EC132.02
Principles of Macroeconomics

Boston College

Thursday, April 18

Announcements and Reminders

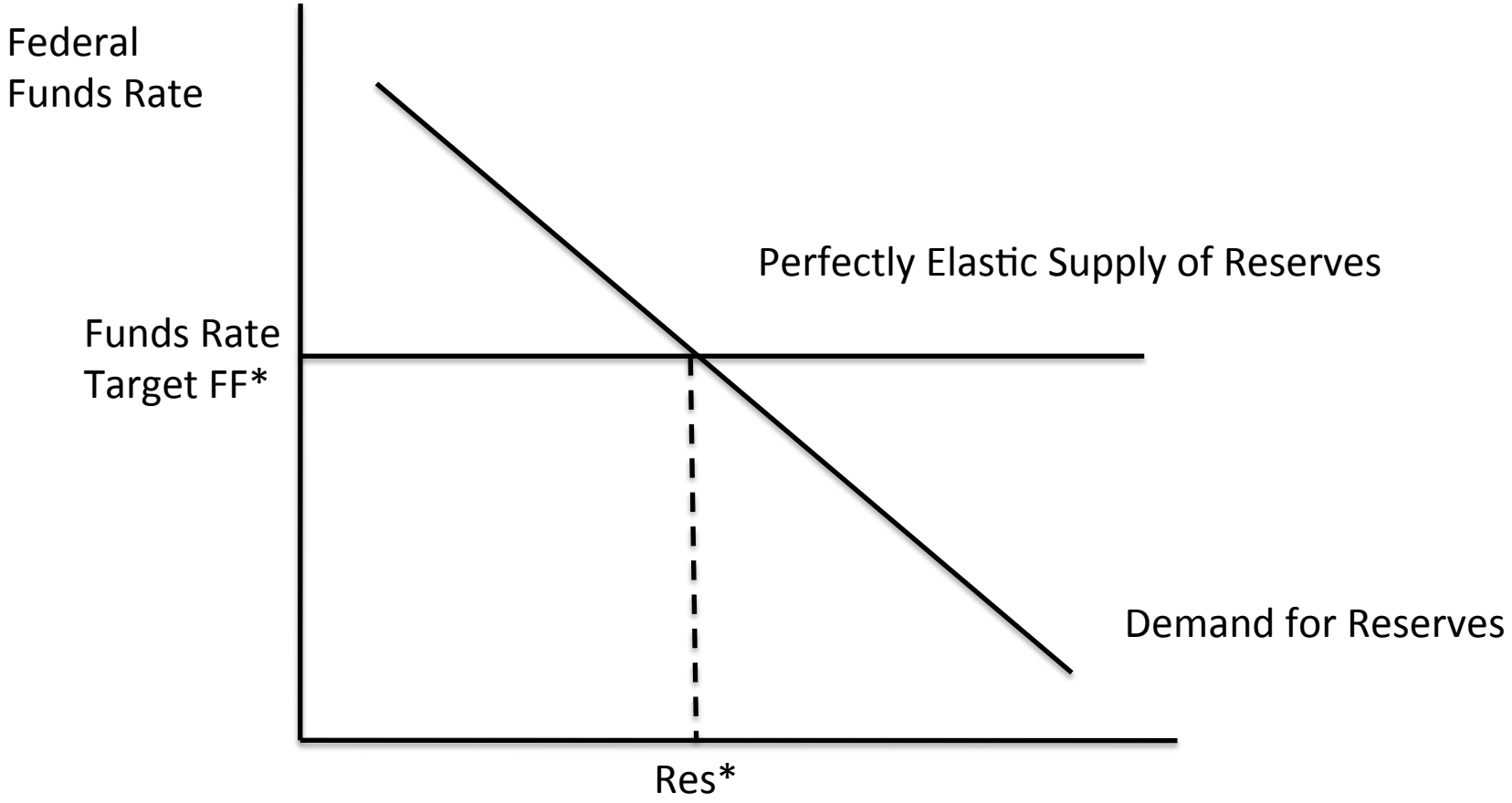
Aplia homework on the remainder of Ch 29, The Monetary System, due Friday, April 26, at 9am.

Today: Banking and Financial Crises

Next: Ch 30 Money Growth and Inflation (but only the first section, on the Classical Theory of Inflation)

Finally: Ch 33 Aggregate Supply and Aggregate Demand

The Federal Funds Rate



When the Fed sets a target for the federal funds rate, it must supply the right amount of reserves to support that target.

