

Banking Crisis

Before

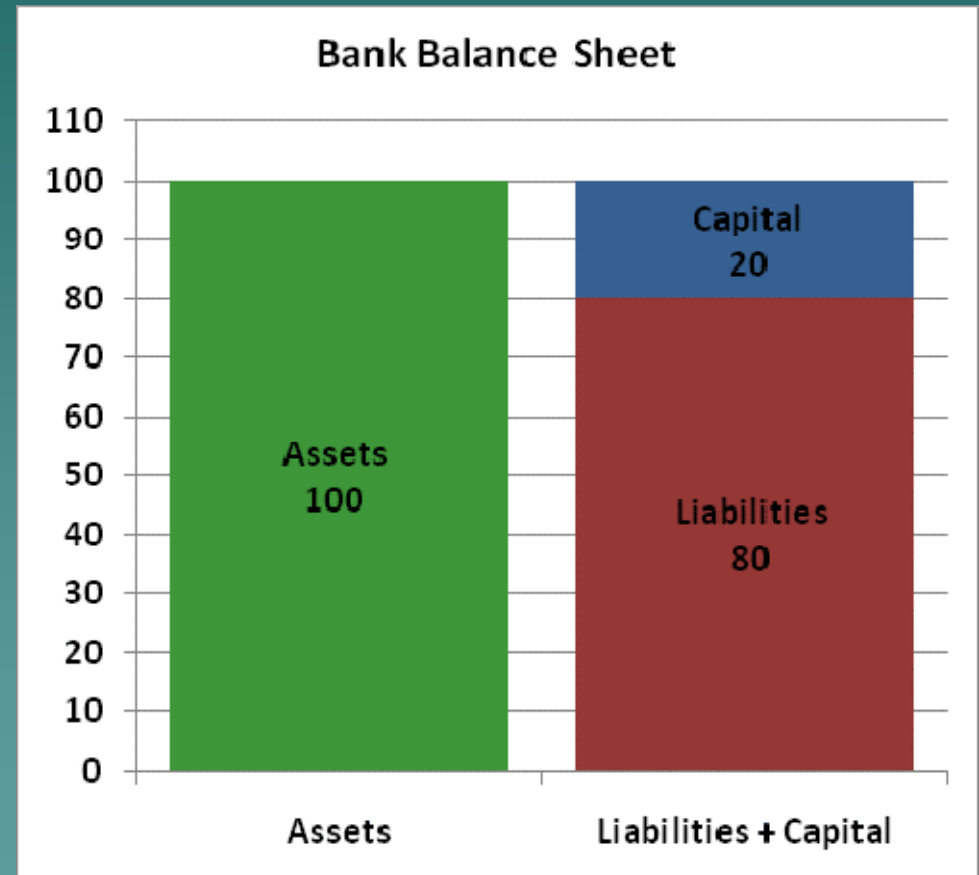


After



Part I: Bank Balance Sheet

- ◆ Capital (**owner's equity**) – what the shareholders get after the rest of liabilities are paid off.



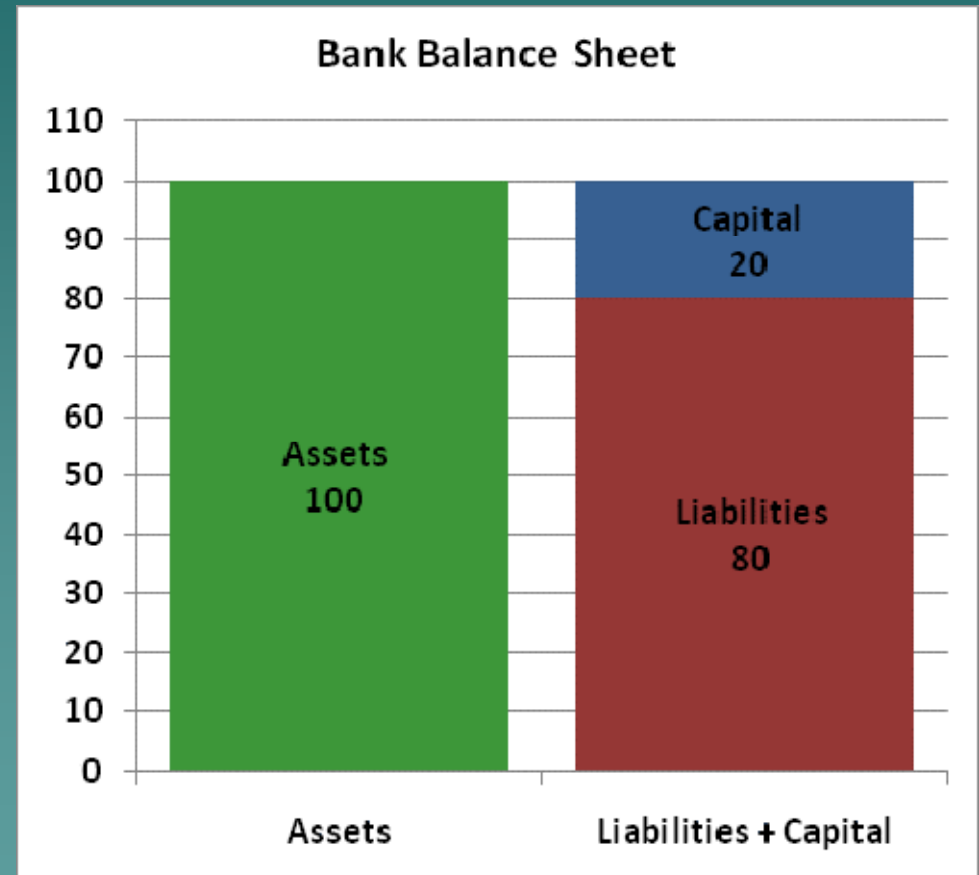
Making Profit

$$\text{Leverage} = \frac{\text{Assets}}{\text{Capital}}$$

$$\text{Net Interest Margin} = \frac{\text{Interest Earned} - \text{Interest Paid}}{\text{Assets}}$$

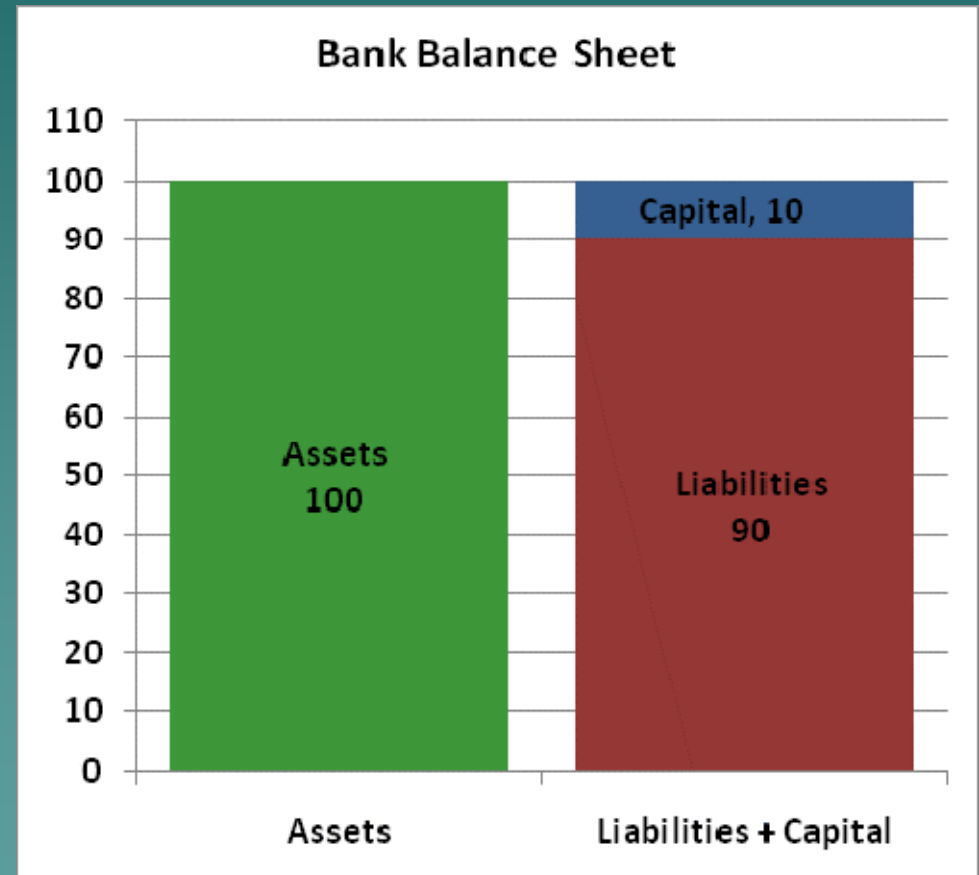
Making Profit: Example 1

- ◆ Leverage = $100/20 = 5$
- ◆ If NIM is 4%, and assets are 100 billion, the profit is 4 billion,
- ◆ Profit/Capital rate = $4/20 = 20\%$,
- ◆ Shareholders earn 20% on their investment.



