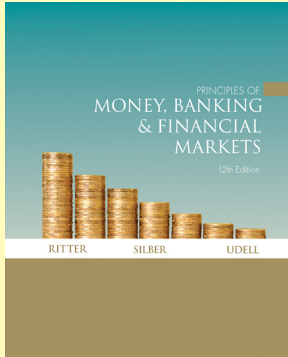
Chapter 11

The Nature of Financial Intermediation



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Learning Objectives

- Explain the benefits of financial intermediation and how it partially solves the adverse selection and moral hazard problems
- Understand the role and history of commercial banking in the United States
- Describe nondeposit financial intermedaries

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The Economics of Financial Intermediation

- In a world of perfect financial markets there would be no need for financial intermediaries (middlemen) in the process of lending and/or borrowing
  - Costless transactions
  - Securities can be purchased in any denomination
  - Perfect information about the quality of financial instruments

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The Economics of Financial Intermediation (Cont.)

- **Reasons for Financial Intermediation**
  - **Transaction costs**
    - Cost of bringing lender/borrower together
    - Reduced when financial intermediation is used
    - Relevant to smaller lenders/borrowers
  - **Portfolio Diversification**
    - Spread investments over larger number of securities and reduce risk exposure
    - Option not available to small investors with limited funds
    - **Mutual Funds**—pooling of funds from many investors and purchase a portfolio of many different securities

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The Economics of Financial Intermediation (Cont.)

- **Reasons for Financial Intermediation (Cont.)**
  - **Gathering of Information**
    - Intermediaries are efficient at obtaining information, evaluating credit risks, and are specialists in production of information
  - **Asymmetric Information**
    - Buyers/sellers **not** equally informed about product
    - Can be difficult to determine credit worthiness, mainly for consumers and small businesses

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The Economics of Financial Intermediation (Cont.)

- **Reasons for Financial Intermediation (Cont.)**
  - **Asymmetric Information (Cont.)**
    - Borrower knows more than lender about borrower's future performance
    - Borrowers may understate risk
    - Asymmetric information is much less of a problem for large businesses—more publicly available information

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The Economics of Financial Intermediation (Cont.)

- **Reasons for Financial Intermediation (Cont.)**
  - **Adverse Selection**
    - Related to information about a business **before** a financial transaction is consummated
    - Occurs when an individual or group who is most likely to cause an undesirable outcome are also the most likely to engage in a market
    - Small businesses tend to represent themselves as high quality

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The Economics of Financial Intermediation (Cont.)

- **Reasons for Financial Intermediation (Cont.)**
  - **Adverse Selection (Cont.)**
    - **Banks know some are good and some are bad, how to decide**
      - Charge too high an interest, good credit companies look elsewhere—leaves just bad credit risk companies
      - Charge too low interest, have more losses to bad companies than profits on good companies
      - **Market failure**—Banker may decide not to lend money to any small businesses

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The Economics of Financial Intermediation (Cont.)

- **Reasons for Financial Intermediation (Cont.)**
  - **Moral Hazard**
    - Occurs **after** a transaction is consummated
    - One party acts in a way contrary to the wishes of the other party
    - Arises if it is difficult or costly to monitor each other's activities
    - Taking risks works to owners advantage, prompting owners to make riskier decisions than normal
      - Owner may "hit the jackpot", however, bank is not better off
      - From owner's perspective, a moderate loss is same as huge loss—limited liability

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The Economics of Financial Intermediation (Cont.)

- **Summary of role of financial intermediaries in flow of information (Figure 11.1)**
  - **Case 1**
    - Funds flow from savers/lenders through financial intermediaries (banks) to borrowers/spenders
    - The financial intermediary issues **nontraded contracts** to the borrowers
    - Primarily in the form of bank loans held to maturity
    - Banks **monitor** borrower behavior over life of loan

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The Economics of Financial Intermediation (Cont.)

- **Summary of role of financial intermediaries in flow of information (Figure 11.1)**
  - **Case 2**
    - Funds flow from the financial intermediaries to financial markets who lend to borrowers/spenders
    - In this case, the lending takes the form of **traded contracts** between the financial market and borrowers
    - An example of this case would be money market mutual funds

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The Economics of Financial Intermediation (Cont.)

- **Summary of role of financial intermediaries in flow of information (Figure 11.1)**
  - **Case 3**
    - In this case, funds flow directly through financial markets to borrowers/spenders in the form of **traded contracts**
    - Financial intermediaries are not involved in this transaction
    - Purchase of stocks/bonds by individuals in financial markets

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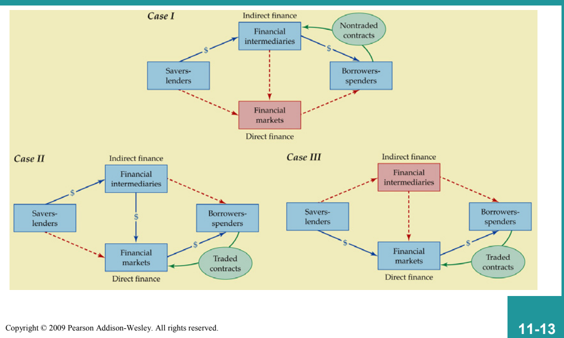
FIGURE 11.1 Flow of funds from savers to borrowers.



