

# Chapter 14

## The Money Supply Process

### Preview

This chapter provides an overview of how **commercial banks** create deposits and describes the **basic** principles of the **money supply creation** process

## Contents

- List and describe the “three players” that influence the money supply.
- Classify the factors affecting the Federal Reserve’s assets and liabilities.
- Identify the factors that affect the monetary base and discuss their effects on the Federal Reserve’s balance sheet.
- Explain and illustrate the deposit creation process using T-accounts.
- List the factors that affect the money supply.
- Summarize how the “three players” can influence the money supply.
- Calculate and interpret changes in the money multiplier.

## Three Players in the Money Supply Process

1. **The Central bank:** Federal Reserve System
2. **Banks:** depository institutions; financial intermediaries
3. **Depositors:** individuals and institutions

## The Fed's Balance Sheet

Federal Reserve System	
Assets	Liabilities
Securities	Currency in circulation
Loans to Financial Institutions	Reserves

### ■ Liabilities

- Currency in circulation: in the hands of the public
- Reserves: bank deposits at the Fed and vault cash

### ■ Assets

- Government securities: holdings by the Fed that affect money supply and earn interest
- Discount loans: provide reserves to banks and earn the discount rate

## Control of the Monetary Base

High-powered money

$$MB = C + R$$

$C$  = currency in circulation

$R$  = total reserves in the banking system

## Open Market Purchase from a Bank

Banking System			Federal Reserve System			
Assets		Liabilities	Assets		Liabilities	
Securities	-\$100m		Securities	+\$100m	Reserves	+\$100m
Reserves	+\$100m					

- Net result is that reserves have increased by \$100
- No change in currency
- Monetary base has risen by \$100

## Open Market Purchase from the Nonbank Public

Banking System				Federal Reserve System			
Assets		Liabilities		Assets		Liabilities	
Reserve s	+\$100m	Checkable deposits	+\$100m	Securities	+\$100m	Reserves	+\$100m

- Person selling bonds to the Fed deposits the Fed's check in the bank
- Identical result as the purchase from a bank

## Open Market Purchase from the Nonbank Public

Nonbank Public				Federal Reserve System			
Assets		Liabilities		Assets		Liabilities	
Securities	-\$100m			Securities	+\$100m	Currency in circulation	+\$100m
Currency	+\$100m						

- The person selling the bonds cashes the Fed's check
- **Reserves are unchanged**
- **Currency in circulation** increases by the amount of the open market purchase
- **Monetary base** increases by the amount of the **open market purchase**

## Summary Open Market Purchase

- The effect of an **open market** purchase on **reserves** depends on whether the **seller** of the **bonds** keeps the **proceeds** from the sale in **currency** or in deposits.
- The effect of an open market purchase on the **monetary base** always **increases** the monetary **base** by the amount of the **purchase**.

## Open Market Sale

Nonbank Public		Federal Reserve System	
Assets	Liabilities	Assets	Liabilities
Securities	+\$100m	Securities	-\$100m
Currency	-\$100m	Currency in circulation	-\$100m

- **Reduces** the monetary base by the amount of the sale
- **Reserves** remain unchanged
- The effect of open market operations on the monetary base is much more **certain** than the effect on reserves.

## Loans to Financial Institutions

Banking System				Federal Reserve System			
Assets		Liabilities		Assets		Liabilities	
Reserves	+\$100m	Loans	+\$100m	Loans	+\$100m	Reserves	+\$100m
		(borrowing from Fed)		(borrowing from Fed)			

- Monetary liabilities of the Fed have increased by \$100
- Monetary base also increases by this amount

## Other Factors that Affect the Monetary Base

- **Float:** It is money in the banking system that is counted twice, for a brief time, because of delays in processing checks or any transfer of cash.
- **Treasury deposits** at the Federal Reserve
- **Interventions** in the **foreign exchange market**

## Overview of The Fed's Ability to Control the Monetary Base

- Open market operations are **controlled** by the **Fed**.
- The Fed cannot determine the **amount** of borrowing by banks from the Fed.
- Split the monetary base into two components:

$$MB_n = MB - BR$$

- The **money supply** is positively related to both the **non-borrowed** monetary base  $MB_n$  and to the **level of borrowed reserves**,  $BR$ , from the Fed.

## Multiple Deposit Creation: A Simple Model

### Deposit Creation: Single Bank

First National Bank		First National Bank	
Assets	Liabilities	Assets	Liabilities
Securities	-\$100m	Securities	-\$100m
Reserves	+\$100m	Checkable deposits	+\$100m
		Reserves	+\$100m
		Loans	+\$100m

- **Excess reserves** increase
- **Bank** loans out the **excess** reserves
- **Creates** a **checking** account
- **Borrower** makes **purchases**
- The **Money supply** has **increased**

### Deposit Creation: The Banking System

Bank A				Bank A			
Assets		Liabilities		Assets		Liabilities	
Reserves	+\$100 m	Checkable deposits	+\$100 m	Reserves	+\$10	Checkable deposits	+\$100 m
				Loans	+\$90		

Bank B				Bank B			
Assets		Liabilities		Assets		Liabilities	
Reserves	+\$90	Checkable deposits	+\$90	Reserves	+\$9	Checkable deposits	+\$90
				Loans	+\$81		

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

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

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