Chapter 2
Financial Institutions

Outline

- Facts About Financial Structure
- Role of Financial Institutions
- Depository Financial Institutions (Banks)
- Management of Financial Institutions-Banks
- Non-Depository (Non-Bank) Financial Institutions
  - Insurance Companies
  - Pension Funds
  - Investment Companies (Mutual Funds)
  - Investment Companies, Brokerage Firms and Dealers

Financial Institutions

- Business entities include nonfinancial and financial enterprises.
  - Nonfinancial enterprises manufacture products (e.g., cars, steel, computers) and/or provide nonfinancial services (e.g., transportation, utilities, computer programming).

Financial Institutions…

- Financial institutions provide services related to one or more of the following:
  1. Transforming financial assets acquired through the market and constituting them into a different, and more widely preferable, type of asset—which becomes their liability.
  2. Exchanging of financial assets on behalf of customers
  3. Exchanging of financial assets for their own accounts
  4. Assisting in the creation of financial assets for their customers, and then selling those financial assets to other market participants
  5. Providing investment advice to other market participants
  6. Managing the portfolios of other market participants

Facts of Financial Structure

- Facts About Financial Structure throughout the World

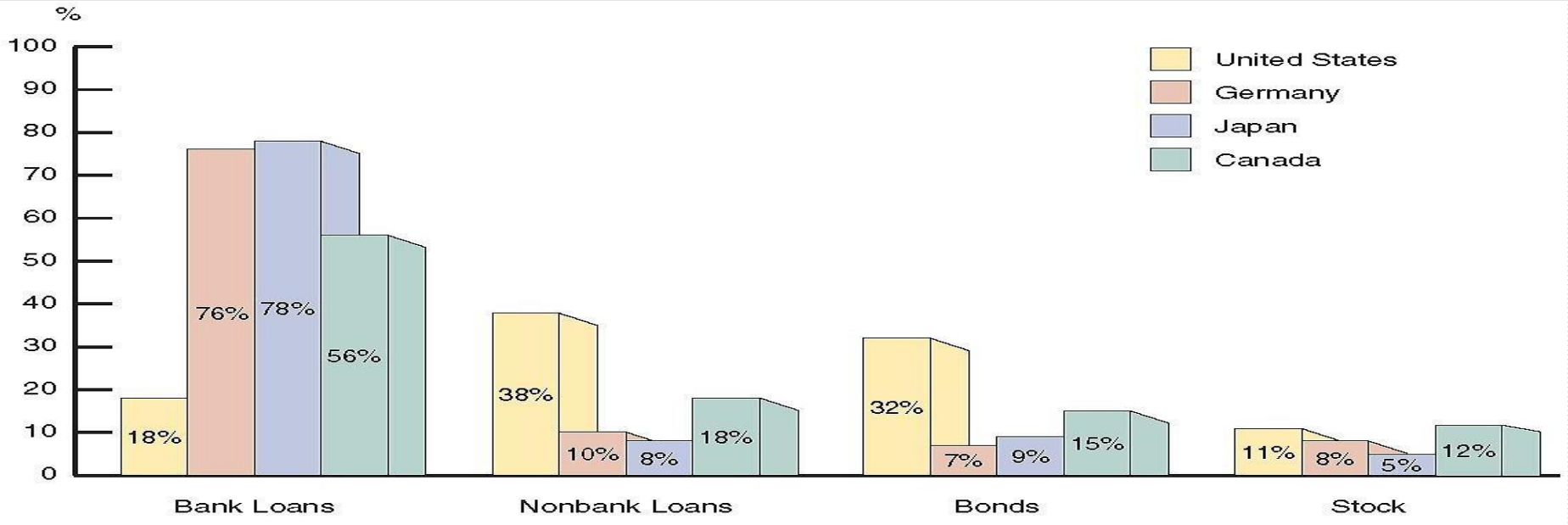

FIGURE 7.1 Sources of External Funds for Nonfinancial Businesses: A Comparison of the United States with Germany, Japan, and Canada

Source: Andreas Hackethal and Reinhard H. Schmidt, "Financing Patterns: Measurement Concepts and Empirical Results," Johann Wolfgang Goethe-Universitat Working Paper No. 125, January 2004. The data are from 1970–2000 and are gross flows as percentages of the total, not including trade and other credit data, which are not available.

Facts…

I. Stocks are not the most important source of finance for businesses.

II. Issuing marketable securities is not the primary funding source for businesses.

III. Indirect finance (financial intermediation) is far more important than direct finance.

IV. Banks are the most important source of external finance.

V. The financial sector is among the most heavily regulated.

VI. Only large, well established firms have access to securities markets.

VII. Collateral is a prevalent feature of debt contracts.

VIII. Debt contracts are typically extremely complicated legal documents with restrictive covenants.

Role of Financial Institutions

- Asset transformation
- This transformation involves at least one of four economic functions:
  - ✓ Providing Maturity Intermediation
  - ✓ Reducing Risk Through Diversification
  - ✓ Providing a Payments Mechanism
  - ✓ Reducing Costs of Contracting and Information Processing
- Reducing asymmetric information

Role of Financial Institutions…

- Maturity Intermediation
  - The maturity of at least a portion of the deposits accepted is typically short term.
    - For example, certain types of deposit are payable upon demand. Others have a specific maturity date, but most are less than two years.
  - Whereas, the maturity of the loans made by a commercial bank may be considerably longer than two years.