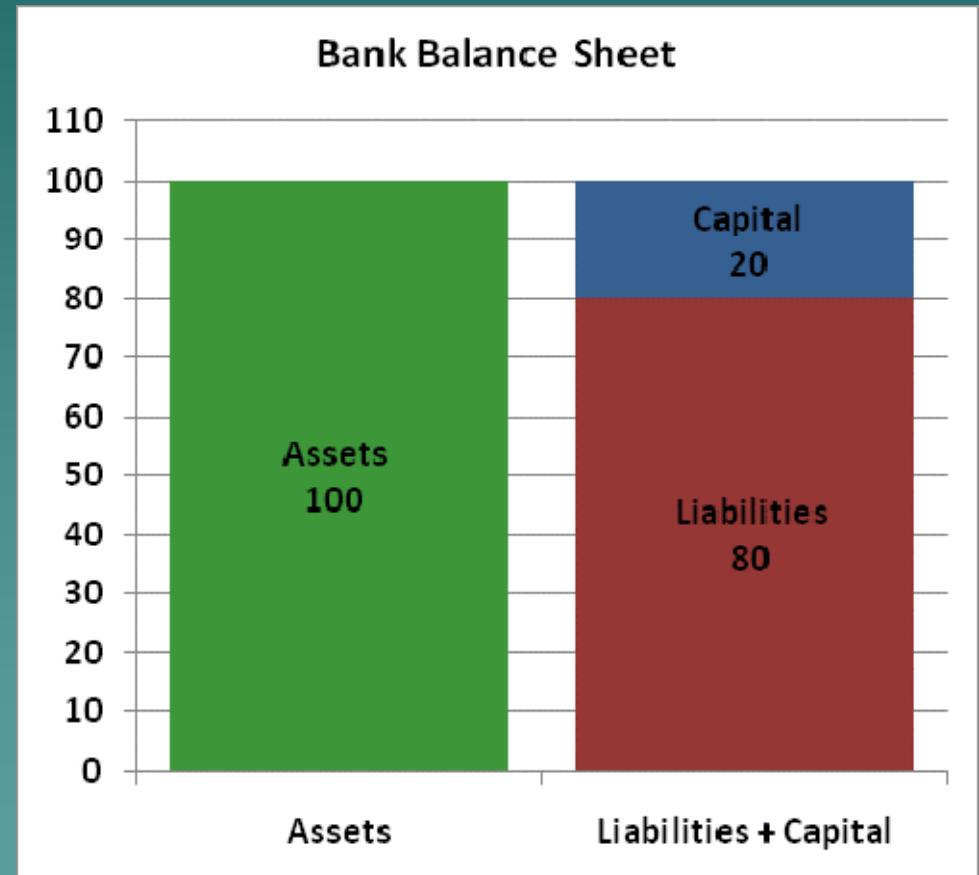
Making Profit: Example 2

- ◆ Leverage = $100/10 = 10$.
- ◆ If profit is 4 billion,
- ◆ Profit/Capital rate = $4/10 = 40\%$,
- ◆ Shareholders earn 40% on their investment.



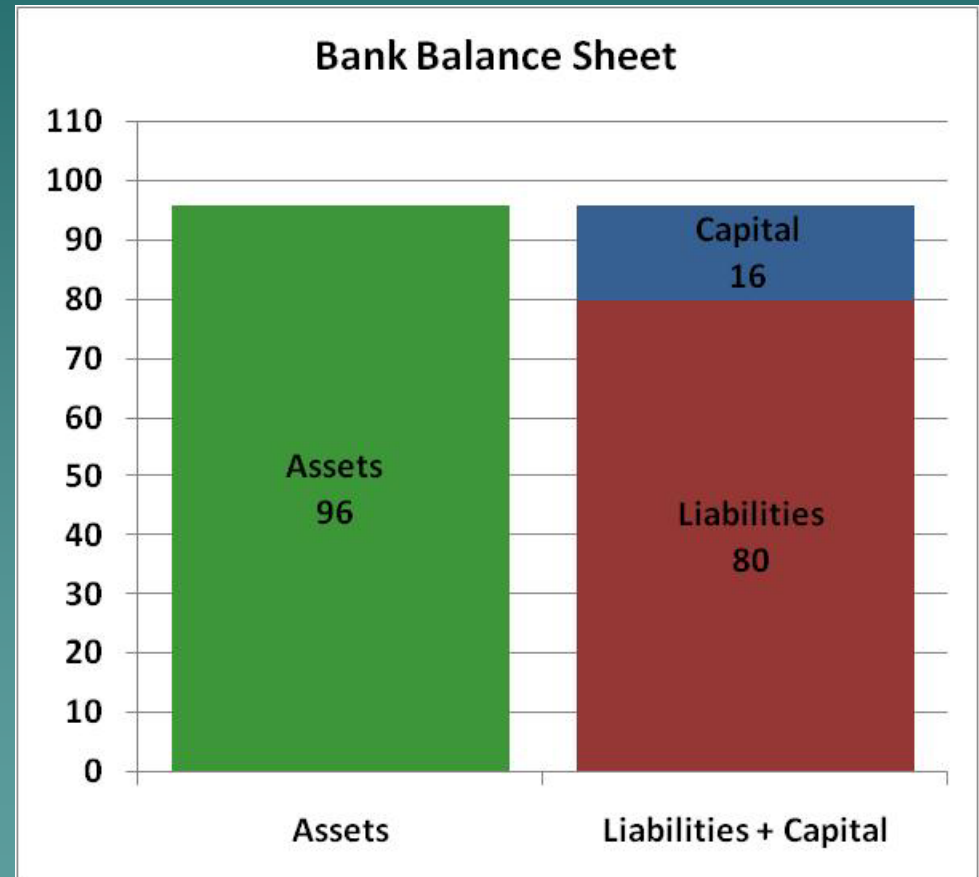
Making Loss: Example 1

- ◆ Leverage = $100/20$
= 5
- ◆ If the loss is 4 billion...



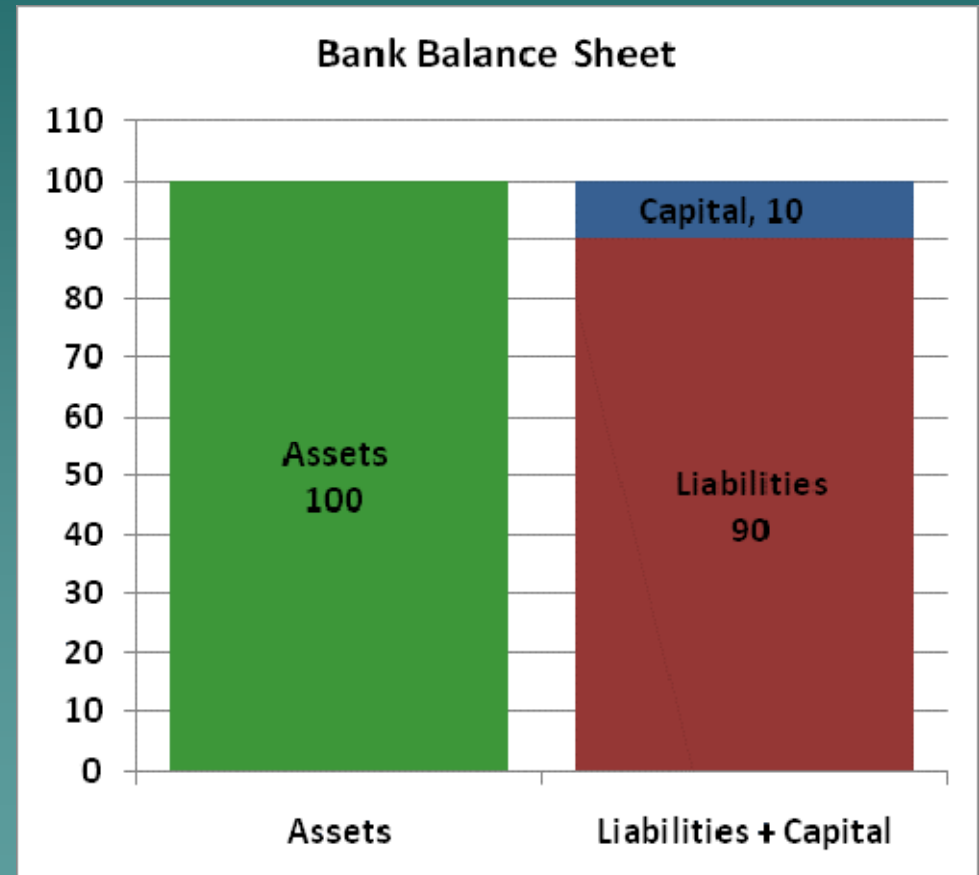
Making Loss: Example 1

- ◆ Loss/capital rate = $4/20 = 20\%$,
- ◆ Share holders loose 20% of their investment.



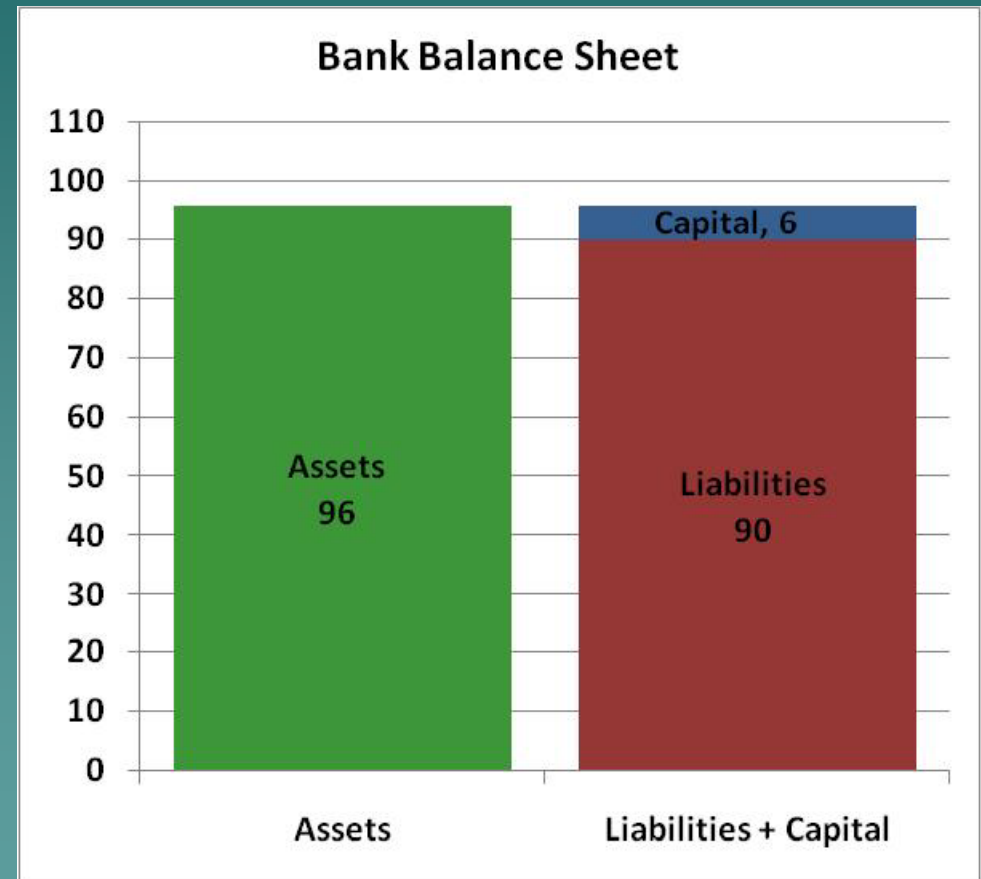
Making Loss: Example 2

- ◆ Leverage = $100/10$
= 10
- ◆ If the loss is 4 billion...



