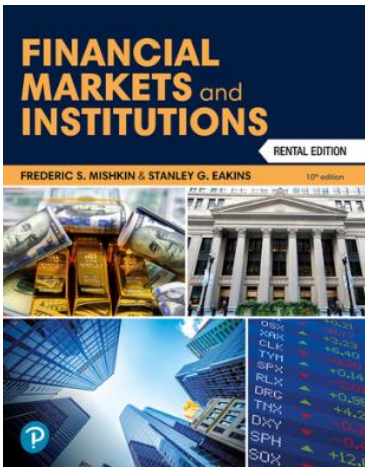
Financial Markets and Institutions

Tenth Edition



Part 6 The Financial Institutions Industry
Chapter 17

Banking and the Management of Financial Institutions

Chapter Preview (1 of 2)

- Banks play an important role in channeling funds (about $6 trillion annually) to finance productive investment opportunities.
- They provide loans to businesses, finance college educations, and allow us to purchase homes with mortgages.

Chapter Preview (2 of 2)

- In this chapter, we examine how banking is conducted to earn the highest profits possible. In the commercial banking setting, we look at loans, balance sheet management, and income determinants. Topics include:
  - The Bank Balance Sheet
  - Basics of Banking
  - General Principles of Bank Management
  - Off-Balance-Sheet Activities
  - Measuring Bank Performance

The Bank Balance Sheet (1 of 2)

- The Balance Sheet is a list of a bank's assets and liabilities
- Total assets = total liabilities + capital

The Bank Balance Sheet (2 of 2)

- A bank's balance sheet lists **sources** of bank funds (liabilities) and **uses** to which they are put (assets)
- Banks invest these liabilities (sources) into assets (uses) in order to create value for their capital providers

Table 17.1

Balance Sheet of All Commercial Banks (Items as a Percentage of the Total, 2022)

Assets		Liabilities	
Reserves and cash items	15	Checkable deposits	19
Securities		Nontransaction deposits	
U.S. government and agency	20	Small-denomination time deposits	52
State and local government and other securities	5	(<$100,000) + savings deposits	
Loans		Large-denomination time deposits	7
Commercial and industrial	12	Borrowings	7
Real estate	22	Other liabilities	5
Consumer	8	Bank capital	10
Other	9		
Other assets (for example, physical capital)	9		
Total	100	Total	100

Source: http://www.federalreserve.gov/releases/h8/ and http://www.federalreserve.gov/releases/h6/ .

The Bank Balance Sheet: Liabilities (1 of 4)

- **Checkable Deposits**: accounts that allow the owner (depositor) to write checks to third parties
  - non-interest earning checking accounts
  - interest earning negotiable orders of withdrawal (NOW) accounts
  - money-market deposit accounts
- Lowest cost funds—safe and liquid, but offer low interest.
- Make up about 10% of bank liabilities.

The Bank Balance Sheet: Liabilities (2 of 4)

- **Nontransaction Deposits**: primary source of bank liabilities (50%) and are accounts from which the depositor cannot write checks
  - savings accounts
  - time deposits (CDs or certificates of deposit)
- Highest cost of funding, but most stable for bank

The Bank Balance Sheet: Liabilities (3 of 4)

- **Borrowings:** funds from the Federal Reserve System, other banks, and corporations
  - discount loans/advances (from the Fed)
  - fed funds (from other banks)
  - interbank offshore dollar deposits (from other banks),
  - repurchase agreements (a.k.a., “repos”)
  - commercial paper and notes
- More volatile than other liabilities, make up 19% of bank liabilities

The Bank Balance Sheet: Liabilities (4 of 4)

- **Bank Capital**: is the source of funds supplied by the bank owners
- About 11% of assets.

The Bank Balance Sheet: Assets (1 of 6)

- **Reserves**: funds held in account with the Fed (vault cash as well).
- **Required reserves** represent what is required by law under current **required reserve ratios**.
- Any reserves beyond this area called **excess reserves**.

The Bank Balance Sheet: Assets (2 of 6)

- **Cash items in Process of Collection**: checks deposited at a bank, funds from other bank have not yet been transferred.
- **Deposits at Other Banks**: usually deposits from small banks at larger banks (referred to as **correspondent banking**)

The Bank Balance Sheet: Assets (3 of 6)

- **Reserves, Cash items in Process of Collection, and Deposits at Other Banks** are collectively referred to as **Cash Items** in our balance sheet
- Account for 16% of assets

The Bank Balance Sheet: Assets (4 of 6)

- **Securities**:
  - U.S. government/agency debt
  - municipal debt
  - other (non-equity) securities
- These make up about 20% of assets.
- Short-term Treasury debt is a **secondary reserve** because of its high liquidity.

