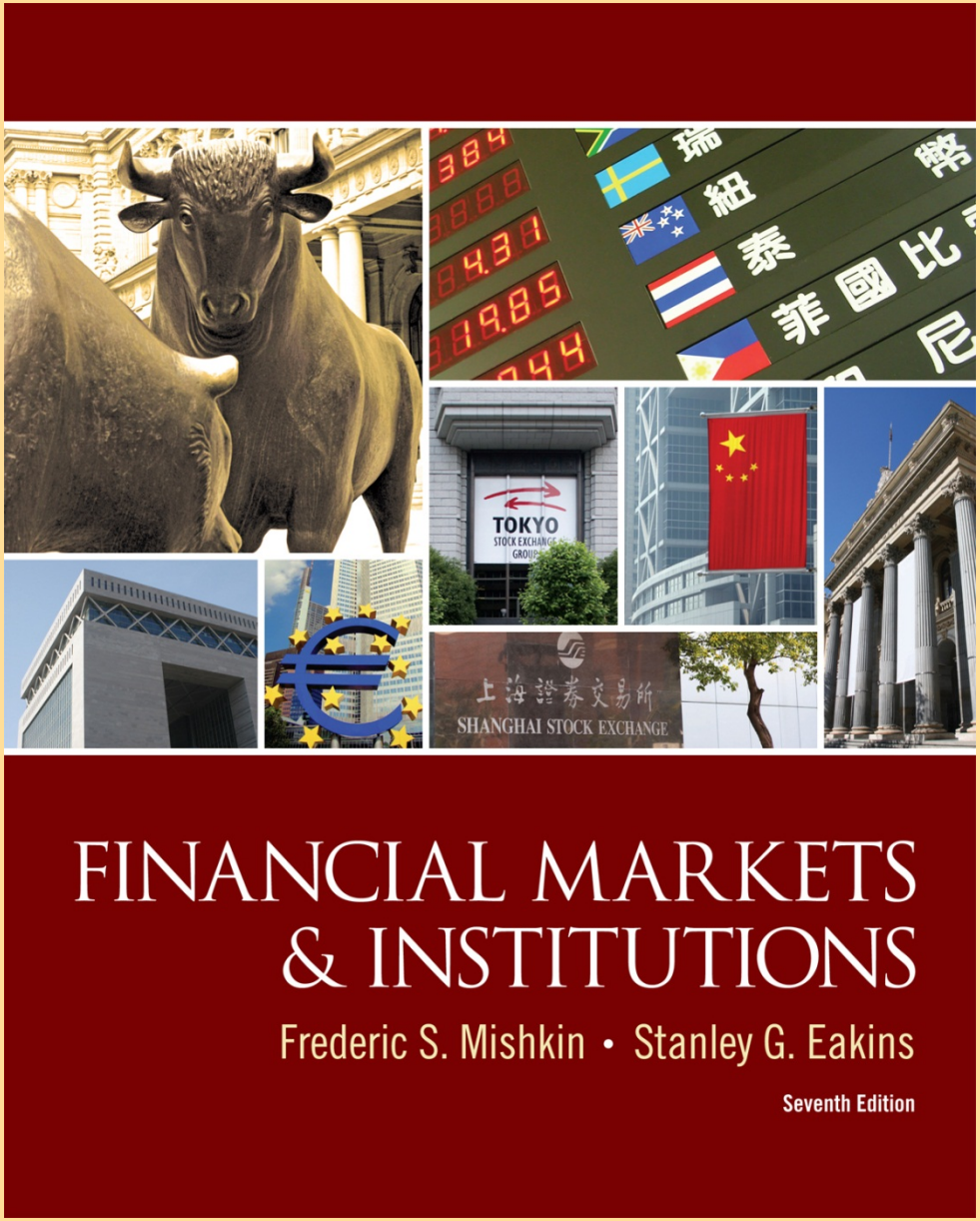

PART SIX

THE FİNANCİAL INSTITUTIONS INDUSTRY

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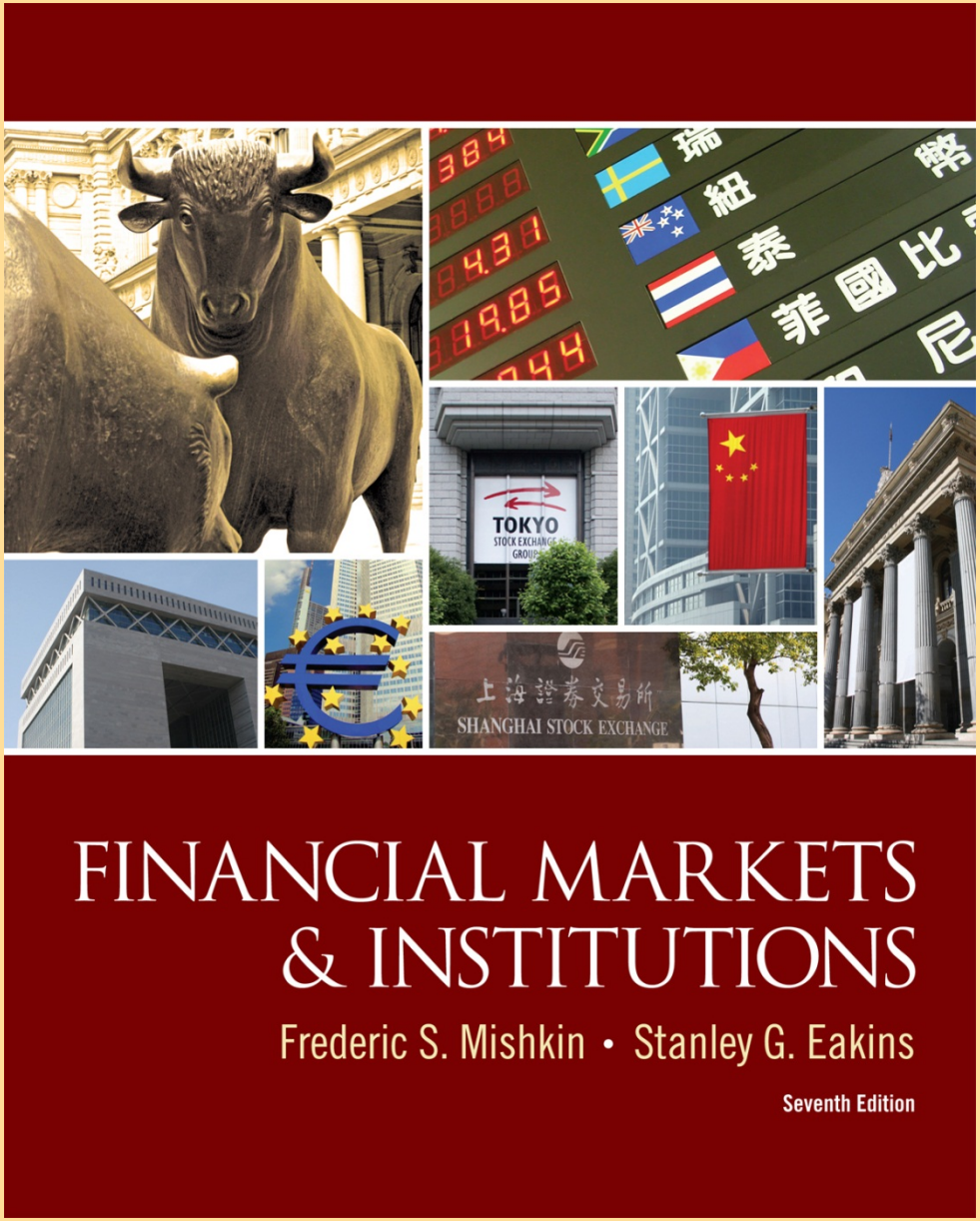

CHAPTER 17

Banking and the Management of Financial Institutions

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Chapter Preview

- 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

- 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

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

The Bank Balance Sheet

- 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

The Bank Balance Sheet

- The next slide shows the aggregate balance sheet for all commercial banks as of 2010, each of these items as a % of assets. We will then examine each item in detail.