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The Evolution of Financial Intermediaries in the US

- **The institutions are very dynamic and have changed significantly over the years**
- Refer to **Table 11.1** and **11.2** for relative importance of different types of institutions and how this has changed from 1960 to 2008
  - **Winners**—Pension funds and mutual fund
  - **Losers**—Depository institutions (except credit unions) and life insurance companies

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TABLE 11.1 Financial Intermediary Assets in the United States, 1960–2007 (in billions of dollars)

	1960	1970	1980	1990	2000	2007
Depository institutions						
Commercial banks	229	517	1,482	3,338	6,469	11,194
Savings and loans and mutual savings	112	253	792	1,358	1,218	1,815
Credit unions	6	18	68	217	441	760
Insurance companies						
Life insurance	116	201	464	1,367	3,136	4,984
Property and casualty	26	51	182	533	862	1,381
Pension funds						
Private	41	123	495	1,566	4,490	5,842
Public (state and local government)	20	60	197	820	2,293	3,152
Finance companies	28	64	197	547	1,445	1,911
Mutual funds						
Stock and bond	23	53	70	654	4,433	7,798
Money market	0	0	76	498	1,812	3,053
Total	601	1,340	4,023	10,898	26,202	41,890

Note: Columns may not add due to rounding.
Source: Federal Reserve Flow of Funds Accounts.

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TABLE 11.2 Share of Financial Intermediary Assets in the United States, 1960–2007 (percent)

	1960	1970	1980	1990	2000	2007
Depository institutions						
Commercial banks	38.1	38.6	36.8	30.6	24.6	26.7
Savings and loans and mutual savings	18.7	18.9	19.7	12.5	4.5	4.3
Credit unions	1.0	1.3	1.7	2.0	1.6	1.8
Insurance companies						
Life insurance	19.3	15.0	11.5	12.5	12.0	11.9
Property and casualty	4.4	3.8	4.5	4.9	3.0	3.3
Pension funds						
Private	6.8	9.2	12.3	14.4	17.0	13.9
Public (state and local government)	3.3	4.5	4.9	7.5	8.7	7.6
Finance companies	4.6	4.8	4.9	5.0	5.4	4.6
Mutual funds						
Stock and bond	3.9	4.0	1.7	6.0	16.8	18.6
Money market	0.0	0.0	1.9	4.6	6.8	7.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: Columns may not add due to rounding.
Source: Federal Reserve Flow of Funds Accounts.

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- Changes in relative importance caused by
  - Changes in regulations
  - Key financial and technological innovations
- **Shifting Sands of Interest Rates**
  - 1950s and early 1960s
    - Stable interest rates
    - Fed imposed ceilings on deposit rates
    - Little competition for short-term funds from small savers
    - Many present day competitors had not been developed
    - **Therefore, large supply of cheap money**

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **Shifting Sands of Interest Rates (Cont.)**
  - Mid-1960’s
    - Growing economy meant increased demand for loans
    - Percentages of bank loans to total assets jumped from 45% in 1960 to nearly 60% in 1980
    - **Challenge for banks was to find enough deposits to satisfy loan demand**
      - Interest rates became increasingly unstable
      - However, depository institutions still fell under protection of **Regulation Q**

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Regulation Q Security Blanket**
  - **Provisions and Intent of Regulation Q**
    - Fed had responsibility of imposing ceilings on deposit interest rates
    - Promote stability in banking industry
    - Prevent "destructive" competition among depository institutions to get funds by offering higher deposit rates
    - Higher cost of funds would increase costs and increase bank failures

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Regulation Q Security Blanket (Cont.)**
  - **Consequences of Regulation Q**
    - Rising short-term interest rates meant depository institutions could not match rates earned in money market instruments such as T-bills and commercial paper
    - However, option was not opened to small investor—money market instruments were not sold in small denominations
    - **Financial disintermediation**—Wealthy investors and corporations took money from depository institutions and placed in money market instruments

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **Birth of the Money Market Mutual Fund**
  - **Figure 11.2** traces history of short-term interest rates and the Regulator Q ceiling rates on passbook savings accounts from 1950 to 2002
  - In 1961 banks were permitted to offer negotiable certificates of deposit (CDs) in denominations of $100,000 **not subject to Regulation Q**
  - In mid-1960s short-term rates became more volatile and wealthy investors switched from savings accounts to large CD's

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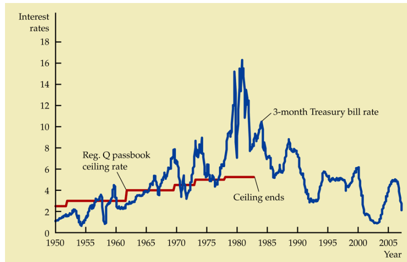
FIGURE 11.2 Interest rates and Regulation Q.



