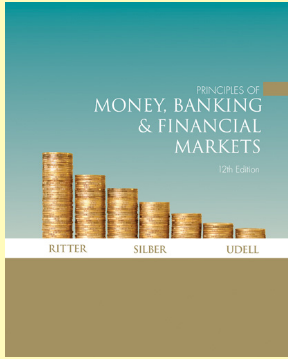
Chapter 12

Depository Financial Institutions



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Learning Objectives

- Evaluate the traditional uses and sources of bank funds
- Understand bank profitability and the risks inherent in banking
- Describe the recent consolidation in the banking industry and the expansion of banks into nontraditional banking markets
- Put international banking into perspective
- Understand and analyze the subprime mortgage crisis

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The Fundamentals of Bank Management

- Banks are business firms that buy (borrow) and sell (lend) money to make a profit
- **Money is the raw material for banks—Repackagers of money**
- Financial claims on both sides of balance sheet
  - **Liabilities**—Sources of funds
  - **Assets**—Uses of funds

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The Fundamentals of Bank Management (Cont.)

- **Uses of Funds (Assets) (Table 12.1 and 12.2)**
  - Total loans increased from 54% of total assets in 1980 to 59% in 2007—most increase coming from mortgages
  - Decline in cash and investments in state and local government securities
  - Holdings of federal government securities is fairly constant—highly marketable and liquid
    - Counter-cyclical—increase during recessions and decrease during expansions
    - Banks treat federal securities as a residual use of funds

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TABLE 12.1 Assets of Insured Commercial Banks, 1980–2007 (billions of dollars)

	1980	1990	2000	2007
Cash assets	332	318	369	482
U.S. govt. and agency securities	163	427	711	949
State and local govt. securities	146	84	92	141
Other securities	16	94	274	498
Business loans	391	615	1,051	1,370
Real estate loans	269	829	1,673	3,674
Consumer loans	187	403	606	959
Other loans	169	263	438	568
Miscellaneous assets	183	356	1,031	2,535
Total	1,856	3,389	6,245	11,176

Source: FDIC *Statistics on Depository Institutions.* All figures are as of year end.

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TABLE 12.2 Assets of Insured Commercial Banks, 1980–2007 (percentage distribution)

	1980	1990	2000	2007
Cash assets	18	9	6	4
U.S. govt. and agency securities	9	13	11	9
State and local govt. securities	8	2	1	1
Other securities	1	3	4	4
Business loans	21	18	17	12
Real estate loans	14	24	27	33
Consumer loans	10	12	10	9
Other loans	9	8	7	5
Miscellaneous assets	10	11	17	23
Total	100	100	100	100

Source: FDIC *Statistics on Depository Institutions.* All figures are as of year end.

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The Fundamentals of Bank Management (Cont.)

- **Uses of Funds (Assets) (Table 12.1 and 12.2) (Cont.)**
  - Banks are barred by law from owning stocks—too risky
  - However, banks do buy stocks for trusts they manage—not shown among bank's own assets

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The Fundamentals of Bank Management (Cont.)

- **Sources of Bank Funds (Liabilities) (Table 12.3 and 12.4)**
  - Percentage of funds from **transactions deposits** has reduced from 23% in 1970 to 6% in 2007
    - Used to be major source of funds
    - Generally low interest (if any) paid on demand deposits and increase in interest paid on other types of assets has caused this decline

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TABLE 12.3 Liabilities and Capital of Insured Commercial Banks, 1980–2007 (billions of dollars)

	1980	1990	2000	2007
Transactions deposits	435	685	679	708
Nontransactions deposits	752	1,672	2,794	5,098
Foreign deposits	293	294	706	1,502
Borrowed funds	178	385	1,046	1,879
Miscellaneous liabilities	90	135	490	845
Equity capital	108	218	530	1,144
Total	1,856	3,389	6,245	11,176

Source: FDIC *Statistics on Depository Institutions*. All figures are as of year end.

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TABLE 12.4 Liabilities and Capital of Insured Commercial Banks, 1980–2007 (percentage distribution)

	1980	1990	2000	2007
Transactions deposits	23	20	11	6
Nontransactions deposits	41	49	45	46
Foreign deposits	15	10	11	13
Borrowed funds	10	11	17	17
Miscellaneous liabilities	5	4	8	8
Equity capital	6	6	8	10
Total	100	100	100	100

Source: FDIC *Statistics on Depository Institutions*. All figures are as of year end.

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The Fundamentals of Bank Management (Cont.)

