Chapter 9

Commercial Banks' Financial Statements and Analysis

CAMELS Ratings

- Regulators use **CAMELS** ratings to evaluate the safety and soundness of banks
- CAMELS ratings rely heavily on financial statement data
- Components
  - **C**apital adequacy
  - **A**sset quality
  - **M**anagement quality
  - **E**arnings quality
  - **L**iquidity
  - **S**ensitivity to market risk

CAMELS Ratings

- **C**apital adequacy
  Risk-based capital requirements are now used. The regulators also evaluate the bank's loss experience, amount of problem assets in relation to capital, and the institution's access to capital.
- **A**sset quality
  Banks are required to classify assets according to soundness and to allocate loss reserves based on their evaluation of the quality of their assets.

CAMELS Ratings

- **M**anagement quality
  The technical competence of management, their history of compliance, adequacy of internal controls, compensation and experience
- **E**arnings quality
  Stability and growth rate of earnings, peer group comparisons of profitability and interest rate risk exposure

CAMELS Ratings

- **L**iquidity
  - Turnover rates of the bank's sources of funds, particularly deposit turnover
  - Percentage of core deposits versus "hot money" sources, the amount of loan commitments, and the volume of liquid assets held by the bank
- **S**ensitivity to market risk
  Exposure of earnings and capital to changes in interest rates, foreign exchange rates, and commodity or equity prices

CAMELS Ratings

- CAMELS ratings range from 1 to 5
  - Composite “1”—banks are basically sound in every respect
  - Composite “2”—banks are fundamentally sound, but may have modest weaknesses correctable in the normal course of business
  - Composite “3”—banks exhibit financial, operational, or compliance weaknesses ranging from moderately severe to unsatisfactory
  - Composite “4”—banks have an immoderate volume of serious financial weaknesses or a combination of other conditions that are unsatisfactory
  - Composite “5”—banks have an extremely high immediate or near-term probability of failure

Financial Statements

- The **Federal Financial Institutions Examination Council (FFIEC)** prescribes uniform principles, standards, and report forms for depository institutions
  - balance sheets are reported on **report of condition** forms
  - income statements are reported on **report of income** forms
  - commercial banks report contingent assets and liabilities on **off-balance-sheet reports**
- **Retail banks** focus business activities on consumer banking relationships
- **Wholesale banks** focus business activities on commercial banking relationships
  - most wholesale banks also engage in retail banking

Commercial Bank Assets

- **Cash and balances due** from other depository institutions
- **Investment securities**
  - short-term securities (e.g, Treasury bills and fed funds sold)
  - long-term securities (e.g., Treasury bonds, munis, MBSs)
- **Loans**
  - commercial and industrial
  - real estate
  - consumer
  - other loans

Commercial Bank Assets

- **Provision for loan losses (PLL)**
  - The PLL is a deduction from current earnings made by management to offset loans that management believes will go bad in the upcoming quarter
  - The PLL was 19.8% of net income in 2013.
- **Net charge-offs (NCOs)**
  - NCSs are actual write-offs of loans
  - In 2013, NCOs were 34.6% of net income

Commercial Bank Assets

- **Unearned income** is income that the bank has received on a loan but has not yet earned nor recorded as income on the income statement
- **Allowance for loan and lease losses**
  Management's estimate of the total amount of loans that will not be repaid
- **Other assets** (e.g., fixed assets, goodwill, etc.)

Commercial Bank Liabilities

- **Core deposits**
  - demand deposits
  - negotiable order of withdrawal (NOW) accounts
  - money market deposit accounts (MMDAs)
  - other savings deposits
  - retail certificates of deposits
- **Other deposits**
  - wholesale certificates of deposits
    - negotiable instruments traded in secondary markets
    - brokered deposits

Commercial Bank Liabilities and Equity

- **Non-deposit liabilities**
  - borrowed funds
    - fed funds purchased and repos
    - other borrowed funds (e.g., banker's acceptances, commercial paper, discount window loans)
  - subordinated notes and debentures
  - other liabilities
    - accrued interest, deferred taxes, dividends payable, etc.
- **Equity**
  - preferred and common stock
  - surplus or additional paid in capital
  - retained earnings

