

- ▶ Stocks and corporate bonds not the most important sources of funds for business

- ▶ Stocks and corporate bonds not the most important sources of funds for business
- ▶ Indirect finance through financial intermediaries makes up most of business finance

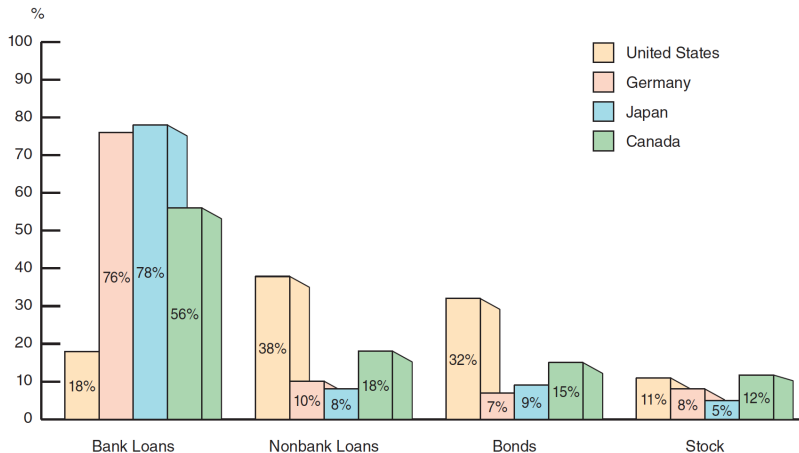
- ▶ Stocks and corporate bonds not the most important sources of funds for business
- ▶ Indirect finance through financial intermediaries makes up most of business finance
- ▶ Financial sector is heavily regulated

- ▶ Stocks and corporate bonds not the most important sources of funds for business
- ▶ Indirect finance through financial intermediaries makes up most of business finance
- ▶ Financial sector is heavily regulated
- ▶ Only large, established firms can issue stocks and bonds

- ▶ Stocks and corporate bonds not the most important sources of funds for business
- ▶ Indirect finance through financial intermediaries makes up most of business finance
- ▶ Financial sector is heavily regulated
- ▶ Only large, established firms can issue stocks and bonds
- ▶ Most household debt is secured and much of business debt is

- ▶ Stocks and corporate bonds not the most important sources of funds for business
- ▶ Indirect finance through financial intermediaries makes up most of business finance
- ▶ Financial sector is heavily regulated
- ▶ Only large, established firms can issue stocks and bonds
- ▶ Most household debt is secured and much of business debt is
- ▶ Loan contracts typically restrict the behavior of borrowers

Sources of External Funds for Nonfinancial Businesses, 1970–2000



Transaction Costs

Only half of American households own securities

Transaction Costs

Only half of American households own securities

- ▶ Wealth threshold above which people start to save long-term

Transaction Costs

Only half of American households own securities

- ▶ Wealth threshold above which people start to save long-term
- ▶ Large differences in preferences

Transaction Costs

Only half of American households own securities

- ▶ Wealth threshold above which people start to save long-term
- ▶ Large differences in preferences
- ▶ Divisibility problems

Transaction Costs

Only half of American households own securities

- ▶ Wealth threshold above which people start to save long-term
- ▶ Large differences in preferences
- ▶ Divisibility problems

High fixed cost of financial market participation

Transaction Costs

Only half of American households own securities

- ▶ Wealth threshold above which people start to save long-term
- ▶ Large differences in preferences
- ▶ Divisibility problems

High fixed cost of financial market participation

Inability to buy a diverse portfolio makes participation risky for the poor

Benefits of financial intermediaries: transaction cost reductions

- ▶ Economies of scale
 - ▶ Purchases and sales
 - ▶ Collection of information
 - ▶ Example: mutual funds

Benefits of financial intermediaries: transaction cost reductions

- ▶ Economies of scale
 - ▶ Purchases and sales
 - ▶ Collection of information
 - ▶ Example: mutual funds
- ▶ Reduce asymmetric information problems

Asymmetric information

Problems:

- ▶ Adverse Selection
- ▶ Moral Hazard

Adverse selection (lemons problem)

1. Buyer does not know quality, so is willing to pay average value

Adverse selection (lemons problem)

1. Buyer does not know quality, so is willing to pay average value
2. Seller knows value

Adverse selection (lemons problem)

1. Buyer does not know quality, so is willing to pay average value
2. Seller knows value
 - 2.1 Will offer more low-quality

Adverse selection (lemons problem)

1. Buyer does not know quality, so is willing to pay average value
2. Seller knows value
 - 2.1 Will offer more low-quality
 - 2.2 Will offer less high-quality

Adverse selection (lemons problem)

1. Buyer does not know quality, so is willing to pay average value
2. Seller knows value
 - 2.1 Will offer more low-quality
 - 2.2 Will offer less high-quality

