Money and Banking
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Lecture - 8

We shall pursue the sources of monetary base why? Because when monetary base changes, money supply changes and when money supply changes you know the LM curve shifts. And when LM curve shifts, there are significant consequences for the economy, rate of interest may change, output may change, prices may change, employment may change, various kinds of changes you can expect.

That is why you have monetary policy, which is trying to control unexpected and undesired changes in money supply or any other undesired occurrences in the economy, YLM curve monetary policy is nothing but YLM curve we are trying to control the economy. So, sources of monetary base is very important, what are the sources from where monetary base is created, and therefore is liable to change, like a river is the source of a river is glacia. So, anything happens with the glacia will affect the river, it is very important to know the sources. So, I would pursue the discussion on sources of monetary base, which is started yesterday.

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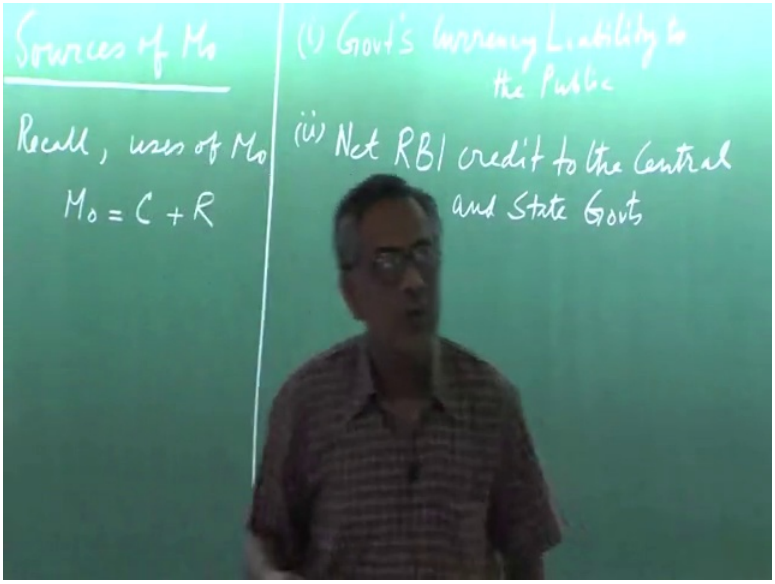

So, what did I write sources of M naught. So, I said from the definition that you had recall, that the uses of M naught, how M naught is being used in economy, was that m naught has the currency with the public you can call that C plus some bundle of reserves, which consist of I say let us say 2 items ignore other deposits. So, it has the cash with banks plus the required reserves with the central bank and other deposits RBI I said ignore that, the other deposits are very insignificance statistically, numerically very insignificant number ignore that. So, this is the definition we had earlier, currency with the public plus cash with banks, which I call currency in circulation plus bankers deposits with RBI plus other deposits I am saying drop other deposits.

Now, the question is what we are going to look at though the sources, is how is this C and R getting effected in the economy. Now, if you look at the balance sheet of RBI which we do not have here, where all items are recorded like balance of payments account, all items are recorded when you exchange goods for other countries and there is a money flow, captive flow between countries, all transactions are recorded in the balance of payments account.

If you look at the balance balance sheet of RBI will notice certain items, which we would identify here as the sources of monetary base. The sources of monetary base if you look at the balance sheet of RBI you will see there are according to my notes, 5 sources mainly 5 items. So, you have an item, like governments currency liability to the public, what does it means. Governments currency liability to the public, 2 why is government currency liability to the public is there, in India the currency system we have is a very funny one.

The notes, if you remember I was reading out from the notes the currency, clearly the RBI governors signature is there and he is saying something and also it is backed, by the central bank backed by the central government. If you take a coin, you will not see anything like that, there is no RBI signature one side it has the Ashok Stambha and written Bharat In Hindi and India and a date calendar year 2008, 2009 when it was manufactured. In a mint they manufactured in a mint, government currency currency you see produce in a factory called mint.

And on the other hand it is written what this value is of this coin it is written 1 rupee, the value is written 1 rupee, then there is no nothing. Now, therefore we have a system where partly it is the RBI guarantying it, currency which are notes and the coins nobody is guarantying it. Well that it is written Bharat and Ashok Stambha it implies the central government is guarantying it, central government though nobodies signature is there therefore, the currency liability to the public, liability is the responsibility to the public.

