

MISHKIN

The Economics of Money, Banking,
and Financial Markets



TENTH EDITION

Chapter 10

Banking and the Management of Financial Institutions



The Bank Balance Sheet

- Liabilities
 - Checkable deposits
 - Nontransaction deposits
 - Borrowings
 - Bank capital



The Bank Balance Sheet (cont'd)

- Assets
 - Reserves
 - Cash items in process of collection
 - Deposits at other banks
 - Securities
 - Loans
 - Other assets



Table 1 Balance Sheet of All Commercial Banks (items as a percentage of the total, June 2011)

Balance Sheet of All Commercial Banks (items as a percentage of the total, June 2011)

| Assets (Uses of Funds)* | | Liabilities (Sources of Funds) | |
|---|------------|----------------------------------|------------|
| Reserves and cash items | 15% | Checkable deposits | 10% |
| Securities | | Nontransaction deposits | |
| U.S. government and agency | 13 | Small-denomination time deposits | 41 |
| State and local government and other securities | 6 | (< \$100,000) + savings deposits | |
| Loans | | Large-denomination time deposits | 14 |
| Commercial and industrial | 10 | Borrowings | 23 |
| Real estate | 28 | Bank capital | 12 |
| Consumer | 9 | | |
| Interbank | 1 | | |
| Other | 8 | | |
| Other assets (for example, physical capital) | 9 | | |
| Total | 100 | Total | 100 |

*In order of decreasing liquidity.

Source: www.federalreserve.gov/releases/h8/current/.



Basic Banking: Cash Deposit

| First National Bank | | | | First National Bank | | | |
|---------------------|--------|--------------------|--------|---------------------|--------|--------------------|--------|
| Assets | | Liabilities | | Assets | | Liabilities | |
| Vault Cash | +\$100 | Checkable deposits | +\$100 | Reserves | +\$100 | Checkable deposits | +\$100 |

- Opening of a checking account leads to an increase in the bank's reserves equal to the increase in checkable deposits



Basic Banking: Check Deposit

| First National Bank | | | |
|-------------------------------------|--------|--------------------|--------|
| Assets | | Liabilities | |
| Cash items in process of collection | +\$100 | Checkable deposits | +\$100 |

When a bank receives additional deposits, it gains an equal amount of reserves; when it loses deposits, it loses an equal amount of reserves

| First National Bank | | | | Second National Bank | | | |
|---------------------|--------|--------------------|--------|----------------------|--------|--------------------|--------|
| Assets | | Liabilities | | Assets | | Liabilities | |
| Reserves | +\$100 | Checkable deposits | +\$100 | Reserves | -\$100 | Checkable deposits | -\$100 |



Basic Banking: Making a Profit

| First National Bank | | | |
|---------------------|--------|--------------------|--------|
| Assets | | Liabilities | |
| Required reserves | +\$100 | Checkable deposits | +\$100 |
| Excess reserves | +\$90 | | |

| First National Bank | | | |
|---------------------|--------|--------------------|--------|
| Assets | | Liabilities | |
| Required reserves | +\$100 | Checkable deposits | +\$100 |
| Loans | +\$90 | | |

- Asset transformation: selling liabilities with one set of characteristics and using the proceeds to buy assets with a different set of characteristics
- The bank borrows short and lends long



General Principles of Bank Management

- Liquidity Management
- Asset Management
- Liability Management
- Capital Adequacy Management
- Credit Risk
- Interest-rate Risk



Liquidity Management: Ample Excess Reserves

| Assets | | Liabilities | |
|------------|-------|--------------|--------|
| Reserves | \$20M | Deposits | \$100M |
| Loans | \$80M | Bank Capital | \$10M |
| Securities | \$10M | | |

| Assets | | Liabilities | |
|------------|-------|--------------|-------|
| Reserves | \$10M | Deposits | \$90M |
| Loans | \$80M | Bank Capital | \$10M |
| Securities | \$10M | | |

- Suppose bank's required reserves are 10%
- If a bank has ample excess reserves, a deposit outflow does not necessitate changes in other parts of its balance sheet



Liquidity Management: Shortfall in Reserves

| Assets | | Liabilities | |
|------------|-------|--------------|--------|
| Reserves | \$10M | Deposits | \$100M |
| Loans | \$90M | Bank Capital | \$10M |
| Securities | \$10M | | |

| Assets | | Liabilities | |
|------------|-------|--------------|-------|
| Reserves | \$0 | Deposits | \$90M |
| Loans | \$90M | Bank Capital | \$10M |
| Securities | \$10M | | |

- Reserves are a legal requirement and the shortfall must be eliminated
- Excess reserves are insurance against the costs associated with deposit outflows



Liquidity Management: Borrowing

| Assets | | Liabilities | |
|---------------|-------|--------------------|-------|
| Reserves | \$9M | Deposits | \$90M |
| Loans | \$90M | Borrowing | \$9M |
| Securities | \$10M | Bank Capital | \$10M |

- Cost incurred is the interest rate paid on the borrowed funds



Liquidity Management: Securities Sale

| Assets | | Liabilities | |
|---------------|-------|--------------------|-------|
| Reserves | \$9M | Deposits | \$90M |
| Loans | \$90M | Bank Capital | \$10M |
| Securities | \$1M | | |

- The cost of selling securities is the brokerage and other transaction costs



Liquidity Management: Federal Reserve

| Assets | | Liabilities | |
|---------------|-------|--------------------|-------|
| Reserves | \$9M | Deposits | \$90M |
| Loans | \$90M | Borrow from Fed | \$9M |
| Securities | \$10M | Bank Capital | \$10M |

- Borrowing from the Fed also incurs interest payments based on the discount rate



