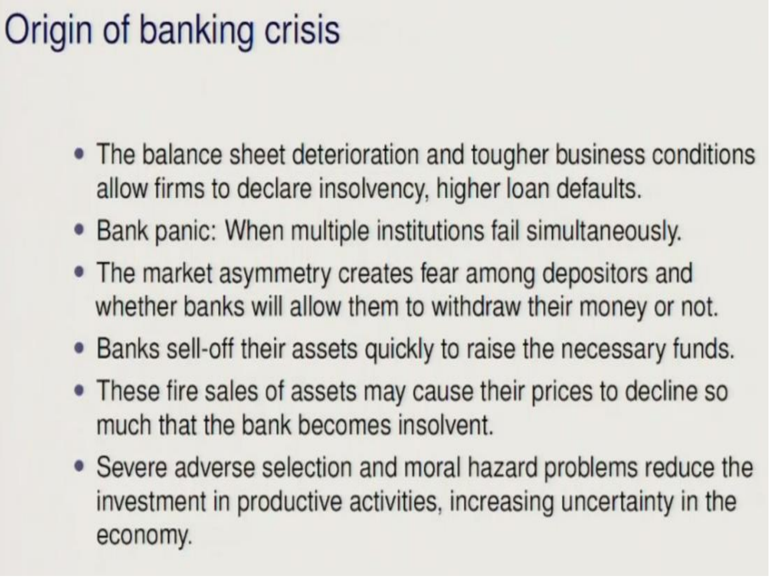

Then here we have the origin of a banking crisis. So, once we have the first stage pass and once we have crossed the first stage then we enter into the second stage. In second stage we have something called the origin of the banking crisis and this banking crisis is having the disabled dimensions to look at. One is about the bank panic in the sense that when in the stage 1 the banks are giving money to the businessmen individuals.

So they are creating or going for credit creation for most of the house hold and rest of the segment. So you can assume and once they see that they do not sufficient recovery of those sanctioned loans or the disbursed money. And the borrowers are not paying on time which means that this will deteriorate the financial health of the bank. And this financial health deterioration what we call it has in the form in the technical term balance sheet deterioration.

Because for the bank the deposit that when you keep money in the bank is suppose to pay rate of interest on your deposit. So it is some kind of liability for the bank but when you have the loan account in the bank then bank is suppose to get extra money in the form of extra money from you for the sanction amount. So it becomes an asset so the moment you have a more off on deposit they do not have control whose so ever wants to go and they fulfill the criteria open the account deposit money banks will have that money.

And after meeting the reserve requirement they are allowed to lend the money so they will be lending to somebody. But if they face difficulty from the asset side which means that if the from the asset side if they are not receiving sufficient amount of money or the disburse amount of money is not recovered fully. Then this creates a panic among the banks that they will have deterioration in the balance sheet.

So in case of India we also experienced the similar kind of scenario that when we had the higher investments scenario when we gone for making higher investments in certain sectors certain activities. And when we allowed the banks to finance those activities bank help the firms and financed. But they did not receive the similar kind of return of the money and this created trouble for the banks.

So in the literature that they call it; as balance sheet crisis but here we tried to understand in this dimension. Allow firms to declare insolvency higher loan default then here you have the bank panic when multiple institutions fail simultaneously. So suppose when you have 20 firms operating out of these 20 firms almost 18 firms approached the banks, bank sanctioned the money.

Out of these 18 only 10 are having the good payment record or suppose out of these 18 almost 12 had the good payment record. But because of the asset price boom and burst and that we mentioned these firms are started getting or started filling the heat of the market and resulting in their net income losses. And they were not and they did not pay or they did not deposit the money to the bank or they did not clear the loan to the bank.

So the bank is having now what we call it as non-performing assets on their balance sheet. Once it accumulates then it creates a very adverse scenario for the banking sector. So here what typically happens; that once we have the balance sheet deterioration. So the first thing the asset price boom and bust will start that you will have the declaration of insolvency by the firms.