Making Loss: Example 2

- ◆ Loss/capital rate = 40%,
- ◆ Shareholders loose 40% of their investment.

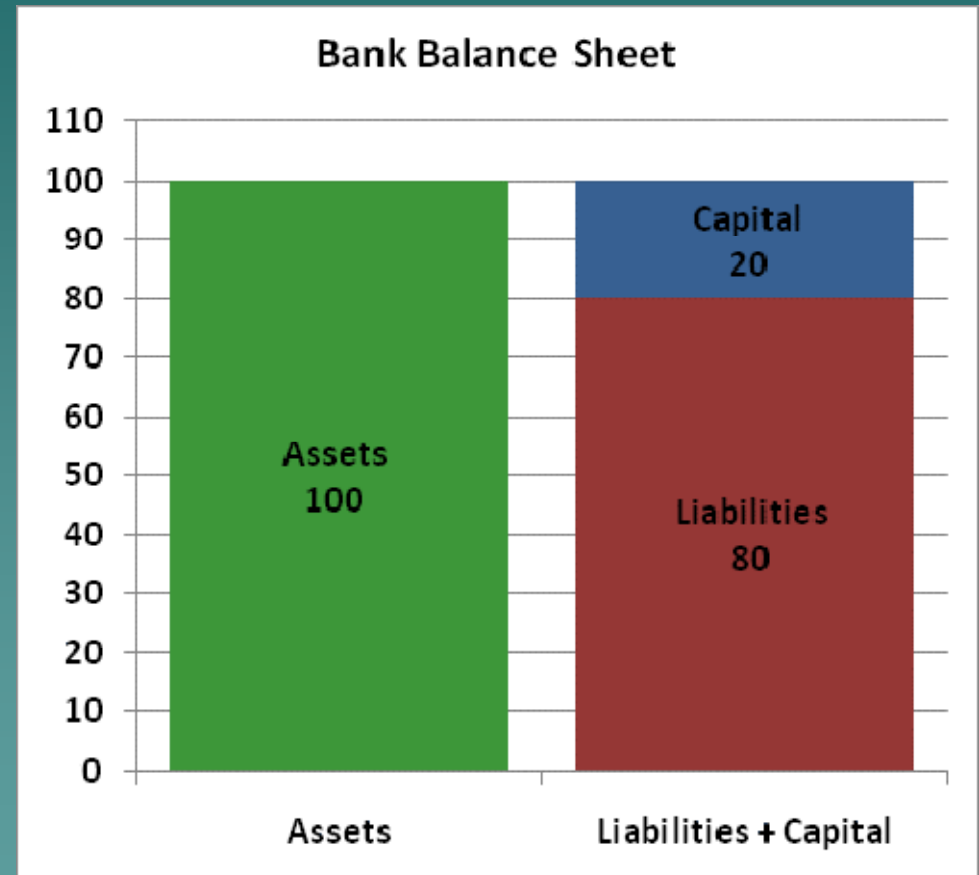


Recap of Part I

- ◆ Lower capital relative to total assets increases the leverage.
- ◆ With higher leverage and the same net interest margin, the shareholders earn greater **relative** profit.
- ◆ With higher leverage and the same loss, the shareholders loose greater fraction of their investment.

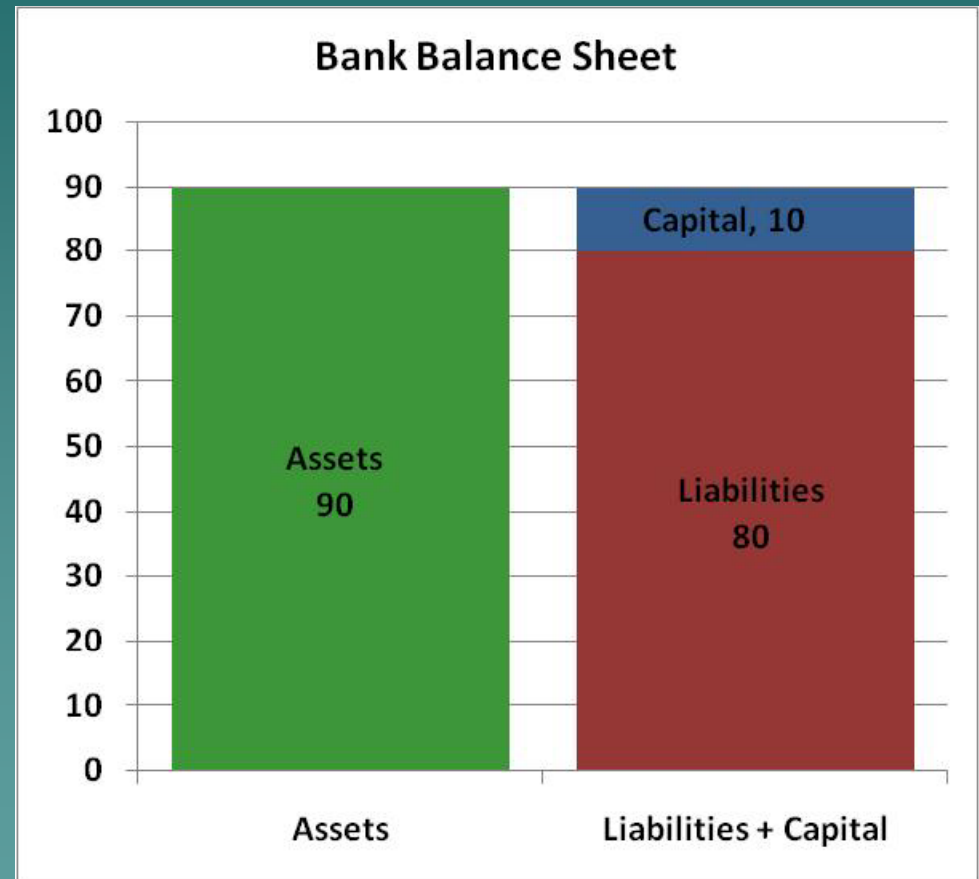
Part II: Bank Run

- ◆ Suppose that initially the BS is...



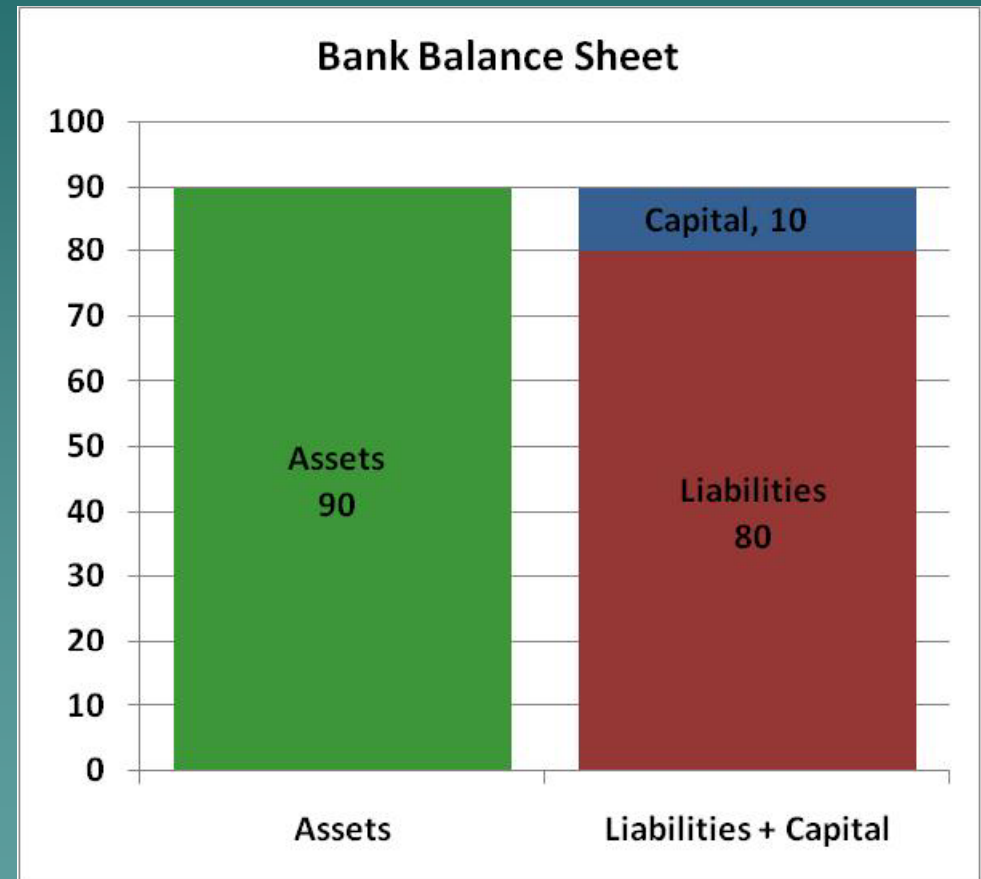
Part II: Bank Run

- ◆ Now the bank reports a loss of 10 billion.
- ◆ Account holders might panic that the bank won't be able to pay them.
- ◆ They attempt to withdraw their money all at the same time.



Part II: Bank Run

- ◆ The bank can't pay them all at the same time because not all assets are liquid (e.g. mortgage loans).
- ◆ The bank closes...



