Economics of Banking and Finance Markets
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Lecture - 14
Basics of Banking - II

Welcome to this session. In the previous lecture we had covered different components of banks' balance sheet. we covered each component of banks liability side. and then we started discussing banks asset sides.

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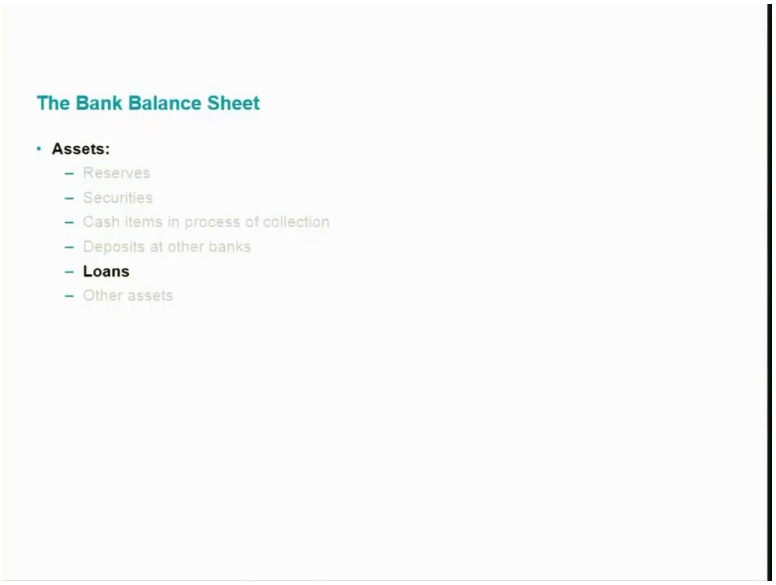

So, in the bank assets we have covered reserves, securities, cash items in process of collection and deposit other banks. So, the remaining are loans and other assets.

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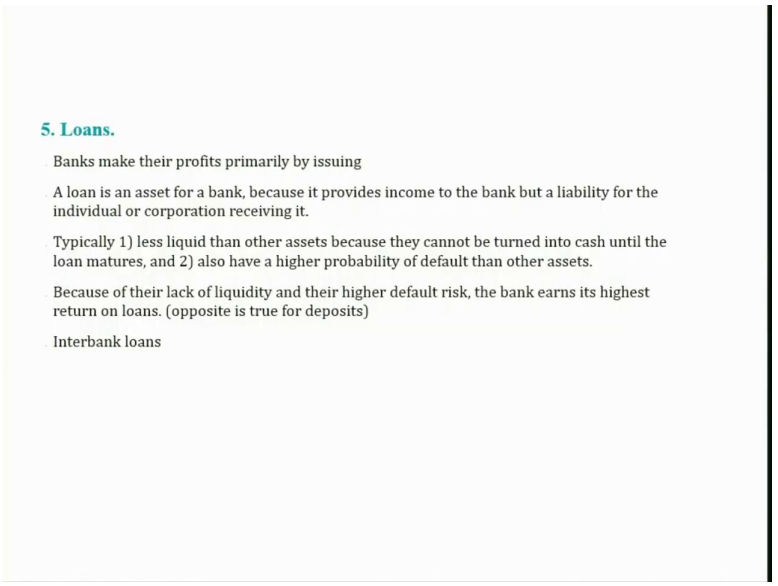

So, coming to this; first, the loans. This is an important activity of a bank. Banks make their profits primarily by issuing loan. A loan is an asset for a bank because it provides income to the bank, and at the same time, it is a liability for the individual or corporation receiving it. Typically, bank loan is less liquid than other assets because they cannot be turned into cash until the loan matures. Moreover, loans have a higher probability of default than other assets.

And because of their lack of liquidity and their higher default risk, the bank earns its highest return on loans. When the risk is very high, we have covered in the previous sessions that higher the risk and higher will be the return for those who buy this kind of security. So, in because of that, bank earns its highest return on loans. We discussed in the previous session that is there is interbank loans as well. And so, these are all the components of loans in the asset side of a bank balance sheet.

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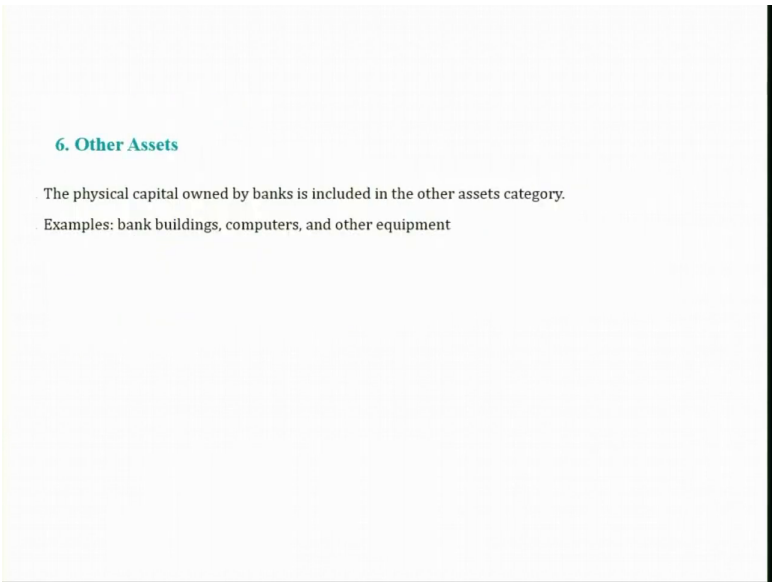

About the other assets: Other assets include the physical capital owned by banks. The examples of other assets include bank building, computers and other equipments.