And if the firms are going for declaring insolvency it means that banks will not receive the amount. So this will impact the banking sector which what we call it as the higher loan defaults let us focus on the here. If it is respirates to other banking sector also then what we call it as the when multiple institutions fails simultaneously then what we have we call it the call the bank panic.

The market asymmetry creates fear among depositors and whether banks will allow them to withdraw their money or not. So even depositors so if the banks are making huge losses if they are also going for insolvency then it becomes really tough for the lenders that if you have deposited money with the bank. Then you feel that you will not be able to withdraw and that is what when you see that you have a people standing outside for withdrawal and even a bank will not allow then this creates further risk or adds a risk scenario to the economy especially to the banking sector.

And when you have a panic if you have the bank panic then what typically happens that even retail investors will be worried about the withdrawal of the money and they deposit money. Then there it becomes really important banks sell off their assets quickly to raise the necessary funds. So they are there these fire sales of the asset may cause their prices to decline so much that the bank becomes insolvent.

So here first thing is that because of the deterioration in the banking sector because of the business deterioration or the moderate business outlook what we see is that? We have the balance sheet deterioration. Insolvency declaration by firms this leads to higher loan defaults and these; bank panic and the withdrawal amount money create trouble. And even banks after sometime become insolvent so this is what we have mentioned about.

Severe adverse selection and moral hazard problem reduced the investment in productive activities. Increasing uncertainty in the economics if you have such type of scenarios where the firms are also finding difficult to invest banks since they are dependent upon the funds the banks are also finding difficult to survive. So if you have on solvency acceptance by both of declaration by both firm and bank.

Then of course this is going to badly impact your investment scenarios and this may have the full fledge the financial crisis. So this is what we have these stage 2 scenarios. In a stage 2 scenario this is what we look at so in case of India so in case of US this can be linked with what we had the scenario of the housing market crash. And then we had the scenario in India in 2016 – 17 that in 2018 he banking sector shock had spread to the non-banking financial crisis.

Even the real estate companies were engulfed in this and we had the full fledged the crisis further domestic developments also were responsible for that.

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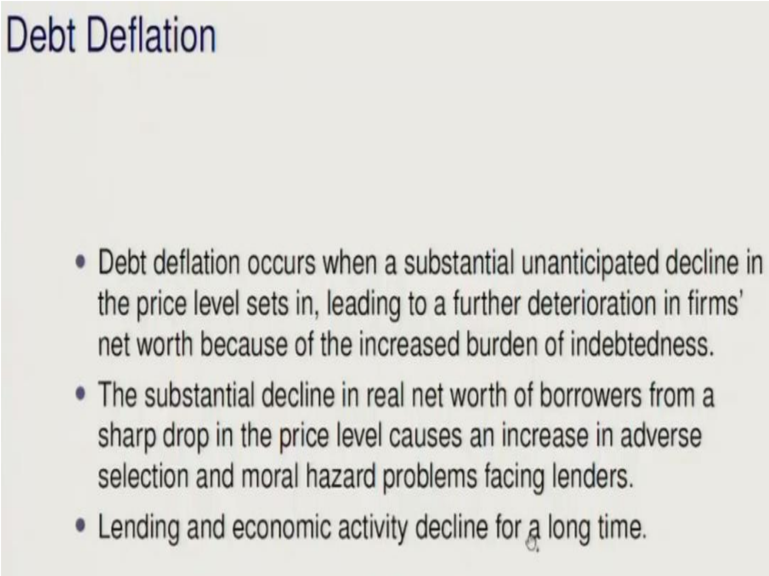

Then the stage 3 talks about the debt deflation what is the meaning of debt deflation? Debt deflation occurs when a substantial unanticipated decline in price level sets same in leading to a further deterioration in forms net worth because of the increases burden of in depthness in the sense that. Debt deflation happens when you have the less demand more of supply so price will be lower and once the price will be lower than it matters for the firm because their earnings are going to be lower.

And if they are supposed to make payment so from the payment side so we know that if you have the inflation higher then it is the loss for the debtor gain for the borrower. Because borrower that it is in real terms it will have to pay less but if of the inflation or the price level lower then it is for the lender it is good for borrower it is not good. So this is what we call it but debt deflation has a widespread impact on the economy because it is just not includes the demand supply scenario.