1st
NATIONAL
BANK OF NEVADA

HOURS
~~MONDAY - THURSDAY
9:00 AM - 5:00 PM
FRIDAY
9:00 AM - 6:00 PM~~

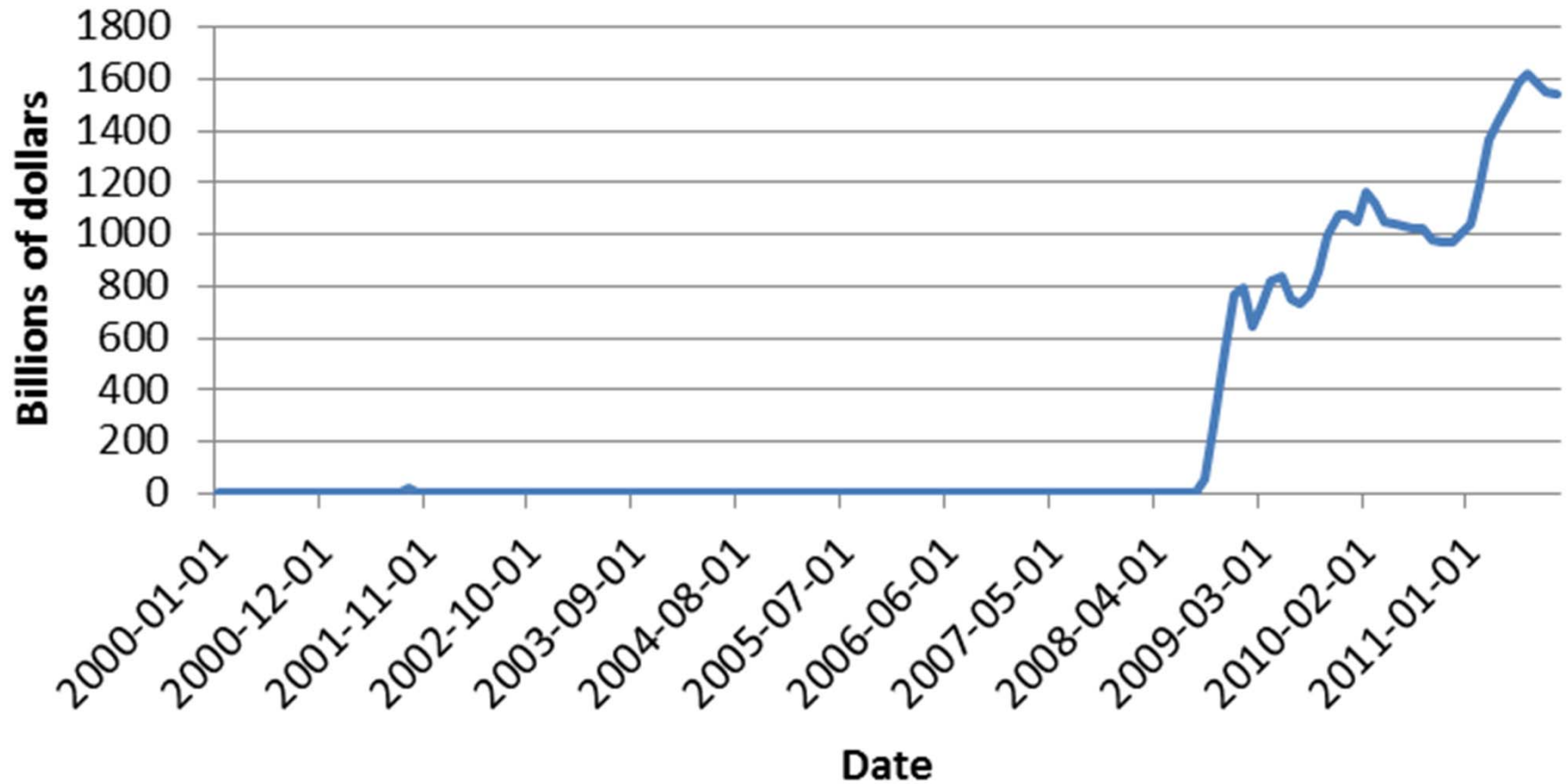
APC 1



Solution to Bank Runs

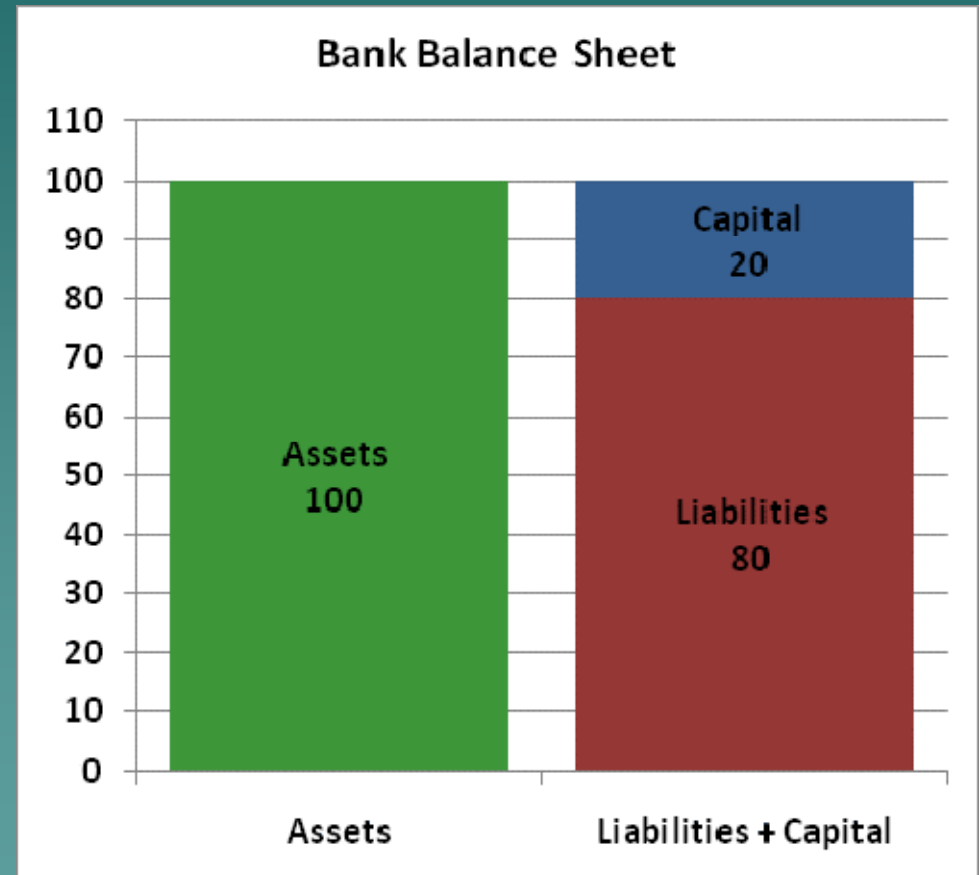
- ◆ FDIC – Federal Deposit Insurance Corporation.
- ◆ FDIC provides deposit insurance, which guarantees the safety of deposits in member banks, currently up to \$250,000 per depositor per bank.

Excess Reserves



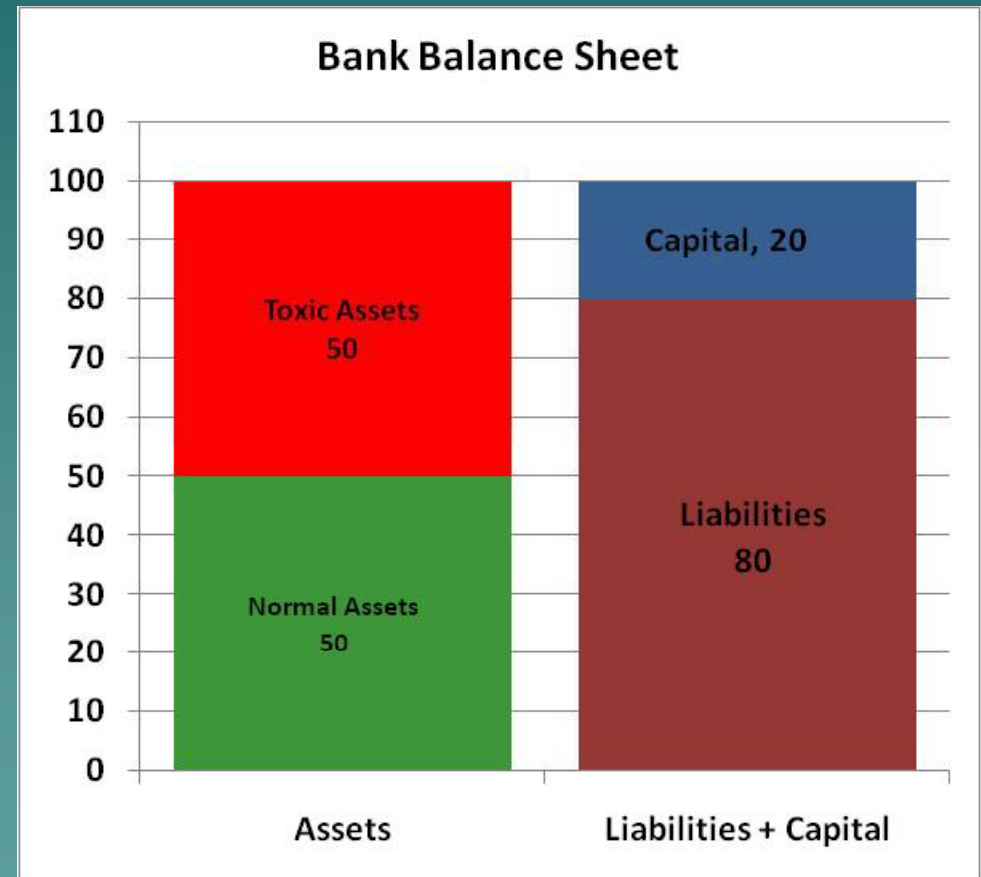
Part III: Toxic Assets

- ◆ Suppose that initially the BS is...



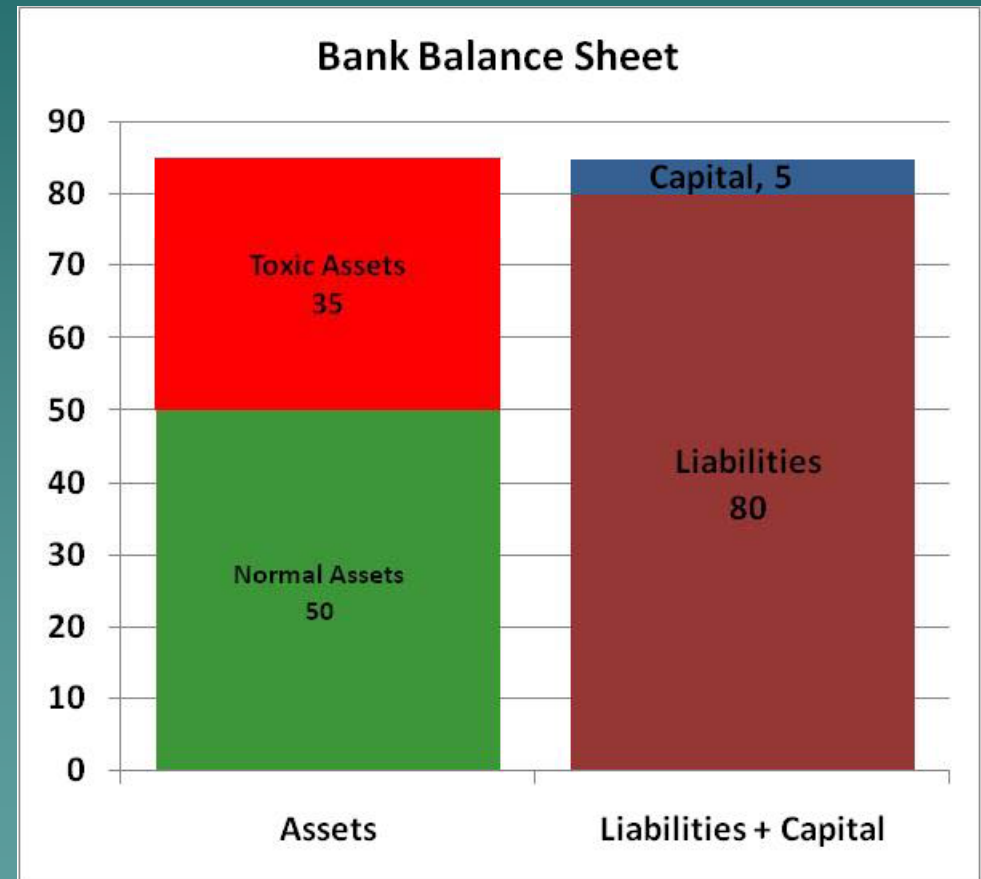
Part III: Toxic Assets

- ◆ As a result of giving many bad loans, it is clear that some will end up in default.
- ◆ Toxic assets have uncertain value, and can create potential loss.
- ◆ The BS is...



