Topics: Investment Criteria

— Investment decision→Capital budgeting

— Continue the valuation theme, but shift to an internal, managerial focus oriented to the discussion and evaluation of several investment criteria.

I. NPV (Net Present Value)

— represents the added value of the investment

— measures each project's contribution to shareholder wealth

— tends to focus on building shareholder value

— has the fewest limiting assumptions

— Decision rule: Accept projects with positive NPV; Reject negative ones.

II. IRR (Internal Rate of Return)

— the discount rate at which NPV = 0

— the rate of return on the cash flows of the investment

[Note: IRR is different from the opportunity cost of capital (the minimum IRR acceptable to the firm)]

— Decision rule: Invest if IRR> opp. cost of capital (equivalent to NPV> 0)

— The IRR rule and the NPV rule are equivalent.

— Pitfall (1): Lending or Borrowing?

(2): Multiple Rate of Return

(3): Mutually Exclusive Projects with different outlays

[IRR can mistakenly favor small projects with high % rate of return but low NPV]

(4): Mutually Exclusive Projects with different lives

[IRR can mistakenly favor quick payback projects with high % rate of return but low NPV]

III. Capital Rationing: force the firm to set up the priority over projects

— **Soft** capital rationing is imposed upon a firm from internal source (top management)

Hard capital rationing is imposed upon a firm from external source (investors)

[meaning that the firm actually cannot raise the money it needs.]

[It may force the firm to pass up positive NPV projects]

— **Decision rule:** If total resources are limited, selected projects with the highest profitability index.

$$\left(\textbf{Profitability Index (P. I.)} = \frac{\text{NPV}}{\text{initial investment}}\right)$$

— Pitfall: When there is no capital rationing, using P.I. may lead to favor small projects over large projects with higher NPVs or short-lived projects over long-lived projects with higher NPVs.

IV. **Payback Rule:** Accept a project if its (payback period) < (a specified cutoff period)

— Pitfall (1): Rough rule of thumb

(2): Give equal weight to all cash flows (ignore the time value of money)

V. Book Rate of Return Method (Accounting rate of return):

— Average book rate of return = $\dfrac{\text{average annual income}}{\text{average annual book value}}$

— Pitfall (1): based on average income (ignore the time value of money)

(2): based on accounting data rather than project's cash flow

(3): Companies with high (low) book rate of return on their existing business may be led to reject good projects. (or accept bad)