Off-Balance-Sheet Items

- Off-balance-sheet items are contingent assets and liabilities that may affect a commercial bank's balance sheet and/or income statement
- **Loan commitments**
  - up-front fees are charged for making funds available
  - commitment fees are charged on the unused portion of a loan commitment
- **Letters of credit**
  - commercial letters of credit
  - standby letters of credit
- **Loans sold**
  - loans can be sold with or without recourse
- **Derivative contracts**
  - futures, forwards, swaps, and options

Income Statement

- **Net interest income** = Interest income – Interest expense
- **Net noninterest income** = Noninterest income – Noninterest expense
- **Income before taxes and extraordinary items** (**EBTEI**) = Net interest income – Provision for loan losses + Net noninterest income
- **Net income** = EBTEI – income taxes – extraordinary items

Income Statement

- There is a direct relationship between the income statement and the balance sheet of commercial banks

$$NI = \sum_{n=1}^{N} r_n A_n - \sum_{m}^{M} r_m L_m - P + NII - NIE - T$$

NI = net income
A_n = dollar value of the bank's *n*th asset
L_m = dollar value of the bank's *m*th liability
r_n = rate earned on the bank's *n*th asset
r_m = rate paid on the bank's *m*th liability
P = provision for loan losses
NII = non-interest income earned, including income from OBS activities
NIE = non-interest expenses
T = taxes and extraordinary items
N = number of assets the bank holds
M = number of liabilities the bank holds

Income Statement

- Suppose that a bank has equity of $200, interest expense of $90, provision for loan loss (P) = $20, net noninterest income of -$15, and a tax rate of 34%. What is the minimum total interest revenue required to give a ROE of 15%? ($ in millions)
- Required NI = NI/$200 = 0.15 or NI = $30
- NI = [Interest revenue – Interest expense – P + (NII – NIE)] × (1 – Tax rate) or
- $30 = [Interest revenue – $90 – $20 + –$15] × (1 – 0.34)
- Required interest revenue = $170.45

$$NI = \sum_{n=1}^{N} r_n A_n - \sum_{m}^{M} r_m L_m - P + NII - NIE - T$$

Financial Statement Analysis

- **Financial statement analysis** is based on accounting ratios
- **Time series analysis** is the analysis of financial statements over a period of time
- **Cross-sectional analysis** is the analysis of financial statements comparing one firm with others
  - the Uniform Bank Performance Report (UBPR) maintained by the FFIEC allows banks to observe competitor financial statements
- Most financial statement analyses is a combination of time series analysis and cross-sectional analysis

Return on Equity (ROE) Framework

- **Return on Equity (ROE)** analysis begins with ROE and then breaks it down into its components
- ROE measures the overall profitability of the bank per dollar of equity

$$\text{ROE} = \frac{\text{net income}}{\text{total equity capital}}$$

- ROE can be broken down into the following components

$$\text{ROE} = \frac{\text{net income}}{\text{total assets}} \times \frac{\text{total assets}}{\text{total equity capital}} = \text{ROA} \times \text{EM}$$

Return on Equity (ROE) Framework

- **Return on Assets (ROA)** measures profit generated relative the banks assets
- **Equity Multiplier (EM)** measures the extent to which assets are funded with equity relative to debt (i.e., it is a measure of leverage)
- ROA can also be broken down into two components

$$\text{ROA} = \frac{\text{net income}}{\text{total operating income}} \times \frac{\text{total operating income}}{\text{total assets}}$$

$$= \text{PM} \times \text{AU}$$

Return on Equity (ROE) Framework

- **Profit Margin (PM)** measures the ability to pay expenses and generate net income from interest and noninterest income and is composed of:
  - interest expense ratio
  - provision for loan loss ratio
  - noninterest expense ratio
  - tax ratio
- **Asset Utilization (AU)** measures the amount of interest and noninterest income generated per dollar of total assets and is composed of
  - interest income ratio
  - noninterest income ratio

Other Ratios

- The **net interest margin (NIM)** measures the net return on a bank's earning assets

$$\text{NIM} = \frac{\text{net interest income}}{\text{earning assets}} = \frac{\text{interest income} - \text{interest expense}}{\text{investment securities} + \text{net loans and leases}}$$

- The **spread** measures the difference between the average yield on earning assets and average cost on interest-bearing liabilities

$$\text{Spread} = \frac{\text{interest income}}{\text{earning assets}} - \frac{\text{interest expense}}{\text{interest-bearing liabilities}}$$