Meaning what, why is he liable, if I hold a 2 rupee coin, why government is liable to me was the governments liability, governments liability is this should be an authentic currency. And if I use it in an exchange it should be acceptable, that the government should ensure, like a seller which does not happen in India, a seller of goods is liable towards the quality of the good. When he has sold it to you, but India does not happen seller, as soon as it is sold takes his hands off he say what can I do, if there is a defect often he refuses to replace it, but that is not the case, that should not be the case.

So, the liability word here basically means is the responsibility you can say, of the government to ensure that this coin when it is circulating in the Indian economic can we used as this for goods worth 2 rupees, clear you understand what I am saying, (( )) now. So, what is governments currency liability these are the coins. Coins are guaranteed only by the government, central government. So, all you are talking about here the coins, the notes you clearly see it is written RBI governor of RBI signature and etcetera.

So, the liability of the notes is that of the central bank RBI in India, that may not be the case in other country see in India I am talking about alright. So, governments currency liability to the public will be the coins and the coins is a very small percentage 1.2, 1.3 percentage something like that of the total currency in circulation alright.

Next, net RBI credit to the central and state governments, net RBI credit to the central and state governments why is it net RBI credit to the central and state governments, credit is what credit is like loan, what is RBI is loan to government, well government is often in a deficit situation, you take a simple case where governments are not functioning poorly, but still tax revenues will come in the month of September, tax revenue will again come at the end of the financial year, march. Now, how would government function without money.

So, often what government does, it does various avenues it has one of the avenue is it goes to the central bank and say do I have any deposit, like savings with you give that to me or if I do not have. Can you give me a loan there are various ways to get the loan, one is called treasury bill route sell it is like selling some bills, like bonds, treasury bills and getting the loan.

So, here when you talking about RBI credit to central and state governments; that means, state governments can also do the same thing, take a loan from the RBI and RBI is acting like a banker to the government, our banker is the commercial bank. Say the state bank of India can be my bank when I take a loan, a loan means it will carry an interest, which government will have to pay it is not a interest free loan. So, it is a proper loan which in banking literature is known as credit, somebody gives the loan.

So, net is what because this year, this much government both central and state governments together has borrowed from the RBI and also have returned some past loans. So, you will naturally get a net numbers plus and minus which I have returned. So, the net outstanding loan is this, I have been borrowing last 5 years which have rough returns say 5 months, the 5 years, 5 months, 1 year 1 and half year. Now, I am also returning part by part. So, at any point one needs to calculate, what is the outstanding amount of loan which will be a net amount.

So, this is another source of monetary base, why monetary base changes with because when from RBI the money leaves comes to government and government starts spending on various things, the money is injected into the system. So, it is expanding the monetary base or when government issues more coins, it is effecting the monetary base C is directly going to contribute into C alright, this is the source from where money is getting effected and if monetary base is affected I will show that to you soon, then all monetary aggregates are effected alright.

Third point, RBI credit to the commercial sector, RBI credit to the commercial sector is very important, these are things which you do not know, but slowly when the course proceeds it will become clear. Commercial bill, RBI credit can come to the commercial sector, which is a kind of puzzling a little bit, because usually banks gives credit to the commercial sector, the businesses commercial sector, the businesses why is RBI credit coming.

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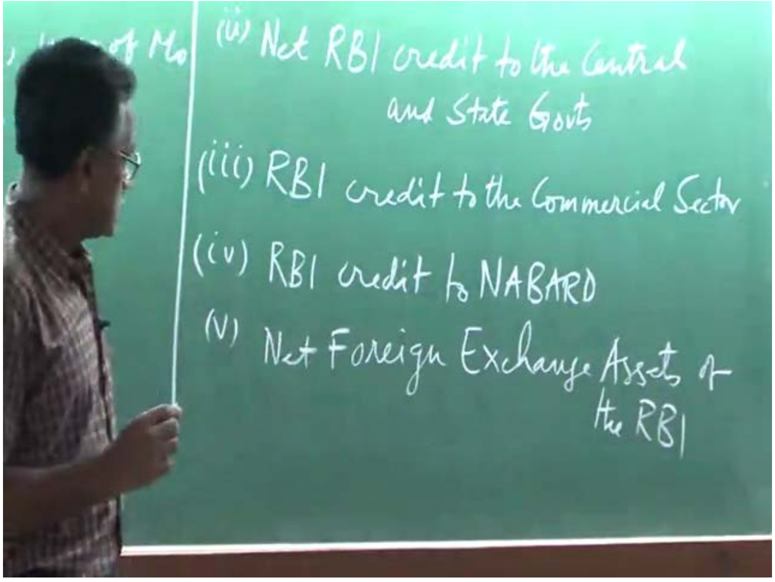

