Economics of Banking and Finance Markets
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Lecture - 13
Basics of banking - I

Hi everyone. Welcome to the new module.

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In this module, we will discuss the functioning and management of banks.

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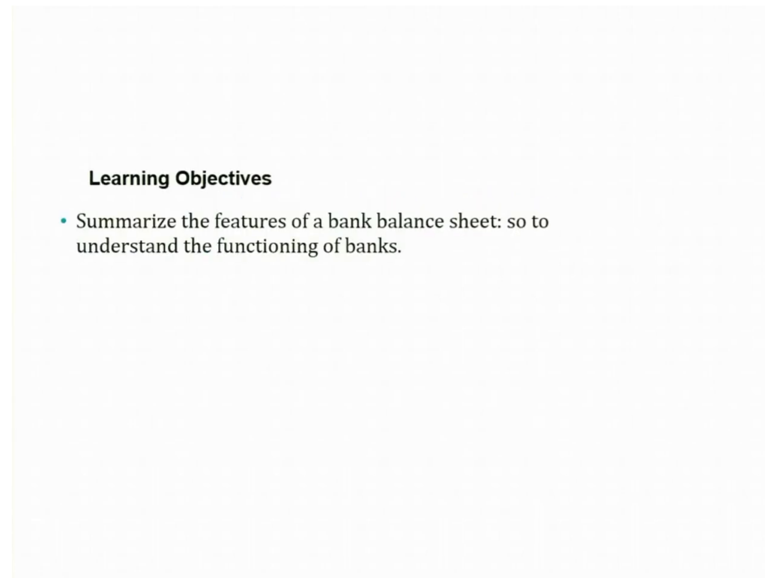

More specifically, in this session, we will focus on the features of bank balance sheet. So, while going through bank balance sheet, we understand how does a bank function.

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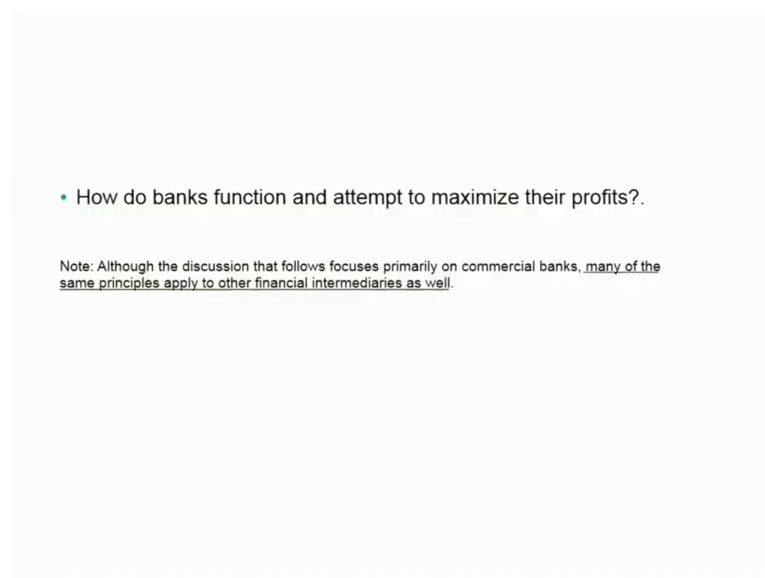

Importantly, we will be covering how do banks function and how do they attempt to maximize their profits. One of the points, I would like to highlight here that although the discussion focuses primarily on commercial banks, many of the same principles applies to other financial intermediaries as well.

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What is a bank?

- A financial intermediary:
- Accepts deposits, and lends to the needy including firms, government and consumers
- Profit maximizing entity
- Asset Transformation:
- 1: Selling liabilities with one set of characteristics: a particular combination of liquidity, risk, size, and return
- 2: Using the proceeds to buy assets with a different set of characteristics.

First, what is a bank? A bank is a financial intermediary, it accepts deposits and using those proceeds, they lend to the needy including firms, government, and consumers. And it is a profit maximizing entity as any other firm; bank is also a firm - it tries to maximize profit.

While maximizing profit, a bank engages in an important function called asset transformation. Asset transformation is a process of selling liabilities with one set of characteristics, that is including a particular combination of liquidity, risk, its size, and return, and using that proceeds to buy assets with a different set of characteristics. If I give you an example, suppose selling liabilities, means accepting deposits. So, look at a savings bank account deposit, that almost, all of you are having with some banks.