Role of Financial Institutions…

- Maturity intermediation has two implications for financial markets.
  - First, it provides investors with more choices concerning maturity for their investments; borrowers have more choices for the length of their debt obligations.
  - Second, because investors are naturally reluctant to commit funds for a long period of time, they will require that long-term borrowers pay a higher interest rate than on short-term borrowing.
    - A financial intermediary is willing to make longer-term loans, and at a lower cost to the borrower than an individual investor would, by counting on successive deposits providing the funds until maturity.

Role of Financial Institutions...

- Reducing Risk via Diversification
  - the investment company reduces its risk through diversification.
    - investment company invests the funds received in the stock of a large number of companies.
    - This economic function of financial intermediaries—transforming more risky assets into less risky ones—is called diversification.

Role of Financial Institutions…

Reducing the Costs of Contracting and Information Processing

- Investors purchasing financial assets should take the time to develop skills necessary to understand how to evaluate an investment.
- Investors who want to make a loan to a consumer or business will need to write the loan contract (or hire an attorney to do so).
  - The costs of writing loan contracts are referred to as ***contracting costs***.
- there are economies of scale in contracting and processing information about financial assets because of the amount of funds managed by financial intermediaries.

Role of Financial Institutions…

Providing a Payments Mechanism

- Most transactions made today are not done with cash.
  - Instead, payments are made using checks, credit cards, debit cards, and electronic transfers of funds.
    - These methods for making payments, called payment mechanisms, are provided by certain financial intermediaries.

Role of Financial Institutions…

☐ Reducing Asymmetric Information

- Asymmetric information occurs when one party to a transaction has more information than the other. We focus on two specific forms:
  - Adverse selection
  - Moral hazard

Reducing Asymmetric Information…

- Adverse Selection
  - Occurs when one party in a transaction has better information than the other party
  - Before transaction occurs
  - Potential borrowers mostlikely to produce adverse outcome are ones most likely to seek loan and be selected
- Moral Hazard
  - Occurs when one party has an incentive to behave differently once an agreement is made between parties
  - After transaction occurs
  - Hazard that borrower has incentives to engage in undesirable (immoral) activities making it more likely that won't pay loan back.

How Asymmetric Information leads to market failure

- Lemons Problem in Securities Markets
  - If we can't distinguish between good and bad securities, willing to pay only average of good and bad securities‘ value.
  - Result: Good securities undervalued and firms won't issue them; bad securities overvalued so too many issued.

Tools to Help Solve Adverse Selection (Lemons) Problems

- ***Private Production and Sale of Information***
  - One way to get this material to saver-lenders is to have private companies collect and produce information that distinguishes good from bad firms and then sell it.
  - Free-rider problem interferes with this solution
- ***Government Regulation to Increase Information***
  - For example, annual audits of public corporations
- ***Financial Intermediation***
  - Used car dealers analogy for lemons problem - Used-car dealers produce information in the market by becoming experts in determining whether a car is a peach or a lemon. Once they know that a car is good, they can sell it with some form of a guarantee.
  - A financial intermediary, such as a bank, becomes an expert in producing information about firms, so that it can sort out good credit risks from bad ones.

Tools to Help Solve Adverse Selection (Lemons) Problems…

- ***Collateral and Net Worth***
  - If a borrower defaults on a loan, the lender can sell the collateral and use the proceeds to make up for the losses on the loan.
  - Net worth (also called equity capital), the difference between a firm‘s assets (what it owns or is owed) and its liabilities (what it owes), can perform a similar role to collateral.

1. ***Adverse selection.*** Lenders can't distinguish good from bad credit risks, which discourages transactions from taking place.

   Solutions to the hidden attributes problem include:

   Government-required information disclosure

   Private collection of information

   Pledging of collateral to insure lenders against the borrower's default

   Requiring borrowers to invest substantial resources of their own

2. ***Moral hazard.*** Lenders can't tell whether borrowers will do what they claim they will do with the borrowed resources; borrowers may take too many risks.

   Solutions to the hidden actions problem include:

   Requiring managers to report to owners

   Requiring managers to invest substantial resources of their own

   Covenants that restrict what borrowers can do with borrowed funds

TABLE 7.1 SUMMARY Asymmetric Information Problems and Tools to Solve Them

Asymmetric Information Problem	Tools to Solve It	Explains Fact Number
Adverse selection	Private production and sale of information	1, 2
	Government regulation to increase information	5
	Financial intermediation	3, 4, 6
	Collateral and net worth	7
Moral hazard in equity contracts	Production of information: monitoring	1
(principal–agent problem)	Government regulation to increase information	5
	Financial intermediation	3
	Debt contracts	1
Moral hazard in debt contracts	Collateral and net worth	6, 7
	Monitoring and enforcement of restrictive covenants	8
	Financial intermediation	3, 4

Note: List of facts:

1. Stocks are not the most important source of external financing.
2. Marketable securities are not the primary source of finance.
3. Indirect finance is more important than direct finance.
4. Banks are the most important source of external funds.
5. The financial system is heavily regulated.
6. Only large, well-established firms have access to securities markets.
7. Collateral is prevalent in debt contracts.
8. Debt contracts have numerous restrictive covenants.