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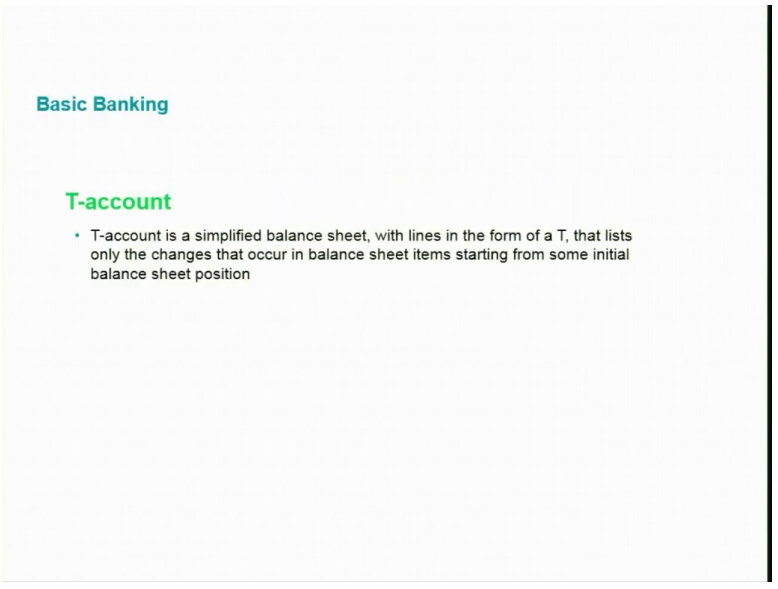

We have discussed different components of banks' balance sheet; the asset side and the liability side, and in this session, we will be focusing more on the basic banking. We will be explaining the working of a bank using a T account.

And what is a T account, means? A T account is a simplified balance sheet with the lines in the form of a T that l only the changes that occur in the balance sheet items starting from some initial balance sheet positions. Using this T account we will now start discussing how a bank function, what are the basics of banking.

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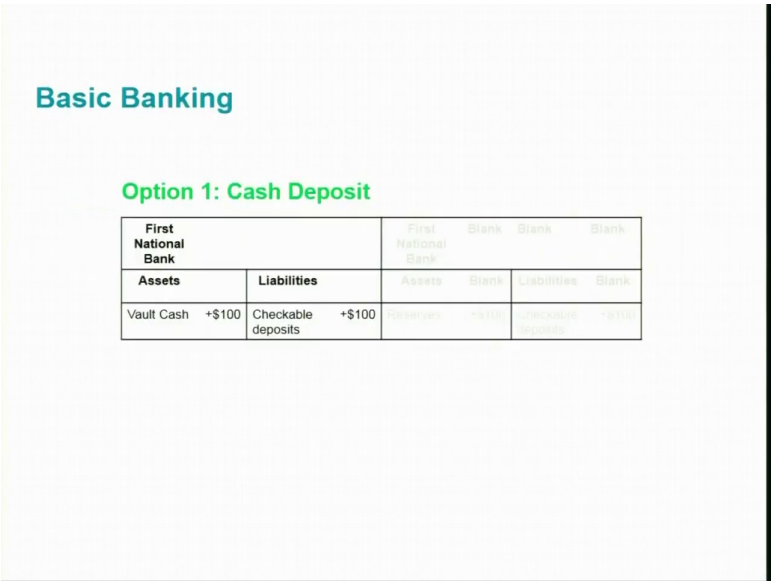

Let us start with different scenarios. One scenario here is that someone deposits some cash with a bank. Then, how does the T account of a bank look like? You just imagine that you deposited 100 dollars with the bank. So, in this scenario, what is going to happen? So, how does the asset and liabilities of this T account change? So, you can notice from this table; the vault cash is increased to 100 dollars; and this is the vault cash and it increased.

But, importantly first we need to say that somebody deposited this cash as checkable deposit. So, it is a liability. Immediately, there will be an increase of 100 dollars checkable deposit, that the liability for the bank, and same time, this cash with the bank now is a vault cash, and this is how the T account of this bank changes. That means, there is an increase of 100 dollar of asset; in the liability side also you can see the checkable depositors increased by 100 dollar.

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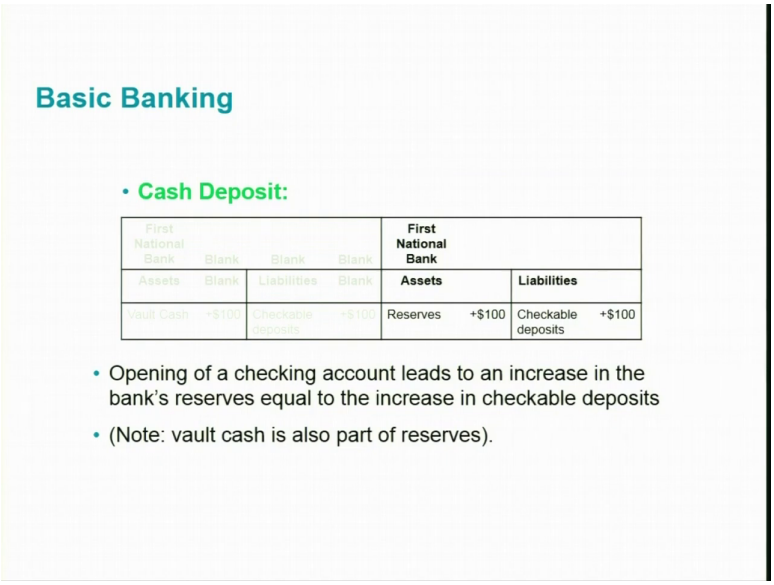

Opening a checking account leads to an increase in the bank reserves equal to the increase in checkable deposits. And we are going to say that this is vault cash (which I put assets here actually later we will study in detail); vault cash is also part of reserves. Look at the banks T account, it looks like this. The assets, that is, reserve increased by 100 dollar, and checkable deposit also increased by 100 dollars.