What is the nature of deposit? Look at the combination, which I just now I mentioned here; that means, the liquidity of bank deposit; it is a liquid asset for you. Though it is a liability for the bank, it is an asset for you, and you know that is highly liquid. About the risk, as from your perspective the risk is very less. The size of the asset, that is, deposit, is also, most probably small in size, and the return that you are getting is also small.

Now, let us see using these proceeds; that means, using these deposits, what a bank will do? Bank will be, one example I can give you, it will be giving a loan. It will be giving a loan to firms, or to governments, or to consumers. Then at that time, the characteristics of the same money has now become another security; that means it became an asset for the bank; that means, a loan given to different people.

How does it look like, now? The liquidity of loan as compared to a bank deposit least liquid for a bank. Suppose you got a loan from a bank; the bank cannot immediately ask you just pay it back. So, in that way a loan, the same fund generated from deposits, became less liquid, and again the risk of bank loan, you know, the default risk is normally very high as compared to deposit; the risk has increased.

And about the size: normally your deposit may be for 1000, 10000 or 1 lakh, but a loan. may be, you know. that is in big in size particularly when the loans are made to firms and governments, and it will be in lakhs and millions. It means, what the bank is doing here is that they engage in the process of asset transformation. That is, using the proceeds from deposits, banks buy assets with different set of characteristics. This is one of the important functions of a bank.

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Basic Banking (contd….)

"borrows short and lends long"

2 groups of tasks:

1) transforming assets

2) providing a set of services (check clearing, record keeping, credit analysis, and so forth)

….like any other production process in a firm

So, in this process, bank engage in an activity called borrowing short and lending long. That means, borrowing short means accepting deposits. The time deposit it may be for 1 year, but banks lend it for long term that is for 5 years 10 years, like that.

Overall, to summarize here, we can see that a bank does mainly two groups of task; one is transforming assets that we just now we discussed and the second one is a providing a set of services including check clearing, record keeping, credit analysis and so forth.

So, in this way, you can see that a bank is also like any other production process in a firm. However, we need to remember that, unlike other firm, a bank is considerably different from how other firms work. We will cover in today's session. This session and the subsequent session, we will be covering how a bank is different from other firms.

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To understand a bank: what a bank does? We will go through the balance sheet of a bank. So, in the balance sheet, I am sure you are familiar with the term, we normally put liabilities and assets. When it comes to bank, how we equate is the total asset of a bank is equal to total liabilities plus bank capital. Coming to the liabilities: liabilities mean the sources of funds for the banks. And assets: assets mean the uses of these funds.

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Balance Sheet of All Commercial Banks
(Items as a Percentage of the Total, June 2014)

Assets (Uses of Funds)*		Liabilities (Sources of Funds)	
Reserves and cash items	**19%**	**Checkable deposits**	11%
Securities		**Nontransaction deposits**	
U.S. government and agency	**13%**	Small-denomination time deposits (<$100,000) + savings deposits	47%
State and local government & other securities	**6%**	Large-denomination time deposits	11%
Loans		**Borrowings**	20%
Commercial and industrial	12%	**Tot Liabilities**	**89%**
Real estate	25%		
Consumer	8%	**Bank capital**	11%
Interbank	1%		
Other	7%		
Other assets (e.g., physical capital)	9%		
Total	**100**	**Total**	**100**

*In order of decreasing liquidity.
Source: http://www.federalreserve.gov/releases/h8/current/

Look at this balance sheet of all commercial banks in the US. I am sure that this will give you a fair idea how does a bank balance sheet look like. So, look at this; on the left-hand side you can see reserves, securities, loans etcetera, and on the right-hand side you can see checkable deposits, non-transaction deposits, borrowing and bank capital. This is an overview of the bank balance sheet. Now we will discuss, one by one, by discussing each of these we also get to know what a bank does.

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The Bank Balance Sheet

- **Liabilities:**
  - Checkable deposits
  - Non-transaction deposits
  - Borrowings
  - Bank capital (Equity Capital and Retained earning)

Let us start with the liability side. In the liability side, you have seen that the checkable deposits, non-transaction deposits, borrowings, and bank capital. So, let us go through one by one.