Depository Financial Institutions (Banks)

- Depository institutions are financial intermediaries that accept deposits from individuals and institutions and make loans.
- Include:
  - ✓ commercial banks (or simply banks),
  - ✓ savings and loan associations (S&Ls),
  - ✓ savings banks, and
  - ✓ credit unions.

Incomes of Depository Institutions

- Their income is derived from two sources:
  1) the income generated from the loans they make and the securities they purchase, and
  2) fee income.

Management of Financial Institutions-Banking Management

- Banks play an important role in channeling funds to finance productive investment opportunities.
- They provide loans to businesses, finance college educations, and allow us to purchase homes with mortgages.
- In the commercial banking setting, it is important to look loans, balance sheet management, and income determinants to understand how banking is conducted to earn the highest profits possible.

The Bank Balance Sheet

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

ZEMEN BANK S.C.

STATEMENT OF FINANCIAL POSITION

FOR THE PERIOD ENDED 30 JUNE 2018

In Ethiopian Birr

	Notes	30 June 2018 Birr'000	30 June 2017 Birr'000
ASSETS			
Cash and cash equivalents	14	4,054,085	3,178,808
Loans and advances to customers	15	4,995,010	3,989,364
Asset Held for sale		3,134	48
Investment securities:			
- Available for sale	16	12,421	11,789
- Loans and receivables	16	2,421,411	2,035,331
Other assets	17	368,714	277,396
Intangible assets	18	53,665	49,300
Property, plant and equipment	19	530,466	214,481
Leasehold land		-	-
Deferred tax assets	13	-	-
Total assets		**12,438,906**	**9,756,518**
LIABILITIES			
Deposits due to other banks	20	23,800	4,701
Deposits from customers	21	10,217,516	8,006,045
Current tax liabilities	13	84,042	105,259
Other liabilities	22	400,748	277,137
Finance lease obligation		-	-
Deferred tax liabilities	13	10,829	10,380
Retirement benefit obligations	23	5,188	3,025
Total liabilities		**10,742,123**	**8,406,546**
EQUITY			
Share capital	24	1,125,000	850,000
Share premium		425	425
Retained earnings	26	190,765	194,857
Legal reserve	27	334,169	266,413
Regulatory risk reserve		47,123	38,264
Other reserves		(699)	13
Total equity		**1,698,783**	**1,349,972**
Total equity and liabilities		**12,438,906**	**9,756,518**

The Bank Balance Sheet – US Example

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

Pay no interest

Secondary reserves

74% of Assets

Lowest cost source of funds-- payable on demand

Deposit with no check writing

Discount loans Fed Funds.

Corporate Loans have grown by factor of 10 since 1960 as % of Liab

Bank Equity = Assets - Liabilities, listed as Liab because Bank owes this to owners. Also includes **Loan Loss Reserves**

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

Basics of Banking Transactions

- *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).

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

First National Bank

Assets		Liabilities	
Vault cash	+$100	Checkable deposits	+$100

Cont'd

- Deposit of $100 check (written on an account at another bank, say, the Second National Bank)

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

- The First National Bank deposits the check in its account at the Fed/NBE, and the Fed collects the funds from the Second National Bank.

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

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

Cont'd

- Deposit of $100 cash into First National Bank assuming Required Reserve ratio of 10%.

First National Bank

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

- $10 of the deposit must remain in reserves to meet federal regulations (10% reserve req.).
- Now, the bank is free to work with the $90 in its asset transformation function. In this case, the bank loans the $90 to its customers.

Cont'd

- Loaning out excess reserves

First National Bank

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

General Principles of Bank Management

- How do a bank manages its assets and liabilities?
- The bank has four primary concerns:

1. Liquidity management
2. Asset management
3. Liability management
4. Managing capital adequacy

Liquidity management

- How a typical bank can deal with deposit outflows?
- ✓ assume that the bank has ample excess reserves and that all deposits have the same required reserve ratio of 10% (the bank is required to keep 10% of its time and checkable deposits as reserves).

Cont'd

- The first T–Account shows the First National Bank's initial balance sheet.
- The bank's required reserves are 10% of $100 million, or $10 million.
- Given that it holds $20 million of reserves, the First National Bank has excess reserves of $10 million.
- When a deposit outflow of $10 million occurs, the bank's balance sheet is shown in the T–Account next page.

Liquidity 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		

- 10 m

Deposit outflow
- 10 m

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**

Cont'd

- The situation is quite different when a bank holds insufficient excess reserves.
- Let's assume that instead of initially holding $10 million in excess reserves, the First National Bank makes additional loans of $10 million, so that it holds no excess reserves.

