FINA 3070 Notes 2

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1 PV vs. NPV

1.1 PV

- Expected cash flows in the future.
- Value of a new project.
- Calculated using Weighted Average Cost of Capital (WACC)

1.2 NPV

- Value of a new project 'minus' the 'initial cost' or cash outflow.
- NPV is PV minus initial cost.
- The company needs to forecast the project's cash flows and discount them at the opportunity cost of capital to arrive at the project's NPV.
- A project with a positive NPV increases shareholder value.
- Financing costs (interest payment, repayment of principle, dividends) and tax shields from interest are automatically considered when we discount the cash flows with discount rate.
- $NPV = \sum \frac{C_t}{(1+r_t)^t}$
- , where C (including initial negative C_0) is cash flow and r_t is annual discount rate (in this chapter the discount rate is constant).

2 Operating cash flow vs. Net cash flow

- Net cash flow = Operating cash flow − after-tax asset purchase + after-tax asset disposal − change in net working captial.
  - where after-tax asset purchase and after-tax asset disposal is often grouped into the same section (net capital spending).
  - Operatinng cash flow is calculated as EBIT + depreciation − taxes.

3 Sales vs. EBIT (Pre-tax profit) vs. Operating cash flow

- EBIT = Sales − operating costs (including depreciation, calculated according to tax law).
- Tax on operations = EBIT × tax rate.
- Operating cash flow = EBIT − tax on operations + depreciation
  - We add back depreciation to calculate cash flows.
  - Fixed asset purchase is cash outflow.
  - After-tax cash flow from disposal of asset at project end = (expected salvage value of used asset) − (tax rate × (expected salvage value − book value))

    Book value = initial cost − accumulated depreciation

    We expect tax refund if expected salvage value is less than book value.

4 Footnote

Check out the example in Homework1 Q1 along with the Excel spreadsheet.