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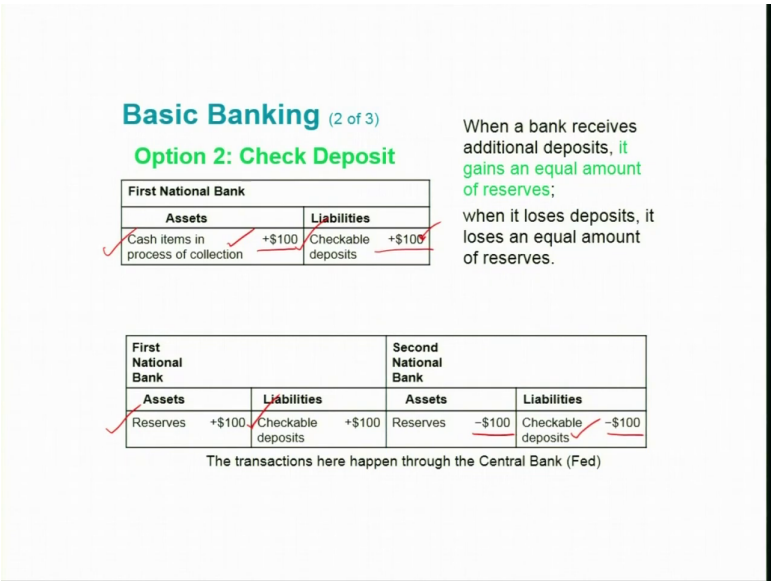

This is scenario 1. In scenario 2, see that a bank is receiving a deposit from someone who is depositing a check with a bank. So, in this case, how does the T account look like? On the

asset side, you can see that the cash items in process of collection, that is, 100 dollars, it increases, and that means, immediately this much amount will be credited as a deposit in the name of the person who deposit this check, and you can also see that the liability of the bank also increases, liability of the bank also increases by 100 dollars.

What can you see here? When a bank receives additional deposits, it gains an equal amount of reserves and when it loses deposit it loses an equal amount of reserves. So, this one, we convert again in the form of assets and liabilities. You can see that the cash items in process of collection. This, subsequently, is going to become reserves when they get this money; these 100 dollars become reserves for this bank, and it also, as we show shown in the previous table, it also becomes a liability.

The T account that we are seeing here; in the first table, if someone depositing this check here, the asset and liabilities changes in this way; cash items in process of collection and checkable deposit. And, subsequently this one, will become reserves, when they collect this money, this will become reserves, and again this checkable deposit is already in the name of the depositor. So, it will be checkable deposits.

What would happen to the second bank, who had issued this check? You can see that, in their account, they are losing 100 dollars because, the first table that, we see cash items in process of collection: once it is collected, the second bank's (who issued this check) reserves declined by 100 dollars, and they also lose the checkable deposits of 100 dollars.

All this transaction happens through the central bank, that is through the FED or through the RBI. Between these two banks, between who issued this check and with the bank where this was deposited, all these transactions happened through the central bank.

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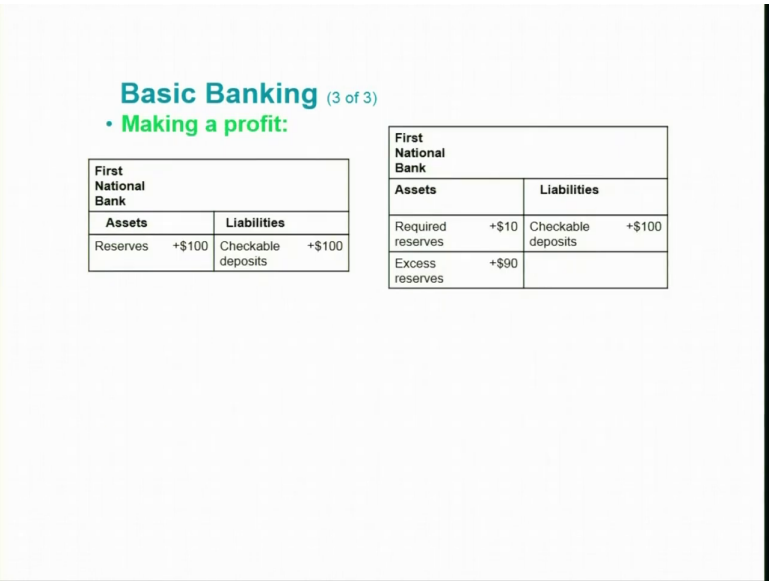

Now let us see that how does a bank make profit? By a very simple illustration we are going to show that how does a bank make profit. You can see that, in the case of the first bank, the reserves have increased by 100 dollars, and you also see that the liabilities have increased by 100 dollars. So, for this bank, there is no point of keeping this money idle here, because you can see that this bank can invest this money elsewhere and make profit.

And not only that; when someone is depositing these 100 dollars, this bank is liable to pay interest income and incurs other cost in terms of servicing this deposit. So, in this case what this bank will do? So, this bank because we also seen that every scheduled bank, when they get deposit, be it time deposit or demand deposit, they must keep certain fraction of their deposit with the central bank. So, in this case, assume that the required cash reserve ratio is 10 percentage. In that case, what this bank will do?

Now let us see how this banks T account looks like. On the asset side, you can see that, suppose if they must keep 10 percentage, they must keep dollar 10 with the central bank. So, the remaining one remaining is 90 dollars. So, for the moment let us call it as excess reserve, suppose they are not utilizing this money.

And, as we have shown before, the liabilities are checkable deposit. A bank is a firm, and it wants to make profit. They would not keep this excess reserves simply with the central bank, instead, they would employ this fund, for example, they will be lending this money.

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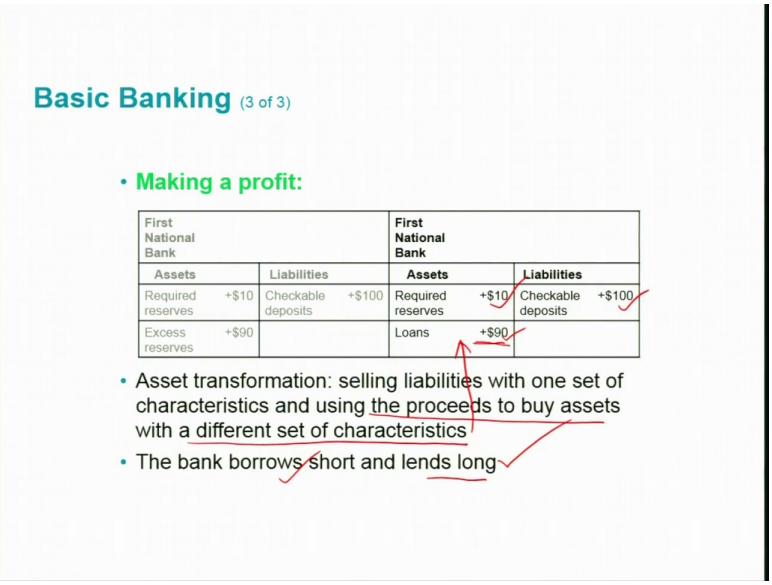

Now, they will be utilizing this money. How will they do? So, let us take a very simple case, this bank is going to lend this money. Instead of keeping excess reserve, immediately they will be lending this money to someone. So, in this process, you can also see that this bank got 100-dollar deposits, and out of these 10 percentages is kept with as a required reserve and remaining 90, in this example, they gave it as loan.

