



# Chapter 15

Multiple Deposit Creation and the Money  
Supply Process

# The Money Supply Process

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- Players
  - central bank: the Fed
  - banks
  - depositors
  - borrowers from banks
  
- Functions of the Federal Reserve System
  - conducts monetary policy
  - clears checks
  - regulates banks

# The Fed's Balance Sheet

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## Federal Reserve System

Assets	Liabilities
Government securities Discount loans	Currency in circulation Reserves

Monetary Base (high-powered money),  $MB = C + R$

# Open Market Operations

## Open Market Purchase from a Bank

### *The Banking System*

Assets	Liabilities
Securities - \$100	
Reserves + \$100	

### *The Fed*

Assets	Liabilities
Securities + \$100	Reserves + \$100

## Open Market Purchase from the Public

### *Public*

Assets	Liabilities
Securities - \$100	
Deposits + \$100	

### *The Fed*

Assets	Liabilities
Securities + \$100	Reserves + \$100

### *Banking System*

Assets	Liabilities
Reserves + \$100	Checkable Deposits + \$100

**Result:  $R \uparrow \$100$ ,  $MB \uparrow \$100$**

# Open Market Operations (cont.)

## Open Market Purchase from the Public (check cashed)

<i>Public</i>		<i>The Fed</i>	
Assets	Liabilities	Assets	Liabilities
Securities - \$100		Securities + \$100	Currency + \$100
Currency + \$100			

**Result:  $R$  unchanged,  $MB \uparrow$  \$100**

**Effect of open-market operation on  $MB$  certain, on  $R$  uncertain**

## Shifts From Deposits into Currency

<i>Public</i>		<i>The Fed</i>	
Assets	Liabilities	Assets	Liabilities
Deposits - \$100			Currency + \$100
Currency + \$100			Reserves - \$100

### ***Banking System***

Assets	Liabilities
Reserves - \$100	Deposits - \$100

**Result:  $R \downarrow$  \$100,  $MB$  unchanged**

# Discount Loans

## ***Banking System***

Assets	Liabilities
Reserves	Discount
+ \$100	loan + \$100

## ***The Fed***

Assets	Liabilities
Discount	Reserves
loan + \$100	+ \$100

***Result:  $R \uparrow \$100$ ,  $MB \uparrow \$100$***

***Conclusion: Fed has better ability to control  $MB$  than  $R$***

# Deposit Creation: Single Bank

## First National Bank

Assets

Liabilities

Securities	- \$100
Reserves	+ \$100

## First National Bank

Assets

Liabilities

Securities	- \$100	Deposits	+ \$100
Reserves	+ \$100		
Loans	+ \$100		

## First National Bank

Assets

Liabilities

Securities	- \$100
Loans	+ \$100

# Deposit Creation: Banking System

## Bank A

Assets		Liabilities	
Reserves	+ \$100	Deposits	+ \$100

## Bank A

Assets		Liabilities	
Reserves	+ \$10	Deposits	+ \$100
Loans	+ \$90		

## Bank B

Assets		Liabilities	
Reserves	+ \$90	Deposits	+ \$90

## Bank B

Assets		Liabilities	
Reserves	+ \$ 9	Deposits	+ \$90
Loans	+ \$81		



# Deposit Creation – Example

**Table 1 Creation of Deposits (assuming 10% reserve requirement and a \$100 increase in reserves)**

Bank	Increase in Deposits (\$)	Increase in Loans (\$)	Increase in Reserves (\$)
First National	0.00	100.00	0.00
A	100.00	90.00	10.00
B	90.00	81.00	9.00
C	81.00	72.90	8.10
D	72.90	65.61	7.29
E	65.61	59.05	6.56
F	59.05	53.14	5.91
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.	.	.	.
.	.	.	.
Total for all banks	1,000.00	1,000.00	100.00

# Deposit Creation

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If Bank A buys securities with the \$90 check

## Bank A

### Assets

### Liabilities

Reserves	+ \$10
Securities	+ \$90

Deposits	+ \$100
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The seller deposits \$90 at Bank B and the process is the same.

***Whether the bank makes loans or buys securities, we get same deposit expansion***

# The Deposit Multiplier

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- required reserves are calculated as a certain fraction  $r$  (*required reserve ratio*) of checkable deposits:

$$RR = r \times D$$

- hence, deposits can be calculated as:

$$D = \frac{1}{r} \times R$$

- thus, the change in deposits depends on the change in reserves:

$$\Delta D = \frac{1}{r} \times \Delta R$$

# Deposit Creation: The Banking System as a Whole

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## Banking System

Assets		Liabilities	
Securities	− \$100	Deposits	+ \$1000
Reserves	+ \$100		
Loans	+ \$1000		

## Critique of Simple Model

Deposit creation stops if:

- proceeds from loan kept in cash
- bank holds excess reserves