

Banks and the Financial Structure

We study the following issues:

- Sources of finance for business firms across countries.
 - Financial structure
 - Factors that explain a country's financial structure
 - Transactions Costs
 - Information Costs : 1) Adverse Selection, (2) Moral Hazard
 - The Lemons Problem in financial markets
 - How to reduce information costs
 - Moral Hazard: monitoring the borrower
 - Reducing moral hazard
 - What do banks do?
 - How do banks succeed in reducing information costs?
 - Bank runs and bank panics
 - Ways to prevent bank runs.
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- Figure showing sources of finance for business firms.
- Non-financial corporations in the US raise more than 2/3 of the funds they need internally.
- Most external funds are raised through banks.
- Where do households put their savings? Box 3-1.
- 1/2 of household financial assets are held through banks.
- Stability of banks and other financial intermediaries therefore becomes extremely important.
- Who are the borrowers? Businesses, individuals wanting to smoothen their consumption (e.g. students)...
- Who are the savers? Again, businesses, individuals.

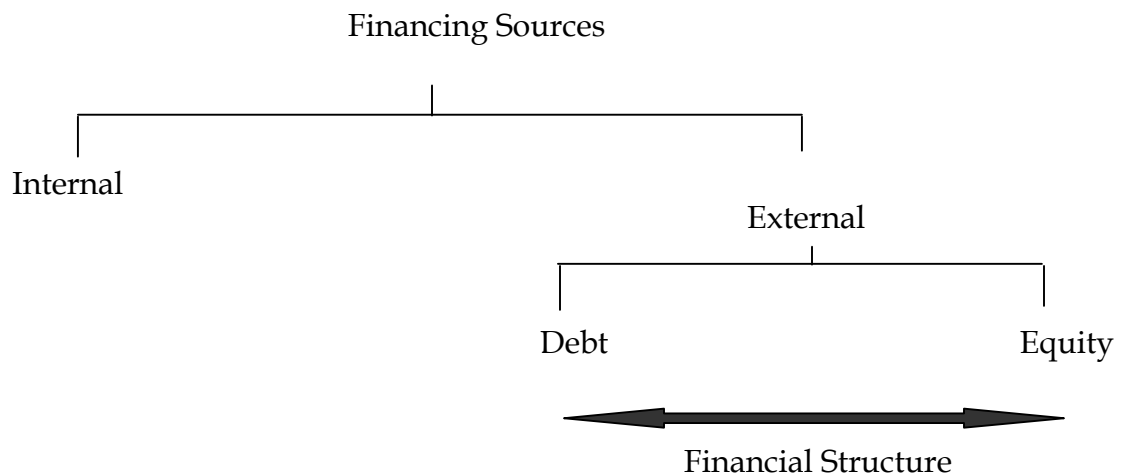
Question: How to get savers and borrowers to meet? Stock markets & financial intermediaries (e.g. banks) serve this basic function.

CROSS-SECTION DATA ON BUSINESS FINANCING

1. US: Between 1946-1991, non-financial firms in the US raised 75% of their funds from internal sources (current and accumulated profits, bequests); raised 12% of funds from banks, 13% from stock markets.
2. Germany: 62% internal, 3% stock markets, 23% banks.
3. Japan: 34% internal, 59% banks, 7% stock markets

Main questions:

1. Borrowers side: Why is business financing mainly from internal sources? That is, why are businesses hesitant to use external sources of finance?
2. Lenders/Savers side: Why is indirect finance more popular than direct finance? That is, why don't borrowers and lenders lend/borrow directly from each other?
3. What factors determine the stability of banks?
 - Definition of Financial Structure: Financial structure refers to the mix of finance between equity (raising money externally through stock markets etc.) and debt (raising money externally through banks etc.)



- Financial structure depends on two factors: transactions costs, and information costs.

- Transactions costs: high brokerage fees, need minimum amount to buy a Treasury Bill, lawyers fees.
- Financial intermediaries reduce transactions costs by “exploiting economies of scale” – transactions costs *per dollar* of investment decline as the size of transactions increase. 100 investors with \$10,000 each face lower costs per dollar if together they buy \$ 1,000,000 of bonds than if they were to each buy separately.
- Information costs: as a saver and investor, how do you know that the financial system will ensure that your money will go to a sound company and not some fly-by-night operator (say a drug peddler or smuggler)? How will you make sure that once the money has been invested in a good company, the managers will not misuse your money?
- In the real world, borrowers may have private information (e.g. about their prospects, what they produce, their technology, their managerial staff etc.) which may not be available to lenders – Asymmetric information.
- Adverse Selection: hard to distinguish good borrowers from the bad.
- Moral hazard: hard to monitor borrower after loan has been made.
- Example of student car insurance and fire insurance.
- **George Akerlof’s famous Lemons Problem:**