So, what the bank did here is nothing but asset transformation; selling liabilities that the checkable deposit with one set of characteristics (that we discussed previously that the liquidity, risk, size, and return). Now this one, using this proceeds they buy assets with different set of characteristics. This is nothing but loan. They are buying assets; that means, loans, they are buying assets, in other words, they are giving loans.

This process is called the asset transformation. In this process, banks make profit. In this process, bank borrow short because checkable deposit these are short-term borrowing because where the depositor can withdraw at any time.

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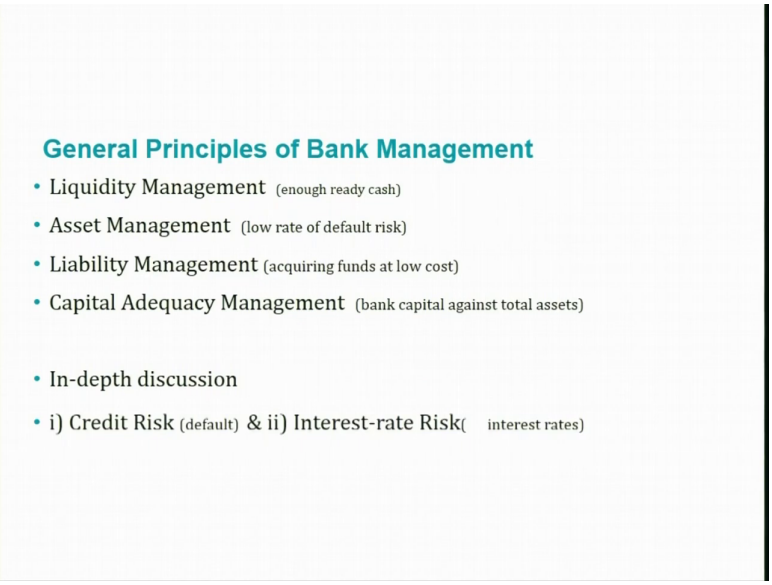

Let us now move to different aspects of bank functioning, and in this process of asset transformation and banks functioning, what are the various principles a bank need to take care of?

There are primarily 4 main principles. So, we will be discussing these principles one by one. The first one is called liquidity management. In simple terms, it means ensuring enough ready cash with the bank.

And then comes asset management, which means ensuring low rate of default risk. Next liability management, that is acquiring funds at low cost. The last one is capital adequacy management. Subsequently, we will also make some in depth discussion of credit risk and interest rate risk as well.

Now, we are going to focus more on the first principle called liquidity management.

How does a bank ensure that or what are the considerations a bank should do to ensure that there is enough ready cash with the banks; when a depositors approach a bank for withdrawing a deposit, at that time there should be sufficient fund with the banks to honor the depositors' withdrawal request.

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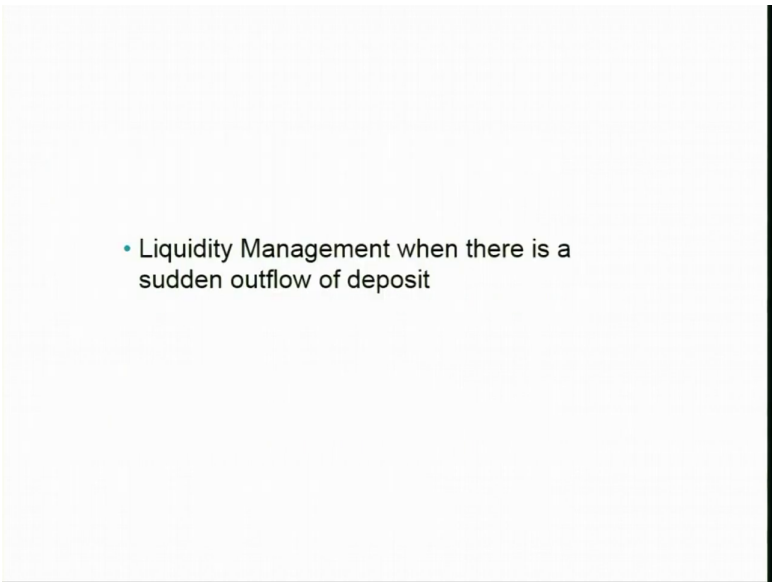

Liquidity management: suppose when there is a sudden outflow of deposits, at that time how does a bank ensure there is sufficient fund or liquidity is there.

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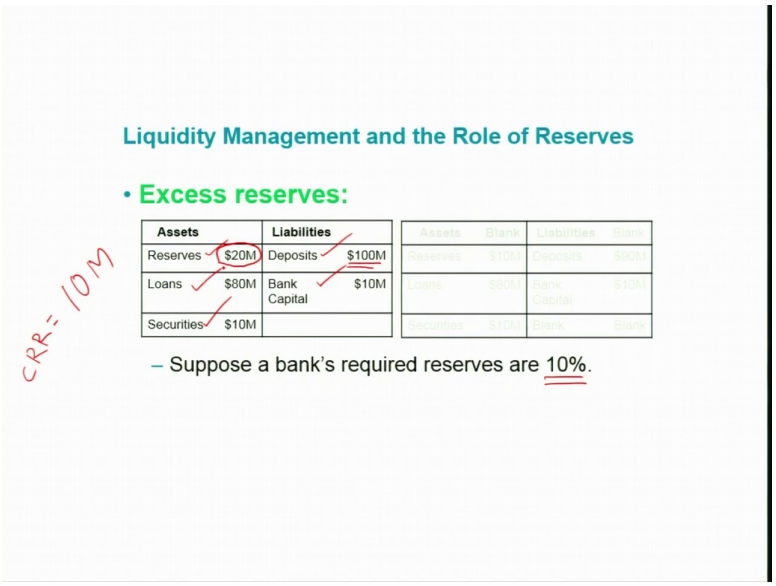

In this scenario, how does a bank ensure sufficient liquidity? In this case, we discuss various scenario in which a bank can ensure that there is sufficient liquidity.