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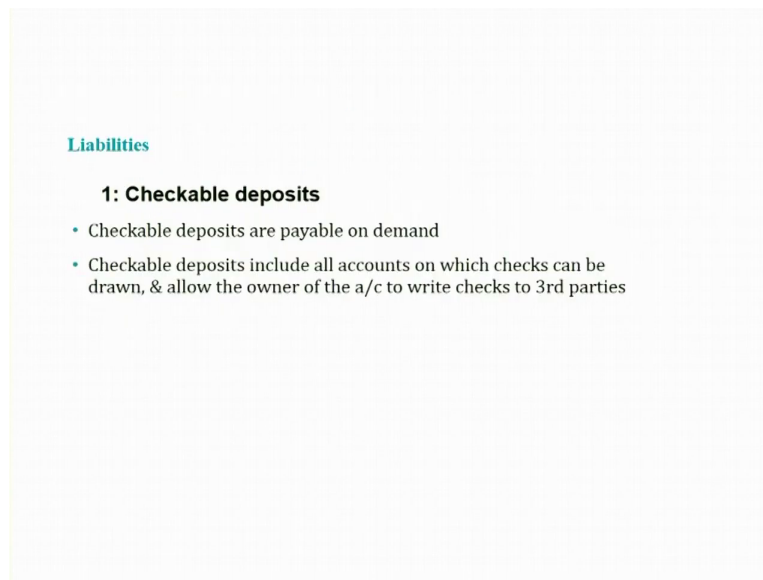

In the case of checkable deposits, it is one of the important liabilities for a bank. So, in the checkable deposits, as the name implies, these are payable on demand. It is also called as checkable deposit because it includes all accounts on which checks can be drawn and allow the account holder to write checks to 3rd parties.

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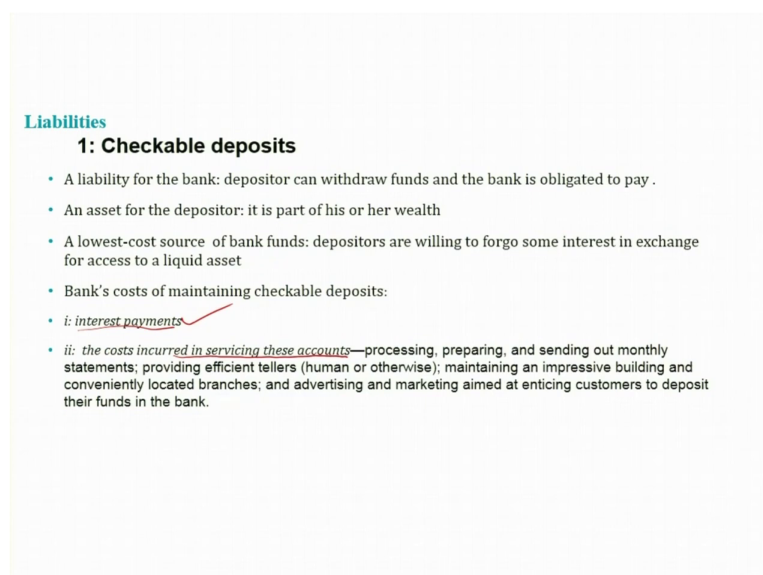

You know, when we say checkable deposits are liability for the bank because depositors are entitled to get this money from the bank, depositors can withdraw funds and bank is obligated to pay, and for the bank it is a liability.

The checkable deposits are also called as demand deposits because the depositors can withdraw this money at their demand at any time, ok. And it is an asset for the depositor, as we had stated that is a part of his or her wealth. And, you know, checkable deposits are one of the cheapest sources of bank funds. Why? Because depositors are willing to forego some interest in exchange for access to a liquid asset plus, they also get bank services.

They can keep their money with the bank, and they get the banking services, and they get ease of access to a liquid asset. So, because of those reasons, depositors are also willing to forego some interest.

What are the costs of maintaining a checkable deposits? One is the interest payments that all of us will be getting some interest income from banks when we have some checkable deposits. And the 2nd one is incurred in servicing these accounts; that means, processing, preparing, and sending out monthly statements, and providing efficient tellers- be it human or be it the ATM: Automatic Teller Machine.

Maintaining an impressive building and conveniently located branches and advertising and marketing aimed at enticing customers to deposit their funds in the bank; these are all the cost involved included in servicing these accounts.

