

Money and Banking

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Part III: Financial Intermediaries and the Economics of Information Chapters 2, 8 and 9 and Uncertainty

Financial Intermediaries

- What are the functions of the financial system?
 1. To provide ways to transfer economic resources through time, across geographic regions, and among industries.
 2. To provide ways to manage risk.
 - Create and sell assets with low risk characteristics and then use the funds to buy assets with more risk (also called **asset transformation**).
 - Also lower risk by helping people to diversify portfolios
 3. To provide ways of clearing and settling payments to facilitate the exchange of goods, services and assets.

Financial Intermediaries

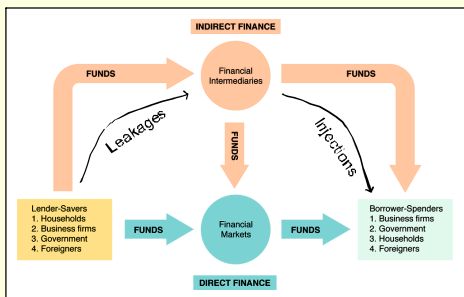
- What are the functions of the financial system?
 4. To provide a mechanism for the pooling of funds to undertake large scale indivisible enterprise or for the subdividing of shares in large enterprises with many owners.
 - Engage in process of indirect finance
 - More important source of finance than securities markets
 - Needed because of transactions costs and asymmetric information
 5. To provide price information that helps coordinate decentralized decision making in various sectors of the economy.

Financial Intermediaries

- What are the functions of the financial system?
 6. To provide ways to deal with the incentive problems when one party to a financial transaction has information that the other party does not, or when one party is an agent that makes decisions for another.
 - **Adverse Selection:** Potential borrowers most likely to produce adverse outcomes are ones most likely to seek loans and be selected
 - **Moral Hazard:** Hazard that borrower has incentives to engage in undesirable (immoral) activities making it more likely that won't pay loan back

Financial Intermediaries

- What are financial intermediaries?



Financial Intermediaries

- What are the functions of financial intermediaries?
 - Indirect finance
 - Transactions Costs
 1. Financial intermediaries make profits by reducing transactions costs
 2. Reduce transactions costs by developing expertise and taking advantage of economies of scale
 - Financial intermediaries reduce adverse selection and moral hazard problems, enabling them to make profits

Financial Intermediaries

Two Main Reasons for Regulation

- 1. Increase information to investors**
 - A. Decreases adverse selection and moral hazard problems
 - B. SEC forces corporations to disclose information
- 2. Ensuring the soundness of financial intermediaries**
 - A. Prevents financial panics
 - B. Chartering, reporting requirements, restrictions on assets and activities, deposit insurance, and anti-competitive measures

Economics of Information

Adverse Selection:

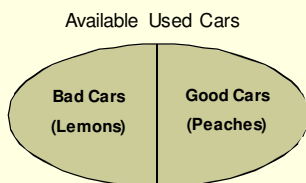
1. Before transaction occurs
2. Potential borrowers most likely to produce adverse outcomes are ones most likely to seek loans and be selected

Moral Hazard:

1. After transaction occurs
2. Hazard that borrower has incentives to engage in undesirable (immoral) activities making it more likely that won't pay loan back

Economics of Information

■ The Lemons Problem:



Economics of Information

- The Lemons Problem:
 - If the consumer can't distinguish between peaches and lemons, he/she is willing to pay only average of good and bad securities' values.
 - Expected value of the car is equal to the weighted average of the value of a lemon and the value of a peach where the weights are equal to the perceived probability of the car being either
 - Numerical example:

Economics of Information

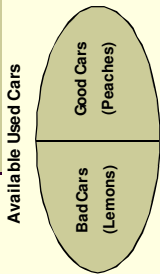
- The Lemons Problem:

Suppose that half the cars in the market are lemons and the other half are peaches. Then

 - Probability of buying a peach = 0.5
 - Probability of buying a lemon = 0.5

Further suppose that the buyer is willing to give \$5000 for peach, but only \$1000 for a lemon. Then

 - The maximum purchase price the buyer would be willing to give would be
$$P_{\max} = 0.5 \cdot 1000 + 0.5 \cdot 5000$$
$$= 500 + 2500$$
$$= 3000$$



Economics of Information

- The Lemons Problem:
 - Result: Peaches undervalued and sellers will not sell them; lemons are overvalued, so too many are sold.
 - Numerical example:
 - Used car sellers know whether their car is a lemon or a peach (asymmetric information)
 - Suppose the minimum price the seller will accept for a peach is \$4500 and for a lemon \$500. Then
 - The buyers maximum price of \$3000 is not enough to buy a peach and too much for a lemon.
 - Thus, sellers of lemons are more than willing to sell, but sellers of peaches are unwilling to sell

Economics of Information

■ Lemons Problem in Securities Markets

1. If can't distinguish between good and bad securities, willing to pay only average of good and bad securities' values.
2. Result: Good securities undervalued and firms won't issue them; bad securities overvalued, so too many issued.
3. Investors won't want to buy bad securities, so market won't function well.