- **Sources of Bank Funds (Liabilities) (Table 12.3 and 12.4) (Cont.)**
  - **Non-transaction deposits** represented 46% of banks' funds in 2007
    - Passbook savings deposits—traditional form of savings
    - Time deposits—certificates of deposit with scheduled maturity date with penalty for early withdrawal
    - Money market deposit accounts—pay money market rates and offer limited checking functions
    - Negotiable CDs—can be sold prior to maturity

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The Fundamentals of Bank Management (Cont.)

- **Sources of Bank Funds (Liabilities) (Table 12.3 and 12.4) (Cont.)**
  - **Miscellaneous Liabilities** have experienced a significant increase during past 30 years
    - Borrowing from Federal Reserve—**discount borrowing**
    - Borrowing in the **federal funds market**—unsecured loans between banks, often on an overnight basis
    - Borrowing by banks from their foreign branches, parent corporation, and their subsidiaries and affiliates
    - **Repurchase Agreements**—sell government securities with agreement to re-purchase at later date
  - Securitization—Pooling loans into securities and selling to raise new funds

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The Fundamentals of Bank Management (Cont.)

- **Bank Capital (Equity)**
  - Individuals purchase stock in bank
  - Bank pays dividends to stockholders
  - Serves as a buffer against risk
  - Equity capital has remained stable at 6%-8%, but riskiness of bank assets has increased
  - Bank regulators force banks to increase their capital position to compensate for the increased risk of assets (loans)
  - Equity is most expensive source of funds so bankers prefer to minimize the use of equity

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The Fundamentals of Bank Management (Cont.)

- **Bank Profitability (Table 12.5)**
  - Bank management must balance between liquidity and profitability
  - **Net Interest Income**
    - Difference between **total interest income** (interest on loans and interest on securities and investments) and **interest expense** (amount paid to lenders)
    - Closely analogous to a manufacturing company's gross profit

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TABLE 12.5 Income Statement of Insured Commercial Banks, 1980–2007 (billions of dollars)

	1980	1990	2000	2007
Interest on loans	152	235	338	500
Interest on securities and investments	+ 23	+ 69	+ 90	+ 111
Total interest income	175	304	428	611
Interest expense	−120	−205	−225	− 308
Net interest income	55	99	203	303
Service charges and fees	+ 8	+ 16	+ 24	+ 39
Other operating income	+ 8	+ 56	+130	+ 172
Net operating income before expenses	71	171	357	514
Salaries and wages	− 25	− 52	− 89	− 142
Other operating expenses	− 26	− 96	−157	− 229
Net operating income	20	23	111	143
Securities gains (losses)	− 1	+ 1	− 2	− 1
Taxes	− 5	− 8	− 38	− 43
Net income after taxes	14	16	71	99

Source: FDIC *Statistics on Depository Institutions.*

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The Fundamentals of Bank Management (Cont.)

- **Bank Profitability (Table 12.5) (Cont.)**
  - **Net Interest Income (Cont.)**
    - **Net interest margin**—net interest income as a percentage of total bank assets
    - Factors that determine bank's interest margin
      - Better service means higher rates on loans and lower interest on deposits
      - Might have some monopoly power, but this is becoming more unlikely due to enormous competition from other banks and nonbank competitors
      - Also affected by a bank's risk—interest rate and credit

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The Fundamentals of Bank Management (Cont.)

- **Bank Profitability (Table 12.5) (Cont.)**
  - **Service charges and fees and other operating income**
    - Additional source of revenue
    - Become more important as banks have shifted from traditional interest income to more nontraditional sources on income
  - **Salaries and wages**
    - Banks are very labor-intensive
    - Pressure to reduce personnel and improve productivity

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The Fundamentals of Bank Management (Cont.)

- **Bank Profitability (Table 12.5) (Cont.)**
  - **Security gains/losses**
    - Results from the fact that securities held for investment are shown at historical cost
    - This may result in a gain or loss when the security is sold
  - **Net Income after Taxes**
    - **Net Income** less **taxes**
    - **Return on Assets (ROA)**—Net Income after taxes expressed as a percentage of total assets
    - **Return on Equity (ROE)**—Net Income after taxes divided by equity capital

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The Fundamentals of Bank Management (Cont.)

- **Bank Risk**
  - **Leverage Risk**
    - **Leverage**—Combine debt with equity to purchase assets
    - Leveraging with debt increases risk because debt requires fixed payments in the future
    - The more leveraged a bank is, the less its ability to absorb a loss in asset value
    - **Leverage Ratio**—Ratio of bank's equity capital to total assets [10% in 2007]
    - Regulators in US and other countries impose **risk-based capital requirements—riskier the asset, higher the capital requirement**

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12-19

The Fundamentals of Bank Management (Cont.)

