Economics of Banking and Finance Markets
Prof. Sukumar Vellakkal
Department of Economic Sciences
Indian Institute of Technology, Kanpur

Lecture - 37
Financial Crisis - IV

Welcome to this session. Let us continue our discussion on Financial Crisis 2007-8 and we let us also discuss the financial crisis in emerging market economies and other countries.

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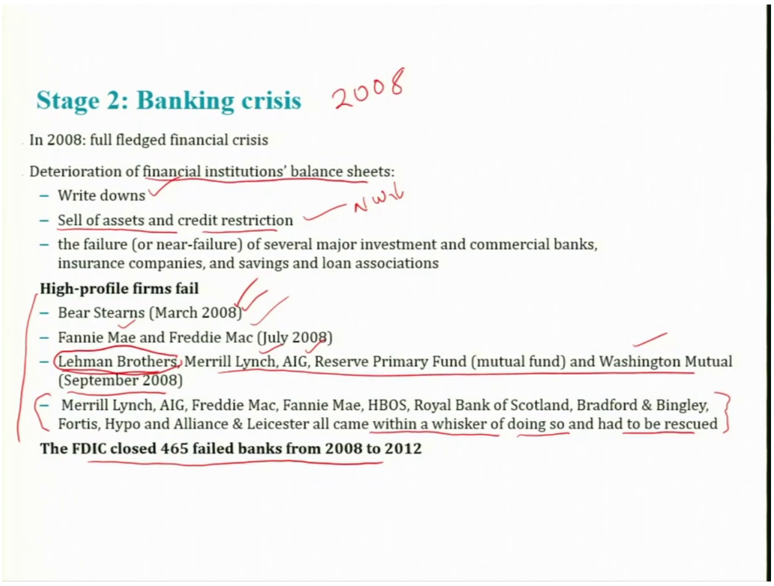

So, we have seen in the last session that in stage 2, the subprime crisis led to the banking crisis, and we have seen that there was full-fledged financial crisis. So, you can see here that Bear Stearns are the 5th largest investment bank, 5th largest investment bank in the United States which had invested heavily in subprime related securities, had a run on its repo funding and was forced to sell itself to J P Morgan for less than one-tenth of its worth just a year earlier.

In July, you can also see that Fannie Mae, Freddie Mac, government sponsored enterprises that together ensured over 5 trillion of mortgages were rescued by the US Treasury and the Federal Reserve for suffering substantial losses from their holdings of subprime securities. So, both firms were put up into conservatorship in September 2008. So, another which attracted the biggest news headlines that was on Monday September 15, 2008; Lehman

Brothers, the 4th largest investment bank by asset size with over 600 billion in assets filed for bankruptcy, making it largest bankruptcy in the US history.

So, the day before Merrill Lynch, the 3rd largest investment bank which had also suffered large losses on its holdings of subprime mortgages announced it sale to Bank of America, for a price 60 percentage below its value a year later. So, other the insurance companies AIG, they also suffered extreme liquidity crisis because when its credit rating was downgraded. It had written over 400 billion of insurance contract that are to make payouts on possible losses from subprime mortgage securities. So, here the Federal Reserve stepped in with 85 billion loan to keep AIG afloat; a reflection of the 'too big to fail' problem.

So, there has been several mutual funds who had invested in this subprime mortgage. Mostly, the investors, institutional investors you can see that most of them were pension funds and mutual funds. All these are funds from the public but by 2008 most of them began to suffer huge loss.

So, these firms, you can see that, these many firms had to be rescued. So, we can see that this is the working of government safety net, due to the government safety net, all these firms were saved. So, you know why this has been saved, because government cannot allow these big firms, financial firms to fail.

Because, you know that if they fail, the entire financial system will fail, then it will adversely affect entire economy; even the recession is going to become depression indeed. So, that is the reason government stepped in and they bailed out these firms, many firms were rescued. And however, you can see that there were several bank failures; 465 banks failed banks from 2008 to 2012. So, that is the height of the stage 2 or that is the crisis, banking crisis.