The Bank Balance Sheet

TABLE 17.1 Balance Sheet of All Commercial Banks (items as a percentage of the total, 2010)

Assets		Liabilities	
Reserves and cash items	2	Checkable deposits	4
Securities		Nontransaction deposits	
U.S. government and agency	9		
State and local government and other securities	8	Small-denomination time deposits (<$100,000) + savings deposits	62
Loans		Large-denomination time deposits	12
Commercial and industrial	9		
Real estate	25	Other liabilities	4
Interbank	3		
Consumer	5	Borrowings	12
Other	32	Bank capital	6
Other assets (for example, physical captial)	7		
Total	100	Total	100

Source: http://www.federalreserve.gov/releases/h8/Current

Flow of funds (tab down to commercial banks)
http://www.federalreserve.gov/releases/z1/current/z1r-4.pdf

The Bank Balance Sheet: Liabilities (a)

- **Checkable Deposits**: includes all accounts that allow the owner (depositor) to write checks to third parties; examples include non-interest earning checking accounts (known as DDAs—demand deposit accounts), interest earning negotiable orders of withdrawal (NOW) accounts, and money-market deposit accounts (MMDAs), which typically pay the most interest among checkable deposit accounts

The Bank Balance Sheet: Liabilities (a)

- Checkable deposits are a bank's lowest cost funds because depositors want safety and liquidity and will accept a lesser interest return from the bank in order to achieve such attributes. They also make up about 4% of bank liabilities.

The Bank Balance Sheet: Liabilities (b)

- **Nontransaction Deposits**: are the overall primary source of bank liabilities (74%) and are accounts from which the depositor cannot write checks; examples include savings accounts and time deposits (also known as CDs or certificates of deposit)

The Bank Balance Sheet: Liabilities (b)

- Nontransaction deposits are generally a bank's highest cost funds because banks want deposits which are more stable and predictable and will pay more to the depositors (funds suppliers) in order to achieve such attributes.

The Bank Balance Sheet: Liabilities (c)

- **Borrowings**: banks obtain funds by borrowing from the Federal Reserve System, other banks, and corporations; these borrowings are called: discount loans/advances (from the Fed), fed funds (from other banks), interbank offshore dollar deposits (from other banks), repurchase agreements (a.k.a., “repos” from other banks and companies), commercial paper and notes (from companies and institutional investors)

The Bank Balance Sheet: Liabilities (c)

- Certain borrowings can be more volatile than other liabilities, depending on market conditions. They currently make up about 12% of bank liabilities, but have been as high as 26% (2004) and as low as 2% (1960) in recent history.

The Bank Balance Sheet: Liabilities (d)

- **Bank Capital**: is the source of funds supplied by the bank owners, either directly through purchase of ownership shares or indirectly through retention of earnings (retained earnings being the portion of funds which are earned as profits but not paid out as ownership dividends). This is about 6% of assets.

The Bank Balance Sheet: Liabilities (d)

- Since assets minus liabilities equals capital, capital is seen as protecting the liability suppliers from asset devaluations or write-offs (capital is also called the balance sheet's "shock absorber," thus capital levels are important).

The Bank Balance Sheet: Assets (a)

- **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 (a)

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

The Bank Balance Sheet: Assets (a)

- **Reserves, Cash items in Process of Collection, and Deposits at Other Banks** are collectively referred to as **Cash Items** in our balance sheet, and account for 2% of assets.

The Bank Balance Sheet: Assets (b)

- **Securities**: these are either U.S. government/agency debt, municipal debt, and other (non-equity) securities. These make-up about 17% of assets. Short-term Treasury debt is often referred to as **secondary reserves** because of its high liquidity.