So, I need to explain that RBI credit to the commercial sector. Various ways RBI contributes to the commercial sector, sometimes directly, sometimes indirectly let me give your example, these nonbanks which are part of the commercial sector, nonbanking institutions IDBI, SID B, state financial corporation's you know how they were founded. They were founded with they are founded like a corporate company, which has paid up capital of amount of shares, paid up capital you can open Google and find out paid up capital.

It is like the amount of shares, it can issue and get a money, shares are what share is a source of revenue to a company. Now, this commercial sector financial institutions, has often been founded by RBI and the central government, like IDBI. So, paid up capital it never went public, alright in some ratio 70 30, 50 50, 40 60 the shares were bought, by the RBI and central government alright.

So, here is a loan, given to this IDBI etcetera, which were found when they were founded from the commercial sector, nab ad which has become independent now, nab ad was the department of RBI nab ad is, national bank for agriculture and rural credit, development rural development, nab ad used to be a department of RBI like mechanical engineering department, electrical engineering department which was later become. So, big it was asked to leave like mechanical engineering department asked to leave IIT Kanpur and become a separate institution.

Nab ad used to a department of RBI once upon a time, if you go to luck now, if anybody is from luck now is a huge building of nab ad, you will see beside the reserve bank office, massive building I saw that when I went for (( )) we were on a ramp, these ramps are there fly over's and suddenly I saw nab ad I got, I see this is the regional office, zonal office, massive office just like RBI.

Nab ad used to be department, that is loans can come in the form of loans, sometimes there is a financing facility provided, IDBI for some development or na nab ad for some specific issue, RBI would give them a loan and often if you refinance it, when the loan has been returned to RBI we go for a re finance, second term alright. I give you 100 cores, you use that, after 2 years you return that money, again I give you a refinance, this is how also RBI directly gets into financing business.

Another way is that there is something called commercial bills, which commercial banks are not interested, commercial bills are used for payments between companies, I cannot pay you now, I will pay you in future commercial bill gets created. Now, the question is you cannot pay now, but who can pay me I need the money I sold you something, then the banks come and help them out, often banks are not interested or so that banks can get interested RBI gives some cash to banks to deal in commercial bills.

The commercial bill market in is a very poor, I will talk about that later, business house people if they are here their parents would know about commercial bills or father I mean parents means father, if any business community person is here, I will talk about commercial bill later. So, that is various kinds of things that goes on, where RBI directly or indirectly starts giving loan and as soon as money leaves RBI, RBI is like moon something leaves moon towards earth is an addition to earth.

The economy, does not consider RBI part of it or government, they are considered to be outside satellites. So, anything comes from there to earth, wise then becomes part of earth or effects the earth, that is the economy that is how we thing, government central bank they are all outside agencies. So, this is part, this is what affects monetary base. So, I have written here separately because that used to be huge issue for rural development. Now, I have the data will show you I will put them together, that used to be in books traditional books, it used to be separate this is RBI credit to nab ad.

5 (( )) net foreign exchange assets of the RBI this is most important now, in the modern context, net just you understand what I am saying, how would nab ad function, nab ad takes loan gives the loan to banks, gives the loan to farmers sometimes directly for rural development that is all.

Now, it is doing, so well it does not borrow last 7, 8 years I shown seen data, it does not borrow a single pi from RBI or has debt, nab ad is amazing some institutions in this country which is otherwise functioning very poorly is functioning, so well like people talk about IIT's functioning very well, compare to general education institutions in India colleges and universities not functioning well just like that nab ad is functions, so well last 7 years, 5 years data I have seen, has not taken a does not have a single pi, single paisa debt to RBI.