The Bank Balance Sheet: Assets (5 of 6)

- **Loans:** a bank's income-earning assets
  - business loans, auto loans, and mortgages
- Not very liquid
- About 53% of assets

The Bank Balance Sheet: Assets (6 of 6)

- **Other Assets**: bank buildings, computer systems, and other equipment.

Basics of Banking (1 of 9)

It is helpful to understand some of the simple accounting associated with the process of banking.

- Think beyond the debits/credit—and try to see that banks engage in **asset transformation**.

Basics of Banking (2 of 9)

- **Asset transformation** is, for example, when a bank takes your savings deposits and uses the funds to make, say, a mortgage loan.
- Banks tend to “borrow short and lend long” (in terms of maturity).

Basics of Banking (3 of 9)

- T-account Analysis:
  - Deposit of $100 cash into First National Bank

First National Bank			
Assets		Liabilities	
Vault Cash	+$100	Checkable deposits	+$100

Basics of Banking (4 of 9)

- Deposit of $100 check

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

Basics of Banking (5 of 9)

- Deposit of $100 check

First National Bank			
Assets		Liabilities	
Reserves	+$100	Checkable deposits	+$100

Second National Bank			
Assets		Liabilities	
Reserves	–$100	Checkable deposits	–$100

Basics of Banking (6 of 9)

- Conclusion: When bank receives deposits, reserves increase by equal amount; when bank loses deposits, reserves drop by equal amount

Basics of Banking (7 of 9)

- This simple analysis gets more complicated when we add bank regulations to the picture.
- T-account Analysis:
  - Deposit of $100 cash into First National Bank

First National Bank			
Assets		Liabilities	
Required reserves	+$10	Checkable deposits	+$100
Excess reserves	+$90		

Basics of Banking (8 of 9)

- $10 of the deposit must remain with the bank to meeting federal regulations.
- Bank is free to work with the $90
- The bank loans the $90 to its customers

Basics of Banking (9 of 9)

- T-account Analysis:
  - Deposit of $100 cash into First National Bank
  - Excess reserves loaned out

First National Bank			
Assets		Liabilities	
Required reserves	+$10	Checkable deposits	+$100
Loans	+$90		

General Principles of Bank Management (1 of 2)

Now let's look at how a bank manages its assets and liabilities. The bank has four primary concerns:

1. Liquidity management
2. Asset management
   - Managing credit risk
   - Managing interest-rate risk
3. Liability management
4. Managing capital adequacy

General Principles of Bank Management (2 of 2)

Although we will focus on these ideas, banks must also manage **credit risk** and **interest-rate risk**.

Principles of Bank Management (1 of 7)

- **Liquidity Management**
- Reserves requirement = 10%, Excess reserves = $10 million

First National Bank			
Assets		Liabilities	
Required reserves	$20 million	Checkable deposits	$100 million
Loans	$80 million	Bank Capital	$10 million
Securities	$10 million		

Principles of Bank Management (2 of 7)

Deposit outflow of $10 million

- With 10% reserve requirement, bank still has excess reserves of $1 million: no changes needed in balance sheet

First National Bank			
Assets		Liabilities	
Required reserves	$10 million	Checkable deposits	$90 million
Loans	$80 million	Bank Capital	$10 million
Securities	$10 million		

Principles of Bank Management (3 of 7)

- **Liquidity Management—No Excess Reserves**
- Reserves requirement = 10%, Excess reserves = $0 million

First National Bank			
Assets		Liabilities	
Required reserves	$10 million	Checkable deposits	$100 million
Loans	$90 million	Bank Capital	$10 million
Securities	$10 million		

Principles of Bank Management (4 of 7)

Deposit outflow of $10 million

- With no excess reserves, bank has a shortfall—not enough required reserves!

First National Bank			
Assets		Liabilities	
Required reserves	$0 million	Checkable deposits	$90 million
Loans	$90 million	Bank Capital	$10 million
Securities	$10 million		

Principles of Bank Management (5 of 7)

How can the bank recover?

- Borrow from other banks
- Sell securities
- Borrow from the Fed
- Reduce loan portfolio
- Each of these is detailed in the next two slides

Principles of Bank Management (6 of 7)

First National Bank —After Borrowing			
Assets		Liabilities	
Required reserves	$9 million	Checkable deposits	$90 million
Loans	$90 million	Borrowings	$9 million
Securities	$10 million	Bank Capital	$10 million

First National Bank —After Selling Securities			
Assets		Liabilities	
Required reserves	$9 million	Checkable deposits	$90 million
Loans	$90 million		
Securities	$1 million	Bank Capital	$10 million

Principles of Bank Management (7 of 7)

First National Bank—After Borrowing from the Fed			
Assets		Liabilities	
Required reserves	$9 million	Checkable deposits	$90 million
Loans	$90 million	Borrowings from Fed	$9 million
Securities	$10 million	Bank Capital	$10 million