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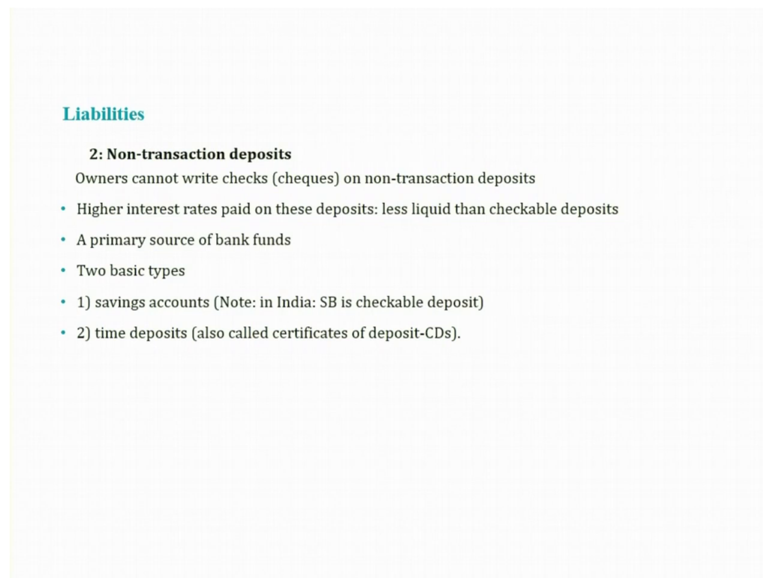

Let us now move to the second component is called non-transaction deposits. The non-transaction deposit means owners cannot write checks on non-transaction deposits. For a non-transaction deposit, there is a time for the withdrawal, therefore, it is also called as time deposits. And because of that, higher interest rates are paid on these deposits.

You can withdraw this money only after 1 year. Because of that, these deposits are also less liquid than checkable deposits. And you know that when you commit your money in the bank for a fixed period, the bank can utilize this money to make long-term loans.

As a result, banks can also efficiently use this money because you are not going to withdraw this money at any time, and because of that banks get high interest income and because of that you, as the depositor, also get a relatively high interest rate than the checkable deposits.

This is one of the primary sources of bank funds, and there are mainly two basic types: one is savings bank account and another one is the time deposits accounts. About the savings account, remember that in India savings bank account is also called as demand deposit, it should not be considered as a non-transaction deposit; instead, it is a transaction deposit, or it should be considered as a checkable deposit.

All of you may be having savings bank account. You know that its highly transactional and these checkable deposits also allow you to write a check when you are having savings bank account, and because of that is called as demand deposits as well.

So, in that way when we are talking about Indian context, I should be putting the savings bank account in the first category, that is the checkable deposits. And coming to the second one, that is called time deposits, is also called certificates of deposits.

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Liabilities

2: Non-transaction deposits

Time deposits have a fixed maturity length

- **2.1) Small-denomination time deposits** (deposits of less than $100,000) are less liquid for the depositor than passbook savings, earn higher interest rates, and are a more costly source of funds for the banks.
- **2. 2) Large-denomination time deposits (CDs)** are available in denominations of $100,000 or more
- Large denomination CDs are negotiable (so called as NCDs); like bonds, they can be resold in a secondary market before they mature.
- **Typically bought by corporations or other banks:** NCDs are held by corporations, money market mutual funds, and other financial institutions as alternative assets to T- bills and other short-term bonds

This non-transaction deposits, as I mentioned that it is also called as time deposit, these time deposits have a fixed maturity period. So, these non-transaction deposits (time deposits) we can further categorize it into two; one is called small denomination time deposits. This is normally deposits of less than $1 lakh, and these are less liquid for the depositors than passbook savings and earn higher interest rates and are more costly sources of funds for the banks.

The second one is called large denomination time deposits. These are available in denominations of more than $1 lakh. And this large denomination CDs are negotiable as well, and thus, is also called as NCDs. These are just like bonds they can be re-sold in the secondary market before they mature. Otherwise, the time deposit that most of us are having with Indian banks, they are not negotiable. The time deposit that we keep in our Indian banking are mostly in small denomination, and these are non-negotiable, that is, not tradable in the secondary market.

However, this large denomination CDs are negotiable, they are called negotiable certificates of deposits. These NCDs are typically bought by corporations and large banks. The NCDs are held by corporations, money market mutual funds and other financial institutions as

alternative assets to treasury bills and other short-term funds. Let us now move to the third category: borrowings. This is another important source of bank funds over time.

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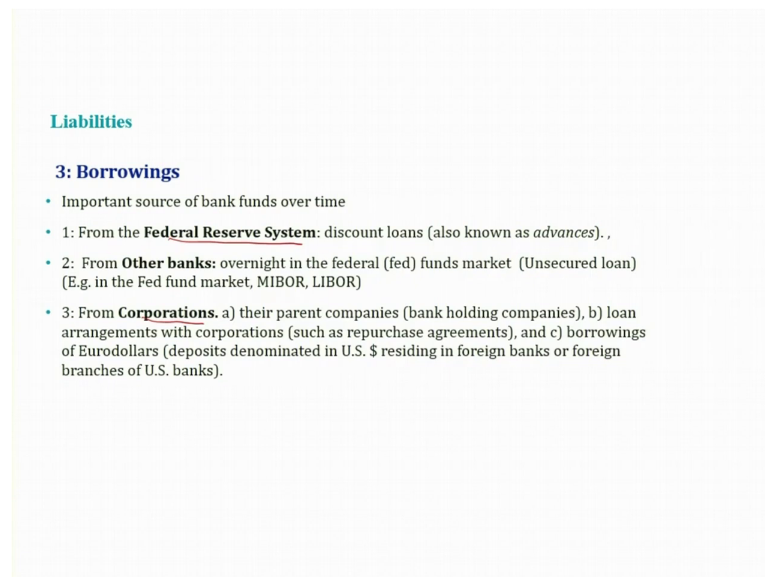