It will also have the impact on the interest rate scenario it will also have impact on the employment firms may not find it to employ more labour. Less of matching efficiency so, the search theory that we; have discussed less of matching inefficiency low value of labour market tightness. So all these factor will play important role real net worth in the sense that your value of the firm was 100 Billion dollar.

Suppose and you had the debt of around 90 Billion dollar because of the price fall the debt value remains same. So rather it goes up so you may be having the 1- Billion dollar of your value but because of the price decline it shoots up further. So it goes to 99 Billion dollar in terms of indebtness so if you have this is what it means that if a price lower your indebtness goes up. So your actual now net worth will be around just 1 Billion dollars so this is what it means.

It also means that if you have the exchange rate also depreciating so in most of the cases so what we see is that some of the forms when they go for the external commercial borrowing which means that they borrow from outside market. If the exchange rate if favourable so for example in case of India also we saw that some of the firms when we were having in a very I would say comfortable situation.

At that time exchange rate was much higher or I would say exchange it was much higher in the sense that Rupee was stronger. So as compared to what we see the exchange rate of 74 Rupees at that time the exchange rate was around 48 Rupees per Dollar. So at that time firms borrower money from outside market by listing or by from the financial institutions. But when the Rupee started depreciating then this created addition cost to this firms operating in India.

So you have to earn Rupee and you have make payment in dollar terms so if Rupee is depreciation further this adds an extra cost to the firm because now you are clearing at 48 Rupees per Dollar. But now you have to clear the loan at 74 Rupees or 68 Rupees so the different of 48 and 68 is not because of you it is because of the economy and because of the functioning of the economy.

So there you have to keep in mind these things lending and economic activity it decline for a long time so this is what we mentioned about.

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Let us talk about the US financial crisis how we can think about the US Financial crisis. So here you have the 3 central factors we always mentioned about the 2007 -9 financial crisis. First is the financial innovation in the mortgage market in the US when you talk about the mortgage market means about the buying and selling of real estate housing. So agency problem in the mortgage market some of the financial institution or the institutions which were involved in the mortgage financing.

They were not very serious they had gone for the over promising things and that created further trouble. The role of asymmetric information in credit rating process which; means that even in the rating of the firms certain irregularities were observed. So if you think about all these things then it matters.

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So let us talk one by one you have the financial innovation in mortgage market here financial innovation as we have mentioned this stage 1 we are talking about the stage 1 here. We saw that post 2000 we saw the internet penetration in most of the economy activities and financial sector was the most advanced sector with regard to the internet penetration. Internet penetration also helped the firm to trade different types of complex instruments which mean that you can innovate the product and sell to investors.

And investors will be deciding about how much loss or gain they are making if they are making good profits it will be conveyed to everyone and this product will become popular. So lot of such type of products started coming with regard to credit risk and so in the US earlier only the prime borrower were allowed. But because the housing boom, even the subprime borrowers were allowed to borrow money for residential mortgage market.

The computer technology unable the bundling together by smaller loans like mortgages into standard debt securities what we call it as the so securitization of different types of financial assets started so earlier it was only equity. And then we saw that post 2000 we had financialization of major commodities even commodities. And then we saw the different types of loan instruments to be clubbed into a financial instrument and getting traded.

So those things started so securitization started which also what we call it the financialization. The subprime mortgages to borrowers with less than the seller credit records so the loans were sanctioned mortgage backed securities were launched as standardized debt security. Then the developments of a structured credit product such as CDOS were also launched. The mortgage bank security in the sense that the financial institutions they club the particular type of loan and they sell it to the financial institutions.

Financial institutions will further develop the contract and selling it to the investors will be getting the returns but you will not be getting the principal payment you will be just getting the interest and principal during at the time after the maturity you will not be getting anything. But this also creates an opportunity for the financial market to innovate and the sell such product then we saw that we had the collateralized debt obligations also coming as CDO’s.

And CDO’s played also very important also so these 2 instruments are often cited one of the prime reason for the assurance of the global financial crisis.