Economics of Information

■ Tools to Help Solve Adverse Selection (Lemons) Problem

1. **Private Production and Sale of Information**
Free-rider problem interferes with this solution
2. **Government Regulation to Increase Information**
3. **Financial Intermediation**
 - A. Analogy to solution to lemons problem provided by used-car dealers
 - B. Avoid free-rider problem by making private loans
4. **Collateral and Net Worth**

Economics of Information

Moral Hazard in Equity: Principal-Agent Problem

1. Result of separation of ownership by stockholders (*principals*) from control by managers (*agents*)
2. Managers act in own rather than stockholders' interest
3. Principals and agents have different and conflicting objectives

Tools to Help Solve the Principal-Agent Problem

1. Monitoring: production of information
2. Government regulation to increase information
3. Financial intermediation
4. Debt contracts

Banking and the Management of Financial Institutions

The Bank Balance Sheet

Table 1 Balance Sheet of All Commercial Banks (Items as a percentage of the total, January 2003)

Assets (Uses of Funds)*		Liabilities (Sources of Funds)	
Reserves and cash items	5	Checkable deposits	9
Securities		Nontransaction deposits	
U.S. government and agency	15	Small-denomination time deposits	42
State and local government and other securities	10	(- < \$100,000) + savings deposits	14
Loans		Large-denomination time deposits	28
Commercial and industrial	14	Borrowings	7
Real estate	29	Bank capital	
Consumer	9		
Interbank	4		
Other	8		
Other assets (for example, physical capital)	6		
Total	100	Total	100

*In order of decreasing liquidity.
Source: www.federalreserve.gov/releases/h8/current/

Banking and the Management of Financial Institutions

Balance Sheet Analysis:

• Deposit of \$100 cash into First National Bank:

Assets	Liabilities
Vault Cash + \$100	Checkable Deposits + \$100

• Deposit of \$100 check into First National Bank:

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

First National Bank		Second National Bank	
Assets	Liabilities	Assets	Liabilities
Reserves + \$100	Checkable + \$100 Deposits	Reserves - \$100	Checkable - \$100 Deposits

Banking and the Management of Financial Institutions

Liquidity Management

• Reserve requirement = 10%, Excess reserves = \$10 million

Assets		Liabilities	
Reserves	\$20 Million	Deposits	\$100 Million
Loans	\$80 Million	Bank Capital	\$10 Million
Securities	\$10 Million		

• Deposit outflow of \$10 million

Assets		Liabilities	
Reserves	\$10 Million	Deposits	\$90 Million
Loans	\$80 Million	Bank Capital	\$10 Million
Securities	\$10 Million		

Banking and the Management of Financial Institutions

- When a bank has a shortfall in required reserves it must do one of four things
 1. Borrow from other banks
 2. Sell securities
 3. Borrow from the Fed
 4. Call in or sell loans

Banking and the Management of Financial Institutions

1. Borrow from other banks or corp.

Assets		Liabilities	
Reserves	\$ 9 Million	Deposits	\$90 Million
Loans	\$90 Million	Borrowing	\$ 9 Million
Securities	\$10 Million	Bank Capital	\$ 10 Million

2. Sell securities.

Assets		Liabilities	
Reserves	\$ 9 Million	Deposits	\$90 Million
Loans	\$90 Million	Bank Capital	\$10 Million
Securities	\$ 1 Million		

Banking and the Management of Financial Institutions

3. Borrow from the Fed.

Assets		Liabilities	
Reserves	\$ 9 Million	Deposits	\$90 Million
Loans	\$90 Million	Discount Loan	\$ 9 Million
Securities	\$10 Million	Bank Capital	\$ 10 Million

4. Calling in loans or selling loans.

Assets		Liabilities	
Reserves	\$ 9 Million	Deposits	\$90 Million
Loans	\$81 Million	Bank Capital	\$10 Million
Securities	\$10 Million		