The Bank Balance Sheet: Assets (c)

- **Loans**: representing 74% of assets, these are a bank's income-earning assets, such as business loans, auto loans, and mortgages. These are generally not very liquid. Most banks tend to specialize in either consumer loans or business loans, and even take that as far as loans to specific groups (such as a particular industry).

The Bank Balance Sheet: Assets (d)

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

Basics of Banking

Before we explore the main role of banks—that is, asset transformation—it is helpful to understand some of the simple accounting associated with the process of banking. But think beyond the debits/credit – and try to see that banks engage in **asset transformation**.

Basics of Banking

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

- 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

- Deposit of $100 check

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

First National Bank

Assets		Liabilities	
Reserves	+$100	Checkable deposits	+$100

Second National Bank

Assets		Liabilities	
Reserves	–$100	Checkable deposits	–$100

- Conclusion: When bank receives deposits, reserves ↑ by equal amount; when bank loses deposits, reserves ↓ by equal amount

Basics of Banking

This simple analysis gets more complicated when we add bank regulations to the picture. For example, if we return to the $100 deposit, recall that banks must maintain reserves, or vault cash. This changes how the $100 deposit is recorded.

Basics of Banking

- 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

As we can see, $10 of the deposit must remain with the bank to meeting federal regulations. Now, the bank is free to work with the $90 in its asset transformation functions. In this case, the bank loans the $90 to its customers.

Basics of Banking

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

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

General Principles of Bank Management

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

Although we will focus on these ideas, banks must also manage **credit risk** and **interest-rate risk**. An in-depth discussion of these topics will be presented in Chapter 24.

Principles of Bank Management

Liquidity Management

Reserves requirement = 10%, Excess reserves = $10 million

Assets		Liabilities	
Reserves	$20 million	Deposits	$100 million
Loans	$80 million	Bank capital	$ 10 million
Securities	$10 million		

Principles of Bank Management

Deposit outflow of $10 million

Assets		Liabilities	
Reserves	$10 million	Deposits	$90 million
Loans	$80 million	Bank capital	$10 million
Securities	$10 million		

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

Liquidity Management

No excess reserves

Assets		Liabilities	
Reserves	$ 0	Deposits	$90 million
Loans	$90 million	Bank capital	$10 million
Securities	$10 million		

Deposit outflow of $10 million

Assets		Liabilities	
Reserves	$10 million	Deposits	$100 million
Loans	$90 million	Bank capital	$ 10 million
Securities	$10 million		

- With 10% reserve requirement, bank has $9 million reserve shortfall

Liquidity Management

1. Borrow from other banks or corporations

Assets		Liabilities	
Reserves	$ 9 million	Deposits	$90 million
Loans	$90 million	Borrowings from other banks or corporations	$ 9 million
Securities	$10 million		
		Bank capital	$10 million

2. Sell securities

Assets		Liabilities	
Reserves	$ 9 million	Deposits	$90 million
Loans	$90 million	Bank capital	$10 million
Securities	$ 1 million		

Liquidity Management

3. Borrow from Fed

Assets		Liabilities	
Reserves	$ 9 million	Deposits	$90 million
Loans	$90 million	Borrowings from the Fed	$ 9 million
Securities	$10 million	Bank capital	$10 million

4. Call in or sell off loans

Assets		Liabilities	
Reserves	$ 9 million	Deposits	$90 million
Loans	$81 million	Bank capital	$10 million
Securities	$10 million		

- Conclusion: Excess reserves are insurance against above 4 costs from deposit outflows

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

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

Liability Management

- It's important to understand that banks now manage both sides of the balance sheet together, whereas it was more separate in the past. Indeed, most banks now manage this via the *asset-liability management (ALM) committee.*
- This explains the increased use of CDs and loans over checkable deposits in recent decades.