Cont'd

No excess reserves

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

- 10 m

- 10 m

Deposit outflow of $10 million

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

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

Cont'd

- After $10 million has been withdrawn from deposits and hence reserves, the bank has a problem: It has a reserve requirement of 10% of $90 million, or $9 million, but it has no reserves!
- To eliminate this shortfall, the bank has four basic options.
- One is to acquire reserves to meet a deposit outflow by borrowing them from other banks in the federal funds market or by borrowing from corporations.
- The cost of this activity is the interest rate on these borrowings, such as the federal funds rate.
- A second alternative is for the bank to sell some of its securities to help cover the deposit outflow.
- The bank incurs some brokerage and other transaction costs when it sells these securities.

Cont'd

- A third way that the bank can meet a deposit outflow is to acquire reserves by borrowing from the Fed.
- In our example, the First National Bank could leave its security and loan holdings the same and borrow $9 million in discount loans from the Fed.
- The cost associated with discount loans is the interest rate that must be paid to the Fed (called the discount rate).
- Finally, a bank can acquire the $9 million of reserves to meet the deposit outflow by reducing its loans by this amount and depositing the $9 million it then receives with the Fed, thereby increasing its reserves by $9 million.

Cont'd

1. Borrow from other banks or corporations

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

2. Sell securities

Assets			Liabilities	
Reserves	+ 9 m	$9 million	Deposits	$90 million
Loans		$90 million	Bank Capital	$10 million
Securities	- 9 m	$1 million		

Cont'd

3. Borrow from Fed

Assets			Liabilities		
Reserves	+ 9 m	$9 million	Deposits	$90 million	
Loans		$90 million	Discount Loans	$9 million	+ 9 m
Securities		$10 million	Bank Capital	$10 million	

4. Call in or sell off loans

Assets			Liabilities	
Reserves	+ 9 m	$9 million	Deposits	$90 million
Loans	- 9 m	$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.
  - Get borrowers with low default risk, paying high interest rates
  - Buy securities with high return, low risk
  - Diversify
  - Manage liquidity

Liability Management

- ***Liability Management***: managing the source of funds, from deposits, to CDs (Certificates of deposit), to other debt - overnight loan markets.
  I. No longer primarily depend on checkable deposits
  II. When see loan opportunities, borrow or issue CDs to acquire funds
- This new flexibility in liability management meant that banks could take a different approach to bank management.

Capital Adequacy Management

- Banks have to make decisions about the amount of capital they need to hold for the following main reasons.

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

Cont'd

- 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.
- 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

Cont'd

- Conclusion: A bank maintains reserves to lessen the chance that it will become insolvent: it does not have sufficient assets to pay off all holders of its liabilities.
- When a bank becomes insolvent, government regulators close the bank, its assets are sold off, and its managers are fired.
- So, why don't banks want to hold a lot of capital? Answer next slide.

Cont'd

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

Return on Assets: net profit after taxes per dollar of assets

$$\text{ROA} = \frac{\text{net profit after taxes}}{\text{assets}}$$

Return on Equity: net profit after taxes per dollar of equity capital

$$\text{ROE} = \frac{\text{net profit after taxes}}{\text{equity capital}}$$

Relationship between ROA and ROE is expressed by the

Equity Multiplier: the amount of assets per dollar of equity capital

$$\text{EM} = \frac{\text{Assets}}{\text{Equity Capital}}$$

$$\frac{\text{net profit after taxes}}{\text{equity capital}} = \frac{\text{net profit after taxes}}{\text{assets}} \times \frac{\text{assets}}{\text{equity capital}}$$

$$\text{ROE} = \text{ROA} \times \text{EM}$$

- Capital ↑, *EM* ↓, *ROE* ↓

Cont'd

3. Trade-off between safety and returns to equity holders:

- Benefits the owners of a bank by making their investment safe
- Costly to owners of a bank because the higher the bank capital, the lower the return on equity
- Choice depends on the state of the economy and levels of confidence

Cont'd

4. Banks also hold capital to meet capital requirements.
   - ✓ The Basel Committee on Banking Supervision sets minimum capital requirements - the ratio of bank capital to risk weighted assets.

Strategies for Managing Capital:

- As the manager of the First National Bank, you have to make decisions about the appropriate amount of bank capital to hold in your bank.
  - ✓ To raise its capital, a bank can issue more equities, reduce dividends to shareholders, or reduce the bank‘s assets by making fewer loans.
  - ✓ To reduce its capital, a bank can sell or retire stock (repurchased out of the company's retained earnings), increase dividends to reduce retained earnings, increase asset growth via debt (like CDs).
- Our discussion of the strategies for managing bank capital leads to the following conclusion:
  - ✓ A shortfall of bank capital is likely to lead a bank to reduce its assets and therefore is likely to cause a contraction in lending.

Bank Risk: Where It Comes from and What to Do about It

- The bank's goal is to make a profit in each of its lines of business.
  - They want to pay less for the deposits they receive than for the loans they make and the securities they buy.
- In the process of doing this, the bank is exposed to a host of risks:
  - Liquidity risk,
  - Credit risk,
  - Interest-rate risk, and
  - Trading risk.

Liquidity Risk

- Liquidity risk is the risk of a sudden demand for liquid funds.
- Banks face liquidity risk on both sides of their balance sheets.
  - Deposit withdrawal is a liability-side risk.
  - Things like lines of credit are an asset-side risk.
- Even if a bank has a positive net worth, illiquidity can still drive it out of business.

