Capital Budgeting & Investment Decisions Master Cheat Sheet

NPV, IRR, Payback, Profitability Index (PI) & Hurdle Rate Decision Rules | Corporate Finance

1. CORE CAPITAL BUDGETING APPRAISAL METRICS

Metric & Formula	Calculation Logic & Mechanism	Decision Rule & Benchmarks
Net Present Value (NPV) **NPV = Σ [CF_t / (1+r)^t] - CF_0**	Measures total dollar increase in shareholder wealth created by project discounted at WACC (r).	**NPV > 0: Accept** (wealth maximized) NPV = 0: Indifferent NPV < 0: Reject
Internal Rate of Return (IRR) **0 = Σ [CF_t / (1+IRR)^t] - CF_0**	Discount rate equating present value of future inflows to initial cash outlay (NPV = 0).	**IRR > Hurdle Rate (WACC): Accept** Reinvestment assumption: Cash reinvested at IRR.
Profitability Index (PI) **PI = PV of Future Cash Inflows / Initial Outlay**	Benefit-to-cost ratio per dollar invested. Ideal for ranking projects under **Capital Rationing**.	**PI > 1.0: Accept** (NPV > 0) Rank independent projects by highest PI.
Payback Period (PB) **PB = Full Years + (Unrecovered Cost / CF Next Year)**	Number of years required to recover original cash investment. Ignores cash flows beyond payback and time value.	**PB ≤ Target Cutoff: Accept** Emphasizes liquidity and risk reduction.

2. MUTUALLY EXCLUSIVE PROJECT CONFLICT RESOLUTION

Conflict Cause	NPV vs. IRR Behavior	Definitive Management Decision
Scale Differences	Large project ($1M outlay, 18% IRR, $200k NPV) vs. Small project ($10k outlay, 50% IRR, $5k NPV).	**Always choose highest NPV:** Maximizes absolute shareholder dollar wealth.
Cash Flow Timing	Front-loaded cash flows yield high IRR, while back-loaded large cash flows yield higher NPV at low cost of capital.	Calculate **Crossover Rate** (IRR of differential project ΔCF). Select project with higher NPV.