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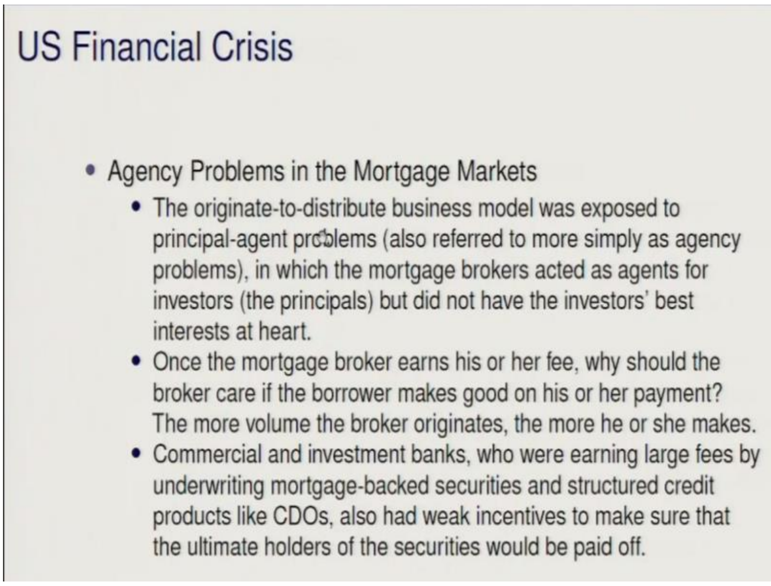

Agency problem let us highlight the agency problem. So here what was the reason originate to distribute business model was exposed to principle agent problem in which the mortgage brokers acted as the agent they did not act as an facilitator which means that. Their incentives were attached to the selling's that how many units of r how many times you are selling the product to the investors.

Then based on that your incentive will be attached so, if, you are selling one product your incentive is 100 dollar. But if you are selling 10 product your incentive is 10,000 not just 1000, 1200 dollars. Now if the individual's objective or the target is given that how many products are you selling then of course this particular individual maybe going for over selling.

Which means that some of the clauses are not being, covered but this particular person is over promising. So over promising thing started in case of India we have gone for revision after 2007- 9 global financial crisis Krishna Committee had given a particular detail report under that we have gone for reason what we call it the Indian financial code. And then we have device certain norms to tackle such type of agency problem in different segments of the financial sector.

A cross evens the urban and sub urban areas so it started with the US financial crisis once the module blogger earns his or her fee why should the broker care if the borrower makes good or his or her payment. So they have just sold to the household and they purchased also. But this purchase whether it is worth for the financial institutions that became a major concern and it later.

When these household were not able to repay then it later acted as a major shocker to most of the financial intuition. So here what we call it? The financial intuitions what we mentioned here commercial and investment banks who were earning large fees by underwriting backed securities and structure credit CDOS. Also had weak incentives to make sure that the holders of the mortgaged backed securities are paid off which means that.

Even the large financial institutions which were involved in facilities of such complex instrument they were also not very aware that how these particular product are going to function. So you can think about US financial crisis was not because of the financial innovation itself it was also because of the agency problem.

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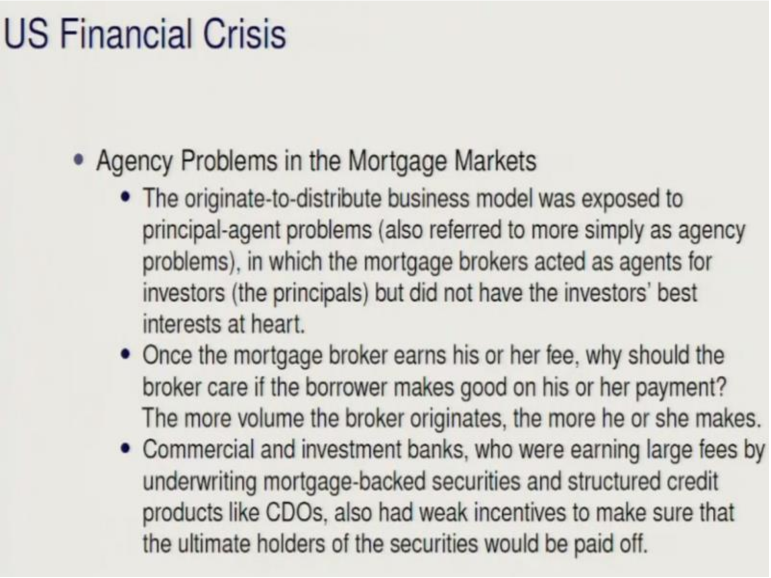