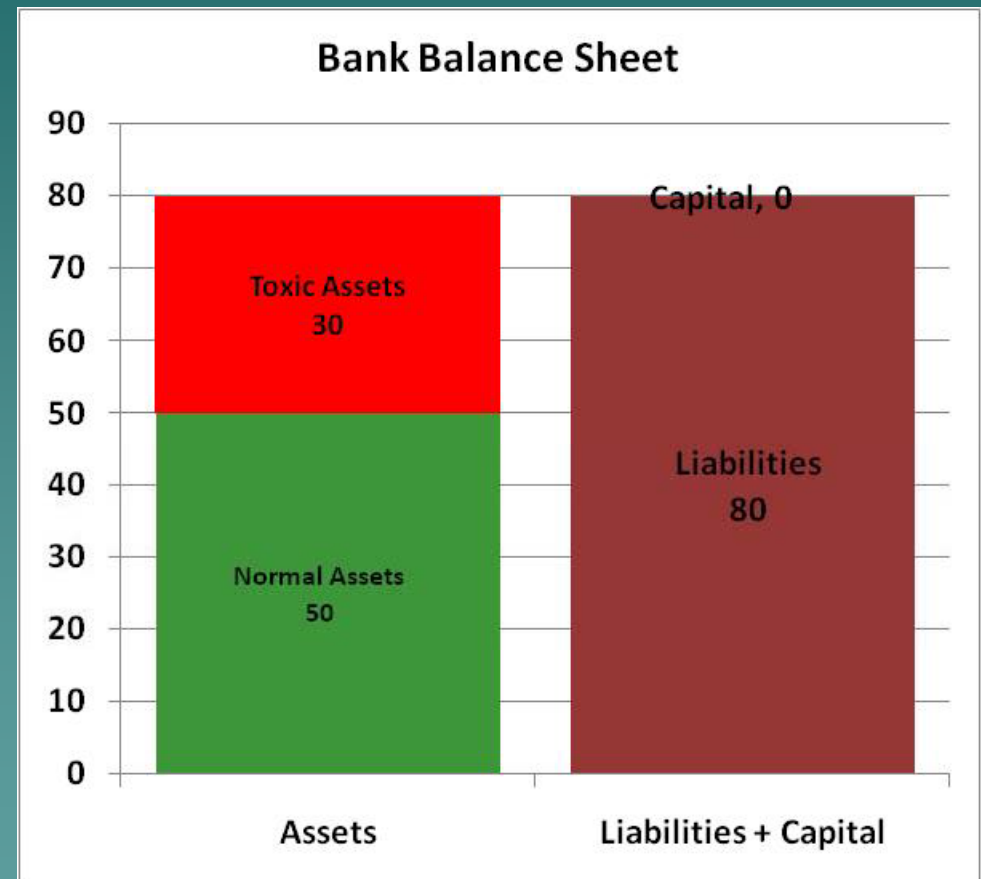
Toxic Assets Become a Loss

- ◆ Suppose that 15 billions of the toxic assets become a loss.
- ◆ Shareholders still have some equity in the bank.



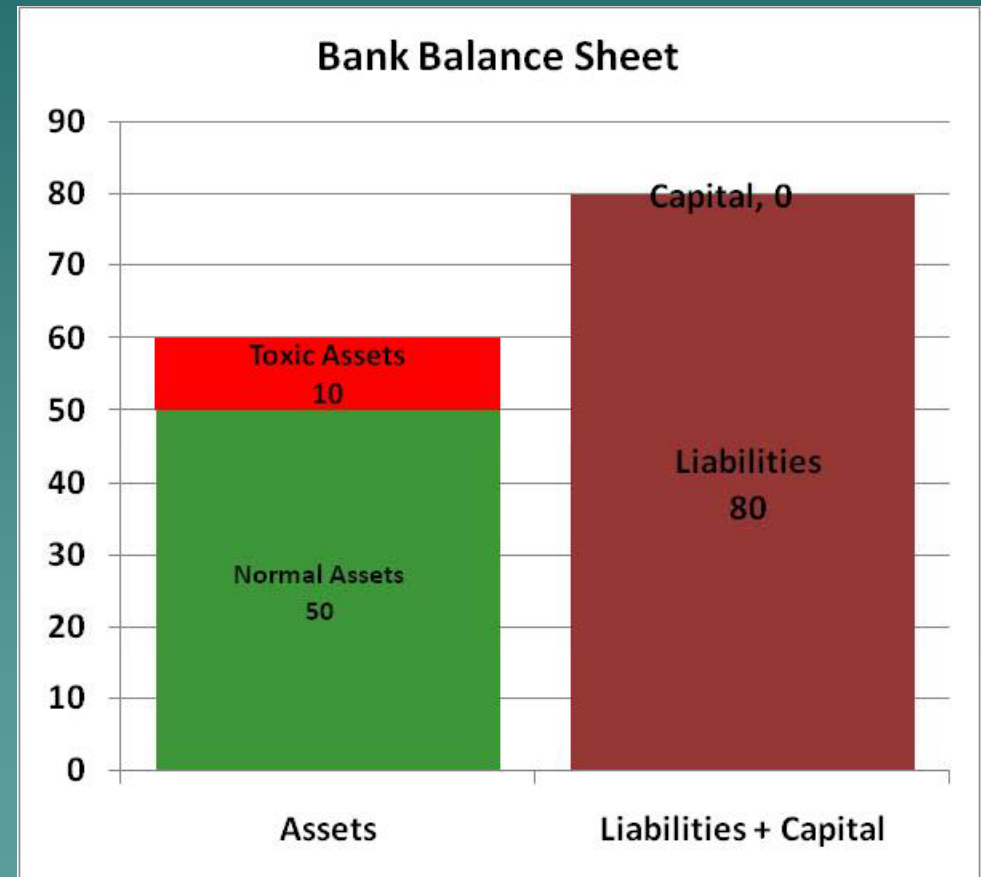
Toxic Assets Become a Loss

- ◆ Suppose that 20 billions of the toxic assets become a loss.
- ◆ Shareholders lost all their investment.



Toxic Assets Become a Loss

- ◆ Suppose that 40 billions of the toxic assets become a loss.
- ◆ Shareholders lost all their investment
- ◆ Bank is **balance sheet insolvent**:
Liabilities > Assets



Insolvency

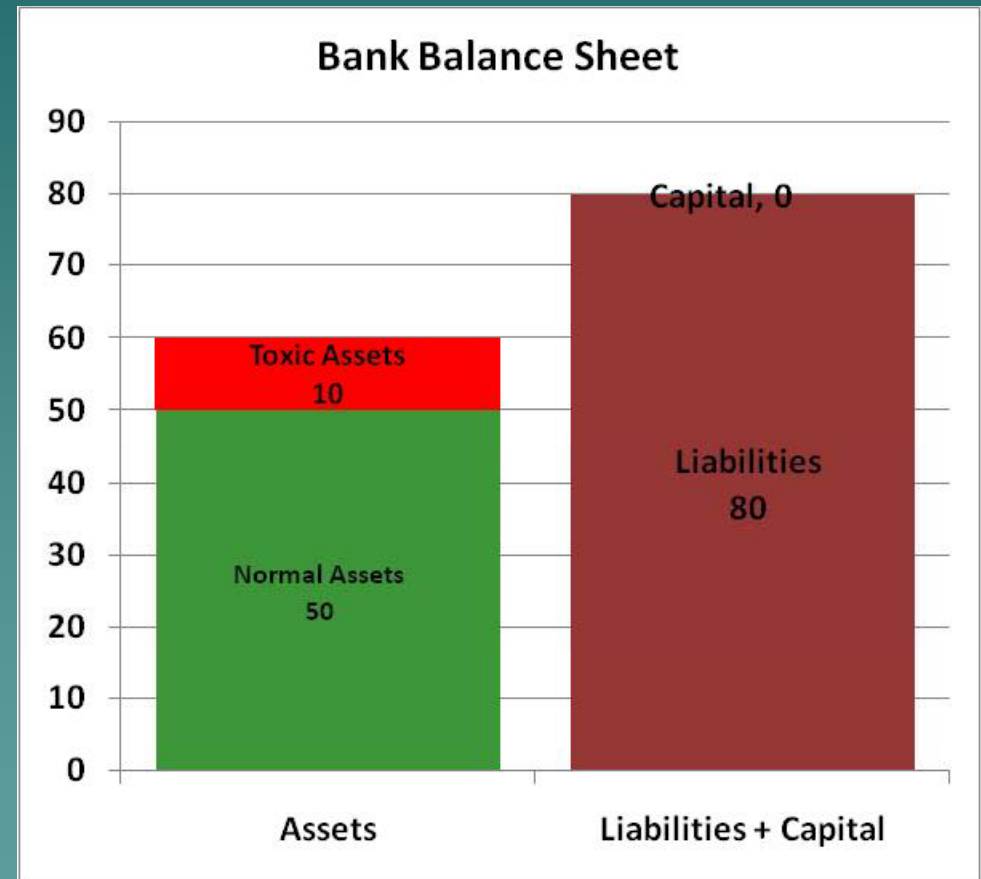
- ◆ **Cash Flow Insolvency:** Inability to pay current debt. Can occur even if assets = liabilities, when current income flow is less than the current debt obligations.
- ◆ **Balance Sheet Insolvency:** Liabilities > Assets. It is possible that the current revenue is enough to cover current debt obligations and the bank is still cash flow solvent.