Banks borrow mainly from 3 sources; one is from the federal reserve system; that means, in Indian case, the Reserve Bank of India; they borrow from the Central Bank at a discount rate, and these are called as discount loans. The 2nd sources of borrowing for the bank are from other banks and it is mostly short-term borrowing in order to meet the liquidity and reserve requirements.

These are overnight borrowing that the overnight loans in the fed fund market; that means, interbank loans and these are mostly unsecured loans. The examples the borrowing from fed fund market, Mumbai Interbank Market, LIBOR etcetera. And the third source is from corporations, that is, mostly from their parent companies.

Banks have loan arrangement with corporations such as repurchase agreements and borrowing of Eurodollars that is deposit denominated in U.S dollar residing in foreign banks or foreign branches of U.S banks.

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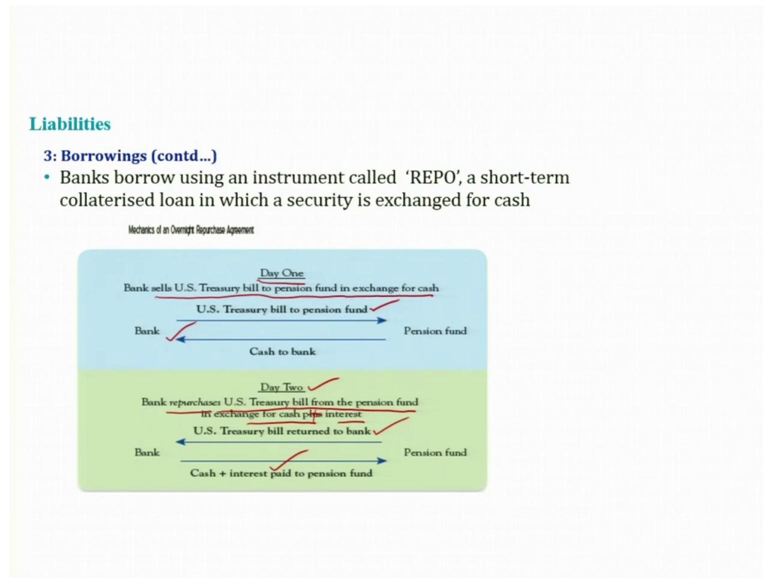

Coming to the borrowings: one of the components that bank borrow is by using the instrument called repurchase agreement. We shortly we call it as REPO. REPO means a short-term collateralized loan in which a security is exchanged for cash.

Look at the figure here. From it, I think you will get a clear understanding how does a REPO agreement works.

For example, here we are looking for 2 days for this transaction. So, look at for example, day one. So, in the day one what has happened? The borrowing bank sells the US treasury bill to pension fund in exchange for cash. So, you can see that bank selling the US treasury bill to the pension fund. In return on the same day, bank will be getting money from pension fund.

The bank is borrowing from this pension fund by selling the treasury bill to the pension fund. In day 2, what they do is that they make a repurchase; that means, the bank repurchases in day 2; bank repurchases US treasury bill from the pension fund in exchange for the cash plus interest rate.

So, that will happen on the second day. In return, bank will be giving the principal plus the interest to the pension fund. So, this is how a REPO agreement works.

