Ec 370

Money and Banking

Chapter 9: Banking and the Management of Financial Institutions - PART II

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Today's Contents

Chapter 9: Banking and the Management of Financial Institutions - PART II

- Principles of Bank Management

Principles of Bank Management

General Principles of Bank Management

- principles for banks to manage assets and liabilities include:
  - Liquidity management
  - Capital adequacy management

(1) Liquidity Management

- **deposit outflows**: depositors make withdrawals and demand payment, and banks lose deposits

- **liquidity management**: to maintain enough liquid assets and to keep enough cash on hand to pay its depositors when there are **deposit outflows**

(1) Liquidity Management - Participation

Q1: The bank is required to keep 10% of deposits as reserves. Initial balance sheet is as follows. (Unit: millions)

Assets	**Liabilities+Capital**
Reserves: $10 million	Deposits: $100 million
Securities: $10 million	Borrowings: $0 million
Loans: $90 million	Capital: $10 million

*Instruction: To complete the following balance sheets, do **NOT** show **changes** of values for each item. Instead, you should write **levels** of updated values for each item. For example, an item starts with value $100. If you think its value decreases by $10, write down $90 **instead of** -$10; if you think its value increases by $10, write down $110, **instead of** +$10; if you think its value isn't changed, write down $100*

(1) Liquidity Management - Participation

(1) How much excess reserves does this bank hold?

- Required reserve = required reserve ration $\times$ deposits = 10% $\times$ 100 million = $10 million
- Excess reserve = total reserves - required reserve = $10 million - $10 million = $0 million

(1) Liquidity Management - Participation

(2) Suppose a deposit outflow of $10 million occurs. Update the balance sheet.

Assets	**Liabilities+Capital**
Reserves	Deposits
Securities	Borrowings
Loans	Capital

(1) Liquidity Management - Participation

- a deposit outflow of $10 million occurs
  - loses $10 million of deposits and $10 million of reserves
  - therefore, no reserves left

Assets	**Liabilities+Capital**
Reserves: $0 million	Deposits: $90 million
Securities: $10 million	Borrowings: $0 million
Loans: $90 million	Capital: $10 million

(1) Liquidity Management - Participation

(3) After deposit outflow occurs, does this bank meet the 10% required reserve requirement? If so, how much excess reserves does this bank hold?

- reserve requirement = required reserve ration $\times$ deposits = 10% $\times$ \$90 = \$9 million
- but it has 0 reserves
  - to borrow from: banks or the Fed
  - to sell securities
  - to reduce or sell loans

(1) Liquidity Management - Participation

(4) In order to meet the requirement, this bank decides to borrow fed funds from other banks in the fed funds market. Update the balance sheet. What is cost of option?

Assets	**Liabilities+Capital**
Reserves	Deposits
Securities	Borrowings
Loans	Capital

(1) Liquidity Management - Participation

Assets	Liabilities+Capital
Reserves: $9 million	Deposits: $90 million
Securities: $10 million	Borrowings: $9 million
Loans: $90 million	Capital: $10 million

- Cost of this option: interest rate on borrowings, such as the **federal funds rate**

(1) Liquidity Management - Participation

(5) In order to meet the requirement, this bank decides to borrow discount loans from the Fed. Update the balance sheet. What is cost of option?

Assets	**Liabilities+Capital**
Reserves	Deposits
Securities	Borrowings
Loans	Capital

(1) Liquidity Management - Participation

Assets	Liabilities+Capital
Reserves: $9 million	Deposits: $90 million
Securities: $10 million	Borrowings: $9 million
Loans: $90 million	Capital: $10 million

- Cost of this option: interest rate that must be paid to the Fed, called **discount rate**

(1) Liquidity Management - Participation

(6) In order to meet the requirement, this bank decides to sell some of its securities. Update the balance sheet. What is cost of option?

Assets	**Liabilities+Capital**
Reserves	Deposits
Securities	Borrowings
Loans	Capital

(1) Liquidity Management - Participation

Assets	Liabilities+Capital
Reserves: $9 million	Deposits: $90 million
Securities: $1 million	Borrowings: $0 million
Loans: $90 million	Capital: $10 million

- Cost of this option: brokerage and other transaction costs
  - if selling **secondary reserves**: modest cost
  - if selling less liquid securities: high cost

(1) Liquidity Management - Participation

(7) In order to meet the requirement, this bank decides to reduce loans. Update the balance sheet. What is cost of option?

Assets	**Liabilities+Capital**
Reserves	Deposits
Securities	Borrowings
Loans	Capital

(1) Liquidity Management - Participation

Assets	Liabilities+Capital
Reserves: $9 million	Deposits: $90 million
Securities: $10 million	Borrowings: $0 million
Loans: $81 million	Capital: $10 million

- This option is the **costliest** way:
  - calling in loans will lose customers
  - other banks not willing to buy the loans at full value

(1) Liquidity Management - Participation

- Conclusion: when a deposit outflow occurs, excess reserves enable the bank to escape the costs of
  - borrowing from other banks or corporations
  - borrowing from the Fed
  - selling securities
  - calling in or selling off loans
- Excess reserves are insurance against the costs associated with deposit outflows
- The higher the costs associated with deposit outflows, the more excess reserves a bank will want to hold

(2) Capital Adequacy Management

- **Capital adequacy management**:the amount of bank capital bank should maintain
- Why holding adequate capital? Let's use an Participation exercise to understand this

Participation 9

- Q2: The initial balance sheet is as follows. High Capital Bank has a ratio of capital to assets of 10%, while Low Capital Bank has a ratio of 4%

High Capital Bank		Low Capital Bank	
Assets	**Liabilities**	**Assets**	**Liabilities**
Reserves: $10 million	Deposits: $90 million	Reserves: $10 million	Deposits: $96 million
Securities: $0 million	Borrowings: $0 million	Securities: $0 million	Borrowings: $0 million
Loans: $90 million	Capital: $10 million	Loans: $90 million	Capital: $4 million

(2) Capital Adequacy Management

(1) $5 million of housing loans become worthless. Update the balance sheet.

High Capital Bank		Low Capital Bank	
Assets	**Liabilities**	**Assets**	**Liabilities**
Reserves	Deposits	Reserves	Deposits
Securities	Borrowings	Securities	Borrowings
Loans	Capital	Loans	Capital

*Instruction: To complete the following balance sheets, do **NOT** show **changes** of values for each item. Instead, you should write **levels** of updated values for each item. For example, an item starts with value $100. If you think its value decreases by $10, write down $90 **instead of** -$10; if you think its value increases by $10, write down $110, **instead of** +$10; if you think its value isn't changed, write down $100*

(2) Capital Adequacy Management

- 5 million of housing loans become worthless
  - these bad loans are written off (valued at zero)

High Capital Bank		Low Capital Bank	
Assets	**Liabilities**	**Assets**	**Liabilities**
Reserves: $10 million	Deposits: $90 million	Reserves: $10 million	Deposits: $96 million
Securities: $0 million	Borrowings: $0 million	Securities: $0 million	Borrowings: $0 million
Loans: $85 million	Capital: $5 million	Loans: $85 million	Capital: -$1 million

- the total value of assets for both banks declines by $5 million
- bank capital declines by $5 million (capital = assets - liabilities)

(2) Capital Adequacy Management

(2) which bank becomes insolvent?

- Low Capital Bank has a negative net worth
  - it is **insolvent**
  - government regulators will close this bank: **bank failure**
- **A bank maintains bank capital to lessen the chance that it will become insolvent**