First National Bank —After Selling Securities			
Assets		Liabilities	
Required reserves	$9 million	Checkable deposits	$90 million
Loans	$81 million		
Securities	$10 million	Bank Capital	$10 million

Asset Management

- Asset Management: the attempt to earn the highest possible return on assets while minimizing the risk.
    1. Get borrowers with low default risk, paying high interest rates
    2. Buy securities with high return, low risk
    3. Diversify
    4. Manage liquidity

Liability Management (1 of 2)

- Liability Management: managing the source of funds, from deposits, to CDs, to other debt.
    1. Important since the 1960s
    2. No longer primarily depend on deposits
    3. When see loan opportunities, borrow or issue CDs to acquire funds

Liability Management (2 of 2)

- Banks manage both sides of the balance sheet together, whereas it was more separate in the past.
- Most banks manage this via the **asset-liability management (ALM) committee**.
- Explains the increased use of CDs and loans over checkable deposits in recent decades.

Capital Adequacy Management—A Story of Two Banks (1 of 2)

High Capital Bank			
Assets		Liabilities	
Required reserves	$10 million	Checkable deposits	$90 million
Loans	$90 million	Bank Capital	$10 million

Low Capital Bank			
Assets		Liabilities	
Required reserves	$10 million	Checkable deposits	$96 million
Loans	$90 million	Bank Capital	$4 million

Capital Adequacy Management (1 of 3)

- What happens if these banks make loans or invest in securities (say, subprime mortgage loans, for example) that end up losing money?
- Let's assume both banks lose $5 million from bad loans.

Capital Adequacy Management—A Story of Two Banks (2 of 2)

High Capital Bank			
Assets		Liabilities	
Required reserves	$10 million	Checkable deposits	$90 million
Loans	$85 million	Bank Capital	$5 million

Low Capital Bank			
Assets		Liabilities	
Required reserves	$10 million	Checkable deposits	$96 million
Loans	$85 million	Bank Capital	–$1 million

Capital Adequacy Management (2 of 3)

So, why don't banks hold want to hold a lot of capital??

- Higher is bank capital, lower is return on equity
  - $ROA = $ Net Profits/Assets
  - $ROE = $ Net Profits/Equity Capital
  - $EM = $ Assets/Equity Capital
  - $ROE = ROA \times EM$
  - Capital increases, *EM* falls, *ROE* falls

Capital Adequacy Management (3 of 3)

- Tradeoff between safety (high capital) and ROE
- Banks also hold capital to meet capital requirements (more on this in Chapter 20).

The Practicing Manager (1 of 2)

Strategies for Managing Capital: what should a bank manager do if she feels the bank is holding too **much** capital?

- Sell or retire stock
- Increase dividends to reduce retained earnings
- Increase asset growth via debt (like CDs)

The Practicing Manager (2 of 2)

Reversing these strategies will help a manager if she feels the bank is holding too **little** capital?

- Issue stock
- Decrease dividends to increase retained earnings
- Slow asset growth (retire debt)

How a Capital Crunch Caused a Credit Crunch During the Global Financial Crisis (1 of 2)

The slowdown in growth of credit triggered a crunch in 2007—credit was hard to get. What caused the credit crunch?

- Housing boom and bust led to large bank losses, including losses on SIVs which had to be recognized on the balance sheet.
- The losses reduced bank capital.

How a Capital Crunch Caused a Credit Crunch During the Global Financial Crisis (2 of 2)

Banks were forced to either (1) raise new capital or (2) reduce lending. Guess which route they chose? Why would banks be hesitant to raise new capital (equity) during an economic downturn?

Off-Balance-Sheet Activities

1. Loan sales (secondary loan participation)
2. Fee income from
   - Foreign exchange trades for customers
   - Servicing mortgage-backed securities
   - Guarantees of debt
   - Backup lines of credit
3. Trading Activities and Risk Management Techniques
   - Financial futures and options
   - Foreign exchange trading
   - Interest rate swaps

- **All these activities involve risk and potential conflicts**

Rogue Traders (1 of 2)

To highlight the problems that some of these off-balance sheet activities generate, we will briefly look at two incidences with devastating results.

Barings: Nick Leeson engaged in speculative trades on the Nikkea, and personally generated **$1.3 billion** in losses over a three-year period. Barings had to close!

Rogue Traders (2 of 2)

Daiwa Bank: Toshihide Iguchi racked up **$1.1 billion** in losses in trading. When he fessed up, the bank decided to hide this from regulators. The bank was eventually fined $340 million and barred from U.S. operations.

J.P. Morgan Chase: Face a trading loss of over $2 billion by Bruno Iksill, who was colorfully nicknamed “the London Whale.”

Measuring Bank Performance

Measuring bank performance requires a look at the income statement:

- Operating Income
- Operating Expenses
- Net Operating Income

This is different from a manufacturing firm’s income statement.