Liquidity Risk

- In the past, the common way to manage liquidity risk was to hold excess reserves.
  - This is a passive way to manage liquidity risk.
  - Holding excess reserves is expensive, because it means forgoing higher rates of interest than can be earned with loans or securities.
- There are two other ways to manage liquidity risk.
  - The bank can adjust its assets or its liabilities.

Liquidity Risk

On the asset side a bank has several options.

1. The easiest option is to sell a portion of its securities portfolio.
    - Most are U.S. treasuries and can be sold quickly at relatively low cost.
    - Banks that are particularly concerned about liquidity risk can structure their securities holdings to facilitate such sales.

Liquidity Risk

2. A second possibility is for the bank to sell some of its loans to another banks.
   - Banks generally make sure that a portion of the loans they hold are marketable for this purpose.
3. Another way is to refuse to renew a customer loan that has come due.
   - However this is bad for business.
     - The bank can lose a good customer.
     - Reducing assets lowers profitability.

Liquidity Risk

Bankers prefer to use liability management to address liquidity risk.

1. Banks can borrow to meet any shortfall either from the Fed or from another bank.
2. The bank can attract additional deposits.
    - This is where large certificates of deposits are valuable:
        - They allow banks to manage their liquidity risk without changing the asset side of their balance sheet.

Liquidity Risk

- In the financial crisis of 2007-2009, banks could neither sell their illiquid assets nor obtain funding at a reasonable cost to hold those assets.
- When the interbank lending market dried up, many banks faced a threat to their survival.

Credit Risk

- The risk that a bank's loans will not be repaid is called credit risk.
- To manage credit risk, banks use a variety of tools.

1. Diversification is where banks make a variety of different loans to spread the risk.
2. Credit risk analysis is where the bank examines the borrower's credit history to determine the appropriate interest rate to charge.

Credit Risk

- Diversification can be difficult for banks, especially if they focus on a certain type of lending.
  - If a bank lends in only one geographic area or one industry, it is exposed to economic downturns that are local or industry-specific.
  - It is important that banks find a way to hedge these risks.

Credit Risk

- Credit risk analysis produces information.
  - Banks do this for small firms wishing to borrow, and credit rating agencies perform the service for individual borrowers.
  - The result is an assessment of the likelihood that a particular borrower will default.
- In the financial crisis of 2007-2009, banks underestimated the risks associated with mortgage and other household credit.

Credit Risk

- A bank's capital is its net worth - a cushion against many risks, including market risk.
  - Market risk is the decline in the market value of assets.
- The larger a bank's capital cushion, the less likely it will be made insolvent by an adverse surprise.
- In the financial crisis of 2007-2009, banks were too leveraged - they had too many assets for each unit of capital.

Credit Risk

- *Mark-to-market* accounting rules require banks to adjust the recorded value of the assets on their balance sheets when the market value changes.
  - When the price falls, the value is "written down" and *write-downs* reduce a bank's capital.
- Banks don't like to hold a large capital cushion because capital is costly.
- The more leverage the greater the possible reward for each unit of capital and the greater the risk.

Interest-Rate Risk

- A bank's liabilities tend to be short-term, while assets tend to be long term.
  - The mismatch between the two sides of the balance sheet create interest-rate risk.
- When interest rates rise, banks face the risk that the value of their assets will fall more than the value of their liabilities, reducing the bank's capital.
  - Rising interest rates reduce revenues relative to expenses, directly lowering a bank's profits.

Interest-Rate Risk

- The term *interest-rate sensitive* means that a change in interest rates will change the revenue produced by an asset.
- For a bank to make a profit, the interest rate on its liabilities must be lower than the interest rate on its assets.
  - The difference in the two rates is the bank's net interest margin.
- When a bank's liabilities are more interest-rate sensitive than its assets, an increase in interest rates will cut into the bank's profits.

Interest-Rate Risk

- The first step in managing interest-rate risk is to determine how sensitive the bank's balance sheet is to a change in interest rates.
- Managers must compute an estimate of the change in the bank's profit for each one-percentage-point change in the interest rate.
- This procedure is called *gap analysis*.
  - This can be refined to take account of differences in the maturity of assets and liabilities, but it gets complicated.

Interest-Rate Risk

- Bank managers can use a number of tools to manage interest-rate risk.

1. They can match the interest-rate sensitivity of assets with that of liabilities.
    - Although this decreases interest-rate risk, it increases credit risk.
2. Alternatives include the use of derivatives, specifically interest-rate swaps.

Trading Risk

- Today banks hire traders to actively buy and sell securities, loans, and derivatives using a portion of the bank's capital.
- Risk that the instrument may go down in value rather than up is called trading risk, or *market risk*.
- Traders normally share in the profits from good investments, but the bank pays for the losses.
  - This creates moral hazard - traders take more risk than the banks would like.

Trading Risk

- The solution to the moral hazard problem is to compute the risk the traders generate.
  - Use standard deviation and value at risk.
- The bank's risk manager limits the amount of risk any individual trader is allowed to assume and monitors closely.
- The higher the inherent risk in the bank's portfolio, the more capital the bank will need to hold.