Result: fewer trades

Private information collection and sales

Rating agencies increase information for people who buy their services

Private information collection and sales

Rating agencies increase information for people who buy their services

Free rider problem:

Private information collection and sales

Rating agencies increase information for people who buy their services

Free rider problem:

- ▶ Information can be a public good
- ▶ Informed investors' behavior signals information

Private information collection and sales

Rating agencies increase information for people who buy their services

Free rider problem:

- ▶ Information can be a public good
- ▶ Informed investors' behavior signals information
- ▶ No profits from buying costly information

Private information collection and sales

Rating agencies increase information for people who buy their services

Free rider problem:

- ▶ Information can be a public good
- ▶ Informed investors' behavior signals information
- ▶ No profits from buying costly information

One solution: firms cover the cost of rating their selves

Big brother is here to help

Securities and Exchange Commission: firms selling securities must submit to audits

Big brother is here to help

Securities and Exchange Commission: firms selling securities must submit to audits

Success?

Big brother is here to help

Securities and Exchange Commission: firms selling securities must submit to audits

Success?

Covers limited set of cases of asymmetric information

- ▶ Not mortgages
- ▶ Not commercial loans
- ▶ Not interbank loans
- ▶ Not relevant in all insurance markets

Financial intermediaries and asymmetric information

Financial intermediaries and asymmetric information

- ▶ Banks collect information with economies of scale

Financial intermediaries and asymmetric information

- ▶ Banks collect information with economies of scale
- ▶ Use depositors funds to lend to good firms

Financial intermediaries and asymmetric information

- ▶ Banks collect information with economies of scale
- ▶ Use depositors funds to lend to good firms
- ▶ *Private loans* rather than publicly-traded securities essential to capture the profits from the information

Financial intermediaries and asymmetric information

- ▶ Banks collect information with economies of scale
- ▶ Use depositors funds to lend to good firms
- ▶ *Private loans* rather than publicly-traded securities essential to capture the profits from the information
- ▶ Does not eliminate asymmetric information

Financial intermediaries and asymmetric information

- ▶ Banks collect information with economies of scale
- ▶ Use depositors funds to lend to good firms
- ▶ *Private loans* rather than publicly-traded securities essential to capture the profits from the information
- ▶ Does not eliminate asymmetric information

Prediction of theory: “As information about firms becomes easier to acquire, the role of banks should decrease”

Financial intermediaries and asymmetric information

- ▶ Banks collect information with economies of scale
- ▶ Use depositors funds to lend to good firms
- ▶ *Private loans* rather than publicly-traded securities essential to capture the profits from the information
- ▶ Does not eliminate asymmetric information

Prediction of theory: “As information about firms becomes easier to acquire, the role of banks should decrease”

Prediction of theory: larger, established firms should be more likely to finance with equity or commercial paper

Collateral

- ▶ Reduces the costs of default to the lender

Collateral

- ▶ Reduces the costs of default to the lender
- ▶ Makes adverse selection less concerning

Collateral

- ▶ Reduces the costs of default to the lender
- ▶ Makes adverse selection less concerning
- ▶ Moral hazard:

Collateral

- ▶ Reduces the costs of default to the lender
- ▶ Makes adverse selection less concerning
- ▶ Moral hazard: reduced

Collateral

- ▶ Reduces the costs of default to the lender
- ▶ Makes adverse selection less concerning
- ▶ Moral hazard: reduced

Many debts are implicitly secured: lenders can seize assets

Collateral

- ▶ Reduces the costs of default to the lender
- ▶ Makes adverse selection less concerning
- ▶ Moral hazard: reduced

Many debts are implicitly secured: lenders can seize assets

- ▶ \uparrow net worth of a firm \Rightarrow \downarrow problems from asymmetric information

Collateral

- ▶ Reduces the costs of default to the lender
- ▶ Makes adverse selection less concerning
- ▶ Moral hazard: reduced

Many debts are implicitly secured: lenders can seize assets

- ▶ \uparrow net worth of a firm \Rightarrow \downarrow problems from asymmetric information
- ▶ Role for monetary policy

Moral hazard

Principal agent problem:

- ▶ Stakeholders are not the decision-makers and
- ▶ Monitoring of performance on a contract is difficult

Moral hazard

Principal agent problem:

- ▶ Stakeholders are not the decision-makers and
- ▶ Monitoring of performance on a contract is difficult

Examples:

- ▶ Citizens and bureaucrats

Moral hazard

Principal agent problem:

- ▶ Stakeholders are not the decision-makers and
- ▶ Monitoring of performance on a contract is difficult

Examples:

- ▶ Citizens and bureaucrats
- ▶ School principals and teachers

Moral hazard

Principal agent problem:

- ▶ Stakeholders are not the decision-makers and
- ▶ Monitoring of performance on a contract is difficult

Examples:

- ▶ Citizens and bureaucrats
- ▶ School principals and teachers
- ▶ Patients and doctors