- **Bank Risk (Cont.)**
  - **Credit Risk**
    - Possibility that borrower may default
    - Important for bank to get as much information as possible about borrower—asymmetric information
    - Charge higher interest or require higher collateral for riskier borrower
    - **Loan charge-offs** is a way to measure past risk associated with a bank's loans
    - Ratio of **non-performing loans** (delinquent 30 days or more) to total loans is a **forward-looking measure**

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12-20

The Fundamentals of Bank Management (Cont.)

- **Bank Risk (Cont.)**
  - **Interest Rate Risk**
    - Mismatch in maturity of a bank's assets and liabilities
    - Traditionally banks have **borrowed short and lent long**
    - Profitable if short-term rates are lower than long-term rates
    - Due to discounting, increasing interest rates will reduce the **present value** of bank's assets
    - Use of **floating interest rate** to reduce risk
    - The **one-year re-pricing GAP** is the simplest and most commonly used measure of interest rate risk
    - If interest rates rise while a bank has negative GAP, the bank can expect to pay more from its liabilities than it can expect to generate from higher interest rates on its assets

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The Fundamentals of Bank Management (Cont.)

- **Bank Risk (Cont.)**
  - **Trading Risk**
    - Banks act as dealers in financial instruments such as bonds, foreign currency, and derivatives
    - At risk of a drop in price of the financial instrument if they need to sell before maturity
    - Difficult to develop a good measure of trading risk since is it hard to estimate the statistical likelihood of adverse price changes

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12-22

The Fundamentals of Bank Management (Cont.)

- **Bank Risk (Cont.)**
  - **Liquidity Risk**
    - Possibility that transactions deposits and savings account can be withdrawn at any time
    - Banks may need additional cash if withdrawals significantly exceed new deposits
    - Traditionally banks provided liquidity through the **holding of liquid assets (cash and government securities)**
    - Historically these holdings were a measure of a bank's liquidity, but have declined as a percentage of total assets during the past 30 years (41%-1970; 24%-2002)
    - During past 30 years banks have used **miscellaneous liabilities** to increase their liquidity

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12-23

Major Trends in Bank Management

- For most of the 20th century banks were insulated from competition from other financial institutions
- US banking is in a period of transition due to recent changes in the regulations
- **The Consolidation Within the Banking Industry**
  - **McFadden Act of 1927**
    - Passed to prevent the formation of a few large, nationwide banking conglomerates
    - Prohibited banks branching across state lines

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12-24

Major Trends in Bank Management (Cont.)

- **The Consolidation Within the Banking Industry (Cont.)**
  - **McFadden Act of 1927 (Cont.)**
    - Many states also had restrictions that limited or prohibited branching within their state boundaries
    - **Result**—many, many small banks protected from competition from larger national banks
    - Over the years a number of loopholes were exploited to reduce effectiveness of law, primarily **bank holding company**—Parent corporation that can hold one or more subsidiary banks
    - **Riegle-Neal Interstate Banking and Branching Efficiency Act [1994]**—Overturned the McFadden Act

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Major Trends in Bank Management (Cont.)

- **The Consolidation Within the Banking Industry (Cont.)**
  - **Economics of Consolidation**
    - **Is consolidation of banking industry good or bad?**
    - How large should a bank be
      - Large enough to offer wide menu of products
      - Focus on a niche at which they are successful
    - Despite dramatic decrease in number of banks and banking organizations, number of banking offices (including savings institutions) has remained remarkable stable (**Figure 12.1**)

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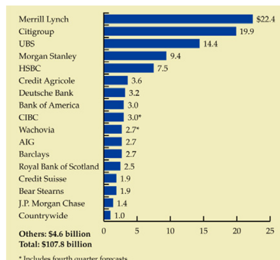
FIGURE 12.5 2007 bank charge-offs (in billions).



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Major Trends in Bank Management (Cont.)

- **The Consolidation Within the Banking Industry (Cont.)**
  - **Economics of Consolidation (Cont.)**
    - **Economies of Scale**—Banks become more efficient as they get larger
    - **Economies of Scope**—Offering a multitude of products is more efficient [traditional and non-traditional products]
    - Little empirical evidence to support either types of economies
    - **Possibly merger or expansion provided opportunity to become more efficient—something they should have done prior to the merger**

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Major Trends in Bank Management (Cont.)

- **Nontraditional Banking**
  - **Traditionally** commercial bank accepted demand deposits and made business loans
  - Under the regulation of the Federal Reserve, bank holding companies provide banks with more regulatory freedom
  - **However, activity is limited to activities closely related to banking**

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Major Trends in Bank Management (Cont.)