Other Ratios

- **Overhead efficiency** measures a bank's ability to generate noninterest income to cover noninterest expenses

$$\text{Overhead efficiency} = \frac{\text{noninterest income}}{\text{noninterest expense}}$$

- Many additional ratios are commonly used to analyze commercial banks by breaking down the components of ROE even further (see Tables 12-6 and 12-7)

Application of ROE Analysis

- Compare Heartland Bank and Trust (HBT) with Bank of America (BOA)
- HBT
  - HBT is a profitable and efficient retail bank
  - invests mainly in real estate loans
  - uses more retail deposits to fund its assets
  - holds relatively more equity capital than Bank of America

Application of ROE Analysis

- Bank of America (BOA)
  - BOA is both a retail and a wholesale bank
  - has a relatively more diversified portfolio than HBT
  - uses a broader array of deposits and more purchased funds (i.e., fewer core deposits) than HBT
  - offers a broad spectrum of financial services

HBT and BOA data

TABLE 12–1 Balance Sheet for Two Commercial Banks (in millions of dollars)

	Heartland Bank and Trust[†]	Bank of America[†]
Assets		
1. Vault cash	$ 15.16	$ 8,356
2. Deposits at Federal Reserve	251.56	59,815
3. Deposits at other financial institutions	38.81	71,769
4. Cash items in process of collection	6.58	9,532
5. *Cash and due from depository institutions*	$ 310.71	$ 149,482
6. Federal funds sold and RPs	0.00	16,435
7. U.S. Treasury and U.S. agency securities	75.59	50,846
8. Securities issued by states and political subdivisions	215.55	3,919
9. Mortgage-backed securities	405.55	216,325
10. Other debt and equity securities	13.69	137,628
11. *Investment securities*	$ 696.88	$ 445,232
12. Commercial and industrial loans	235.08	214,442
13. Loans secured by real estate	1,390.57	412,335
14. Consumer loans	15.14	176,462
15. Other loans	85.92	71,373
16. Leases	$ 0.27	17,461
17. Gross loans and leases	$1,667.08	$ 911,913
18. Less: Unearned income	0.00	0
19. Reserve for loan and lease losses	20.54	22,119
20. *Net loans and leases*	$1,566.54	$ 889,794
21. Premises and fixed assets	56.05	9,838
22. Other real estate owned	25.18	3,086
23. Intangible assets	42.26	66,232
24. Other	35.86	103,006
25. *Other assets*	$ 159.35	$ 182,132
26. Total assets	$2,915.28	$1,666,441
Liabilities and Equity Capital		
27. Demand deposits	$ 317.82	$ 144,560
28. NOW accounts	123.76	21,738
29. MMDAs	543.67	479,859
30. Other savings deposits	408.35	436,237
31. Deposits in foreign offices		76,308
32. Retail CDs	532.53	52,781
33. *Core deposits*	$2,126.00	$1,211,486
34. Wholesale CDs	239.28	42,877
35. *Total deposits*	$2,365.28	$1,255,363
36. Federal funds purchased and RPs	44.58	52,554
37. Other borrowed funds	11.02	110,553
38. Subordinated notes and debentures	—	12,351
39. Other liabilities	27.04	21,952
40. *Total liabilities*	$2,648.30	$1,460,783
41. Preferred stock	0.00	0
42. Common stock	5.00	4,297
43. Surplus and paid-in capital	67.50	180,073
44. Retained earnings	224.48	21,288
45. *Total equity capital*	$ 296.98	$ 205,658
46. Total liabilities and equity capital	$2,945.28	$1,666,441

[†]Values are taken from the 2013 FDIC report of condition data tapes and are available at the Federal Deposit Insurance Corporation website, www.fdic.gov.