Insolvency

- ◆ Insolvency is not the same as **bankruptcy**, which is a determination of insolvency made by a court of law with resulting legal orders intended to resolve the insolvency.
- ◆ Consequences of insolvency – **debt restructuring** (allows a company facing cash flow problems, to reduce and renegotiate its delinquent debts in order to improve or restore liquidity and rehabilitate).

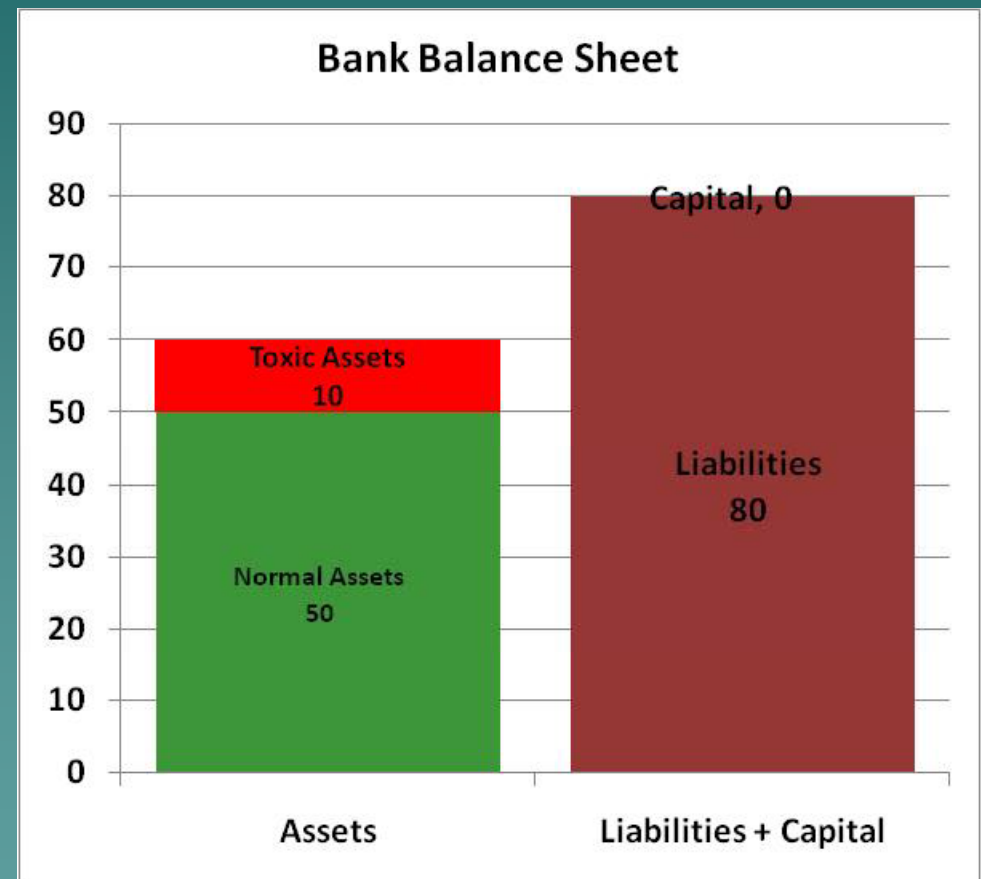
Solution 1: Bankruptcy Under Chapter 11 or Chapter 7

- ◆ Under ch. 7 the business stops its operation, a trustee sells all of its assets, and then distributes the proceeds to its creditors.



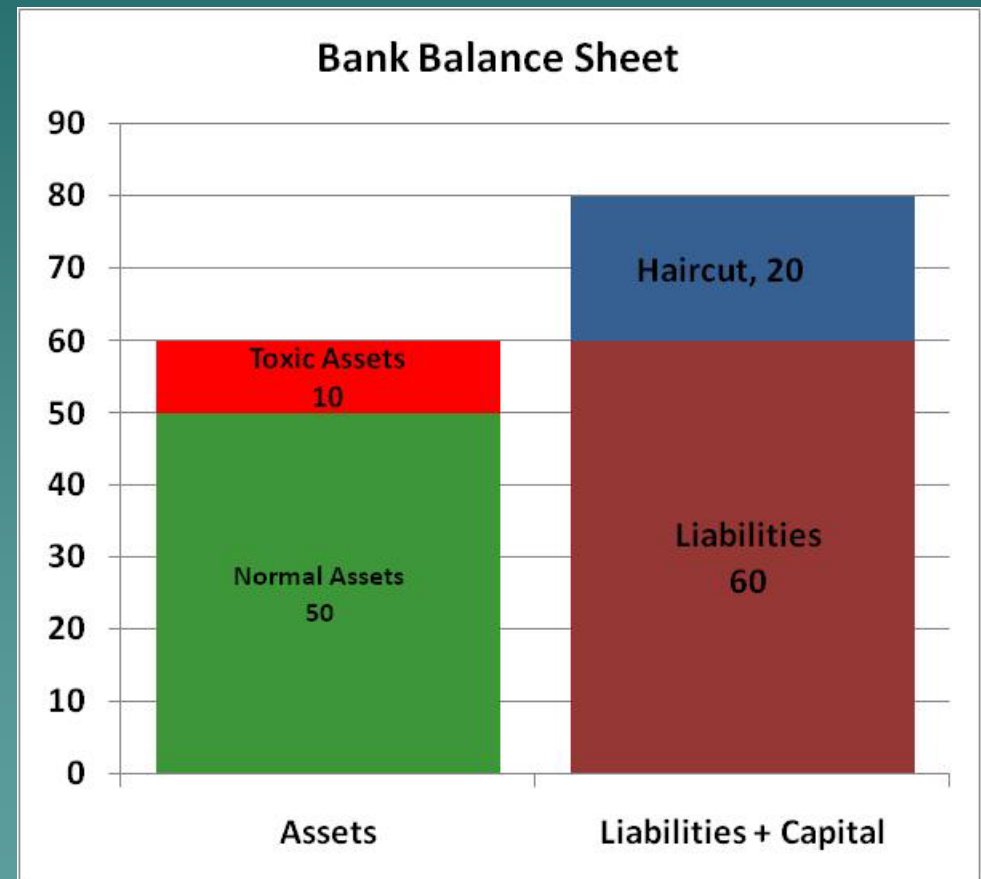
Solution 1: Bankruptcy Under Chapter 11 or Chapter 7

- ◆ Under ch. 11 the debtor remains in control of its business operations and is subject to the oversight and jurisdiction of the court.



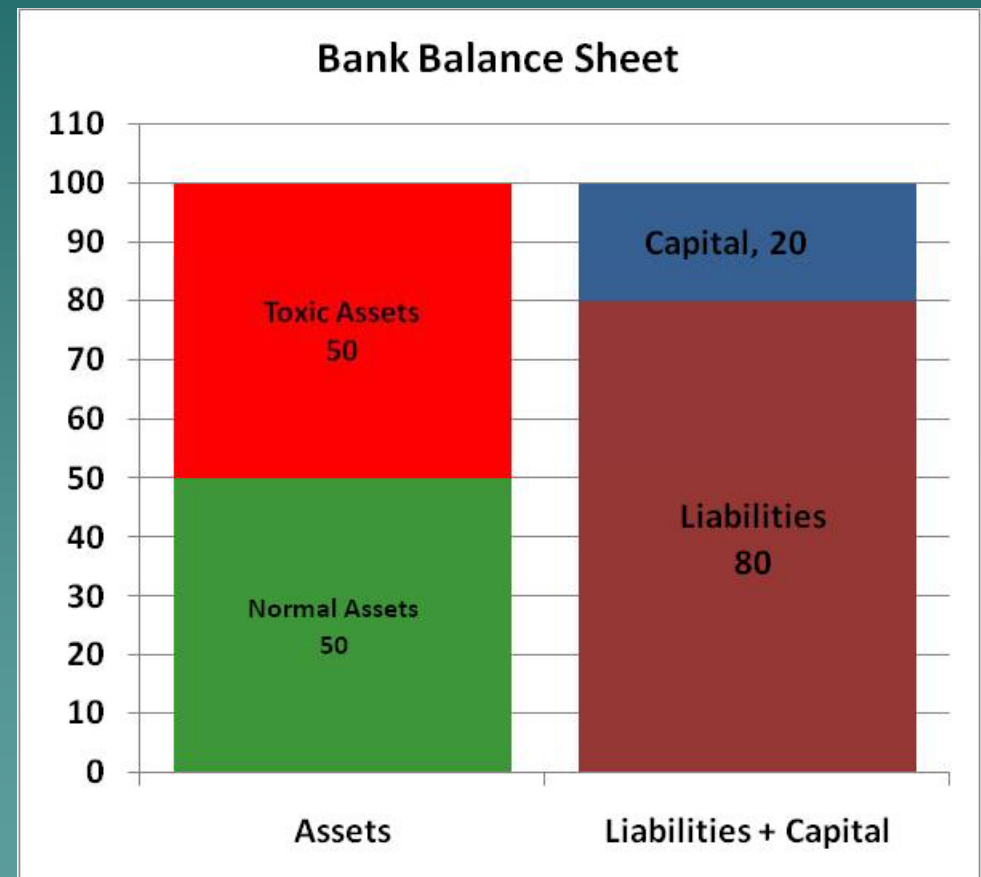
Solution 1: Bankruptcy Under Chapter 11 or Chapter 7

- ◆ In either case the creditors will likely get a “haircut”.