In the third state we know that how it relates to the defaults of the major financial institutions in the US Lehman brother episode. We all remember that how it created a big Havoc on the financial market even the major stock market had a major fall and then since these are the complex instruments. So, underlying assets and you have the cross border investments also happening.

So these instruments further had a very severe impact on the financial sectors across the globe. It also spread to the European market where we say major decline in asset prices. So this is what we often mention about the US financial crisis.

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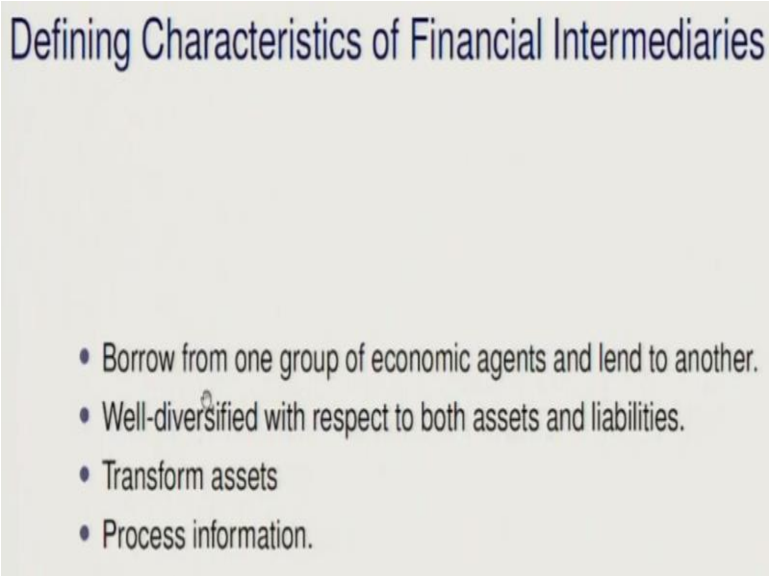

Now we will be moving towards a financial intermediaries and we will be trying to see that how do we decide about the bank run. So now the financial crisis part we have covered now we are going to see that how do you decide about the financial intermediate what are the roles of financial intermediary? Financial intermediary then I am saying about the NBFC the banks and the related institutions that accepts the deposit and go for lending.

So borrow from one group of economic agent and lend to another well diversified with respect to both asset and liabilities. Transform assets process information so this is what we have.

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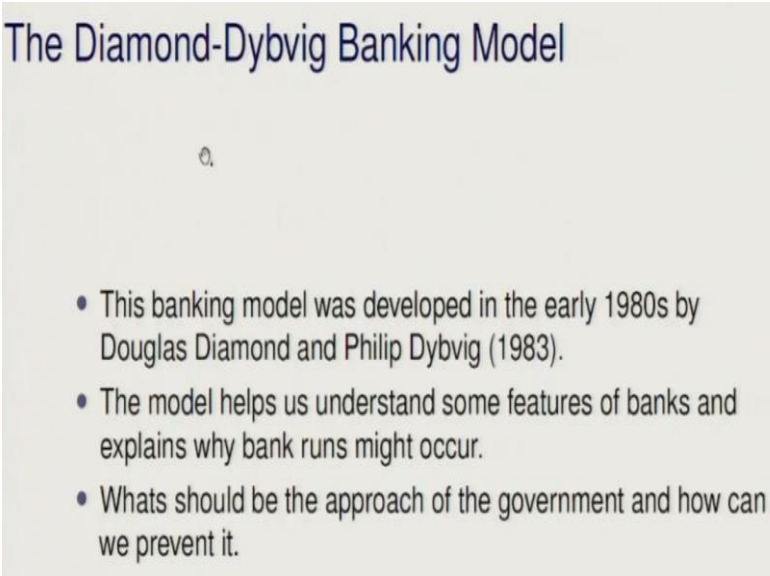