TABLE 12–3 Income Statement for Two Commercial Banks for 2013 (in millions of dollars)

	Heartland Bank and Trust*	Bank of America*
Interest Income		
1. Income on C&I loans	$ 17.47	$ 5,012
2. Income on real estate loans	77.66	16,176
3. Income on consumer loans	0.90	11,988
4. Income on other loans	3.20	4,073
5. Income on leases	0.01	804
6. Interest and fees on loans and leases	$ 99.64	$37,972
7. Interest on deposits at other institutions	0.55	431
8. Interest on fed funds and RPs	0.00	216
9. Interest on U.S. Treasury and agency securities	1.43	216
10. Interest on mortgage-backed securities	6.33	8,892
11. Interest on municipals and other debt and equity securities	9.53	2,500
12. Interest income on investment securities	$ 17.84	$12,224
13. *Total interest income*	$117.48	$50,196
Interest Expense		
14. Interest on NOW accounts	$ 0.21	$ 73
15. Interest on MMDA accounts and other savings	1.82	756
16. Interest on foreign deposits		492
17. Interest on retail CDs	2.58	336
18. Interest on wholesale CDs	2.75	228
19. Interest on deposit accounts	$ 6.59	1,885
20. Interest on fed funds and RPs	0.09	192
21. Interest on other borrowed funds	0.36	1,140
22. Interest on subordinated notes and debentures	—	144
23. Total interest expense	$ 7.04	$ 3,360
24. *Net interest income*	$110.44	$46,836
25. *Provision for loan losses*	($ 2.73)	$ 6,664
Noninterest Income		
26. Income from fiduciary activities	$ 3.35	$ 1,608
27. Service charges on deposit accounts	9.34	5,140
28. Trading revenue	0.00	2,626
29. Fees from security brokerage	0.70	106
30. Fees from investment banking	0.02	708
31. Fees from insurance	0.27	206
32. Net servicing fees	6.10	1,088
33. Net gain (loss) from sale of investment securities	0.00	252
34. Other noninterest income	15.28	29,947
35. *Total noninterest income*	$ 35.06	$44,700
Noninterest Expense		
36. Salaries and employee benefits	$ 41.02	$20,128
37. Expenses of premises and fixed assets	10.29	5,300
38. Other noninterest expense	28.03	21,400
39. *Total noninterest expense*	$ 79.34	$46,828
40. Income before taxes and extraordinary items	$ 68.92	$37,844
41. Applicable income taxes	1.03	12,732
42. Extraordinary items	0.00	0
43. Net income	$ 67.90	$25,112

*Values are taken from the 2013 FDIC report of condition data tapes and are available at the Federal Deposit Insurance Corporation website, www.fdic.gov.

Application of ROE Analysis

Comparison of HBT and BOA
HBT = Heartland Bank and Trust
BOA = Bank of America

			Interest Expense	HBT = 4.62%
			Operating Income	BOA = 3.74%
		Profit Margin		
		Net Income		
		Operating Income	PLL	HBT = -1.82%
		HBT = 44.51%	Operating Income	BOA = 7.22%
	ROA	BOA = 26.41%		
	Net Income		Noninterest expense	HBT = 52.01%
	Total Assets		Operating Income	BOA = 49.24%
	HBT = 2.31%			
ROE	BOA = 1.51%		Income Taxes	HBT = 0.68%
Net Income			Operating Income	BOA = 13.39%
Total Equity Capital				
HBT = 22.86%		**Asset Utilization**	Interest Income	HBT = 3.99%
BOA = 12.21%		Operating Income	Total Assets	BOA = 3.01%
		Total Assets		
	Equity Multiplier	HBT = 5.18%	Noninterest income	HBT = 1.19%
	Total Assets	BOA = 5.71%	Total Assets	BOA = 2.69%
	Total Equity Capital			
	HBT = 9.92			
	BOA = 8.10			

Application of ROE Analysis

- HBT has a substantially higher ROE.
  - HBT has a higher ROA and is more highly leveraged (larger equity multiplier)
- HBT has a higher ROA.
  - HBT's higher ROA is driven by its substantially higher profit margin (PM) & component ratios
  - Even though the interest income to assets ratio is higher at HBT, the AU ratio is lower at HBT because of the substantially lower level of noninterest income to total assets ratio as compared to BOA

The Impact of Market Niche and Size

- Retail and wholesale commercial banks operate in different market niches that should be noted when performing financial statement analysis
- Large banks have greater access to purchased funds and usually maintain more liquid assets
- Large banks typically carry lower amounts of equity
- At times, the ROA of large banks is less than for small banks because the large banks operate in more competitive markets

The Impact of Market Niche and Size

- Large banks have higher salary expense (%) and typically have higher percentage costs for premises
- Large banks have more noninterest income than smaller banks, but they may also have higher noninterest expense