Source: Federal Reserve Bulletin.

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **Birth of the Money Market Mutual Fund (Cont.)**
  - In 1971 **Money Market mutual Funds** were developed and were a main cause in the repeal of Regulation Q
    - Small investors pooled their funds to buy a diversified portfolio of money market instruments
    - Some mutual funds offered limited checking withdrawals
    - **Small investors now had access to money market interest rates in excess permitted by Regulation Q**

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Savings and Loan (S&L) Crisis**
  - **Figure 11.3**—As interest rates rose in late 1970s, small investors moved funds out of banks and thrifts
  - Beginning of disaster for S&Ls since they were dependent on small savers for their funds

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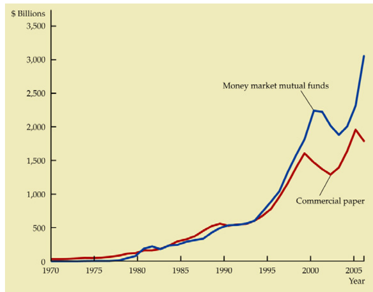
FIGURE 11.3 Commercial paper and money market mutual funds (billions of $ outstanding).



Source: Federal Reserve Flow of Funds Accounts, various.

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Savings and Loan (S&L) Crisis (Cont.)**
  - Depository Institutions Deregulation and Monetary Control Act of 1980 and the Garn-St. Germain Depository Institutions Act of 1982
    - Dismantled Regulation Q
    - Permitted S&Ls (as well as other depository institutions) to compete for funds as money market rates soared

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Savings and Loan (S&L) Crisis (Cont.)**
  - **However, the financial makeup of S&Ls changed significantly**
    - Most of their assets (fixed-rate residential mortgages, 30 year) yielded very low returns
    - Interest paid on short-term money (competing with mutual funds) was generally double the rate of return on mortgages
    - Market value of mortgages held by S&Ls fell as interest rates rose making the value of assets less than value of liabilities

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Savings and Loan (S&L) Crisis (Cont.)**
  - Since financial statements are based on **historical costs**, extent of asset value loss was not recognized unless mortgage was sold
  - Under the Garn-St. Germain Act, S&Ls were permitted to invest in higher yielding areas in which they had little expertise (specifically junk bonds and oil loans)
  - Investors were not concerned because their deposits were insured by **Federal Savings and Loan Insurance Corporation (FSLIC)**
  - **Result is an approximate $150 billion bail-out—paid for by taxpayers**

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Rise of Commercial Paper**
  - Financial disintermediation created situation where corporations issued large amounts of commercial paper (short-term bonds) to investors moving funds away from banks
  - This growth paralleled the growth in the money market mutual funds—**Figure 11.3**

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Rise of Commercial Paper (Cont.)**
  - Banks lost their largest and highest quality borrowers to commercial paper market
  - To compensate for this loss of quality loans, banks started making loans to less creditworthy customers and **lesser developed countries (LDC's)**
  - **As a result, bank loan portfolios became riskier in the end of 1980s**

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Rise of Commercial Paper (Cont.)**
  - The increase in commercial paper was aided by technological innovations
    - Computers and communication technology permitted transactions at very low costs
    - Complicated modeling permitted financial institutions to more accurately evaluate borrowers—addressed the **asymmetric problem**
    - Permitted banks to more effectively monitor inventory and accounts receivable used as **collateral** for loans

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Institutionalization of Financial Markets**
  - **Institutionalization**—more and more funds now flow **indirectly** into financial markets through financial intermediaries rather than **directly** from savers
  - These "institutional investors" have become more important in financial markets relative to individual investors
  - Easier for companies to distribute newly issued securities via their investment bankers

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Institutionalization of Financial Markets (Cont.)**
  - Reason for growth of institutionalization
    - Growth of pension funds and mutual funds
    - Tax laws encourage additional pensions and benefits rather than increased wages

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Institutionalization of Financial Markets (Cont.)**
  - Legislation created a number of new alternatives to the traditional employer-sponsored **defined benefits plan**, primarily the **defined contribution plan**
    - IRAs
    - 403(b) and 401(k) plans
    - Growth of mutual funds resulting from the alternative pension plans—**Mutual fund families**