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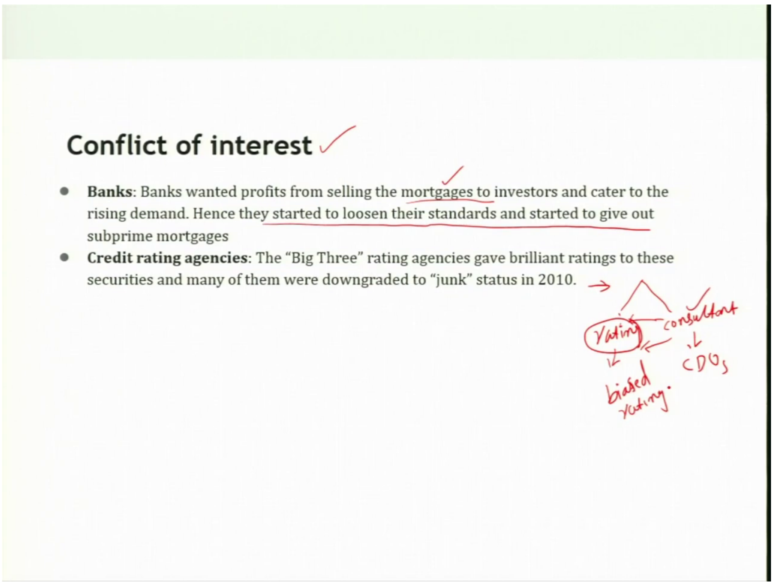

So, in this crisis, we can see that the factors that we discussed in the previous classes, all played a huge role in this crisis.

One is the conflict of interest. So, let us see how different stakeholders' conflict of interest played a role. So, coming to banks, retail banks, banks wanted profits from selling the mortgages to investors and cater to the rising demands.

So, what they did that the retail banks sold out these loans to investment banks, investment banks in turn made into RMBS and CDOs, and sold out to investors. Real estate investors, mostly in institutional investors including mutual funds, they wanted to make huge profit and there was huge demand for these products, their mortgages.

So, hence they started to loosen their standards and started to give out subprime mortgages as much as possible. So that means, what we have seen in previous sessions; that means, banks are expertise in screening of the customers and expert to prevent adverse selection. But what they did during 2000, after in the year 2000 because of the mortgage boom and because of the financial innovation was something contrary to it. So that means, huge demand for mortgage loans, there is huge demand from investment bankers; they started to loosen their standards and give out subprime loans.

And, how about credit rating agencies. So, credit rating agencies what they did, there are the big three rating agencies, gave brilliant ratings to these securities and many of them were downgraded to junk status in 2010.

So, credit rating agencies who rate the quality of debt securities in terms of the probability of default, where another contributor in this asymmetric information in the financial markets. So, the rating agencies, we can see that they advise clients on how to structure complex financial instruments like CDOs, that is in one side. Because, we have seen that conflict of interest here, because credit rating agencies; on the one side they do the ratings and another side they are the consultant for them.

So, they help many firms to structure complex financial instruments. For example, the RMBS and CDOs. While, at the same time, the same people, the same rating agency are rating the same products as well. So that means, same time they were rating these identical products. So, the rating agencies were the subject to conflicts of interest, because the large fees they earn from advising clients on how to structure, how to structure their product development, CDOs.

So, how to structure products that they themselves were rating meant that, they did not have sufficient incentive to make sure their ratings were accurate. And, you know many individual and institutional investors, they were relying on these ratings. And this rating, we expect the individual investors and institutional investors, they will be expecting an unbiased rating.

But what happened that because of the conflict of interest you know that it was a biased ratings in fact, it was a biased rating. Biased ratings were given by these rating agencies. The result was widely inflated biased ratings enabled the sale of complex financial products that were far riskier than what the investors recognized.

