Lecture 3 — Investments

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1. Information in finance — the human element

- Investing and lending always start with **information**: facts, data, and judgments about people, firms, projects, and prices.
- **Information is scarce** — we never know everything.
- Information is also **unevenly distributed**: different parties have different amounts and quality of information.
- This unevenness is called **asymmetric information** — one party knows more (or better) than the other.

Definition — Asymmetric information: the unequal distribution of relevant information among parties in a financial transaction.

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2. Two main problems caused by asymmetric information

2.1 Adverse selection (hidden type, before transaction)

- **What it is:** when one party's hidden characteristic makes them more likely to be the counterparty.
- **Classic example:** the used-car market / "lemons" problem — sellers know car quality; buyers can't tell, so good cars leave the market.
- **In lending:** risky borrowers are more likely to seek loans (or accept high rates) than safe borrowers, so lenders can end up with a pool of bad borrowers.

Consequences: overpriced risk, wrong pricing, poor allocation of credit.

Common solutions / mitigations:

- **Screening:** the lender gathers information (credit checks, financial statements).

- **Signaling:** borrowers send signals of quality (good credit history, certifications, financial audits).
- **Collateral:** require borrowers to post assets that can be seized on default (houses, equipment). Collateral makes default costly and deters risky types.
- **Warranties / guarantees / co-signers:** extra assurance of repayment.
- **Credit analysis & underwriting:** standardized processes to evaluate borrower type and set appropriate terms.

2.2 Moral hazard (hidden action, after transaction)

- **What it is:** after a contract is signed, one party may take hidden actions that benefit them but harm the other party.
- **Insurance example:** if drivers know insurance will cover damage, they may drive less carefully.
- **Lending example — asset substitution:** a borrower promises to run a conservative business but uses borrowed funds to invest in riskier ventures hoping for larger upside; the lender bears the downside.

Consequences: higher default risk, worse outcomes for lenders/insurers.

Common solutions / mitigations:

- **Incentives / skin in the game:** require borrowers or insured parties to retain some risk (deductibles, co-payments, equity stakes).
- **Monitoring and reporting:** periodic financial updates, audits, covenants that restrict risky actions.
- **Shorter contract maturities / staged financing:** lend for short periods or release funds in stages tied to performance (common in venture financing).
- **Covenants and restrictions:** legal clauses that limit certain actions (e.g., no new debt, limits on dividends).
- **Reputation and relationships:** future access to capital or business depends on current behavior, so agents avoid opportunism.

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3. Key concepts explained

- **Collateral:** an asset pledged to secure a loan. If the borrower defaults, the lender can seize the collateral. Collateral aligns incentives and reduces adverse selection by ensuring the borrower has something to lose.
- **Credit analysis / underwriting:** the process lenders use to evaluate borrower creditworthiness (financial ratios, cash flows, credit history, business plans).
- **Asset substitution:** a specific moral-hazard problem where borrowers substitute low-risk projects for high-risk ones after receiving financing.
- **Staged financing:** releasing funds in tranches as milestones are met to reduce moral hazard and improve monitoring.

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4. Practical examples

- **Banks & mortgages:** banks do credit checks, require collateral (the house), use covenants and foreclosure rights to manage risk.
- **Car insurance:** deductibles and premium adjustments reduce careless driving (moral hazard).
- **Venture capital:** investors fund startups in stages, require board seats and reporting, aligning incentives and controlling risk.
- **Used-car market:** without certification or warranty, buyers pay a discount because of adverse selection — good-quality sellers exit the market.

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5. Short clarifications & corrections

- *"Information is imperfect"* is not just temporary — scarcity and asymmetry are structural features of financial markets.
- Collateral does more than secure repayment: it **signals** that the borrower is confident enough in their project to pledge assets.
- Screening and signaling are complementary: lenders screen; high-quality borrowers signal (e.g., by accepting covenants or providing audited accounts).

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6. Key takeaways

- Investment decisions are dominated by **information problems**: asymmetric information leads to adverse selection (hidden type) and moral hazard (hidden action).
- Markets and institutions use **screening, signaling, collateral, monitoring, covenants, staged financing, and incentive alignment** to manage these problems.
- Effective design of contracts and financing structures reduces risk and improves resource allocation.

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7. Additional notes