I will show you the data later, next comes net foreign exchange assets of the RBI. Net foreign exchange assets of the RBI this is very important and when you, when I will show you the numbers, that will fascinate you why monetary base is changing in India, what is changing it. Net foreign exchange assets is very simple you are an exporter, you go out and sell something abroad, come back home with dollar, you can keep dollar at home to show people that you have earned dollar, otherwise dollar has no usefulness.

Then you go to a foreign exchange dealer, get it converted into rupees that what fattens your bank account. So, foreign exchange the dealers and RBI the central bank. So, every time RBI receives foreign exchange; that means, it has been converted into fresh money into the economy, you be came back home with dollar, then when you exchange what is happening, the dollar gets deposited with RBI or the dealers and in return you get the rupee, which goes into your account and you start spending it.

So, money gets fresh money gets part of the country, monetary base, out of which deposit reserves goes to RBI some currency goes to people, who starts spending them etcetera. CNR getting effected, source of CNR alright very important why net because there is a drain of foreign exchange also, when you are buying things what happens, you take your fat account money to RBI you are a dealer and telling please sell me dollar.

So, the rupee goes to now, reverse process, rupee goes to RBI and dollar comes to him which then leaves the country, for import purposes goes to Saudi Arabia from whom we have bought oil, goes to Germany from you whom you have bought manufactured goods goes to brazil from whom you may have bought sugar, goes to Russia from where you may have bought wheat alright. So, net the word net is there now, monetary base up to this point is real fun monetary base simple 5 items.

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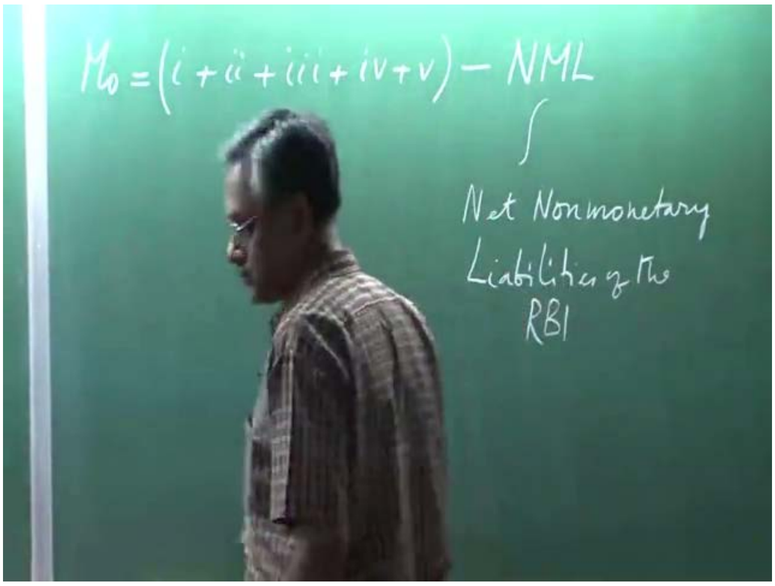

So, M naught from the source point of view, is simply 1 plus 2 plus 3 plus 4 plus 5 alright 4 plus 5 minus number add you subtract NML, what is NML, NML is net monetary, liabilities of the RBI net non monetary liabilities of the RBI what does it mean, any time a currency goes into the economy is the liability of the RBI and the government, whoever issues that, if it is coins it is the liability of the government, if it is rupee it is liability of central bank because the governor signs on it, you take a note out you will see that, liability Mons is responsible for that note.

If it is a true note, nobody can turn it down during a transaction refuse it, he is responsible or the institution is responsible. Net non monetary liabilities, which has a connection with money, but this is not fresh currency that RBI has pumped into the economy for some reason, that net non monetary liability arise from various things suppose, central I can I am trying to explain this, this is not very clear in the books because RBI site does not carry definitions, so well they carry data it is like a data bank very well x, very well y.

Now, I am looking for definition, the what I found is suppose RBI has this amount of dollar. Now, Indian currency is depreciating with respect to dollar. So, every dollar costs more rupee now, that dollar value when it was exchanged against rupee in the past had an exchange rate, if the exchange rate has detoriated which means more rupee the, detoriation means more rupee per dollar 55, 56 rupee as opposite to 47 rupee, 2 years back what it was or 1 year back then if you calculate the current market price value of that foreign exchange it will show more rupee India me RBI (( )) equivalent, but that is not the case.