Let us first look into the role of reserves in ensuring liquidity management.

Look at this table. What you can see here that on the asset side we have mentioned reserves worth 20 million, and loans worth 80 million, securities worth 10 million. Securities means investment in bonds, government securities etcetera. On the liability side they have a deposit of 100 million and bank capital is 10 million. And here, as per the central bank requirement, the required reserve ratio is, for example, 10 percentage.

So, if 10 percentage is the required reserve ratio and you know that 100 million is the deposit with this bank, you know the 10 percentage of, this much, the bank is required to keep only 10 million; only 10 million it is required to keep CRR, but what the bankers done here? Here the bankers kept 20 million; that means, 10 million in excess. And you know that when bank is keeping excess reserve, they are foregoing interest income.

They could have utilized this money for other investment including giving loan or making in any other kind of investment, but instead this bank is keeping 20 million and they have given only 80 million of loan and they invested only 10 million in securities.

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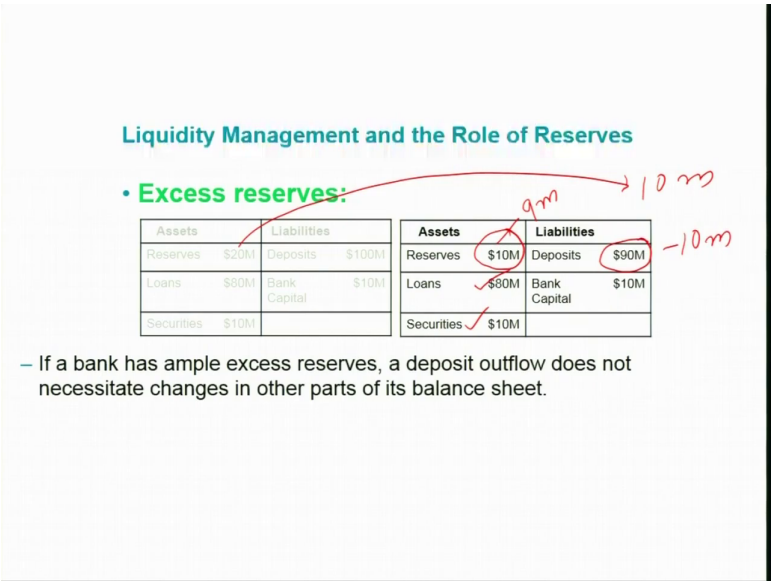

What is going to happen if there is a sudden deposit outflow of 10 million, for example. You know that if there is a sudden deposit outflow of 10 million; obviously, you know that this one will come down, because, here, we have seen that 10 million outflow has happened, and as a result the remaining deposit is only 90 million.

How will this bank honor if there this sudden deposit outflow of 10 million? So, because you see that, immediately they can take it from the excess reserve, it may be kept with the central bank or in the form of vault cash. So, this 10 million, they will be taking it from this excess reserve, then the reserve, now declined to 10 million.

You can see here that they did not touch the loan. Because bank cannot call back a loan easily. Securities also they did not touch. What this banker has done is that, in order to meet this sudden deposit outflow, the banker has taken money from this excess reserve. Now, because deposit has come down to 90 million and you know the 10 percent of 90 million, they must keep only 9 million only as reserve

Again, there is some 1-million-dollar excess reserve. If a bank has ample excess reserve, a deposit outflow does not necessitate changes in other parts of its balance sheet. So, they can easily honor the withdrawal request from depositors. However, in the subsequent session, we will be covering it has some cost, some opportunity cost. There is an opportunity cost of foregoing income; forgoing investment of this fund that opportunity cost is there. But, for the moment, we are just focusing on liquidity management, and agreeing that keeping excess reserve works as a cushion against sudden deposit outflow.

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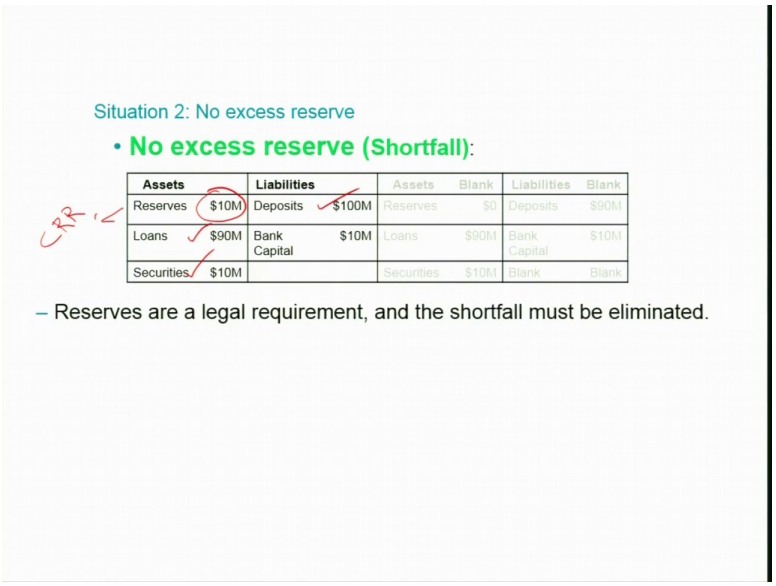

And suppose take another scenario, a polar opposite scenario, there is no excess reserve at all. So, look at this bank balance sheet again, they have deposits of 100 million and obviously, you know if the 10 percentage is the required reserve, they must keep 10 million dollars as reserve. This is CRR- cash reserve requirement is 10 million.

In this scenario, suppose there is a sudden deposit outflow of 10 million, what will this bank do?