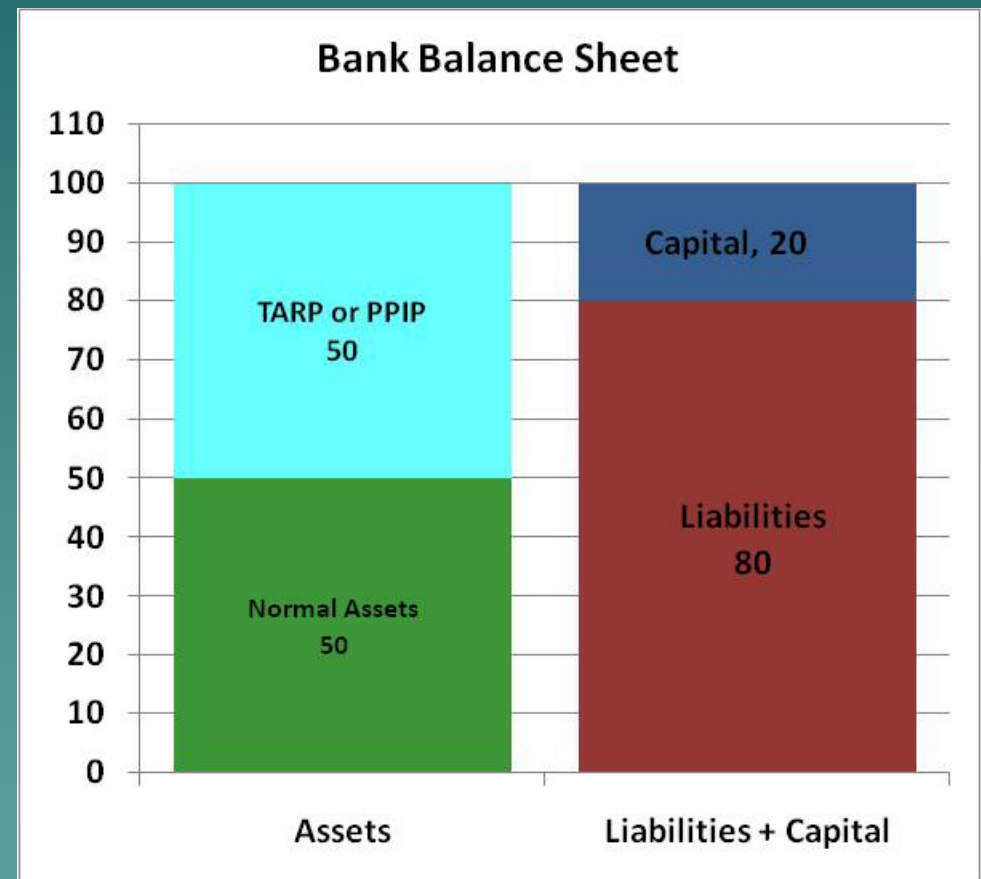
Solution 2: TARP, PPIP

- ◆ **TARP** - Troubled Asset Relief Program.
- ◆ **PPIP** - Public-Private Investment Program.



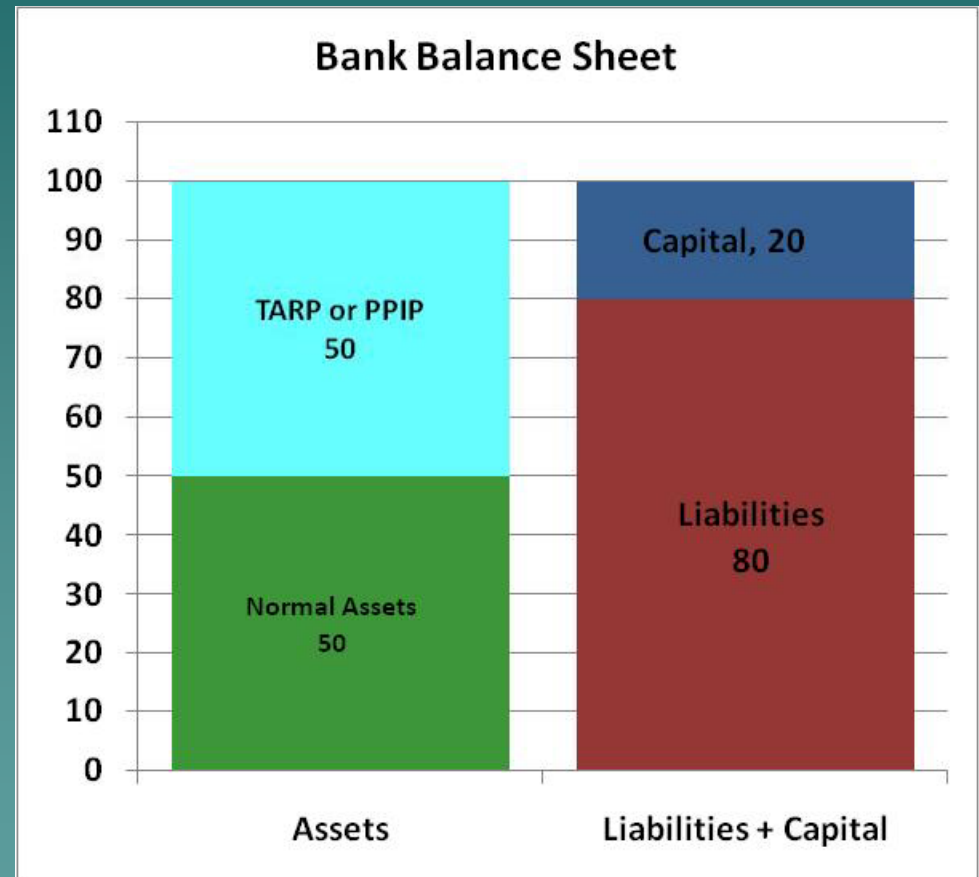
Solution 2: TARP, PPIP

- ◆ The idea is to replace the toxic assets with money from TARP or PPIP.
- ◆ Problem: how much to pay for these assets?



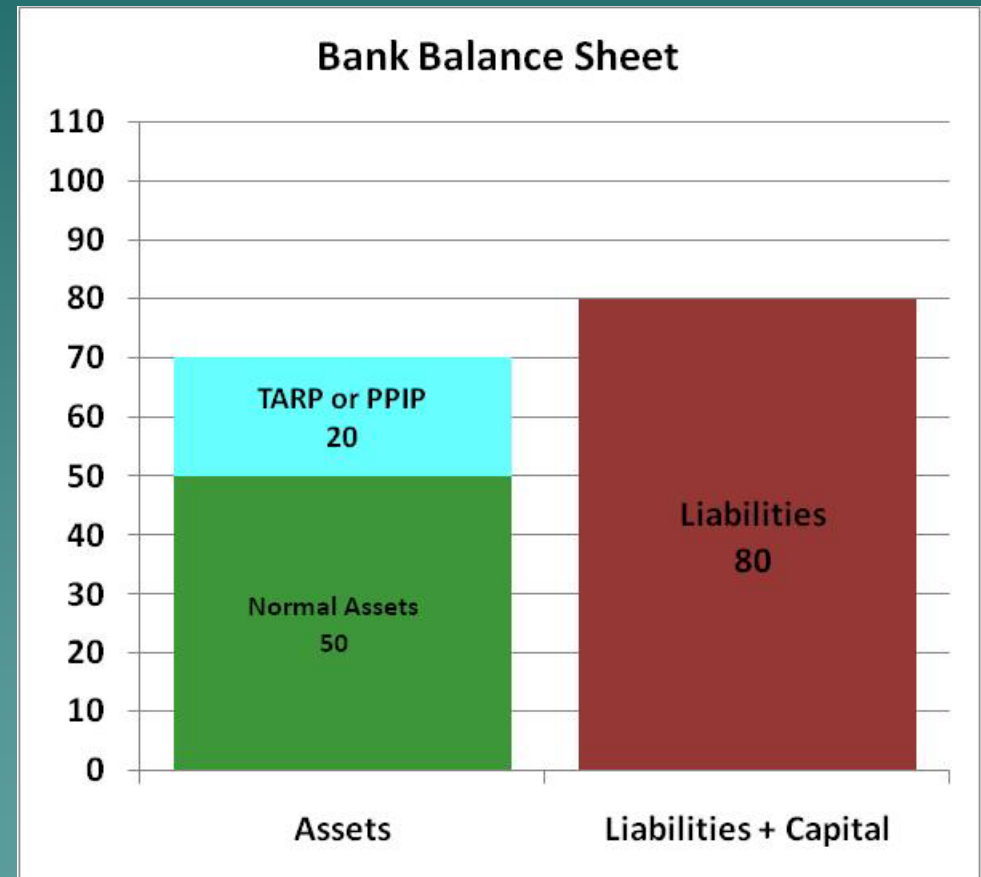
Solution 2: TARP, PPIP

- ◆ Pay too much – this is a transfer of wealth from taxpayers to shareholders



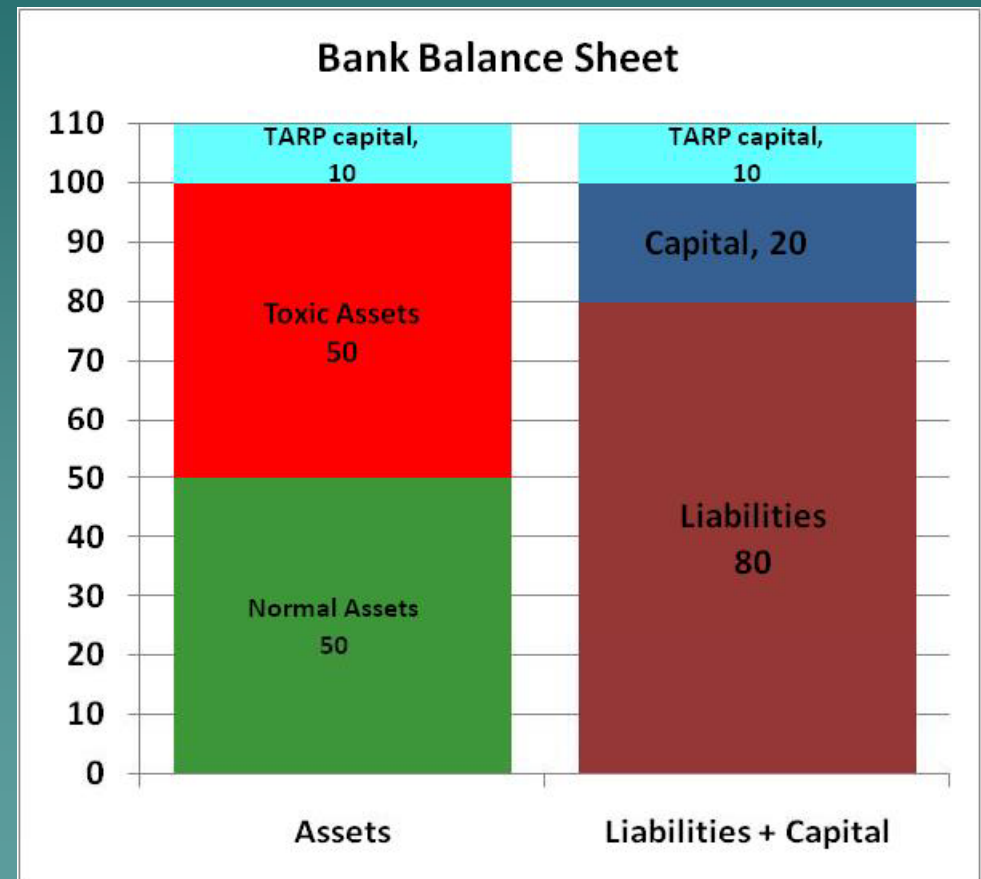
Solution 2: TARP, PPIP

- ◆ Pay too little – the bank will remain insolvent.