- **Nontraditional Banking (Cont.)**
  - **The Glass-Steagall Act [1933]**
    - Separated commercial banks from investment banking—banks forced to choose
    - Before 1999, commercial banks could not **underwrite corporate debt and equity**
    - Commercial banks challenged restrictions--investment banks were starting to act like commercial banks
    - **Circumventing Glass-Steagall**—a number of rulings by Federal Reserve eroded the distinction between commercial and investment banks
    - The **Gramm-Leach-Bliley Act (1999)** repealed the Glass-Steagall Act

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Globalization

- **American Banks Abroad**
  - Rapid expansion of US banks into foreign countries
    - Growth of foreign trade
    - American multinationals with operations abroad
  - **Edge Act (1919)**
    - Permitted US banks to establish special subsidiaries to facilitate involvement in international financing
    - Exempt from the McFadden Act's prohibition against interstate banking

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Globalization (Cont.)

- **Foreign Banks in the United States**
  - Many large and well-known banks in the US are foreign-owned
  - Organizational forms of foreign banks
    - Branch—integral part of foreign bank and carries bank's name, **full service**
    - Subsidiary—legally separate with its own charter, **full service**
    - Agencies—make loans but cannot accept deposits
    - Representative Offices—make contact with potential customers of parent corporation

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Globalization (Cont.)

- **Foreign Banks in the United States (Cont.)**
  - Prior to 1978 foreign banks operating in the US were largely unregulated
  - **International Banking Act of 1978**
    - Foreign banks subject to same federal regulations as domestic banks
    - Established banks were grandfathered and not subject to the law

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Globalization (Cont.)

- **Eurodollars**
  - Foreign banks were exempt from Regulation Q and could offer higher interest than US banks
  - Eurodollar deposits made in foreign banks were **denominated in US dollars**, which eliminated the foreign exchange risk for Americans
  - American banks opened foreign branches:
    - Gain access to Eurodollars
    - Borrow abroad during periods of tight money by the FED
  - "Shell" branches are created in tax haven countries (Bahamas and Caymans) who have almost zero taxation and no regulation

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12-34

Globalization (Cont.)

- **Eurobonds**
  - Corporate and foreign government bonds sold:
    - Outside borrowing corporation's home country
    - Outside country in whose money principal and interest are denominated
  - Number of tax advantages and relatively little government regulation

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12-35

Globalization (Cont.)

- **Domestically Based International Banking Facilities (IBF)**
  - Offers both US and foreign banks comparable conditions as foreign countries to lure offshore banking back to US
  - IBF is a domestic branch that is regulated by Fed as if it were located overseas.
  - **No reserve or deposit insurance requirements**
  - Essentially bookkeeping operations with no separate office

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12-36

Globalization (Cont.)

- **Domestically Based International Banking Facilities (IBF) (Cont.)**
  - Many states exempt income from IBFs from state and local taxes
  - **IBFs are not available to domestic residents, only business that is international in nature with respect to sources and uses of funds**
  - Foreign subsidiaries of US multinationals can use IBFs provided funds to not come from domestic sources and not used for domestic purposes

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12-37

The Subprime Mortgage Crisis

- Banks have significantly increased their exposure to residential mortgages, particularly in the last decade
- Much of it involved banks buying securitized mortgages—mortgages pooled into trusts—that became traded securities in the market
- Banks and investment banks were also very actively involved in putting these pools together and selling them—often to other banks

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12-38

The Subprime Mortgage Crisis (Cont)

- Earlier in the decade mortgage lending began to shift from low risk mortgages to high risk—subprime mortgages
  - Borrower has a low credit rating
  - Lender does not verify borrower's income
  - Amount of mortgage exceeds 80% of value of home
  - Often adjustable rate mortgages with "teaser rates" set artificially for the first several years
- Banks were happy adding these subprime mortgages to portfolios since rapidly rising real estate prices made these appear safe

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12-39

The Subprime Mortgage Crisis (Cont)

- During the mid-2005s, the rapidly increasing real estate values (bubble) burst
  - Real estate prices started to decline
  - Rising interest rates caused adjustable mortgage rates to increase dramatically
  - **The result was a large increase in the default rate on the subprime mortgages**
- Both banks and investment banks were forced to write-down the value of these subprime mortgages resulting in large losses
- The potential collapse of some of the large investment banks required bail-outs

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12-40

Nonbank Depository Institutions—The Thrifts

- Comprised of savings and loan associations, mutual savings banks, and credit unions
- Principal source of funds for all three thrifts is consumer deposits
- **Savings and Loans (S&L's)**
  - Invest principally in residential mortgages
  - This industry basically collapsed during the 1980s
  - Most S&L's have converted their charters to commercial banks

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12-41

Nonbank Depository Institutions—The Thrifts (Cont.)