Capital Adequacy Management

1. Bank capital is a cushion that prevents bank failure. For example, consider these two banks:

High Capital Bank

Assets		Liabilities	
Reserves	$10 million	Deposits	$90 million
Loans	$90 million	Bank capital	$10 million

Low Capital Bank

Assets		Liabilities	
Reserves	$10 million	Deposits	$96 million
Loans	$90 million	Bank capital	$ 4 million

Capital Adequacy Management

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

- Impact of $5 million loan loss

High Capital Bank

Assets		Liabilities	
Reserves	$10 million	Deposits	$90 million
Loans	$85 million	Bank capital	$ 5 million

Low Capital Bank

Assets		Liabilities	
Reserves	$10 million	Deposits	$96 million
Loans	$85 million	Bank capital	–$ 1 million

Conclusion: A bank maintains reserves to lessen the chance that it will become insolvent.

Capital Adequacy Management

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

2. Higher is bank capital, lower is return on equity

- *ROA* = Net Profits/Assets
- *ROE* = Net Profits/Equity Capital
- *EM* = Assets/Equity Capital
- *ROE* = *ROA* × *EM*
- Capital ↑, *EM* ↓, *ROE* ↓

Capital Adequacy Management

3. Tradeoff between safety (high capital) and ROE

4. Banks also hold capital to meet capital requirements (more on this in Chapter 20).

The Practicing Manager:

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:

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 in 2008

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 in 2008

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**

Rouge Traders

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 3-year period. Barings had to close!

Rogue Traders

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.

Measuring Bank Performance

Much like any business, measuring bank performance requires a look at the income statement. For banks, this is separated into three parts:

- Operating Income
- Operating Expenses
- Net Operating Income

Note how this is different from, say, a manufacturing firm's income statement.

Banks' Income Statement (a)

TABLE 17.2 Income Statement for All Federally Insured Commercial Banks, 2009

	Amount ($ billions)		Share of Operating Income or Expenses (%)	
Operating Income				
Interest income		482.1		66.5%
Interest on loans	368.8		50.9%	
Interest on securities	86.2		11.9%	
Other interest	27.1		3.7%	
Noninterest income		242.5		33.5%
Service charges on DA	41		5.7%	
Other noninterest income	201.5		27.8%	
Total operating income		724.6		100%
Operating Expenses				
Interest expense		122.3		17.3%
Interest on deposits	84		11.9%	
Interest on fed funds and repos	5.3		0.8%	
Other	33		4.7%	

Banks' Income Statement (b)

Noninterest expenses		353.1	50.0%
Salaries and empolyee benefits	151	21.4%	
Premises and equipment	41.4	5.9%	
Other	160.7	22.8%	
Provisions for loan losses		230.9	32.7%
Total operating expense		706.3	100.0%
Net Operating Income		18.3	
Gain loss on securities		–0.9	
Extraordinary items net		–3.8	
Income taxes		–4	
Net Income		9.6	

http://www2.fdic.gov/SDI/main4.asp
Go to main site/create or modify report. Choose all commercial banks. Make reasonable assumptions.

Measuring Bank Performance

As, much like any firm, ratio analysis is useful to measure performance and compare performance among banks. The following slide shows both calculations and historical averages for key bank performance measures.

Recent Trends in Bank Performance Measures (a)

- *ROA* = Net Profits/ Assets
- *ROE* = Net Profits/ Equity Capital
- *NIM* = [Interest Income – Interest Expenses]/ Assets

TABLE 17.3 Measures of Bank Performance, 1980–2009

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

Recent Trends in Bank Performance Measures (b)

- *ROA* = Net Profits/ Assets
- *ROE* = Net Profits/ Equity Capital
- *NIM* = [Interest Income – Interest Expenses]/ Assets

1994	1.20	15.00	3.95
1995	1.17	14.66	4.29
1996	1.19	14.45	4.27
1997	1.23	14.69	4.21
1998	1.18	13.30	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
2007	0.81	7.75	3.29
2008	0.03	0.35	3.16
2009	0.05	0.7	2.03

Source: http://www2.fdic.gov/qbp/2010mar/all1a.html.

Chapter Summary

- 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 (cont.)

- 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 (cont.)

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