When it was exchanged it was a better exchange rate now, the exchange rate is depreciated. So, the assets got re valued at a higher price it is showing, that you need to deduct the difference because otherwise the balance sheet would match, actual currency pumped in is, this equivalent amount dollar etcetera sources, will show of larger amount of current prices, of gold, foreign exchange, all these valuable things they all are included in net foreign exchange I think alright.

So, net non monetary liability is that do not think, so much liability RBI has increased just because gold price has gone up, (( )) sale gold do you understand what I am saying (( )) deduct (( )) to balance the balance sheet otherwise, the currency Indian currency that, what it shows and the these the sources, that you are listing on one side wont balance. Because, the dollar is showing at you must have pumped more currency this is what I have understood, net non monetary liability is because of fluctuation in international price of exchange rate, gold etcetera, which are part of the foreign exchange assets or assets of the RBI which gets converted into rupee etcetera, you understand what I am saying.

So, that item is deducted. So, the M naught value that you will get, is it will be exactly matching with the individual 5 numbers added up minus what RBI is saying is the net non monetary liability, will match M naught year to year. If you go directly measuring M naught through uses, which is currency with public plus cash with banks plus bankers deposits with RBI plus other deposits, they will match, if you go adding this up and subtracting, there may be a statistical 0.003 percent error somewhere, but they should exactly match the numbers. Now, I take your question.

Student: ((Refer Time: 28:27))

Exactly very good. So, be careful minus and minus which I teach my child, my son minus outside bracket and within bracket minus 4 he is getting totally confused and you can imagine trying to teach this, I mean you, for you for adults is nothing is been seeing it 20 years, for a child I am trying to teach minus bracket minus (( )) what you are saying is exactly true, that is what you have to be careful yes.

So, I am teaching you something very important I am going into deeper things of macroeconomics in fact, to some extent, why does money supply change because monetary base changes, why does monetary base change because of these reasons. And therefore, money supply changes and then you have the macro economics which is already talk to you, get into more and more complex models. Static, dynamic, whatever. Since 2006, 2007 nab ad credit has become 0, all money returned 2006, 2007. 2006, 2007 is roughly 5 years.

Student: ((Refer Time: 30:13))

That is part of pa public that internal debt very good, public means government say for instance Baba Ramdev public, economics public, public servant means government I am a public servant I work for IIT which is a government organization. Public service commission, Union Public Service Commission UPSC, UPCS public service UPSC if you go for IAS jobs, you will have your examinations, conducted interviews held by union public service commission, public means government. Next is credit multiplier, let me talk about now, slowly a connection between money supply and monetary base, I will slowly get into that, I will start with a very simple multiplier concept. In monetary economics, not macro economics, ((Refer Time: 31:23)) multiplier let me explain that to you.

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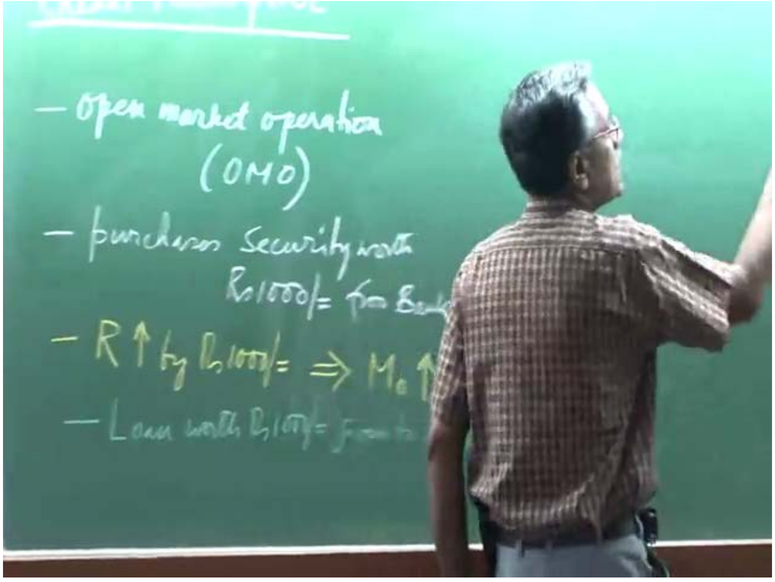

Credit multiplier. Credit multiplier when banks give a loan to somebody it creates a multiplied effect on the economic, which we usually do not understand and I need to explain that to you, multiply, tension multiplies, expenditure government spends 100 corers the total impact on the economy, in a simple model without taxes or simple proportional tax 1 over 1 minus T into 1 minus T which is not a fraction, which is a number greater than 1. So, the final impact on the economy is 4 fold, 4 and half fold. So, it becomes 400 corers worth of income generated, this was the insight, that came from Karnes in macro economics. Whose parents or fathers or teachers did not have that, classical model.