Among all used Toyota Camrys, some are good, others not so good. Only owners know if their car is a lemon or not. Buyers can’t distinguish the good from the bad. So they go by the *average* quality and hence are willing to pay an average price. Now suppose you want to sell your Camry and you know it is of very high quality. Then the market price will seem too low to you. On the other hand, Mr. A who owns a sure lemon of a Camry is quite happy with the price. So chances are that you will not sell your Camry at the market price while Mr. A will. If all sales follow this paradigm, *only bad Camrys (lemons) will be sold in the used car market*. Since potential buyers know this, nobody will buy a used car!!!

- Lemons problem in financial markets.
- So why do we see such heavy-use of internal funds? Good firms may find it hard (costly) to convey the information that they are good; hence they rely on internal funds.

- Notice that a profit opportunity is created because as a saver you are willing to pay for information about the quality of potential borrowers. Similarly, good borrowers are eager to pay to communicate information about their projects.
- Financial intermediaries step into this profit opportunity, using their superior information-gathering skills to obtain information about borrowers, and “sell” it to savers. The difference between lending and borrowing rates reflects the size of this profit.
- Thus banks serve a major function: they lower adverse selection costs in financial markets.
- Does collateral affect the adverse selection problem?
- Collateral and recessions

Moral Hazard:

- These often arise when borrowers have incentives /ability to conceal information and to act in a way that may not be in tune with the lender’s interests.
- Principal-agent relationships: principal owns the firm’s net worth, agents control the firm’s assets. Managers may not hold equity in the firm and do not have same incentives to maximize the firm’s value as the owner (principal) does. Managers therefore waste money on themselves, which does not benefit the owners of the firm.
- In the US, top management usually owns on average less than 5% of the firm.
- How to align the incentives of the two contracting parties?
- How does debt finance reduce moral hazard costs? Debt promises a fixed payment (e.g. interest on a loan); reduces need to monitor agent. What if agent fails to make that fixed payment?
- Restrictive covenants: place limits on what the agent can buy; if you apply for a mortgage loan, the bank may ask you to purchase enough life insurance so that in the event you die before all payments have been made, they can use the payoff of the insurance company.
- Bailouts and moral hazard; “excessive” risk-taking

Banks balance sheets (things to note)

- Table
- Notice checkable deposits are about 15-25% of a bank's funds (down from 60% in 1960!): short-term; random withdrawal demand
- Loans (long-term): 60% of all assets are in this form; illiquid
- Banks hold illiquid portfolios (their assets have longer maturity than their liabilities)
- Assets are risky in return!
- This "mismatch of maturity" is the principal cause of a bank run.

Bank runs:

- A bank failure occurs when a bank cannot pay its depositors in full.
- A run happens when enough depositors realize that their bank is about to fail, and they all show up at the tellers to get their deposits back.
- When enough banks experience runs, the situation is called a bank panic!
- Runs occur when depositors lose faith in the value of a bank's underlying assets. They often start with a rumor (maybe false!).
- Self-fulfilling prophecy: if depositors believe the bank is in trouble, the bank is in trouble! See balance sheet.
- Cost of bank runs: adverse selection problem worsens (you don't know which bank to bank on); contagion effects; may affect those who borrow from that bank.

- US experience with bank runs: 1863-1913 (5 panics); panic of 1907 led Woodrow Wilson to create the Federal Reserve System (FED); 1930-33 (1/3 of all US banks failed); 10 in 1981 and 79 in 1984, 206 in 1989, 124 in 1991.
- Federal Deposit Insurance Corporation (FDIC); created in 1934; insures deposits up to \$ 100,000; that covers 99% of all depositors. Remaining 1-% account for 25% of all deposits!
- FDIC pays depositors in the event of a failure; also monitors banks.
- FDIC and moral hazard
- The S&L crisis: 1980: allowed to invest funds in assets other than home mortgages (e.g. consumer loans, real estate,...). 10% of assets could be invested in securities. FSLIC-insured deposits raised from \$40,000 to \$100,000; interest-rate ceiling on deposits (Regulation Q) was eliminated;
- Banks were forced to pay high interest on their deposits in the 80's; while investments were in long-term low-interest home mortgages; profit squeeze; higher risk-taking; by 1990, a loss to tax payers of \$200 billion