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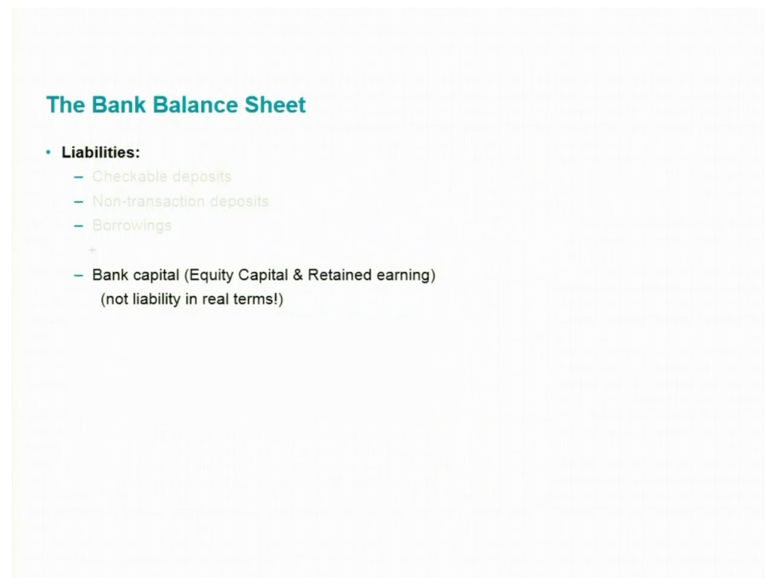

Now, let us move to the last component of the bank's balance sheet. You can see that it is the bank capital; it includes equity capital and plus retained earnings. Though we put it in the liability side, actually it is not a liability as such; you know that these are equity capital raised from the equity holder and it also the retained earnings: - the undistributed dividends with the banks that also become part of the bank capital. In that way, we can also interpret these as liabilities, but as I mentioned is not necessary a liability in true sense.

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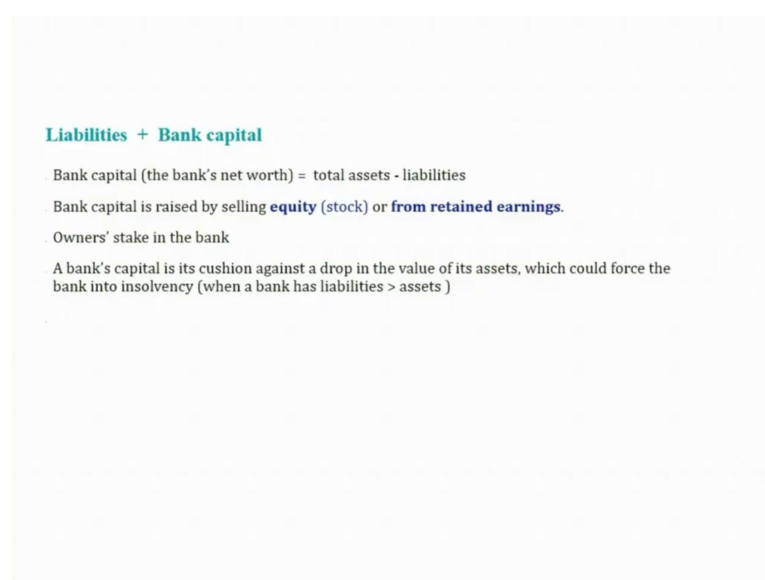

You can see that I just expanded this one, you can see that liabilities for bank capital. The bank capital is equal to the total assets minus liabilities. Bank capital is raised by selling equity stocks and from retained earnings. Later, we will see that a bank capital is its cushion against a drop in the value of its assets, which could force the bank into insolvency. This would happen when a bank has liabilities greater than its assets. Bank insolvency would happen if there were a sudden outflow of deposits.

At that time, we will see in the subsequent discussion that a bank capital is going to work as a cushion or as an insurance against sudden outflow of deposits.

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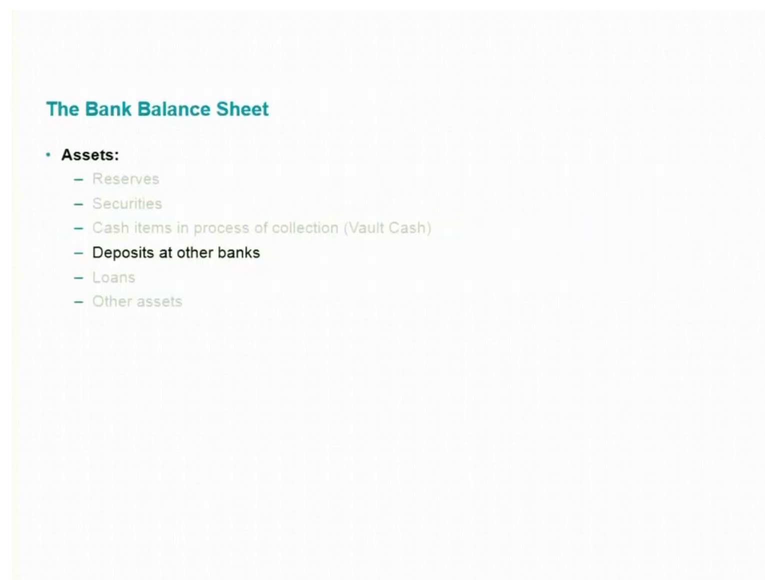

So, so far, we covered the liability side. Let us now move to the asset sides.