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Transformation of Traditional Banking**
  - During 1970s & 80s banks extended loans to riskier borrowers
  - Especially vulnerable to international debt crisis during 1980s
  - Increased competition from other financial institutions
  - **Figure 11.4**, shows failures of banks during late 1980s & early 1990s

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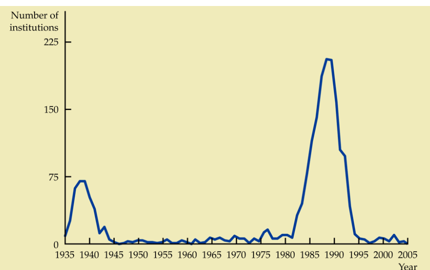
FIGURE 11.4 Commercial bank failures.



Source: Federal Deposit Insurance Corporation, Historical Statistics on Banking.

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Transformation of Traditional Banking (Cont.)**
  - Predictions of demise of banks are probably exaggerated
    - Although banks' share of the market has declined, bank assets continue to increase
    - New innovation activities of banks are not reflected on balance sheet
      - Trading in interest rates and currency swaps
      - Selling credit derivatives
      - Issuing credit guarantees

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The Evolution of Financial Intermediaries in the U.S. (Cont.)

- **The Transformation of Traditional Banking (Cont.)**
  - Predictions of demise of banks are probably exaggerated (Cont.)
    - Banks still have a strong comparative advantage in lending to individuals and small businesses
      - Banks offer wide menu of services
      - Develop comprehensive relationships—easier to monitor borrowers and address problems
    - In 1999 the Gramm-Leach-Bliley Act repealed the Glass-Steagall Act of 1933 permitting the merging of banks with many other types of financial institutions, thereby insuring the continuation of banks

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Financial Intermediaries: Assets, Liabilities, and Management

- Unlike a manufacturing company with **real assets**, banks have only **financial assets**
- Therefore, banks have financial claims on **both sides** of the balance sheet
  - **Credit Risks**
    - Banks tend to hold assets to maturity and expect a certain cash flow
    - Do not want borrowers to default on loans
    - Need to monitor borrowers continuously
      - Charge quality customers lower interest rate on loans
      - Detect possible default problems

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Financial Intermediaries: Assets, Liabilities, and Management (Cont.)

- **Interest Rate risks**
  - Vulnerable to change in interest rates
    - Want a positive spread between interest earned on assets and cost of money (liabilities)
    - Attempt to maintain an equal balance between maturities of assets and liabilities
    - **Adjustable rate on loans, mortgages, etc. minimizes interest rate risks**

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Financial Intermediaries: Assets, Liabilities, and Management (Cont.)

- **Figure 11.5** shows condensed balance sheets (T-accounts) for some of the major financial intermediaries in the U.S.
  - Assets on the left-hand side and liabilities and equity are on the right-hand side
  - **Depository Institutions**
    - All have deposits on the right-hand side of balance sheet
    - Investments in assets tend to be short term in maturity
    - Do face credit risk because they invest heavily in nontraded private loans

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FIGURE 11.5 Selected intermediary balance sheets.

Assets shown on left-hand side of T-account, and liabilities and equity on right-hand side of T-account

Depository Financial Intermediaries

Commercial Banks	
Gov't Securities Consumer Loans Commercial Loans Mortgages	Deposits Equity

Savings & Loans Associations	
Gov't Securities Mortgages	Deposits Equity*

Mutual Savings Banks	
Gov't Securities Consumer Loans Mortgages	Deposits*

Credit Unions	
Gov't Securities Consumer Loans	Deposits*

Nondepository Financial Intermediaries

Life Insurance Companies	
Securities Private Placements Real Estate Equity Mortgages	Insurance Policies Annuities Equity*

Property and Casualty Insurance Companies	
Securities	Insurance Policies Equity*

Pension Funds	
Securities Real Estate Equity Mortgages	Pension Liability

Commercial Finance Companies	
Commercial Loans & Leases	Debt Equity

Consumer Finance Companies	
Consumer Loans	Debt Equity

Mutual Funds	
Securities	Equity

Money Market Mutual Funds	
Money Market Instruments	Equity

Investment Banks	
Securities	Debt Equity

Venture Capital Funds	
Nontraded Equity in Start-Up Firms	Equity

*Mutuals do not issue equity but are technically owned by their depositors or their policyholders.

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Financial Intermediaries: Assets, Liabilities, and Management (Cont.)

- **Non-depository Financial Intermediaries**
  - Some experience credit risk associated with nontraded financial claims
  - Asset maturities reflect the maturity of liabilities
    - Insurance and pension funds have long-term policies and annuities—invest in long-term instruments
    - Consumer and commercial finance companies have assets in short-term nontraded loans—raise funds by issuing short-term debt

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