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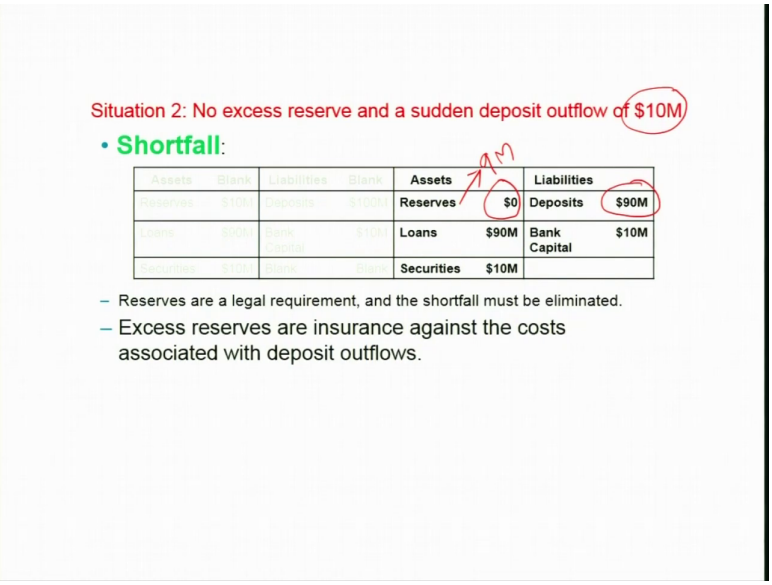

You can see that, now the anyway they must give 10 million to the depositor. Immediately, they will be giving 10 million from the reserve, that is, from the required reserve that is with the central bank, this money with the central bank as the deposit and immediately they will be taking that money and giving to the depositor.

So, you can see that reserve has now become 0, because you see this is a legal requirement, the shortfall must be eliminated. At the end of the business day, this 10-percentage reserve requirement should be with the central bank, but now this bank do not have any other option, from this example, they have to take immediately this reserve using that the bank is giving honoring the 10 million dollar 10 million withdrawal.

Now, you can see that the deposit has come down to 90 million and now they must keep 9 million as required reserve, but the moment they have 0 required reserve. What we have

shown here is that banks keep excess reserve as an insurance against the cost associated with a deposit outflow.

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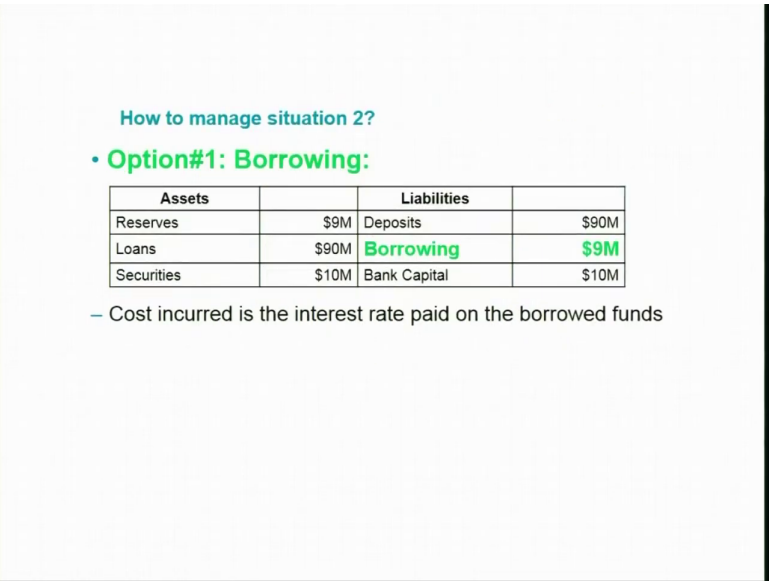

How to manage this situation? Because you know that bank must keep 10 percentage of the 90 million, that is, 9 million they must keep required reserve So, in order to do that one option is borrowing. Bank will borrow from other banks or borrow from the central bank itself.

So, what are the cost involved? As a result, you know that the required reserve of 9 million raising from through borrowing, then you, there are some cost in terms of interest payments.

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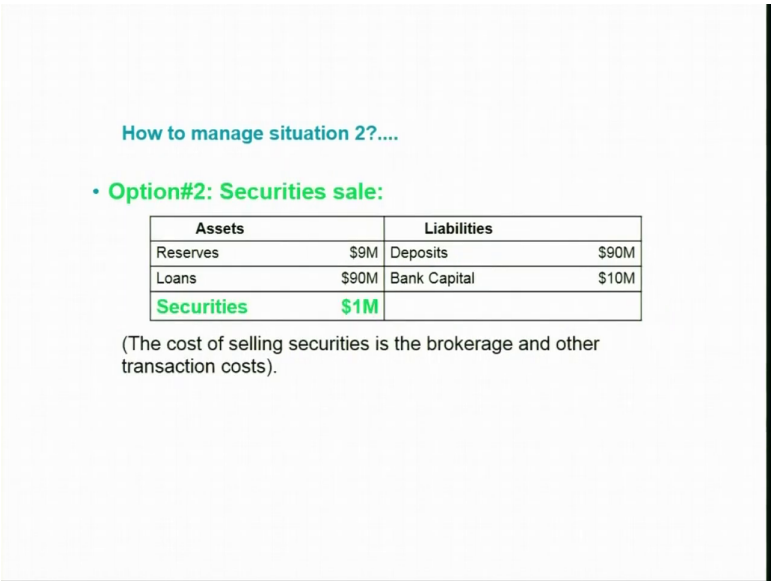

Option number 2: look at these securities, suppose the bank has kept 9 million as the government bonds. And what the bank can do? The bank can sell it and get 9 million and using that fund they can meet the reserve requirement. And however, the cost of selling securities is the brokerage and other transaction cost plus the ongoing market rate of interest (inverse to bond price).

That is, the bank must sell the bond at the given market price. If the current market price of security is low in the market, the bank will incur some capital losses.

