

Chapter 15

Multiple Deposit Creation and the Money Supply Process

The Money Supply Process

- **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

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

<i>The Banking System</i>		<i>The Fed</i>	
Assets	Liabilities	Assets	Liabilities
Securities - \$100		Securities + \$100	Reserves + \$100
Reserves + \$100			

Open Market Purchase from the Public

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

<i>Banking System</i>	
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)

Public		The Fed	
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

Public		The Fed	
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

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Discount Loans

Banking System

Banking System		The Fed	
Assets	Liabilities	Assets	Liabilities
Reserves + \$100	Discount loan + \$100	Discount loan + \$100	Reserves + \$100

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

Conclusion: Fed has better ability to control MB than R

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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	

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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	

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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
.	.	.	.
.	.	.	.
Total for all banks	1,000.00	1,000.00	100.00

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Deposit Creation

If Bank A buys securities with the \$90 check

Bank A			
Assets		Liabilities	
Reserves	+ \$10	Deposits	+ \$100
Securities	+ \$90		

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

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The Deposit Multiplier

- 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:

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

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Deposit Creation: The Banking System as a Whole

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

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