Moral hazard

Principal agent problem:

- ▶ Stakeholders are not the decision-makers and
- ▶ Monitoring of performance on a contract is difficult

Examples:

- ▶ Citizens and bureaucrats
- ▶ School principals and teachers
- ▶ Patients and doctors
- ▶ Professor Sauer and me

Moral hazard

Principal agent problem:

- ▶ Stakeholders are not the decision-makers and
- ▶ Monitoring of performance on a contract is difficult

Examples:

- ▶ Citizens and bureaucrats
- ▶ School principals and teachers
- ▶ Patients and doctors
- ▶ Professor Sauer and me
- ▶ Stockholders and managers

Moral hazard

Principal agent problem:

- ▶ Stakeholders are not the decision-makers and
- ▶ Monitoring of performance on a contract is difficult

Examples:

- ▶ Citizens and bureaucrats
- ▶ School principals and teachers
- ▶ Patients and doctors
- ▶ Professor Sauer and me
- ▶ Stockholders and managers
- ▶ Person on a date and interpreter who is in love with the date

Moral hazard solutions

Frequent audits

Moral hazard solutions

Frequent audits

- ▶ Expensive

Moral hazard solutions

Frequent audits

- ▶ Expensive
- ▶ Free rider problem

Moral hazard solutions

Frequent audits

- ▶ Expensive
- ▶ Free rider problem

Government regulation (e.g. Arrested Development)

Moral hazard solutions

Frequent audits

- ▶ Expensive
- ▶ Free rider problem

Government regulation (e.g. Arrested Development)

Venture capital firms

Moral hazard solutions

Frequent audits

- ▶ Expensive
- ▶ Free rider problem

Government regulation (e.g. Arrested Development)

Venture capital firms

- ▶ Own large shares of new firms

Moral hazard solutions

Frequent audits

- ▶ Expensive
- ▶ Free rider problem

Government regulation (e.g. Arrested Development)

Venture capital firms

- ▶ Own large shares of new firms
- ▶ Firms they own are not publicly traded (*no free riding on information*)

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower
- ▶ Down payments increase collateral relative to loan

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower
- ▶ Down payments increase collateral relative to loan

Restrictive covenants

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower
- ▶ Down payments increase collateral relative to loan

Restrictive covenants

- ▶ Reduce undesirable behavior

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower
- ▶ Down payments increase collateral relative to loan

Restrictive covenants

- ▶ Reduce undesirable behavior
- ▶ Increase desirable behavior

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower
- ▶ Down payments increase collateral relative to loan

Restrictive covenants

- ▶ Reduce undesirable behavior
- ▶ Increase desirable behavior
- ▶ Maintain value of collateral

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower
- ▶ Down payments increase collateral relative to loan

Restrictive covenants

- ▶ Reduce undesirable behavior
- ▶ Increase desirable behavior
- ▶ Maintain value of collateral
- ▶ Increase information

Moral hazard solutions with debt contracts

Debt contracts produce less moral hazard than equity contracts

- ▶ Fixed schedule of payments: I don't care if you steal from your company as long as you pay me
- ▶ Claim on assets that supersedes the claim of shareholders
- ▶ Less monitoring required
- ▶ But now there is moral hazard in the lender-owner relationship

Collateral

- ▶ Makes borrower internalize risks
- ▶ Reduces creditor's risk even with same behavior by borrower
- ▶ Down payments increase collateral relative to loan

Restrictive covenants

- ▶ Reduce undesirable behavior
- ▶ Increase desirable behavior
- ▶ Maintain value of collateral
- ▶ Increase information
- ▶ But monitoring is costly, so free riding occurs

Financial development

Huge variations in the ease of establishing ownership of property

Financial development

Huge variations in the ease of establishing ownership of property

No legal title means it cannot be collateral

Financial development

Huge variations in the ease of establishing ownership of property

No legal title means it cannot be collateral

Weak legal systems

- ▶ Recourse for creditors is weak
- ▶ Counterintuitive: government attempts to protect borrowers but hurts people who want to borrow

Financial development

Huge variations in the ease of establishing ownership of property

No legal title means it cannot be collateral

Weak legal systems

- ▶ Recourse for creditors is weak
- ▶ Counterintuitive: government attempts to protect borrowers but hurts people who want to borrow

Governments capture financial assets

- ▶ Legislate lower interest rates
- ▶ Lending quotas
- ▶ Monopoly power for public banks

Play time

1. Stocks are not the most important source of external financing for business
2. Issuing marketable debt and equity securities is not the primary method of businesses finance
3. Indirect finance is more important than direct finance
4. Financial intermediaries are the most important source of external funds for business
5. Financial markets are heavily regulated
6. Only large, established corporations have easy access to securities markets to finance their activities

Bonus: why might laws against insider trading make financial markets function less smoothly (less liquid)?