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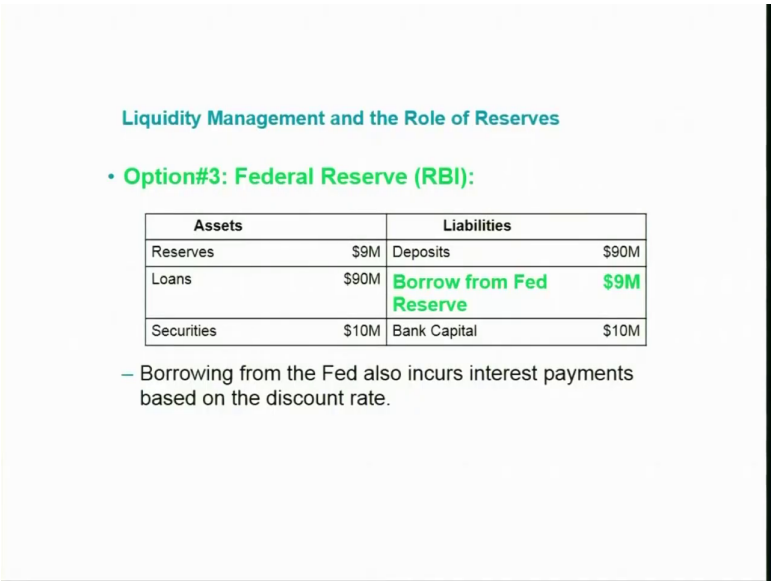

Third option is to borrow from Federal Reserve, that is, borrowing from the central bank. In this case you can see that this 9 million, they are getting it by borrowing from the FED or borrowing from the central bank (RBI in Indian case). And again, you can see that borrowing from the FED it also has a cost in terms of interest payments. These are this is the third option for borrowing for this bank.

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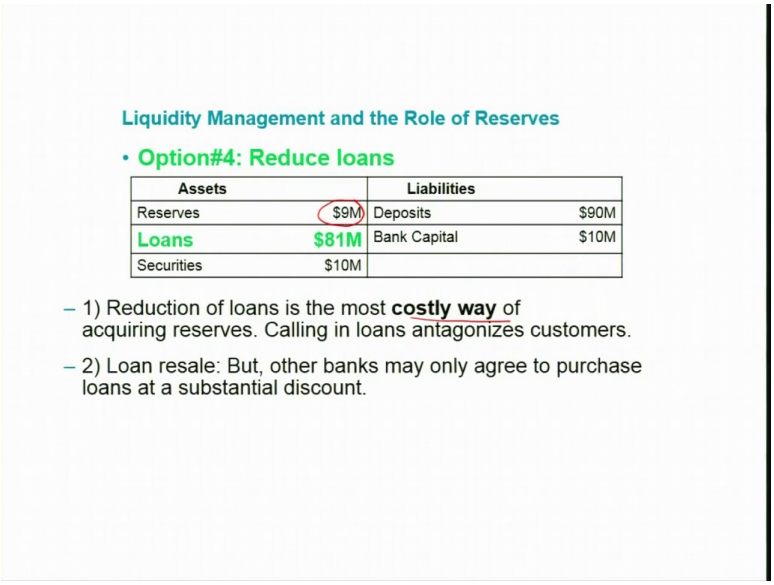

And the fourth option, you can see that initially we have seen that this bank is having 90 million as the loan, that is, 90 million in their asset side. Thus, one option to meet the reserve is to call back 9 million from their loan portfolio.

However, you know that that is not so easy; the bank has given loan to business firms, government, and consumers, maybe education loan and to purchase consumer durables and so on. Suppose the bank raise the required fund by calling back 9 million or by not renewing the existing loan, it is going to be a costlier proposition.

Because calling in loans antagonizes customers. There is a term for the loans, will be 1 year or 5 year or 10 years, like that. Calling back the loan will antagonize the customers. Similarly, if the bank is not renewing the loan, it also will make the customers unhappy. Suppose the bank is not renewing the loan it affects the loyal customers because customers having a trust on their banks; that means, when they make timely repayment of their loan, the customers do expect that their loans will be automatically renewed. A guaranteed renewal is there.

Another related option is loan resale; that means, reselling of this loan. But you know that, again, this is a costly proposition because other banks may only agree to purchase the loans at a substantial discount.

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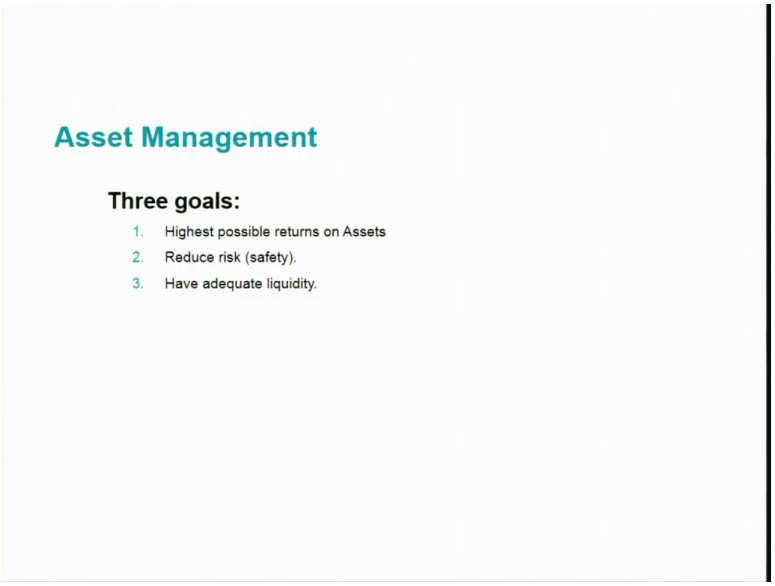

Next part of bank management principle is the asset management. So, we will be discussing here what are the different principles or aspects involved in the asset management.

A bank when acquiring more assets, it will be keeping 3. One is, it needs to earn highest possible return on assets; that means, suppose a loan is an asset. So, in that case the bank would like to earn highest possible return on their loans.

And bank also want to reduce the default risk. It also needs to ensure that it has adequate liquidity with the bank. Therefore, the bank needs to ensure that the assets that they are acquiring have sufficient liquidity.