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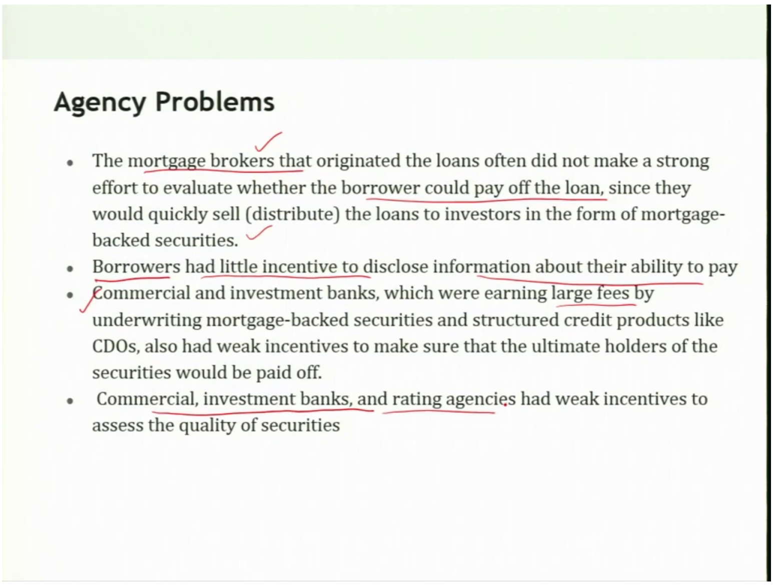

Then, coming to other agency problems, how about the mortgage brokers those who act between the subprime mortgage borrowers and the retail banks. The mortgage brokers who originated the mortgage loans often did not make a strong effort to evaluate whether the borrower could pay off the mortgage.

Because, since they plan to quickly sell, distribute the loans to investors in the form of mortgage-backed securities, they did not put strong effort. They did not put strong effort whether the borrower could pay off the loan, since they could quickly sell, distribute the loans to investors in the form of mortgage-backed securities.

So, this ‘originate to distribute business model’ was exposed to the principal agent problem. So, here the mortgage broker acted as agents for investors, but did not have the investors’ best interest at heart. So, once the mortgage brokers earn his or her fee, what we can see, they are not worried about the quality of this mortgage. Because anyway they are earning the fee by selling this mortgage, we can ask why the broker should care, if the borrower makes good on the payment.

So, the more volume the broker originates, the more money the broker makes here. So, borrower, about the borrowers’ part, there also we can see that they had little incentive to disclose information about their ability to pay. Because, for them they see that anyway their credit score is less, still they are eligible for loan.

And they are seeing that the loan they are getting in mortgage, they also see that the mortgage prices have been increasing, that is, housing prices have been increasing in the market. So, they also feel that making capital gain, expected capital gain, so they have less incentive to disclose information about their ability to pay.

And, about the agency problem with the commercial and investment banks, they were earning large fees buying underwriting mortgage-backed securities and structured credit products like CDOs, also had weak incentives to make sure that the ultimate holders of the securities would be paid off. So, these people, these stakeholders also have huge incentive to compromise their ethical standards.

So, they are also making large fees and then accordingly they also had the conflict of interest. And they also did not put much effort while underwriting the mortgage-backed securities and CDOs, because they did not clearly check the quality of the mortgage, the actual default risk of the mortgage; they were not much worried about that. So, all these agencies that the commercial bank, investment banks, they all had weak incentives to assess the quality of securities.

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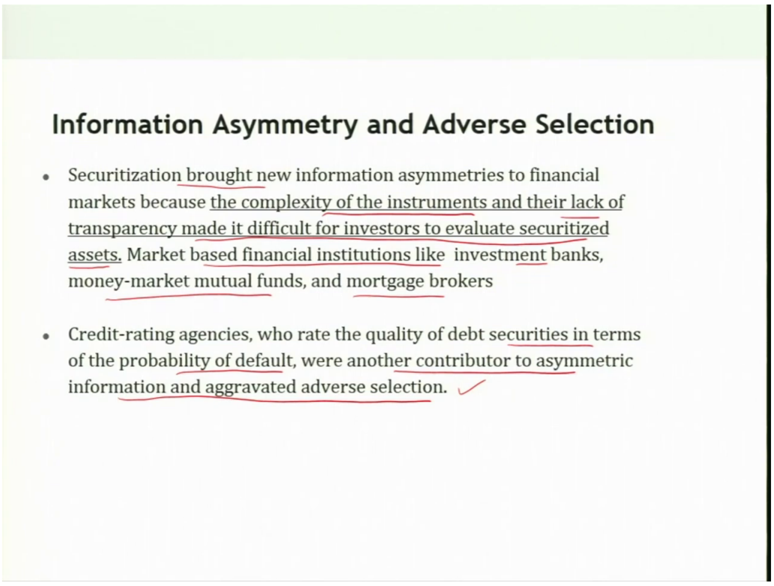

Then, coming the information asymmetry because of the financial innovations, the financial innovation which lead to financial derivatives and that the derivative that the CDOs, it was a derivative from RMBS. This is also called as securitization. So, we can see the securitization brought new information asymmetries to financial markets.