- **Mutual Savings Banks**
  - Located mostly in the East
  - Operate like S&L's, with more power to make consumer loans
  - This industry suffered same decline as S&L's
- **Credit Unions**
  - Basically unaffected by the problems in the 1980s since they did not have mortgages on their balance sheets
  - Organized around a common group and are generally quite small

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12-42

TABLE 12.6 Income Statement of Insured Commercial Banks, 1980–2007 (percentage of assets)

	1980	1990	2000	2007
Interest on loans	9.88	6.93	5.41	4.47
Interest on securities	+ 1.50	+ 2.04	+ 1.44	+ .99
Total Interest Income	11.38	8.97	6.85	5.46
Interest expense	− 7.80	− 6.05	− 3.60	− 2.75
Net interest income (NIM*)	3.57	2.92	3.25	2.71
Service charges and fees	+ 0.49	+ 0.47	+ .38	+ .35
Other operating income	+ 0.53	+ 1.65	+ 2.08	+ 1.54
Net operating income before expenses	4.59	5.05	5.71	4.60
Salaries and wages	− 1.60	− 1.53	− 1.43	− 1.27
Other operating expenses	− 1.72	− 2.83	− 2.51	− 2.05
Net operating income	1.27	0.68	1.77	1.28
Securities gains (losses)	− 0.03	+ .03	− .03	− 0
Taxes	− 0.32	− 0.24	− .61	− .39
Net income after taxes (ROA*)	0.91	0.47	1.14	.89

*When expressed as a percent of total assets.
Source: FDIC *Statistics on Depository Institutions.*

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12-43

TABLE 12.7 Credit Risk Ratios, 1980–2007 (percentage of loans)

	1980	1990	2000	2007
Charge-offs	.65	1.43	.66	.58
Nonperforming loans	not available	not available	1.14	1.32

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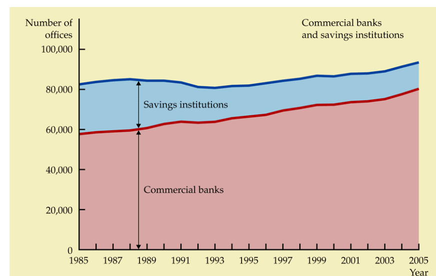
12-44

FIGURE 12.1 Offices of FDIC-insured institutions (as of year end, 1985–2005).



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12-45

TABLE 12.8 Size Distribution of Insured Commercial Banks (December 31, 2007)

Asset size	No. of banks	% of total banks	% of total assets
Less than $100 million	3,065	42.1	1.5
$100 million to $1 billion	3,706	50.9	9.4
$1 billion to $10 billion	425	5.8	10.0
More than $10 billion	86	1.2	79.1

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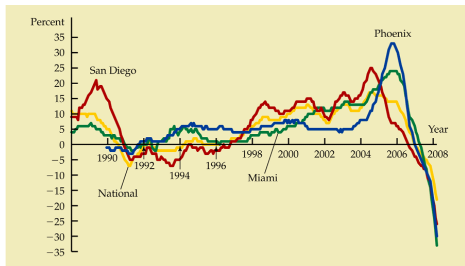
12-46

FIGURE 12.2 Case-Shiller home price index (percent change over prior year).



Source: Standard & Poor's.

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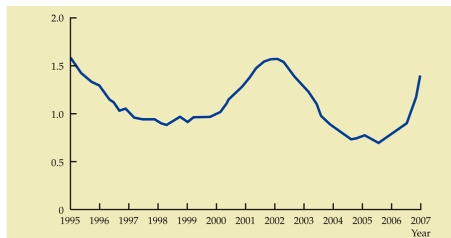
12-47

FIGURE 12.3 Portion of loans and leases that are nonperforming.



Note: Figures are for U.S. banks with $10 billion or more in assets.

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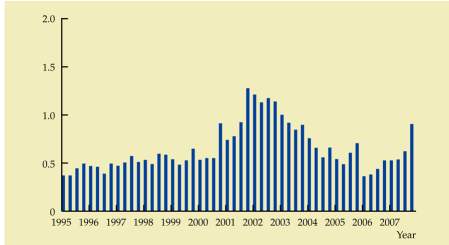
12-48

FIGURE 12.4 Charge-offs as a percentage of all loans and leases.



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12-49