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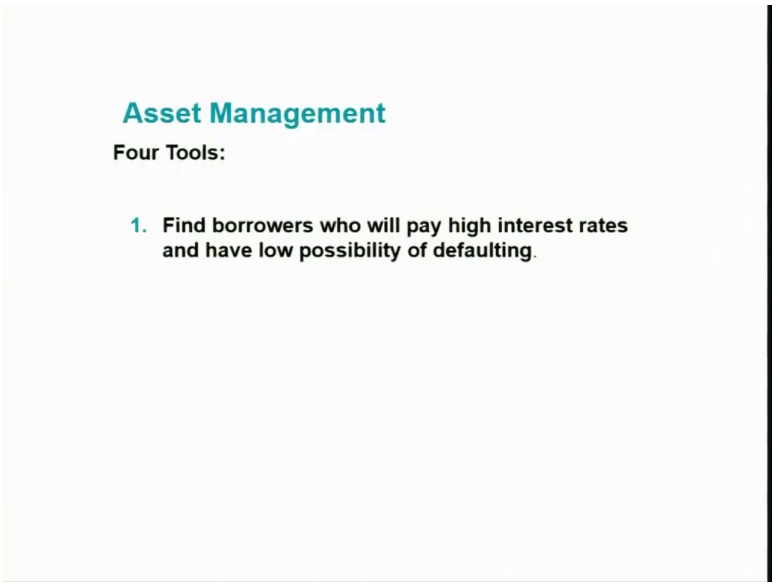

In this process, they use mainly 4 tools. One is finding borrowers who will pay high interest rates and have low possibility of defaulting.

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And second tool is purchase securities with a high returns and low risk.

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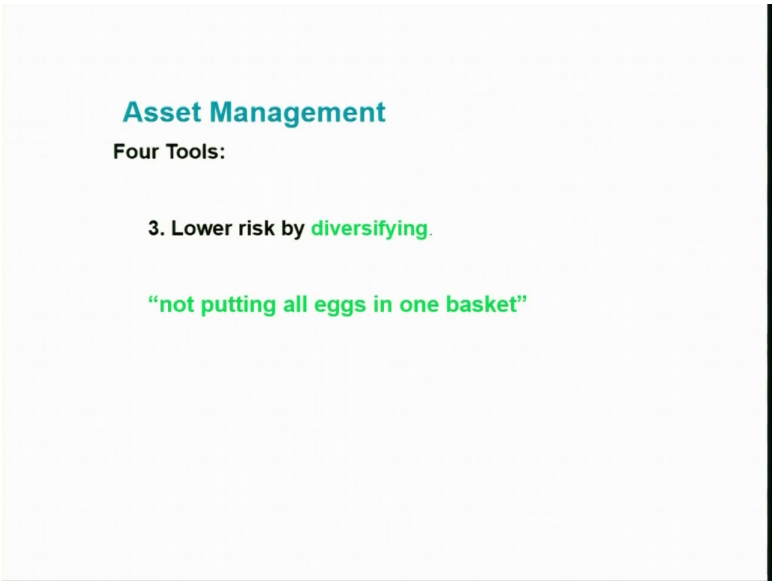

Third tool is lower the risk by diversifying; means, not putting all eggs in one basket.

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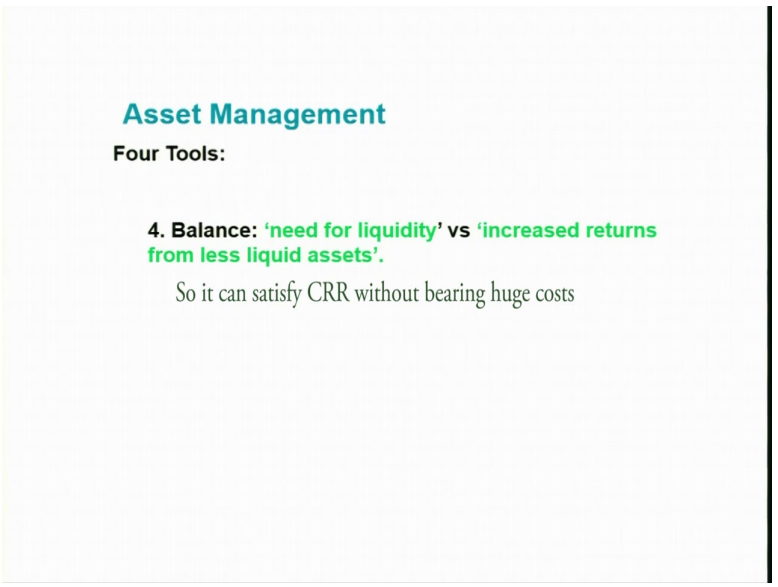

And the last tool is a balancing the need for liquidity versus increase returns from less liquid assets. So, that it can satisfy the cash requirement without bearing huge cost.

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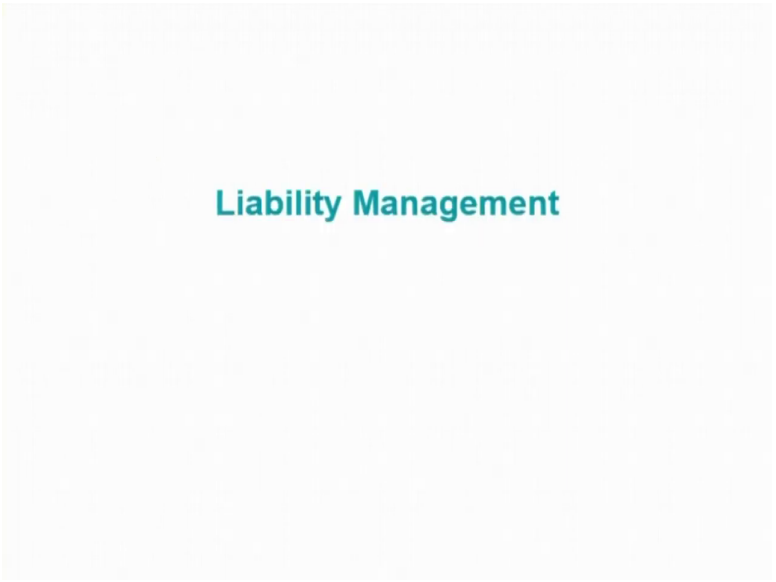

In the next session we will cover the liability management aspects.

Thank you.

Keywords: Bank management, T account, deposit outflow, loans, reserves, excess reserves, asset management, liquidity management