Trading Risk

- Traders are gambling with someone else's money, sharing the gains but no the losses from their risk taking.
- Traders are prone to taking too much risk, and in the cases here, hiding their losses when trades turn sour.
- The moral hazard presents a challenge to bank owners, who must try to rein in traders' tendencies.
- Odds are that someone who is making large profits on some days will register big losses on other days.

Other Risks

- *Foreign exchange risk* comes from holding assets denominated in one currency and liabilities denominated in another.
- Banks manage this in two ways:
  - They work to attract deposits that are denominated in the same currency as their loans, matching assets to liabilities.
  - They use foreign exchange futures and swaps to hedge the risk.

Other Risks

- *Sovereign risk* arises from the fact that some foreign borrowers may not repay their loans because their government prohibits them from doing so.
  - If a foreign country is experiencing a financial crisis, the government may decide to restrict dollar-denominated payments.
- Banks have three options:
  - Diversification,
  - Refuse loans to certain countries, or
  - Use derivatives to hedge the risk.

Other Risks

- Operational risk is when computer systems fail or buildings burn down.
  - This was an issue for some banks when the World Trade Center was destroyed.
- The banks must make sure their computer systems and buildings are sufficiently robust to withstand potential disasters.
  - This means anticipating what might happen and testing to ensure a system's readiness.

Why are Banks Regulated?

Prevent disruption of the economy:

- Prudential regulation to ensure safety and soundness:
  - prevent large scale failures that would affect economic activity
  - reduce systemic risk wherein bank failures are potentially contagious. Such shocks could be domestic or international in scope
- Guard against deposit insurance losses: prevent large scale failures that would affect economic activity
  - protect small depositors by providing government deposit insurance (FDIC)
  - moral hazard problem of deposit insurance causes banks to have incentives to take risks with potential losses borne by the government
- Achieve desired social goals:
  - prevent discrimination in lending, support housing finance, community development, etc.

More general Reasons for the Regulation of Banks

- Protection of the Safety of the Public's Savings
- Control of the Supply of Money and Credit
- Ensure Equal Opportunity and Fairness in Access to Credit
- Promote Public Confidence in the Financial System
- Avoid Concentration of Power
- Support of Government Activities
- Help for Special Segments of the Economy
- Promoting sound business and supervisory practices

Regulations must address why Banks fail

Credit risk, interest rate risk, foreign exchange risk, bank runs, and fraud

The small capital base of banks makes them sensitive to negative earnings. Banks use loan loss reserves to absorb expected losses on loans and from other sources. However, unexpected losses must be charged against equity capital and can cause the bank to become insolvent and/or closed by regulators

Financial repression by the government by means of excessive control of the banking sector can raise failure risk.

Bank runs occur when many depositors suddenly withdraw their funds from banks. While uninsured deposits are especially at risk, insured deposits may be withdrawn also.

Fraud includes theft as well as lending to customers favored by friendship or political interest rather than economic profit for the bank (BCCI)

Some Argue for Deregulation

- Unregulated free banks is an alternative school of thought (Alan Greenspan)
- Originally this was seen as an uncharted and unrestricted system of banking, where open and intense competition led to forced innovation and market growth
- It was experienced in Scotland between the 18th and 19th centuries and is credited with being the origin of branch banking, interest paid on deposits and overdraft facilities
- Modern-day usage of the term ‘free banking’ refers to a highly competitive banking system operating without a central bank or regulation
- It has been argued that the regulatory power of a central bank is not required in a free banking system

Bank Ratings-CAMELS

- Capital Adequacy
  - Measures bank's ability to maintain capital commensurate with the bank's risk
- Asset Quality
  - Reflects the amount of credit risk with the loan and investment portfolios
- Management Quality
  - Reflects management's ability to identify, measure, monitor, and control risks

Bank Ratings-CAMELS…

- Earnings
  - Reflects the quantity, trend, and quality of earnings
- Liquidity
  - Reflects the sources of liquidity and funds management practices
- Sensitivity to market risk
  - Reflects the degree to which changes in market prices and rates adversely affect earnings and capital

Nondepository Financial Institutions

Non-Depository (Non-Bank) Financial Institutions

- Non-depository institutions serve as the intermediary between the savers and the borrowers, but they do not accept deposits.
- Such institutions perform their activities of lending to the public either by way of selling securities or through the insurance policies.
- Non-depository institutions include investment companies, insurance companies, brokerage firms, and pension funds.

Life Insurance Companies

- One of the oldest type of intermediary.
- Invest funds obtained through the sale of policies.
- Primary investments: Long term taxable, not highly marketable securities: corporate bonds and commercial mortgages.
- Insure against dying too soon and living too long.