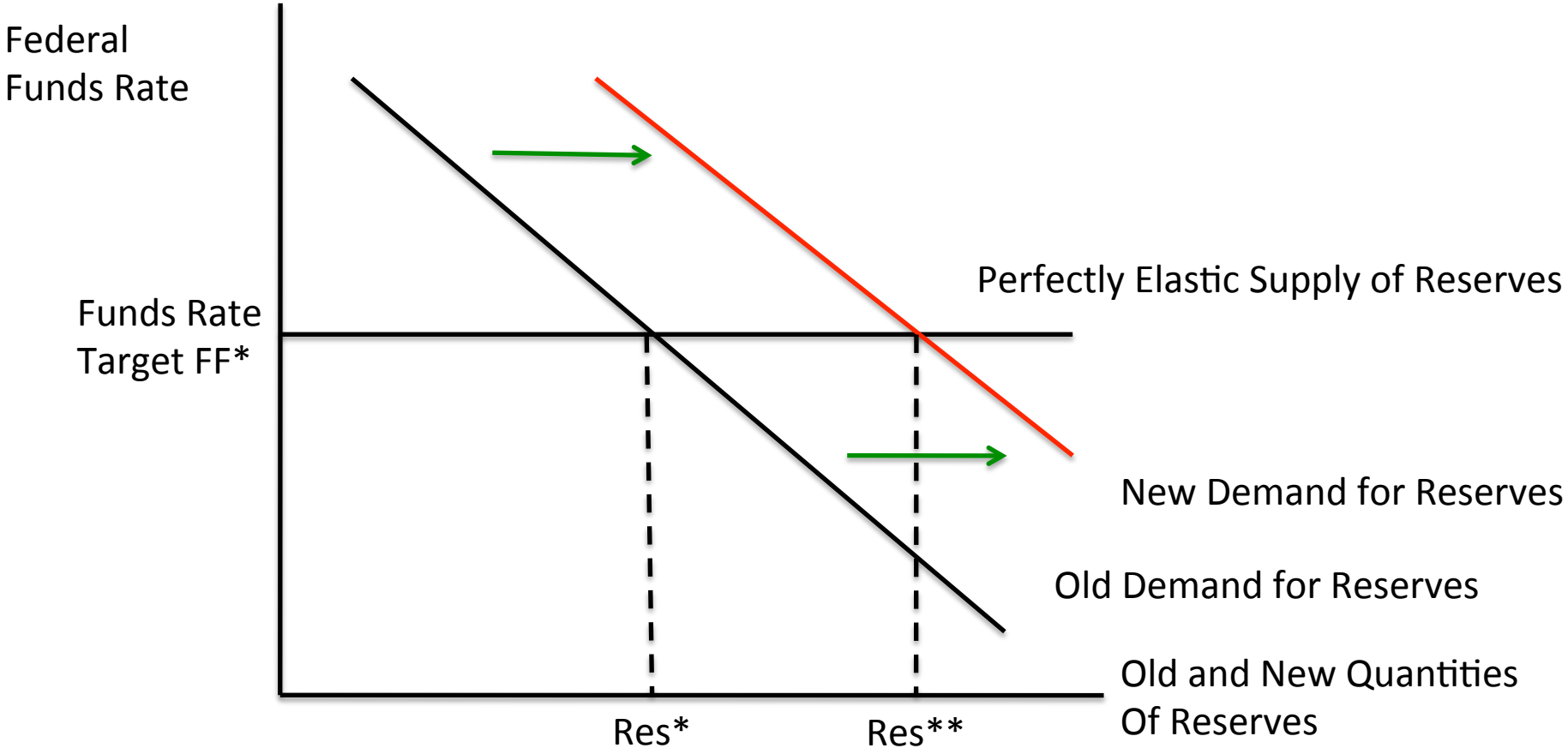
The Federal Funds Rate

In 2008, Congress gave the Federal Reserve authority to pay interest on reserves, when those reserves are held as deposits at the Fed.

And now the Fed does pay interest on reserves.

What effects does this change in policy have?