Now, credit multiply is a fascinating stuff now, getting into connection between monetary base and money supply with a very simple thing called credit multiplier. Now, you will understand and what you will see, is that the money supply that you here in macro economics is actually a multiplied effect of the monetary base, that is why RBI as (( )) what is happening to M naught.

Because, any change in M naught creates, not a ripple, it creates a large tsunami type wave may be, on M naught on monetary aggregates means supply vertical M 1, M 2, M 3, M 4 that is why they are, so conscious about it. Now, I start the discussion the connection, through credit multiplier, when bank is at loan it creates a multiplied effect and I will use mish kin, to develop this example. Mish kin begins this explanation of credit multiplied by mentioning, open market operations.

And let me explain that because you would open mish kin and you would like to know what would happen, what is Open Market Operation, which is called OMO, mish kin opens this start this discussion with open market operation. This is a standard method that open market operation you may have heard in macro economics, that central banks of countries use, to control money supply, either increase or decrease what is that, central government and central bank, often participate in selling of bills, government bills which are bonds etcetera treasury bills whatever, when bills they sell money flows into RBI.

So, the money supply in the economy falls, when they repurchase the bills, they give cash back to the public, but public here government to the people, the economy and the money supply increases in the economy, this act of buying and selling of bills buying of bills would increase money supply, selling of bills would decrease money supply is called open market operation standard method, it is a formal name open market operations.

Suppose, government conducts an open market operation, which is purchasing a bill from a bank, banks often buy government bills, that is gap banks think that is a form of investment, in fact. Suppose, government conducts an open market operation, which is open market purchase of some security, say with a with a commercial bank, call that the purchase of security, purchases security from a bank security is bill worth, this is mish kin 1000 from a bank, from bank say A.

Purchases security from bank A, receives a cash of 1000 what happens to the bank, bank suddenly receives 1000 rupees. Now, what does bank do with 1000 rupees, bank the cash reserves are will immediately increased by 1000 rupees of banks, what will this do, are will increase by rupees 1000 cash reserves a banks, will increase by 1000 source effected.

So, monetary base has increased by 1000 rupees keeping other things constant inclined M naught has increased by rupees 1000 keeping other things constant. Now, the bank becomes greedy give it as a loan. So, gives that out as a loan to a firm and it leaves the bank, bank A and the firm which receives the loan simple example I am giving you, goes to bank B and deposits that money. Now, loan worth rupees 1000 given to a firm.

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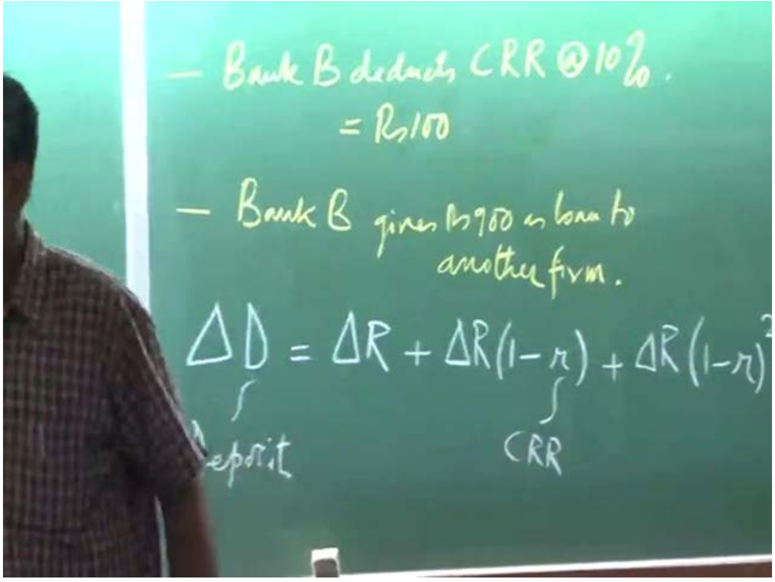

Firm deposits it in bank B, (( )) and it will use, what does bank B do bank B sees that loan, bank B deducts since, it is a loan it has come through a savings account CRR at the rate 10 percent. So, it deducts how much rupees 100 and 900 is still there alright. And this is what bank business is, I am simplifying it, it will again deduct a cash which the person can withdraw from or a loan, alright and then whatever remains it starts gambling with it, I am eliminating that cash the bank will keep on a simple 1000 loan. So, bank B gives rupees 900 as loan to another firm.