Liquidity Management: Reduce Loans

| Assets | | Liabilities | |
|------------|-------|--------------|-------|
| Reserves | \$9M | Deposits | \$90M |
| Loans | \$81M | Bank Capital | \$10M |
| Securities | \$10M | | |

- Reduction of loans is the most costly way of acquiring reserves
- Calling in loans antagonizes customers
- Other banks may only agree to purchase loans at a substantial discount



Asset Management: Three Goals

- 1. Seek the highest possible returns on loans and securities
- 2. Reduce risk
- 3. Have adequate liquidity



Asset Management: Four Tools

- 1. Find borrowers who will pay high interest rates and have low possibility of defaulting
- 2. Purchase securities with high returns and low risk
- 3. Lower risk by diversifying
- 4. Balance need for liquidity against increased returns from less liquid assets



Liability Management

- Recent phenomenon due to rise of money center banks
- Expansion of overnight loan markets and new financial instruments (such as negotiable CDs)
- Checkable deposits have decreased in importance as source of bank funds



Capital Adequacy Management

- Bank capital helps prevent bank failure
- The amount of capital affects return for the owners (equity holders) of the bank
- Regulatory requirement



Capital Adequacy Management: Preventing Bank Failure

| High Bank Capital | | | | Low Bank Capital | | | |
|-------------------|-------|--------------|-------|------------------|-------|--------------|-------|
| Assets | | Liabilities | | Assets | | Liabilities | |
| Reserves | \$10M | Deposits | \$90M | Reserves | \$10M | Deposits | \$96M |
| Loans | \$90M | Bank Capital | \$10M | Loans | \$90M | Bank Capital | \$4M |

| High Bank Capital | | | | Low Bank Capital | | | |
|-------------------|-------|--------------|-------|------------------|-------|--------------|-------|
| Assets | | Liabilities | | Assets | | Liabilities | |
| Reserves | \$10M | Deposits | \$90M | Reserves | \$10M | Deposits | \$96M |
| Loans | \$85M | Bank Capital | \$5M | Loans | \$85M | Bank Capital | -\$1M |



Capital Adequacy Management: Returns to Equity Holders

Return on Assets: net profit after taxes per dollar of assets

$$ROA = \frac{\text{net profit after taxes}}{\text{assets}}$$

Return on Equity: net profit after taxes per dollar of equity capital

$$ROE = \frac{\text{net profit after taxes}}{\text{equity capital}}$$

Relationship between ROA and ROE is expressed by the
Equity Multiplier: the amount of assets per dollar of equity capital

$$EM = \frac{\text{Assets}}{\text{Equity Capital}}$$

$$\frac{\text{net profit after taxes}}{\text{equity capital}} = \frac{\text{net profit after taxes}}{\text{assets}} \times \frac{\text{assets}}{\text{equity capital}}$$

$$ROE = ROA \times EM$$



Capital Adequacy Management: Safety

- Benefits the owners of a bank by making their investment safe
- Costly to owners of a bank because the higher the bank capital, the lower the return on equity
- Choice depends on the state of the economy and levels of confidence



Application: How a Capital Crunch Caused a Credit Crunch During the Global Financial Crisis

- Shortfalls of bank capital led to slower credit growth
 - Huge losses for banks from their holdings of securities backed by residential mortgages.
 - Losses reduced bank capital
- Banks could not raise much capital on a weak economy, and had to tighten their lending standards and reduce lending.



Managing Credit Risk

- Screening and Monitoring
 - Screening
 - Specialization in lending
 - Monitoring and enforcement of restrictive covenants



Managing Credit Risk (cont'd)

- Long-term customer relationships
- Loan commitments
- Collateral and compensating balances
- Credit rationing



Managing Interest-Rate Risk

| First National Bank | | | |
|------------------------------------|-------|-------------------------------|-------|
| Assets | | Liabilities | |
| Rate-sensitive assets | \$20M | Rate-sensitive liabilities | \$50M |
| Variable-rate and short-term loans | | Variable-rate CDs | |
| Short-term securities | | Money market deposit accounts | |
| Fixed-rate assets | \$80M | Fixed-rate liabilities | \$50M |
| Reserves | | Checkable deposits | |
| Long-term loans | | Savings deposits | |
| Long-term securities | | Long-term CDs | |
| | | Equity capital | |

- If a bank has more rate-sensitive liabilities than assets, a rise in interest rates will reduce bank profits and a decline in interest rates will raise bank profits



Gap and Duration Analysis

- Basic gap analysis:

(rate sensitive assets - rate sensitive liabilities) Δx \square \square interest rates Δ =
 \square \square \square in bank profit

- Maturity bucked approach

- Measures the gap for several maturity subintervals.

- Standardized gap analysis

- Accounts for different degrees of rate sensitivity.



Gap and Duration Analysis (cont'd)

Δ % in market value of security \approx - percentage point in interest rate \times duration in years.

- Uses the weighted average duration of a financial institution's assets and of its liabilities to see how net worth responds to a change in interest rates.



Off-Balance-Sheet Activities

- Loan sales (secondary loan participation)
- Generation of fee income. Examples:
 - Servicing mortgage-backed securities
 - Creating SIVs (structured investment vehicles) which can potentially expose banks to risk, as it happened in the global financial crisis



Off-Balance-Sheet Activities (cont'd)

- Trading activities and risk management techniques
 - Financial futures, options for debt instruments, interest rate swaps, transactions in the foreign exchange market and speculation.
 - Principal-agent problem arises



Off-Balance-Sheet Activities (cont'd)

- Internal controls to reduce the principal-agent problem
 - Separation of trading activities and bookkeeping
 - Limits on exposure
 - Value-at-risk
 - Stress testing