Because the complexity of the instruments, the complexity of the instruments and their lack of transparency made it difficult for investors to evaluate securitized assets. And, you know that they will be looking at the rating, credit rating of these products that they will see that most products, all these bonds most these products are getting higher rating.

So, market based financial institutions like investment banks, money market mutual funds and mortgage brokers, all of them added fuel to this information asymmetry. So, again we say that the information asymmetry, credit rating agencies who rate the quality of debt securities in terms of the probability of default where another contributor to asymmetric information and aggravated adverse selection problem.

So, as I just mentioned here; that means, the public, the investors will be looking at the credit rating given by the rating agencies. Because they think that theirs will be unbiased rating, truly reflecting the economic fundamentals. But what they did was that they also added to the information asymmetry without really checking in the quality of their asset, quality of the debt instrument that they are rating.

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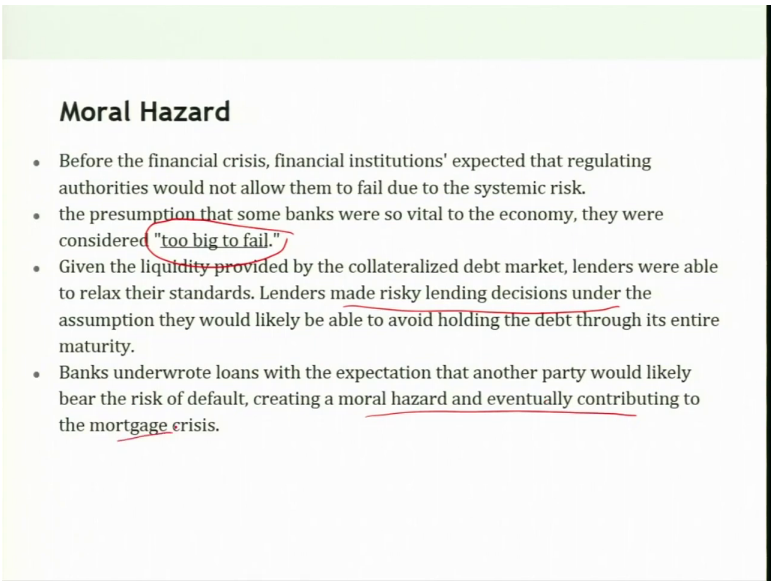

So, it also led to the issue of moral hazard problem. Before the financial crisis, financial institutions expected that regulating authorities would not allow them to fail due to the systemic risk. So, this there was a presumption that some banks were so vital to the economy, and they were considered ‘too big to fail’. And this ‘too big to fail’ feeling was so strong in the year 2000; that means, they are all ‘too big to fail’ and it encouraged the moral hazard problem.

So, they engaged in risky activities, even most the retail banks, they began to lend to the subprime borrowers, an investment bank also did, and the insurance company insured this. And, on the back of all, there was a feeling that if something goes wrong, government will save them. That means, Federal Insurance Development Corporation will pay off, bailout the retail banks, that is the expectation from the banking sector.

Because they will not allow the banking sector to fail; similarly, investment banks, insurance companies, they all had such expectations. So, the given the liquidity provided by the collateralized debt market, lenders were able to relax their standards. Because all these loans were based on the mortgage collateral. So, lenders made risky lending decisions under the assumption that they would likely be able to avoid holding the debt through it is entire maturity. So, banks underwrote loans with the expectation that another party would likely to bear the risk of default and creating a moral hazard and eventually contributing to the mortgage crisis.