1000 of the total deposit is hardly anything, so it gives out 900 part of a loan to some other firm, that firm takes 900 deposits it in his bank, whatever bank it has, it is gets it through Narbada or whatever some some somewhere he deposits, some bank where bank sees deposit has increased by 900 deducts again 100 percent which is CRR applicable to all banks, same CRR because it is a central bank regulation. It is not you bank pays CRR and his bank pays another CRR.

So, out of 910 percent 90 rupees is deported 810 remains which then bank sees, is the cash available and gives out as a short term loan may be, to somebody. So, the money which leaves the first bank 1000 rupees gets smaller and smaller because of deduction of CRR, but goes through the economy by the financial system into the public. So, what basically happens, this is the last line and you can go home.

The total increase in deposits delta D, where D is the total deposits in banks, the total increase in deposits, will be, the total the change in reserves, that has taken place, in the first round change in reserves is 1000 and the second round the change in reserves that takes place because of bank deposit is delta R into 1 minus r, where r is CRR cash reserve ratio plus delta R into 1 minus r of that design in finance series. Reserves changed by 1000 rupees when central bank conducts an open market purchase.

I give that as a loan entire amount delta R which is 1000, second bank when it goes, it does not give out loan as 1000 it deducts the CRR and gives that out as a loan to somebody else, the third person, second person deposits in a second bank, from where it goes out to a third person and gives out 1 minus r of that is taken out as a loan, it becomes geometric series which when you add what will you get.

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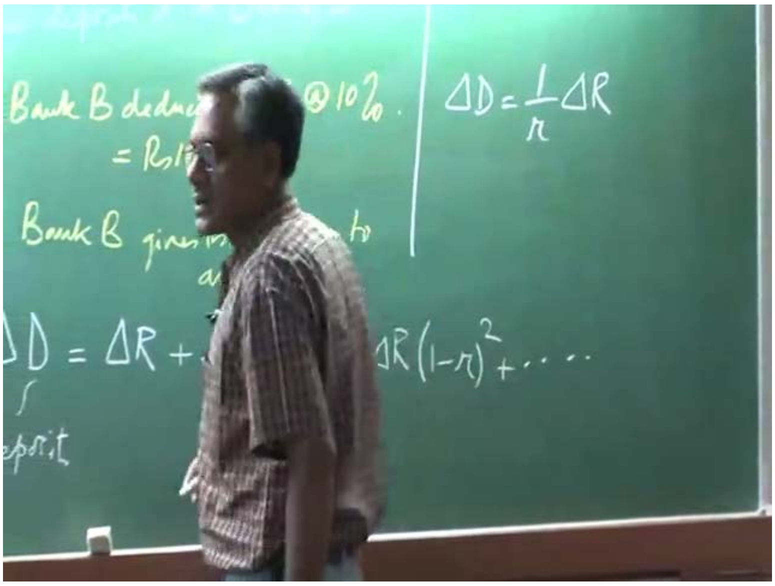

Delta D is equal to 1 over R into delta R this, 1 over R is the simple credit multiplier, if you know CRR value is very simple to calculate the credit multiplier CRR is 7 percent. So, 0.7 percent is 0.7 no 0.07. So, 1 over 0.07 is the credit multiply, in the simple world, the world is not that simple I will explain that it is much more complex, but in a simple world well there is no excess cash reserves held, otherwise more amounts will be deducted just that R, 1 minus R minus something will also be deducted and then that loan will be given out, when the bank receives some money through a deposit account CRR is deducted, but something more is also deducted, bank keeps some money for your with drawl purposes, they know your habits. Average habits of individuals in Kanpur how much money they withdraw per month from the accounts. So, they do a whole lot of average calculations and then the balance amount they give out calculated basis as loan.