Bank Performance Measures

- Return on Assets = $ROA = \text{Net Profits/ Assets}$
- Return on Equity = $ROE = \text{Net Profits/ Equity Capital}$
- Net Interest Margin =

$$NIM = \left[\text{Interest Income} - \text{Interest Expenses}\right] / \text{Assets}$$

Table 17.2 (1 of 2)

Income Statement for All Federally Insured Commercial Banks and Savings Institutions, 2021

	Amount ($ billions)		Share of Operating Income or Expenses (%)	
Operating Income				
Interest income		563.6		65.2
Interest on loans	459.9		53.2	
Interest on securities	81.8		9.5	
Other interest	21.9		2.5	
Noninterest income		300.4		34.8
Service charges on deposit accounts	33.9		3.9	
Other noninterest income	266.5		30.8	
Total operating income		864.0		100.0
Operating Expenses				
Interest expense		36.1		7.0
Interest on deposits	25.0		4.9	
Interest on fed funds	0.4		0.0	
Other	10.7		2.1	

Table 17.2 (2 of 2)

Income Statement for All Federally Insured Commercial Banks and Savings Institutions, 2021

	Amount ($ billions)		Share of Operating Income or Expenses (%)
Operating Expenses			
Noninterest expenses		510.2	99.0
Salaries and employee benefits	252.3		49.0
Premises and equipment	48.0		9.3
Other	209.8		40.7
Provisions for loan losses		−31.0	−6.0
Total operating expense		515.3	100.0
Net Operating Income		348.7	
Gain or loss on securities		3.0	
Extraordinary items net		0.0	
Income taxes		−72.4	
Net Income		279.3	

Source: www.fdic.gov/analysis/quarterly-banking-profile/ .

Table 17.3 (1 of 3)

Measures of Performance for All Federally Insured Institutions, 1980–2021

Year	Return on Assets (ROA) (%)	Return on Equity (ROE) (%)	Net Interest Margin (NIM) (%)
1980	0.77	13.38	3.33
1981	0.79	13.68	3.31
1982	0.73	12.55	3.39
1983	0.68	11.60	3.34
1984	0.66	11.04	3.47
1985	0.72	11.67	3.62
1986	0.64	10.30	3.48
1987	0.09	1.54	3.40
1988	0.82	13.74	3.57
1989	0.50	7.92	3.58
1990	0.49	7.81	3.50
1991	0.53	8.25	3.60
1992	0.94	13.86	3.89
1993	1.23	16.30	3.97
1994	1.20	15.00	3.95

Table 17.3 (2 of 3)

Measures of Performance for All Federally Insured Institutions, 1980–2021

Year	Return on Assets (ROA) (%)	Return on Equity (ROE) (%)	Net Interest Margin (NIM) (%)
1995	1.17	14.66	4.29
1996	1.19	14.45	4.27
1997	1.23	14.69	4.21
1998	1.18	13.3	3.47
1999	1.31	15.31	4.07
2000	1.19	14.02	3.95
2001	1.15	13.09	3.90
2002	1.30	14.08	3.96
2003	1.38	15.05	3.73
2004	1.28	13.20	3.54
2005	1.30	12.73	3.50
2006	1.28	12.31	3.31

Table 17.2 (3 of 3)

Measures of Performance for All Federally Insured Institutions, 1980–2021

Year	Return on Assets (ROA) (%)	Return on Equity (ROE) (%)	Net Interest Margin (NIM) (%)
2007	0.81	7.75	3.29
2008	0.03	0.35	3.16
2009	0.08	0.73	3.49
2010	0.65	5.85	3.76
2011	0.88	7.79	3.60
2012	1.00	8.90	3.42
2013	1.07	9.54	3.26
2014	1.01	9.01	3.14
2015	1.04	9.29	3.08
2016	1.04	9.30	3.13
2017	0.97	8.60	3.25
2018	1.35	11.98	3.40
2019	1.29	11.38	3.36
2020	0.72	6.85	2.82
2021	1.23	12.21	2.54

Source: https://www.fdic.gov/analysis/quarterly-banking-profile/ .

Chapter Summary (1 of 3)

- The Bank Balance Sheet: we reviewed the basic assets, liabilities, and bank capital that make up the balance sheet
- Basics of Banking: we examined the accounting entries for a series of simple bank transactions

Chapter Summary (2 of 3)

- General Principles of Bank Management: we discussed the roles of liability, reserves, asset, and capital adequacy management for a bank
- Off-Balance-Sheet Activities: we briefly reviewed some of the (risky) activities that banks engage in that don't appear on the balance sheet or income statement

Chapter Summary (3 of 3)

- Measuring Bank Performance: we reviewed the income statement for a banking organization and key ratios commonly used for measuring and comparing bank performance

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