The asset side: let us again go one by one; the first one this is called reserves.

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1: Reserves and Cash in Vault

Reserves: deposits with Fed (required reserves) + Cash that is physically held by banks (called vault cash because it is stored in bank vaults overnight).

Banks hold Reserves for two reasons.

1) Required reserves- held because of reserve requirements, the regulation that for every dollar of checkable and time deposits at a bank, a certain fraction (10 cents, for example) must be kept as reserves. This fraction is called the required CRR.

CRR in the US	
More than $16.0 million to $122.3 million	3%
More than $122.3 million	10%

Reserves include reserves plus cash. It includes the reserves with the fed, that is with the central bank, plus cash that is physically held by banks in their shelf, that is in their vault held by the bank; that means, it is called vault cash because it is stored in bank vaults overnight.

And you know banks hold reserve for two reasons; One is the required reserves as these are held to meet the required reserve requirements; that for every dollar of checkable and time deposits at a bank a certain fraction. See for example, 10 percentage for example, must be kept as a reserve. With the central bank So, this fraction is called cash reserve ratio or the required cash reserve ratio.

In India, it is approximately 4 percentage at present, it varies, you know, during monetary policy announcement, they will be changing slightly. Come to this main point: one of the important components is the required reserve that is called the cash reserve ratio; that means, a certain fraction of the total deposit (demand and time liabilities), the banks are obliged or mandated to keep a certain fraction with the central bank.

So, in the U.S, you can see that it is not equal for all banks; for the small banks, for example, having more than 16 million to 122.3 million they are required to keep only 3 percentage of their total demand and time liabilities as required reserves, and if the bank is having more than 122.3 million they are mandated to keep 10 percentage of their total demand and time deposits as reserves.

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1: Reserves and Cash in Vault (contd…)

1) **Required reserves**: held because of reserve requirements, the regulation that for every dollar of checkable and time deposits at a bank, a certain fraction (10 cents, for example) must be kept as reserves. This fraction is called the required CRR.

2) **Excess reserves:** additional reserves, because they are the most liquid of all bank assets and a bank can use them to meet its obligations when funds are withdrawn, either directly by a depositor or indirectly when a check is written on an account.

Apart from reserves, banks also keep excess reserves, the additional reserve more than the required reserve the member banks keep with central bank. So, these are additional reserves because they are the most liquid of all bank assets and a bank can use them to meet its obligations when funds are withdrawn either directly by a depositor or indirectly when a check is written on an account.

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2: Securities (government bonds)

Also called as **secondary reserves**.

An important income-earning asset:

3 categories:

i) U.S. government and agency securities: Most liquid (easily traded and converted into cash with low transaction costs)

Ii) State and local government securities

Iii) Other securities: Corporations.

Other components of assets: securities.

Securities means mainly government securities. It is also called as secondary reserves, and these are an important income-earning assets. One of their important components of the banks' asset is their investment in government securities.

In the U.S there are three categories of securities: one is issued by the U.S government and agency securities, these are most liquid and easily traded and converted into cash with low transaction cost.

Another category of securities are issues by the state and local governments and often called as municipal securities or municipal bonds. The third category of securities issued by large corporations. The corporations raise their fund through borrowing from the market by issuing bonds. These are other types of securities for a bank where the bank will be making investment.

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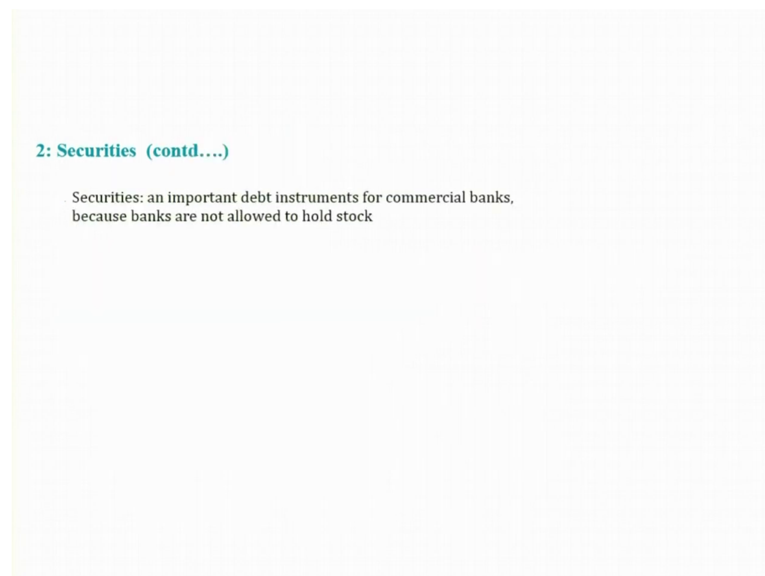

About securities, in short, it is an important debt instruments for commercial banks because banks are not allowed to hold stock.