The diamond and the dybyig banking model so regarding the banking sector how the banks fail. So the very detailed account of the bank failure is being handled by the diamond and the dybyig model and under the banking model. It was developed in during nineteen eighties and it became popular after that but then people did not pay that much attention. But when we saw the failure of banks in major economy then we started looking back and then we started examining it.

The model helps us understand some features of the bank and explains why bank run might occur? What should be the approach of the government and how we can prevent it right?

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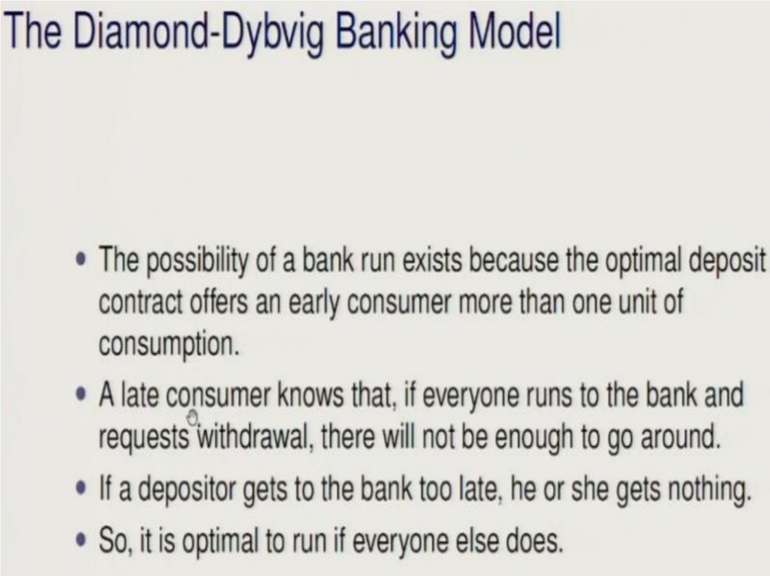

So the diamond Dybvig model if you try and understand so we call it as Dybvig model also. When individuals when they are in a fear that if they are being left out and if they are not allowed or if, they are reaching lay to the bank and if their participation rate is low. Then in the event of the uncertainity what we have the shock then it may happen all the depositors would like to withdraw money at the same time.

So if you have a higher withdrawal of the money than the deposit in the banking sector. Then the bank will have to sell some assets to meet the requirements of the deposits if the banks are selling that we call it the liquidation. If liquidation process continues for some time then this will lead to a bank run kind of scenario. If you have the perfect competitive market where different types of banks are participating then it may also happen that you may incur a situation where you will have a difficulty.

In I would say retaining your banking sector profit so bank may not be getting that much amount of income to sustaining the market. So if this process continuous some more time for sure you will have the bank run so as I mentioned that if banks are designating an individual that you will be part of the borrowing up to this point not beyond this. And if everyone reaches at the same time because the person who is going late to the bank he feels that the person who are going early they may be withdrawing more.

So it is better that I should be also reaching so that is what their underlying idea tells if a depositors gets to the bank too late he she gets nothing. So this is what we have a late consumer know that if everyone runs to the bank and request withdrawal they will be having nothing to withdraw right and it is optimal to run if everyone else does.

