Lecture 4 — CREDIT ANALYSIS

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0. Overview — What is credit analysis?

Credit analysis is the process of gathering and evaluating information about a borrower to decide whether to lend, how much to lend, and on what terms. It combines data, judgment, and rules (or models) to estimate the borrower's ability and willingness to repay.

Expert system: in lending, the "expert system" is the combination of human experts, standard procedures, rulebooks, and sometimes automated tools that together make the lending decision. Even when automated scoring or machine models are used, experienced credit officers typically review exceptions and handle complex cases.

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1. The Five C's (classic framework)

Lenders commonly evaluate applicants using five major criteria — **Capacity, Conditions, Collateral, Capital,** and **Character**. Below each C is expanded, corrected, and clarified.

1.1 Capacity (financial ability to repay)

- **Definition:** the borrower's ability to meet scheduled debt payments from income or cash flow.
- **What lenders check:** income level, stability of income (job tenure, contract length), monthly obligations, and the borrower's existing debt load. For firms, lenders analyze cash flow statements, profit margins, and industry volatility.
- **Rules of thumb:** some lenders use debt-service ratios as practical guides; for example, households where a single loan payment exceeds ~1/3 of income are often judged at higher risk (this is a heuristic rather than a universal rule). Businesses have different tolerances depending on cash flow predictability.
- **Legal capacity:** contract clauses can limit future borrowing or add restrictions that affect capacity.

1.2 Conditions (external environment)

- **Definition:** the economic, industry, and regulatory conditions that affect the borrower's ability to repay over time.
- **Why it matters:** a borrower who looks healthy today may struggle if the local economy collapses, commodity prices fall, or new regulation raises costs. Conversely, favorable conditions can improve repayment capacity.
- **Lender practice:** scenario analysis and stress tests, industry research, and forecasting are used to judge how robust repayment prospects are under different conditions.

1.3 Collateral (security for the loan)

- **Definition:** assets pledged to the lender that can be seized and sold if the borrower defaults (houses, vehicles, equipment).
- **Valuation challenges:** real collateral values depend on market liquidity and local conditions; unique or specialized assets (custom machinery, rare vehicles) are harder to value and sell. Lenders usually apply discounts ("haircuts") to estimate a conservative recovery value.
- **Practical reality:** repossessing and selling collateral is costly and legally complex; many lenders prefer to restructure troubled loans (lower rate, extend maturity) instead of foreclosing immediately.

1.4 Capital (net worth / equity)

- **Definition:** borrower's net worth = total assets minus total liabilities. For firms, this is shareholders' equity; for individuals, it's wealth.
- **Role:** capital provides a cushion: if cash flow or collateral prove insufficient, the borrower's remaining assets can be liquidated to repay creditors. Strong capital reduces default probability and helps secure better terms.

1.5 Character (willingness & reputation)

- **Definition:** qualitative judgment about the borrower's integrity, responsibility, and past behaviour in meeting obligations.
- **How measured:** credit history, payment records (utilities, rent), references, job stability, and demonstrated honesty in prior dealings. Lenders treat character and behaviour history as important proxies for future willingness to repay.

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2. Rating systems, statistical models & human oversight

- **Rating systems:** standard internal or external scales (grade A–D or numeric scorecards) help lenders categorize risk consistently.
- **Statistical methods:** lenders use regression models, scorecards, and increasingly machine-learning models to predict default probability using many variables (income, past delinquencies, ratios). These models are trained on historical data.
- **Human supervision:** models reduce workload and bias but can miss novel risks or contextual details — human experts review, override, or refine model outputs when necessary.

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3. Credit scores and FICO — what they are and how they work

What is a FICO score?
A FICO score is a three-digit number (commonly ranging from 300 to 850) developed by the Fair Isaac Corporation to summarize a consumer's credit risk. Lenders use FICO-style scores widely to assess the likelihood a borrower will repay on time. (myFICO)

Typical ranges and meaning:

- Scores commonly range **300–850** (higher = lower risk). A score in the ~670–739 range is often labeled "good." Many lenders prefer scores above 700–740 for the best loan terms. (myFICO)
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How FICO is broadly calculated (main components):
FICO uses credit-report data grouped into five weighted categories:

- **Payment history — 35%** (timely payments matter most)
- **Amounts owed (credit utilization) — 30%**
- **Length of credit history — 15%**
- **New credit / recent inquiries — 10%**
- **Credit mix (types of accounts) — 10%**. (myFICO)

Average / median FICO in the U.S. (recent guidance):
Recent official reporting shows the national average FICO score in the U.S. around **715** (FICO / Experian reporting for 2024–2025 periods). Averages shift slowly with economic cycles and reporting changes (e.g., student-loan reporting). Use these numbers as a current benchmark, not a fixed rule. (FICO)

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4. Practical points on credit scoring vs. credit analysis

- **Score ≠ full decision:** a credit score is a fast, standardized signal but does not replace full underwriting — lenders combine scores with the Five C’s, cash-flow models, and collateral analysis.
- **Industry-specific scores exist:** FICO and other scoring models can have variants (mortgage, auto) with different calibrations.
- **Improving scores:** best actions are on-time payments, low credit utilization (e.g., keep card balances under ~30% of limits), long credit history, limited new accounts, and a healthy mix of credit types. (experian.com)

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5. Quick checklist for a lender’s credit decision

1. Verify and stress-test capacity (income, cash flow).
2. Assess external conditions and run downside scenarios.
3. Appraise collateral conservatively and apply haircuts.
4. Calculate capital / net worth and possible recovery sources.
5. Review credit history, payment behavior, and character indicators.
6. Use credit scores and models for initial screening, then apply expert judgment for final terms (rate, maturity, covenants).
7. Decide monitoring plan, reporting frequency, and triggers for remediation.