The Federal Funds Rate

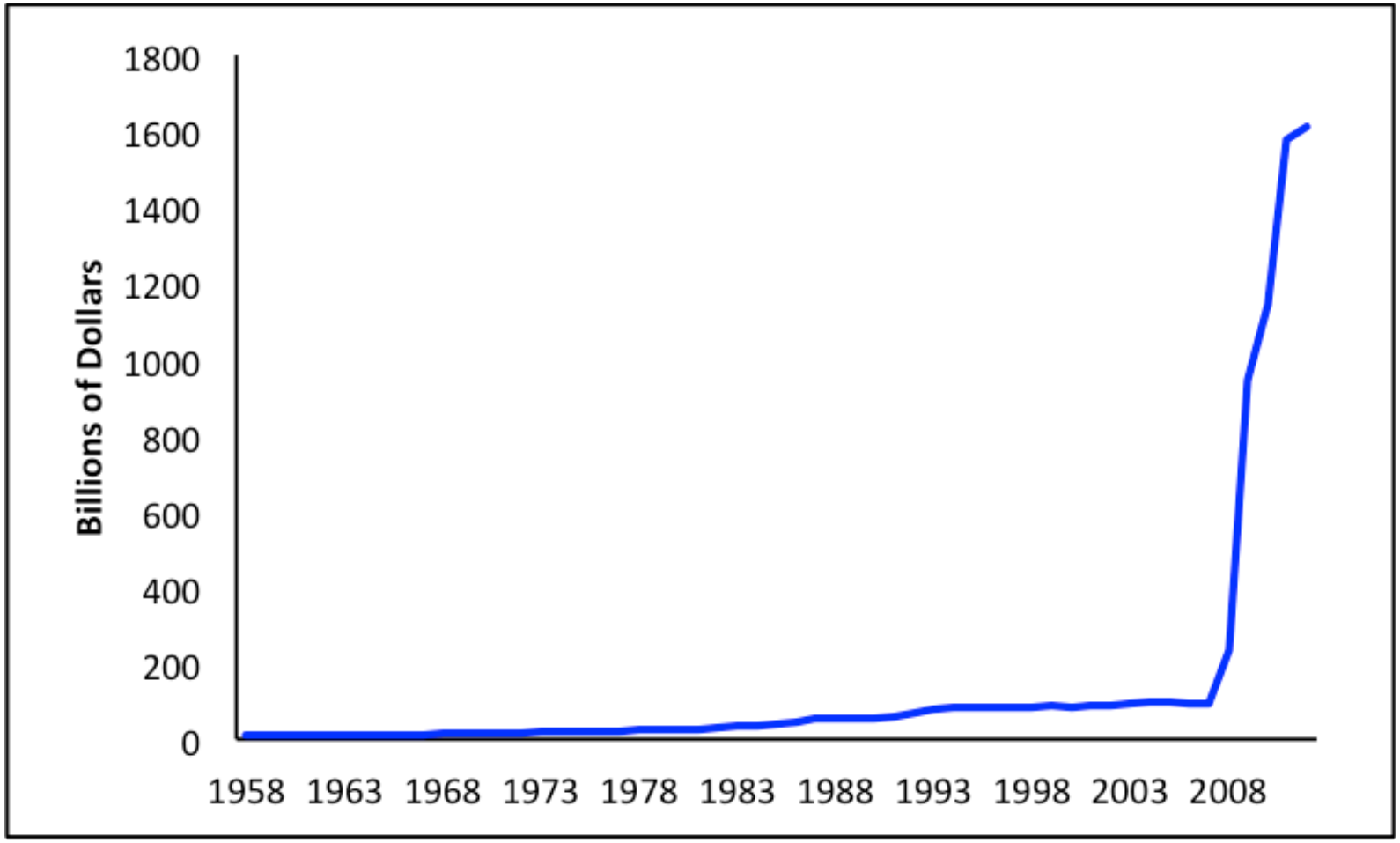


When the Fed starts paying interest on reserves:

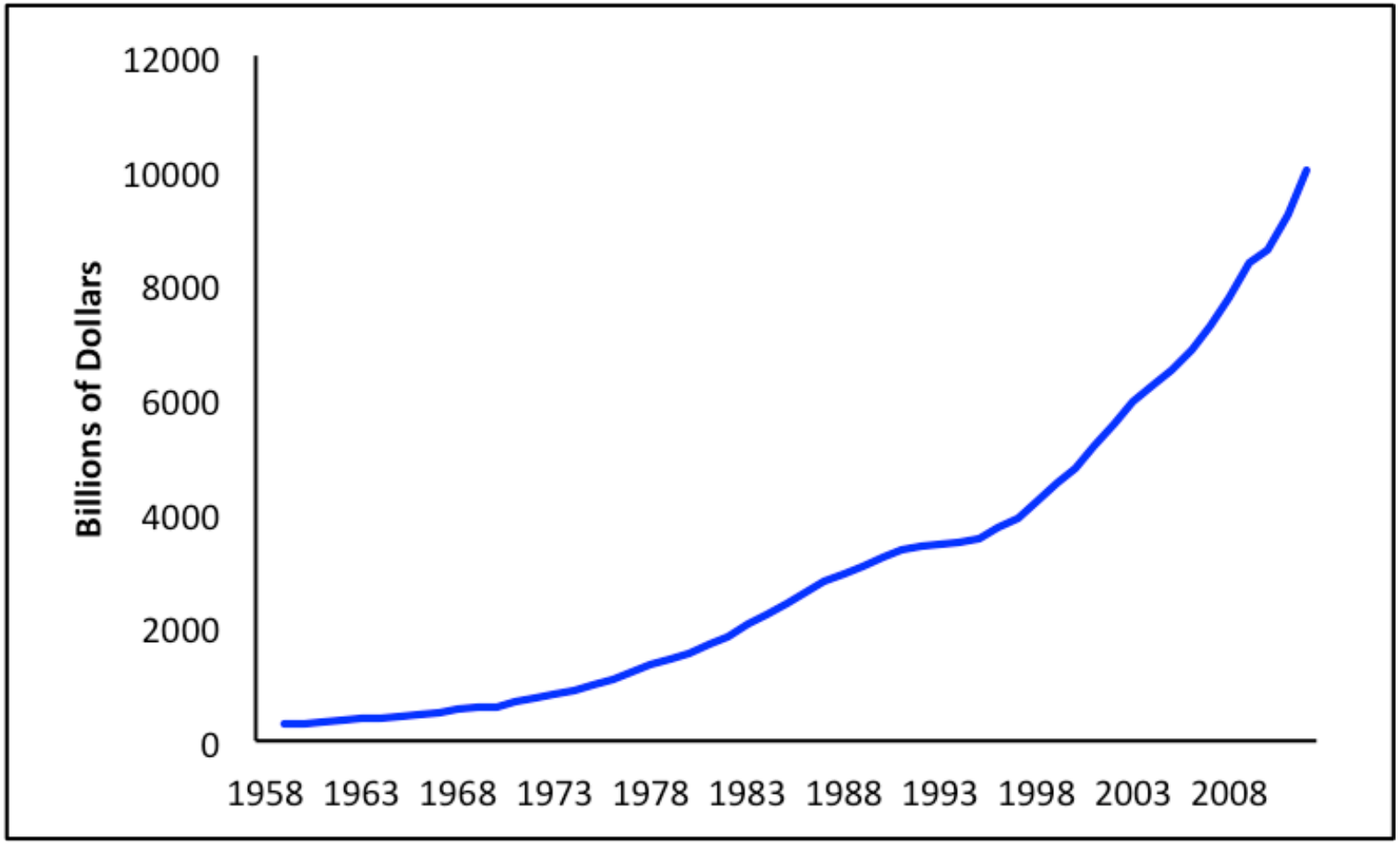
The demand curve shifts to the right.

The Fed must supply more reserves to keep the federal funds rate from rising.

Bank Reserves, US



M2 Money Supply, US



The Federal Funds Rate

By paying interest on reserves, but simultaneously conducting expansionary open market operations to accommodate the increase in bank's demand for reserves, the Fed has:

1. Allowed banks to protect themselves better against deposit outflows.
2. Without necessarily changing the basic workings of its normal, federal funds rate targeting procedures.

Banking and Financial Crises

In a fractional reserve banking system, if all depositors attempt to withdraw their money at the same time, there will not be enough reserves to satisfy them all.

In a bank run or bank panic, depositors rush to withdraw their funds, not wanting to be the last ones who lose out.

Banking and Financial Crises

Banking panics occurred in the US during the Great Depression of the 1930s.

Today, however, the Fed stands ready to lend to banks experiencing deposit outflows in its role as lender of last resort.

And the Federal Deposit Insurance Corporation (FDIC) guarantees the safety of most bank deposits.

Banking and Financial Crises

During the most recent financial crises, events very similar to bank runs began to happen, but at financial institutions that were not, strictly speaking, banks.

Not being banks, these institutions did not have access to the Fed's discount window or to the FDIC's insurance program.

To understand what happened, we can apply what we already know about the workings of a fractional reserve banking system.

A Simplified Bank Balance Sheet

Suppose a new bank opens: the First National Bank.

Its owners buy $10 in newly-issued stock (equity shares).

The bank uses the $10 to buy bank buildings, office equipment, etc.