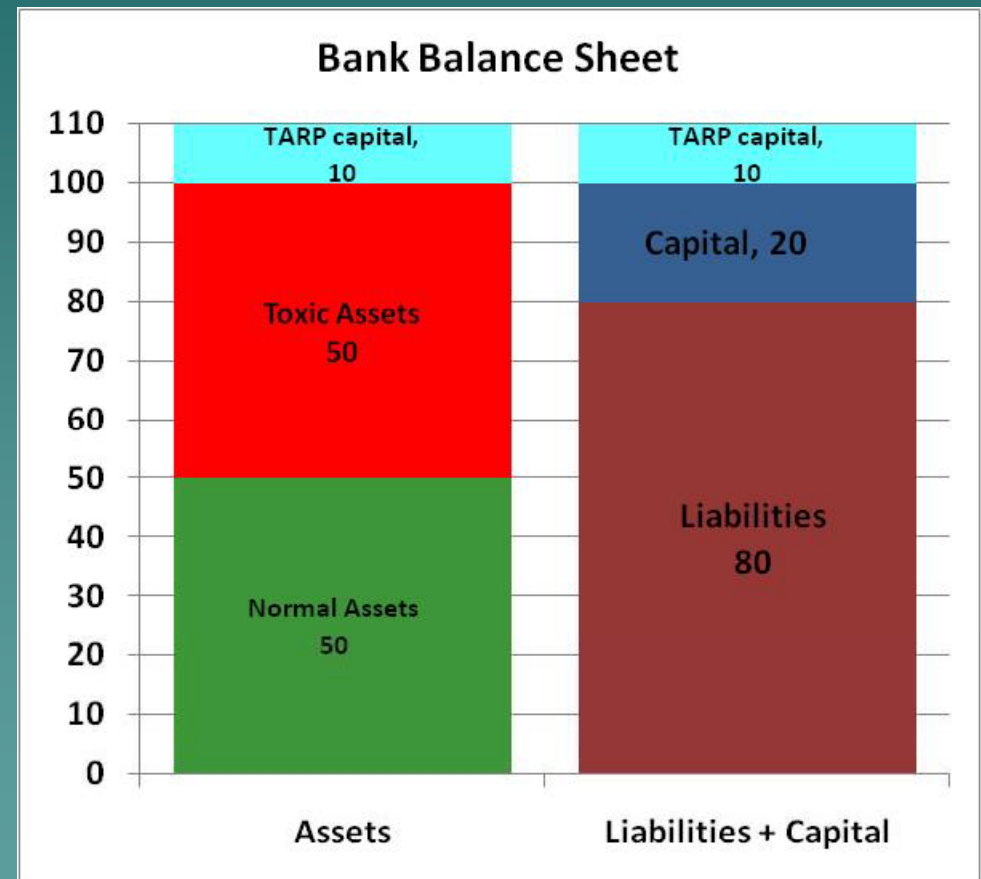
Solution 3: Injecting Capital

- ◆ Knowing that some of the toxic assets will create a loss, the TARP capital provides a “cushion”.
- ◆ If the value of toxic assets decreases by 30, the bank is still BS solvent.



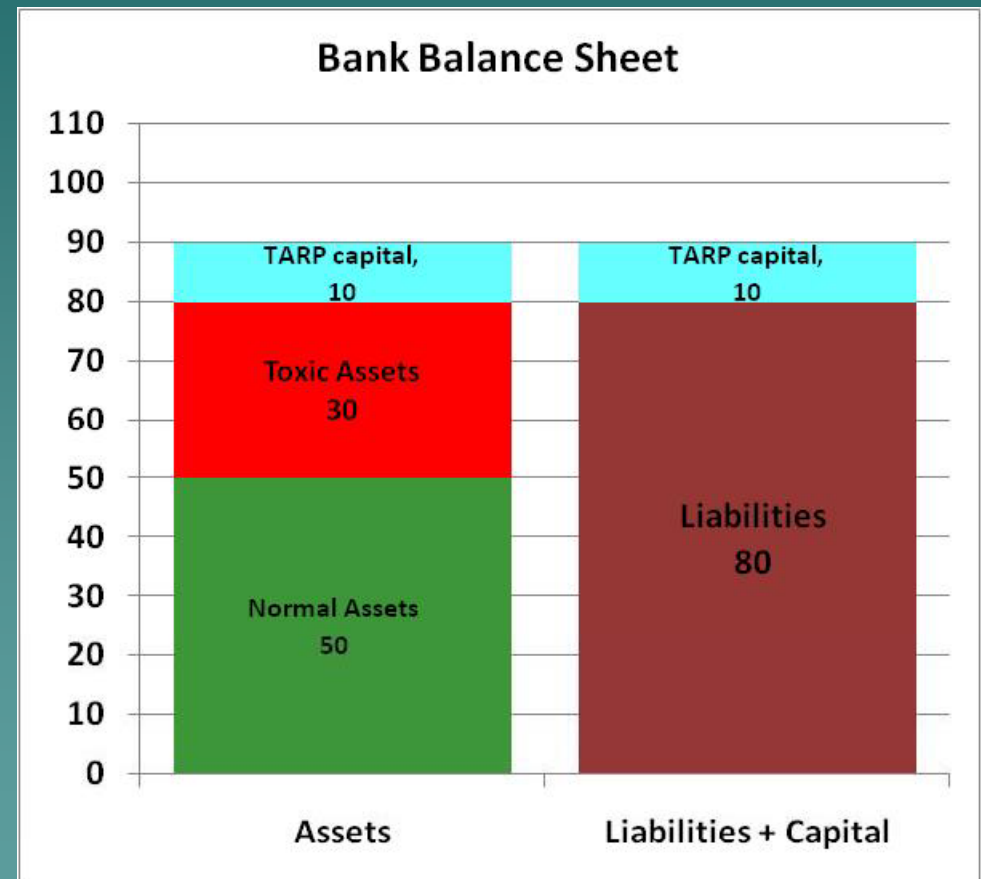
Solution 3: Injecting Capital

- ◆ Problems: what percentage of the bank should the government own, and which capital is wiped out in case of losses?



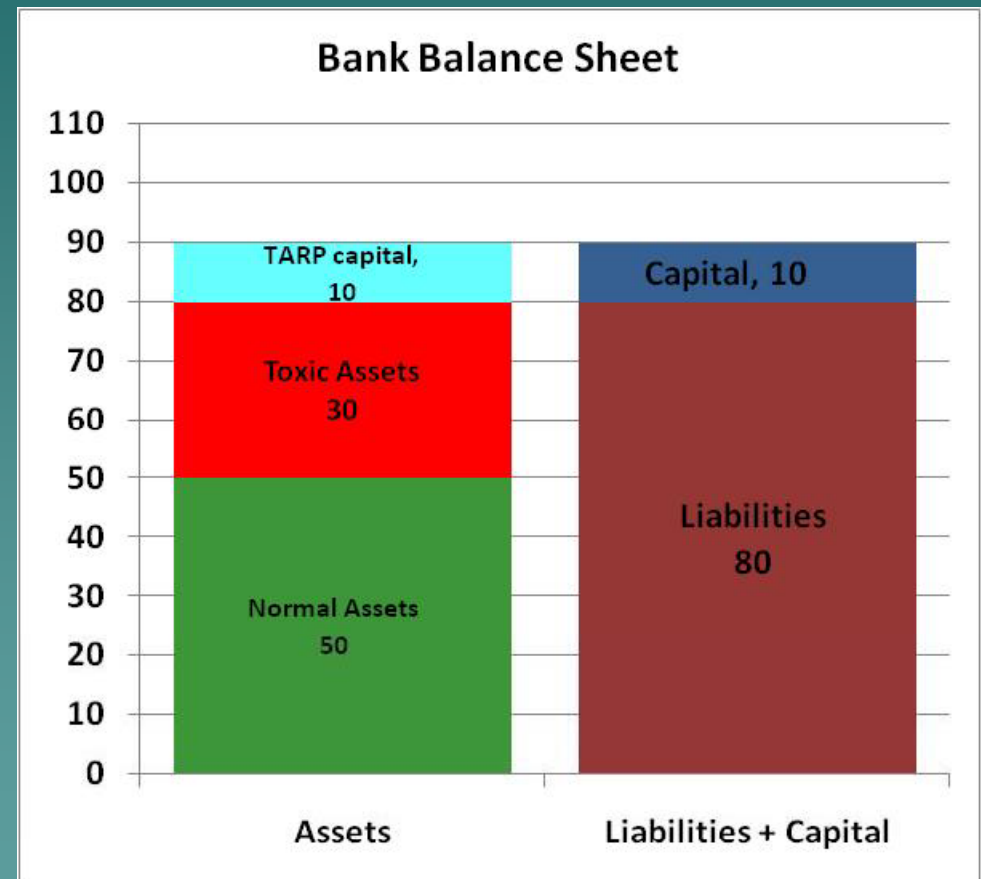
Solution 3: Injecting Capital

- ◆ Toxic assets lose 20 billion.
- ◆ Original shareholders are wiped out.



Solution 3: Injecting Capital

- ◆ Toxic assets lose 20 billion.
- ◆ Original shareholders lose 10, and government (tax payers) lose 10.



Summary of Part III

- ◆ Not obvious which is the best solution to the toxic assets and possibility of banks' insolvency is.
- ◆ Injecting capital as needed eliminates the need to price those assets.
- ◆ Unlimited injections of capital reduces the incentives of bankers to improve, and transfers wealth from taxpayers to shareholders.