Relevant, Free Cash Flows

SCM.251 Supply Chain Financial Analysis

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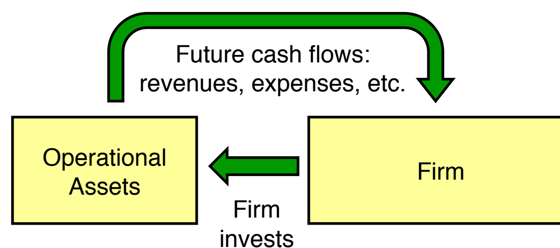
Investment evaluation

1. Estimate the relevant cash flows
2. Calculate a figure of merit for the investment
3. Compare the figure of merit to an acceptance criterion



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"Calculating a figure of merit requires an understanding of the time value of money and equivalence, and it necessitates a modicum of algebra. But these difficulties pale to insignificance compared to those arising in estimating an investment's relevant cash flows."

Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011

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What is a relevant cash flow?

1. Cash Flow Principle:
   only cash flows where *money moves** are relevant to the decision

2. With-Without Principle:
   only cash flows that are different *with the investment* than *without the investment* are relevant to the decision

*Money must move in and out of the firm, not simply among internal budgets. We make decisions with a corporate perspective, on behalf of the investors.

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Accounting costs

- Depreciation
  - Not a relevant cash flow (no money moves)
  - But it affects taxes, which are a relevant cash flow
  - Incorporate it to calculate taxable income, then add it back to calculate cash flows
- Allocated costs or overhead
  - A project should not be simply allocated overhead, but should be charged for its incremental effect on overhead expenses
  - Overhead expenses do tend to be positively associated with the scale of the firm
    - adding a new product line
    - adding equipment

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Sunk cost

- Sunk cost is
  - money already spent that cannot be recovered
  - spilt milk
- Sunk costs should
  - be ignored
  - Don't not cry over…

A government contractor sought a federal guarantee for a loan to continue the development of a major new technology, and two different arguments were made:

- "It is foolish to abandon a project on which nearly $1 billion has already been spent."
- "It is foolish to continue a project that doesn't offer a satisfactory return on the $1 billion."
- Both are wrong…the sunk cost is irrelevant

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Opportunity cost

- Opportunity cost is
  - cash flow from alternate options that are foregone due to the decision to invest. There must be a clear difference.
  - Examples
    - Cash from land sale that would proceed if you do not build on it
    - Profits from capacity (factory line, warehouse space) that has a planned alternate use
- Opportunity cost of assets should be included in the evaluation.
- Opportunity cost of capital (i.e. lost investment opportunity) is not relevant. It is implicitly included in the required rate of return for discounted cash flow analysis.

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Financing Cost

- Suppose we must borrow money for a project. Without the project, the loan is unnecessary. Is the principal repayment and/or interest expense relevant?

  Cash does move, and it would not without the project.
- The answer is no, because including financing in the cash flows would be double counting.
- We discount the future cash flows by the opportunity cost of capital on the investment. The opportunity cost of capital includes all costs associated with raising the entire investment amount:
  - interest and principal repayments on loans
  - dividends and returns of capital to equity investors

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"From these examples, I hope you have gained an appreciation of the challenges executives face in identifying relevant costs and benefits in new investment opportunities and why this is a job for operating managers not finance specialists."

Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011

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