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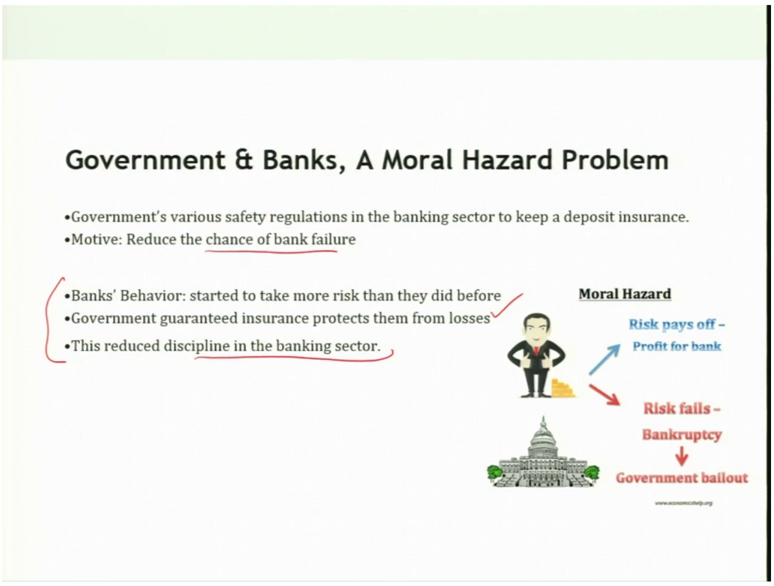

So, on the side of the government, we can see that government’s various safety nets in the banking sector including deposit insurance contributed to the problem. The aim was to reduce the chance of bank failure, but you know that banks started to take more risk than they did before. The government guaranteed insurance protects them from the losses, that was their belief, and it reduced discipline in the banking sector.

So, in the one of the sessions, we say that banks they are expert in ensuring screening and produce collecting private information, and in reducing the issue or the reducing the adverse selection and moral hazard problems. But, in 2000 we saw because of all these factors, it led to the moral hazard problem.

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Assets in Banks	2001	2006
Reserves & Other Cashes	15%	14%
Securities	15%	15%
Loans : Real Estate	**20%**	**33%**
Loans : Others	30%	22%
Other Assets	20%	16%

- Riskier Assets : High Default Rates : Subprime borrowers

Figures are approximated based on the data from source: https://www.federalreserve.gov/pubs/bulletin/2008/articles/bankprofit/default.htm

So, looking at this table, you can compare for example, the investment made by the banks in 2001 and 2006. So, look at the real estate investment, by 2001, it was 20 percentage, but it shot up to 33 percentage in 2006.

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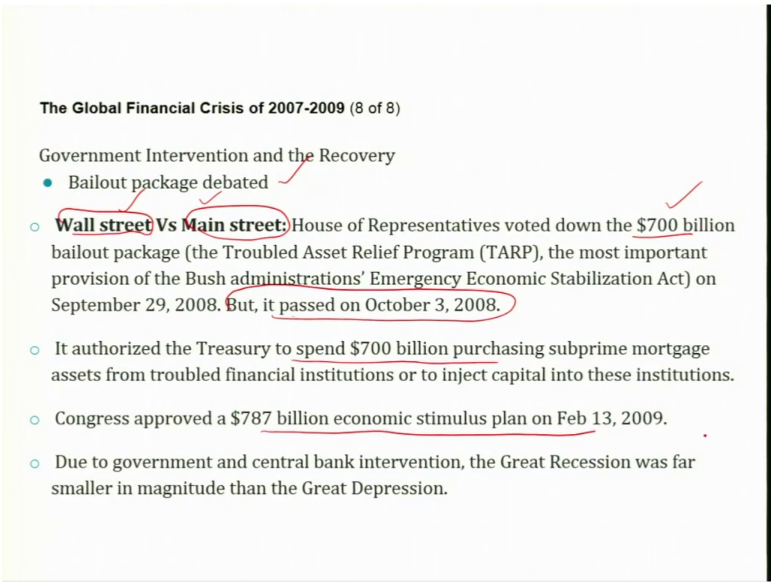

So, finally, the government intervention happened in 2008-9 period. So, the bailout package was debated. So, you can see that the debate was mainly between the Wall Street (the financial sector) and the Main Street (the public). Initially, the House of representative voted down the 700 billion bailout package, and you know immediately after that, the stock market further crashed after. And, because of that, by October 3, 2008, finally, the Wall Street won against the Main Street; that means, the taxpayers' money was used for bailing out the Wall Street.

The Main Street's money was used for bailing out the Wall Street. So, it authorized the treasury to spend 700 billion in purchasing subprime mortgage assets from troubled financial institutions. And Congress approved this much economic stimulus plan in February 2009. So, due to government and central bank intervention, the Great Recession was far smaller in magnitude than the Great Depression.