A Simplified Bank Balance Sheet

First National Bank	
Assets	Liabilities
Other Assets $10	Shareholders' Equity $10

For accountants, shareholders' equity is a measure of a business' net worth:

Shareholders' Equity = Value of Assets – Value of Liabilities

By putting shareholders' equity on the liability side of the balance sheet, the balance sheet always balances:

Value of Assets = Value of Liabilities + Shareholders' Equity

A Simplified Bank Balance Sheet

Now suppose the First National Bank accepts $100 in deposits, holds $10 in reserves, and lends the remaining $90 out.

First National Bank	
Assets	Liabilities
Reserves $10	Deposits $100
Loans $90	Shareholders' Equity $10
Other Assets $10	

Example 1: A Liquidity Crisis

First National Bank	
Assets	Liabilities
Reserves $10	Deposits $100
Loans $90	Shareholders' Equity $10
Other Assets $10	

Now suppose that the First National Bank experiences a $50 deposit outflow.

It has $10 in its vaults to honor withdrawal requests, but it can't reduce its loans on short notice.

The bank is illiquid but still solvent. It has assets that it could use to satisfy its depositors, but can't convert those assets to cash fast enough.

Example 1: A Liquidity Crisis

What can the First National Bank do to cope with this liquidity crisis?

It depends on exactly why the deposit outflow is occurring.

Example 1: A Liquidity Crisis

One possibility is that it is just a coincidence: just by chance, a large number of the bank's customers want their money bank at the same time.

But if this is true, those customers are probably going to use their money to buy things.

Then the sellers of those goods and services will deposit the money in another bank, which will then be experiencing a large deposit inflow and will therefore find itself with an unexpectedly large amount of vault cash.

Example 1: A Liquidity Crisis

The First National Bank can then borrow reserves from the other banks in the federal funds market.

Everybody wins:

- The First National Bank gets the reserves it needs to satisfy its customers.
- The other banks start earning interest on their extra reserves right away.

Example 1: A Liquidity Crisis

But what if all banks are experiencing deposit outflows at the same time?

This is what happens during a bank run.

In this case, the Fed stands ready to be the lender of last resort.

Example 1: A Liquidity Crisis

First National Bank – Before the Deposit Outflow	
Assets	Liabilities
Reserves $10	Deposits $100
Loans $90	Shareholders' Equity $10
Other Assets $10	

First National Bank – After the Deposit Outflow	
Assets	Liabilities
Reserves $5	Deposits $50
Loans $90	Borrowing $45
Other Assets $10	Shareholders' Equity $10

Example 1: A Liquidity Crisis

This is how the Fed has been able to prevent most liquidity crises from occurring.

Plus, the addition of FDIC insurance lowers the odds of a bank run in the first place, by assuring depositors that they will get their money no matter what.

Example 1: A Liquidity Crisis

The key features of the banking system that allow for this instability are:

1. Deposits (liabilities) that are payable on demand, and therefore like very short-term debt.

2. Assets that need to be held for the long term.

Example 1: A Liquidity Crisis

In the years leading up to the most recent crisis, many nonbank financial institutions adopted strategies that shared these basic elements:

1. They funded their activities with very short-term debt.
2. Then used the proceeds to buy assets that had to be held for the long term.

But since they were not banks, they could not borrow from the discount window.

Example 1: A Liquidity Crisis

Therefore, as policy reactions to the crisis:

1. The Fed has extended credit to nonbank financial institutions.

2. Federal government guarantees have been provided for other types of short-term debt.

3. Congress granted the Fed authority to pay interest on reserves, to help banks better protect themselves against deposit outflows.

Example 2: A Solvency Crisis

Now let's go back to the beginning:

First National Bank	
Assets	Liabilities
Reserves $10	Deposits $100
Loans $90	Shareholders' Equity $10
Other Assets $10	

Example 2: A Solvency Crisis

But now suppose that $50 of the bank's loans go bad: the borrowers go bankrupt and can't repay.

Now the bank must write off the value of these bad loans:

First National Bank	
Assets	Liabilities
Reserves $10	Deposits $100
Loans $40	Shareholders' Equity −$40
Other Assets $10	

Even if the bank could sell off all of its remaining assets, it cannot repay what it, in turn, owes to its depositors.

Shareholder's equity is wiped out, and the bank is insolvent or bankrupt.

Example 2: A Solvency Crisis

What can be done now?

The government could pay off depositors from the FDIC insurance fund and recoup at least some of the money by selling off the bank's remaining assets.

Essentially, this was how the savings and loan crisis of the 1990s was resolved.