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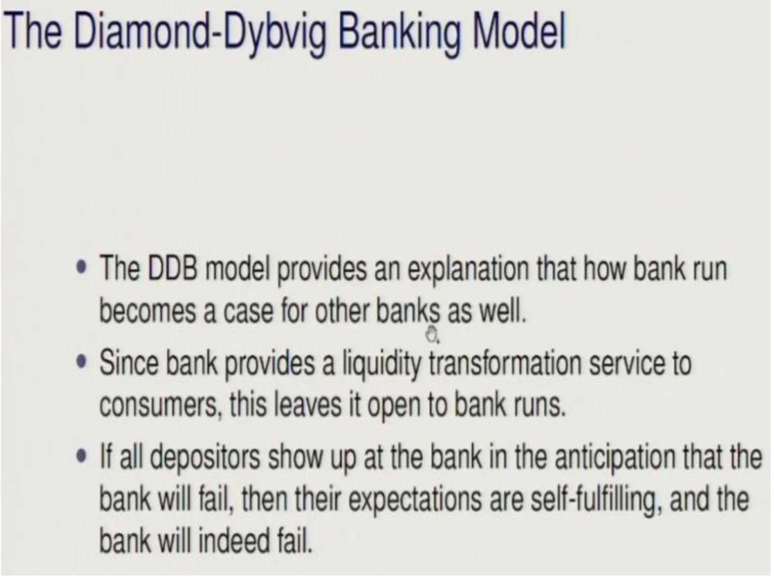

Here what they say that here how the bank runs becomes a case for the other banks also. Because if this process gets repeated for other banks also then in that case it will create a bank run for most of the banks. And that is what we see that we have any shock to the banking sector is taken serious by the government. Because central bank because then it becomes really important. If all depositors show up to the bank in anticipation that bank will fail then their expectation are self fulfilling and bank will indeed fail.

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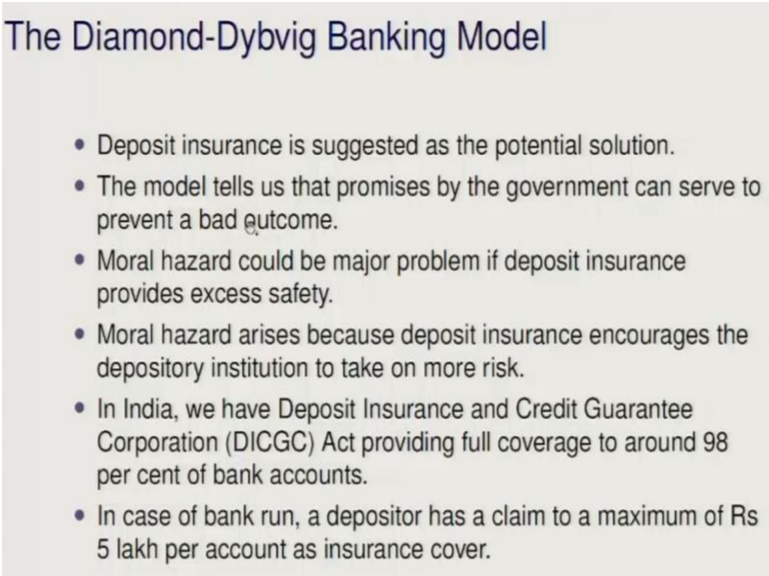

Now here what we see is that? In Diamond Dybvig model one of the important contributions is that how we can tackle the bank run? So one solution or remedy that they provide is that if the government is going for deposit insurance then this will lead to some kind of assurance to the depositors and also to the banking that they even if they go for liquidation. The depositors are safe but this will further create one more scenario will be about the moral hazard that whether the bank will utilize the opportunity.

Because if they feel that the deposit is insured then they will be making the risky investment. So if they are making the risky investments then this will further create a trouble. So earlier it was withdrawal that was leading to the bank run but with the deposit insurance there highly likely that the banks will not pay much attention for the business activity. In India we have deposit insurance and credit guarantee corporation DICGC which provides the coverage against the failure.

So it provides about 98% of the bank accounts the amount of insurance is about 5 lakh per account insurance cover. So this is what we try to cover in this and let me summarize what we have done so we have covered the financial crisis origin. We have also covered the diamond Dybvig model if you want to read more about it. So you can read from the Williamson there they have very good interpretation of this.

And then we understood that if the government is providing deposit insurance then this may act as a then potential savior against the bank run. But then moral hazard becomes a major issue so with this I will be concluding the session and thank you so much for your attention. In the next session we will be talking about the international trade and certain dimensions. So I am stopping it here thank you.