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So, the height of 2007-8 crisis, the stock market gathered pace in the fall of 2008, decline worst decline in US history. So, surging interest rate faced by borrowers led to sharp decline in consumer spending and investment. Unemployment rate shot up, going over 10 percentage in the level in the late 2009 during the Great Recession.

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So, let us now discuss the financial crisis in emerging market economies.

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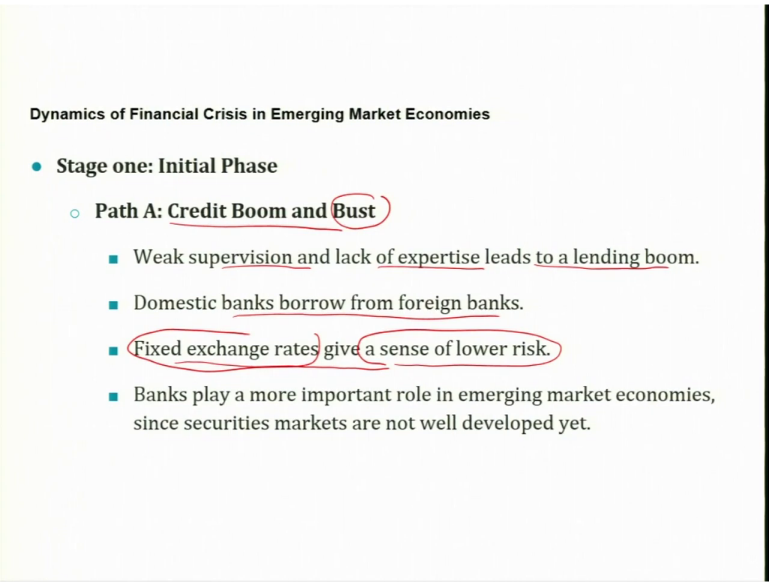

Here, we will make a short discussion about the framework that we discussed in the previous sessions. Here, the mostly in the emerging market economies, the stage one of the financial crisis was started with the credit boom and burst in the emerging market economies. The effects of the financial innovations in the developed countries were also seen in the emerging market economies.

Emerging market economies means economies in an early stage of stage of market developments that were recently open to the flow of goods, services, and capital from the rest of the world. These countries, because of the seeds of financial crisis, these economies were often seen to liberalise its domestic finance systems by eliminating restrictions on financial institutions and markets, which is a process called financial liberalization.

So, as a result what happened that when suddenly they opened because of the financial liberalization, most of the financial institutions, banking institutions, started lending into new sectors where they are not well trained or not possess adequate expertise.

So, when they engaged in lending; that means, giving loans to subprime customers and obviously, you know that it must burst after certain point of time. So, in these countries, you can also see that their domestic banks borrow from the foreign banks, they pumped lots of money in their domestic market. Then, in addition, they also had fixed exchange rate. This has been giving them a sense of lower risk; that means, there is no exchange rate volatility.

So, t that when they are borrowing from abroad, they can pay back without any exchange rate volatility. So, this also gave them a sense of lower risk. So, the banks in these emerging market economies started making lots of lending, that is, large lending in the subprime market. And however, after certain period they started experiencing the heat; that means, the default risk.

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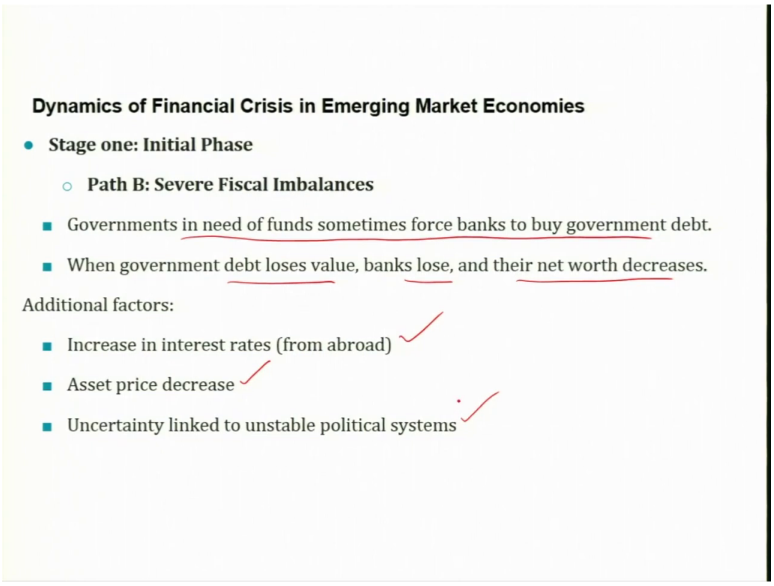