Life Insurance Companies

- Regulation of life insurance companies includes:
  - Sales practices
  - Premium rates
  - Allowable investments

Types of Life Insurance Policies

- **Whole Life Insurance**
  - Constant premium that is paid through entire life of policy
  - Build up cash reserves or savings which can be withdrawn as borrowing or outright by canceling the policy
  - Savings component pays a money market rate of interest that changes with market conditions

Types of Life Insurance Policies

- **Term Life Insurance**
  - Pure insurance with no cash reserve or savings element
  - Premiums are relatively low at first but increase with the age of the insured individual
- **Universal {variable) Life**
  - Variation on whole life policy
  - "Unbundle" the term insurance and tax-deferred savings component
  - Owner can elect how to allocate the savings component among a menu of investment options, thereby potentially earning above money market rates

Life Insurance Companies

- Based on actuarial tables, life insurance companies have ability to predict cash flow
- Typically insurance companies use excess funds to buy long-term corporate bonds and commercial mortgages
  - Higher yields
  - Unlikely of having to sell prior to maturity
- However, lately they have branched out into riskier ventures such as common stock and real estate

Life Insurance Basics

- Public makes payments in exchange for protection
- Companies lend out the funds collected.
- Companies use the interest and dividend income received to pay benefits to policyholders
- Insurance companies have a reasonably predictable stream of payments to policy holders distributed over time.

Dealing with Asymmetric Information Problems in Insurance

- Limiting adverse selection

✓ Restricting the availability and quantity of insurance.

- Limiting moral hazard in insurance
  - Deductible: A fixed amount of an insured loss that a policyholder must pay before the insurer is obliged to make payments.
  - Coinsurance: A policy feature that requires a policyholder to pay a fixed percentage of a loss above a deductible.

Property and Casualty Insurance Companies

- Insure against casualties such as automobile accidents, fire, theft, personal negligence, malpractice, etc.
- Losses can be unexpected and highly variable.
- Invest in bonds and short-term securities.

Investment Companies

- *Investment companies* are financial intermediaries that sell shares to the public and invest the proceeds in a diversified portfolio of securities.
- Each share sold represents a proportional interest in the portfolio of securities managed by the investment company on behalf of its shareholders.
- The type of securities purchased depends on the company's investment objective.

Cont’d

- When investors decide to invest in a particular asset class, such as equities, there are two ways they can do it: direct investment or indirect investment.
  - Direct investment is when an individual personally buys shares in a company, such as buying shares in Apple, the technology giant.
  - Indirect investment is when an individual buys a stake in an investment fund, such as a mutual fund that invests in the shares of a range of different types of companies, perhaps including Apple.
- Achieving an adequate spread of investments through holding direct investments can require a significant amount of money and, as a result, many investors find indirect investment very attractive.

Mutual Funds

- There are three types of investment companies: open-ended funds, close-ended funds and unit-trusts.
- A mutual fund (open-ended funds)pools the funds of many people and managers invest the money in a diversified portfolio of securities to achieve some stated objective

Open-end Mutual Fund

- Sell redeemable shares in the fund to the general public
- Shares represent a proportionate ownership in a portfolio held by the fund
- Shareholder can go directly to fund and buy additional shares or redeem shares at their net asset value (NAV)

Open-End Mutual Funds

- Net Asset Value (NAV)
  - Fund calculates the total market value of its portfolio and divides this figure by the number of outstanding shares.
  - Redeem outstanding shares or issue new ones at the NAV.
  - Number of shares is not fixed but increases as more money is invested.
  - Commonly known as **Mutual Funds.**

Net Asset Value Example

- A fund has 10 million shares and is worth $100 million.
  - **NAV = $10.00**
- You can buy fractional shares.

Mutual Funds

- Mutual funds are regulated
- Primary objective of regulation is the enforcement of reporting and disclosure requirements to protect the investor
- Many investors are attracted to **families** of mutual funds
  - Number of mutual funds operated under one management umbrella
  - Investors can easily transfer money among funds within the family

Closed-End Investment Company

- Issues a fixed number of shares.
- Invests the proceeds in a portfolio of assets.
- Shares are transferable.
- Price of the share is determined by supply and demand.

Unit-Trusts

- A unit trust is similar to a closed-end fund in that the number of unit certificates is fixed. Unit trusts typically invest in bonds.
- They differ in several ways from both mutual funds and closed-end funds that specialize in bonds.

- First, there is no active trading of the bonds in the portfolio of the unit trust.
- Once the unit trust is assembled by the sponsor (usually a brokerage firm or bond underwriter) and turned over to a trustee, the trustee holds all the bonds until they are redeemed by the issuer.
- Typically, the only time the trustee can sell an issue in the portfolio is if there is a dramatic decline in the issuer's credit quality.
- As a result, the cost of operating the trust will be considerably less than costs incurred by either a mutual fund or a closed-end fund

Unit-Trusts

- Second, unit trusts have a fixed termination date, while mutual funds and closed-end funds do not.
- Third, unlike the mutual fund and closed-end fund investor, the unit trust investor knows that the portfolio consists of a specific portfolio of bonds and has no concern that the trustee will alter the portfolio.

The Benefits of Collective Investment

- Investment funds pool the resources of a large number of investors, with the aim of pursuing a common investment objective.
- This pooling of funds brings a number of benefits, including:
  - Economies of scale - commission as a proportion of the fund is very small.
  - Diversification - risk is lessened when the investor holds a diversified portfolio of investments (in many different sectors).
  - Access to professional investment management
  - Access to geographical markets, asset classes or investment strategies which might otherwise be inaccessible to the individual investor
  - In some cases, the benefit of regulatory oversight
  - In some cases, tax deferral.