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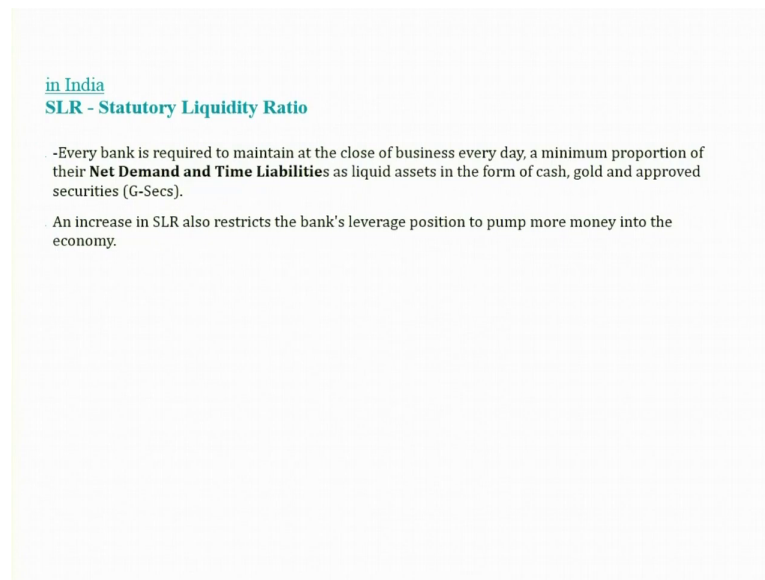

In India, the Indian banks, mainly the scheduled bank are also obliged to maintain a statutory liquidity ratio; that means, every Indian scheduled bank is required to maintain at the close of business day a minimum proportion of their net demand and liabilities as liquid assets in the form of cash, gold, and approved securities.

This is in addition to the required cash reserve ratio. The banks are mandated to keep a certain fraction of their total deposits in most liquid assets in the form of cash, gold, and approved government securities. And you know that an increase in SLR would restrict the bank's leverage position to pump more money into the economy.

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3: Cash items in process of collection

Suppose that a check (cheque) written on an account at another bank (HDFC) is deposited in your bank (SBI),

And, the funds for this check have not yet been received (collected) from the other bank (HDFC).

The check is classified as a "cash item in process of collection,"

and it is an asset for your bank (SBI) because it is a claim on another bank for funds that will be paid within a few days.

Let us now move to the 3rd component: cash items in process of collection. So, we can explain this concept by using an example. Suppose that a check written on an account with another bank is deposited in your bank; suppose you are holding an account with the SBI, and you got a check issued by a person having account with the HDFC bank, for example. So, in this case what is going to happen? the funds for this check have not had been received or collected from the other bank by the SBI.

The moment when you get this check, what will you do? You will be depositing this check in your bank, in your branch, and then what is happened here is that the moment you deposit the check in your bank, your bank will immediately credit the fund your account though it is subject to realization of credit.

So, what is going to happen? At that time, though the money has been credited to your account, but your bank is yet to collect this money from check issuing bank (example: HDFC), and it will be termed as the cash item in process of collection. So, it is an asset for your bank because it is a claim on another bank for funds that will be paid within few days.

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4: Deposits at Other Banks

Many small banks hold deposits in larger banks in exchange for a variety of services, including check collection, ATM facilities, foreign exchange transactions, and help with securities purchases. This is one aspect of a system called *correspondent banking.*

Collectively, cash items in process of collection and deposits at other banks are referred to as ***cash items.***

Banks also keep deposit with many other banks, many small banks hold deposit with a larger bank in exchange for a variety of services including check collection, ATM facilities, foreign exchange transaction, and help with securities purchase; this is one aspect of a system called correspondent banking as well

In total, the cash item in process of collection and deposit other banks are referred to as cash items. So, this is the fourth component.

there are the two more component are remaining, we will cover in the next session.

Thank you.

Keywords: Banks, balance sheet, liabilities, assets, demand deposits, time deposits, borrowings, reserves, required reserves, cash