So, another thing is that this is one, that the stage one. In the stage two is that these countries also experience severe fiscal imbalance; fiscal imbalances in the form of increasing fiscal deficit in this country. Because, of that governments in need of funds sometimes forced banks to buy government debt. Governments forced the banks to buy government debt.

That means when government debt loses value, banks also lose, and their net worth decreases. There were some additional factors as well; that means, the additional factors here are mainly increase in interest rates, especially due to the factors abroad. That means, the precipitating factor in some crisis was a rise in interest rate caused by events abroad such as a tightening of US monetary policy.

For example, when the fed is making a tightening of their monetary policy, then you know that the rate of interest increases in the US. And this one will be further leading to increase in the interest rate in the emerging market economies as well. So that means, when the interest rate rise, high risk firms are willing to pay the high interest rates. So, you can see that it leading to adverse selection problem.

This problem is going to become more severe in these countries, adverse selection problem is going to become more severe. So, because of the interest rate, the banking institutions, the financial institution who are borrowing from the market because of that, their repayment, the debt burden increases and because of that the asset prices also decline. And, in addition, the uncertainty linked to the unstable political system in the emerging market economies also contributed. And these points are applicable to the low- and middle-income countries as well.

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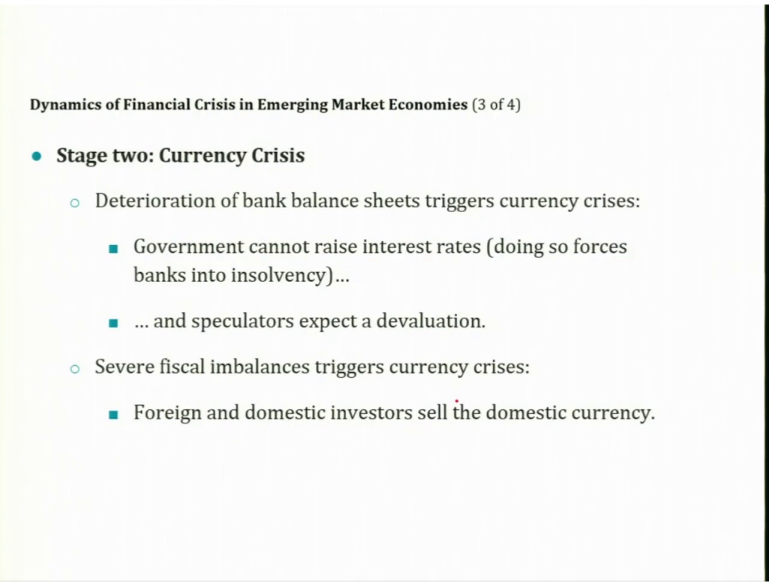

So, in stage two, we can also see the currency crisis; that means, deterioration of bank balance sheet due to the currency crisis. The currency crisis here is that many market participants make huge profits if they bet on depreciation of the currency of emerging market economies.

The currency of the emerging market economies is often subject to speculative attack. That means, speculators engage in mass sale, in large scale sales of this currency; as a result, their value depreciates, and then it will lead to a currency crisis. What we have seen in previous session, that when there is a currency depreciation, then the debt burden of the borrowing firms increases, and it further leads to decline in the net worth of these firms.