Finance Companies

- **Consumer Finance Companies**
  - Make consumer loans
  - **Specialty Finance Companies-specialize** in credit card financing
- **Commercial finance Companies**
  - Make commercial loans usually on a secured (collateralized) basis
  - Loans not as risky as consumer loans
- Since lending is short-term, these companies borrow substantial amounts in commercial paper market

Finance Companies

- Historically finance companies have played an important role in financing growing undercapitalized companies
- Commercial finance companies originated the concept of **leveraged buyout (LBOs)** which relies heavily on debt to pay for acquisition of a company

Securities Brokers and Dealers

- These financial institutions play a crucial role in the distribution and trading of huge amounts of securities

Brokers and Dealers

- Involved in the secondary market, trading "used" or already outstanding securities
- Brokers match buyers and sellers and earn a commission1
- Dealers commit their own capital in the buying and selling of securities and hope to make profit on the transaction

Brokers and Dealers

- Many of the nationwide stock exchange firms act as investment bankers, dealers, and brokers
- A number of large stock exchange firms have branched out to provide new types of financial services previously out of their operating charter
- Commercial banks, investment banks, and broker dealers have now combined under single holding company umbrellas

Investment Banker

Investment Banker -- A financial institution that underwrites (purchases at a fixed price on a fixed date) new securities for resale.

- Investment banker receives an underwriting spread when acting as a middleman in bringing together providers and consumers of investment capital.
- Underwriting spread -- the difference between the price the investment bankers pay for the security and the price at which the security is resold to the public.

Investment Banks

- Sell and distribute new stocks and bonds directly from issuing corporations to original purchasers
- investment banks are ranked by the volume of securities they underwrite
- **Underwriting** is typically conducted through a **syndicate**
  - which includes many investment banks and brokerage firms
- Investment banks derive a substantial amount of income from offering advice to firms involved in mergers and acquisitions
  - What price one firm should pay for another
  - How the transaction should be structured
  - Provide strategic advice in **hostile takeovers-when** one firm seeks to acquire another against the other's wishes

Investment Banker

- Investment bankers have expertise, contacts, and the sales organization to efficiently market securities to investors.
  - Thus, the services can be provided at a lower cost to the firm than the firm can perform the same services internally.
  - Three primary means companies use to offer securities to the general public:
    - Traditional (firm commitment) underwriting
    - Best efforts offering
    - Shelf registration

Traditional Underwriting

Underwriting -- Bearing the risk of not being able to sell a security at the established price by virtue of purchasing the security for resale to the public; also known as *firm commitment underwriting*.

- If the security issue does not sell well, either because of an adverse turn in the market or because it is overpriced, the underwriter, not the company, takes the loss.

Traditional Underwriting

Underwriting Syndicate -- A temporary combination of investment banking firms formed to sell a new security issue.

A. Competitive-bid

- The issuing company specifies the date that sealed bids will be received.
- Competing syndicates submit bids.
- The syndicate with the highest bid wins the security issue.

Traditional Underwriting

B. Negotiated Offering

- The issuing company selects an investment banking firm and works directly with the firm to determine the essential features of the issue.
- Together they discuss and negotiate a price for the security and the timing of the issue.
- Depending on the size of the issue, the investment banker may invite other firms to join in sharing the risk and selling the issue.
- Generally used in corporate stock and most corporate bond issues.

Best Efforts Offering

Best Efforts Offering -- A security offering in which the investment bankers agree to use only their best efforts to sell the issuer's securities. The investment bankers do not commit to purchase any unsold securities.

Shelf Registration

- Shelf Registration -- A procedure whereby a company is permitted to register securities it plans to sell over the next two years. These securities can then be sold piecemeal whenever the company chooses.

Shelf Registration: Flotation Costs and Other Advantages

- A firm with securities sitting “on the shelf” can require that investment banking firms competitively bid for its underwriting business.

  - This competition reduces underwriting spreads.
  - The total fixed costs (legal and administrative) of successive public debt issues are lower with a single shelf registration than with a series of traditional registrations.
  - The amount of “free” advice available from underwriters is less than before shelf registration was an alternative to firms.

Venture Capital Funds and Hedge Funds

- Venture capital funds and hedge funds are usually not available to public investors
- Funding comes from wealthy individuals or other financial institutions, possibly sponsored by brokerage firms and banks
- Both venture capital funds provide an important source of funding to small and midsize companies
- Financing by both venture is **non-traded** and held until maturity

Venture Capital Funds

- Invest funds in **start-up companies**
- Traditional bank financing for these firms in the early stage of growth would be very limited
- The Venture Capital Fund receives a substantial equity stake in the firm
- Although many start-up companies will fail, significant profit on those that are successful
- Receives profits when it takes the successful company public in an **initial public offering (IPO).**

Hedge Funds

- Hedge funds:
  - Limited partnerships that, like mutual funds, manage portfolios of assets on behalf of savers, but with very limited governmental oversight as compared with mutual funds.

Pension Funds

- Program established by an employer to provide retirement benefits to employees.

Banks Versus Nondepository Institutions

- Many nondepository institutions offer services that compete directly with banks
- Traditionally many of the different markets were segmented, however, today they often compete for the same business