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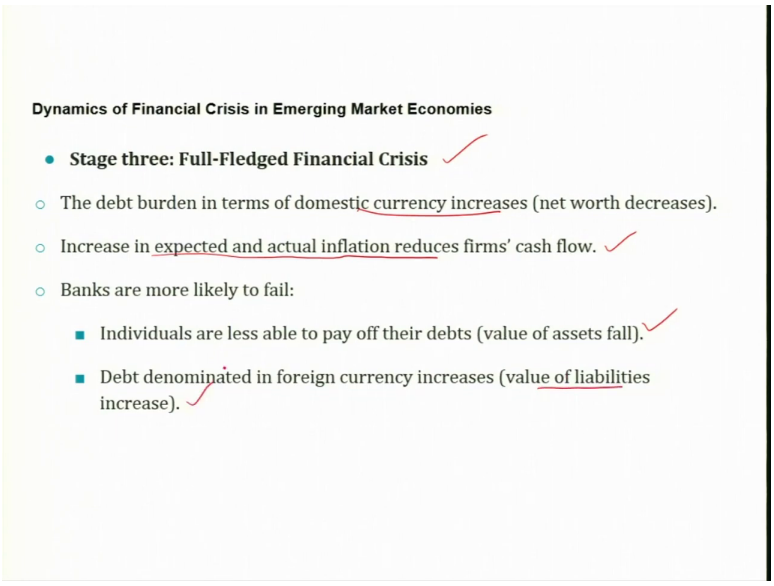

So, let us see further, all this leads to a stage, the three full-fledged financial crisis in these countries. So, that debt burden in terms of domestic currency increases. This further increase in expected and actual inflation, which all further reduces the firms cash flow. So, as a result you know that banks are more likely to fail; individuals are less likely to pay off their debts. The value of assets falls, and debt denominated in foreign currency increases. So that means, these firms banks value of liabilities increases.

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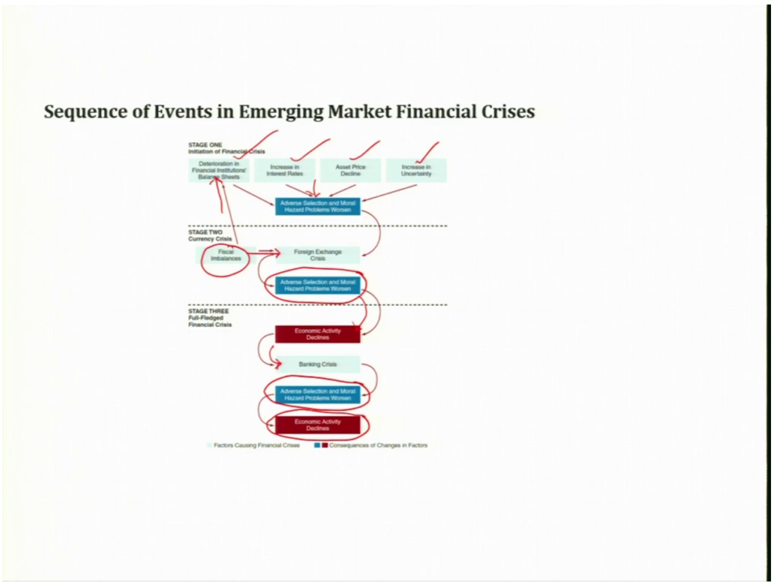

So, this is the summary of the sequence of events in emerging market economies financial crisis. So, you can see that the increase in uncertainty, asset price and increase in interest rate, all this and deterioration in financial institutions' balance sheet, all this led to the problem of adverse selection and moral hazard. Then, the fiscal imbalances that the increasing fiscal deficit, it also led to deterioration in the bank's balance sheet, and this also leads to the foreign exchange crisis.

All these lead to the worsening of the asymmetric information problem. And, as we have seen that it will lead to further decline in economic activity, and it further leading to banking crisis. And finally, the adverse selection problems becoming even more and worse. And you can also see that all this leads to shrinking of economic activity, and economy is falling into recessions.

So, in this and previous sessions, we had discussed the financial crisis of 2007-8. And discussed the financial crisis in some emerging market economies. We did not discuss the financial crisis in emerging market economies in detail. You can see that there is crisis in many countries. For example, you can investigate South Korea, you can look into Argentina and other countries, Turkey etcetera. You can apply all these principles there and I am sure that now you are in a better position to understand the economics behind the financial crisis in many countries including low- and middle-income countries as well.

Thank you very much.

Keywords: financial crisis, agency problems, conflict of interest, adverse selection, moral hazards, rating agencies, emerging economies, currency crisis, fiscal imbalances