Class 9

UG3F14
Corporate Finance

Class 9 Topics and Content

- Long-Term Investment Decisions / Capital Budgeting:

- Traditional or Non-Discounted Investment Criteria:
  - ✓ Payback Period
- Non Traditional or Discounted Investment Criteria:
  - ✓ Net Present Value (NPV)
  - ✓ Internal Rate of Return (RRR)

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- ***Long-Term Investment Decision/Capital Budgeting:***

Business sustainability depends upon management's ability to conceive, analyze, and select investment opportunities that are profitable

- The firm must select such projects that maximize the returns of the business
- Capital budgeting is the allocation of available resources to various proposals.
  - ✓ It involves estimation of cost and benefits of a proposal, estimation of required rate of return and evolution of different proposals in order to select one
  - ✓ The costs and benefits are expressed in terms of cash flows from the proposal
  - ✓ It is a crucial part of an Investment Decision, and a company determines whether projects like R&D, opening a new branch, replacing a machine are worth pursuing
- Capital expenditures often involve large cash outlays with major implications on the future values of the company
- Once a business commit to making a capital expenditure it is sometimes difficult to backed out

A project is worth pursuing if it increases the value of the company

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- Long-Term Investment Decision/Capital Budgeting:

- Traditional or Non-Discounted Investment Criteria:
  - ✓ Payback Period
    - Payback Method Measures how long to recover a project's initial cost
    - Easy to calculate and a good measure of a project's liquidity
    - Many firms use this rule for its simplicity

    Decision rule: accept the project, if Payback < some pre-specified period of time

    - Drawbacks
      - Ignores time value of money TMV
      - Do not consider the risk of cash flows
      - Requires an arbitrary cutoff period
      - Blindness of all the future cash flows after that date

Example: *BR Laundromat invested in two industrial washers with an initial investment of −$50,000, and it I expected $30,000, $20,000, and $10,000 profits in the first three years, respectively.*

PPP = −$50,000 + ($30,000, $20,000, $10,000) is *2Y* ($30,000, $20,000)

If BR Laundromat required that the pay pack period is 2Y, this investment will be executed

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- Long-Term Investment Decision/Capital Budgeting:

- Non Traditional or Discounted Investment Criteria:
  - ✓ Net Present Value (NPV)
    - Present value of all expected cash flows of a project at the cost of capital/required return) NPV =– initial costs + PV of future cash flows
    - Cost of capital is the expected return given up by investing in a project
    - Cash flows can be positive or negative in any period
    - Managers increase shareholders' wealth by accepting all projects that are worth more than they cost - should accept all projects with positive net present values

Accept the project NPV > 0

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- Long-Term Investment Decision/Capital Budgeting:

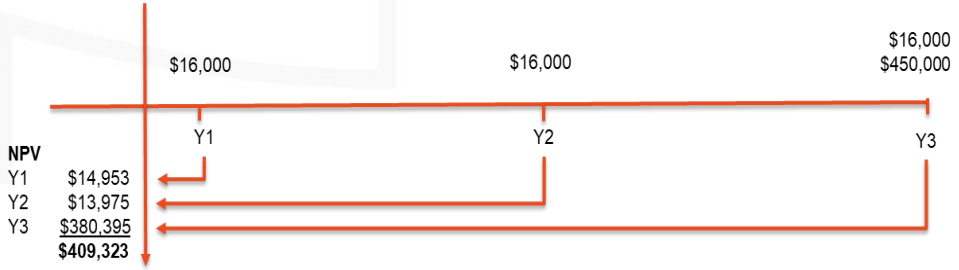
- Non Traditional or Discounted Investment Criteria:

  - ✓ Net Present Value (NPV)

    Example 1: *Corporation IE plans to buy an office building at a market price of $350,000. The plan is to lease out the entire building, and is expected that the tenant will pay $16,000 per year for three years, at the end of three years IE is anticipate selling the building for $450,000 based in their forecast*

    - ❖ If the cost of capital (required return) for the business is 7%, IE would pay no more that $409,323
    - ❖ The business should execute the project since NPV > 0

$$NPV = -\$350{,}000 + \frac{\$16{,}000}{(1.07)} + \frac{\$16{,}000}{(1.07)^2} + \frac{\$466{,}000}{(1.07)^3} = \$59{,}327$$



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- Long-Term Investment Decision/Capital Budgeting:

- Non Traditional or Discounted Investment Criteria:
  - ✓ Net Present Value (NPV)

Example 2: How to Value a Project – determine which projects to invest in

Project A

Exhibit A

Project A	
Year	Cash Flow
0	-$3 million, initial investment
1	$2 million profit
2	$4 million profit
3	$4 million profit
4	$2 million profit
5	$0, project closeout

Year	Actual Cash Flow	Discounted Cash Flow
1	$2,000,000	$1,834,862
2	$4,000,000	$3,366,720
3	$4,000,000	$3,088,734
4	$2,000,000	$1,416,850
5	$0	$0

Project B

Exhibit B

Project B	
Year	Cash Flow
0	-$3 million, initial investment
1	$0
2	$0
3	$0
4	$0
5	$ 14 million profit

Year	Actual Cash Flow	Discounted Cash Flow
1	$0	$0
2	$0	$0
3	$0	$0
4	$0	$0
5	$14,000,000	$9,099,039

Mateen Manufacturing is evaluating some investments for their plant in Boston, USA, project A and Project B. Project A & B have the same initial investment and time of $3Million and 5Y of duration. Project A provides $12 million in cash flows during 5 years, and Project B provides $14 million cash flows at the end of period

Which one should the business invest?

- Project B will bring in $14 million in cash over its lifetime and Project A will only bring in $12 million
- Project A: DCF $9,707,166 and NPV the project $6,707,166
- Project B: DCF $9,099,039 and NPV the project $6,099,039
- Financially Project A is better - higher NPV
- Project A is more valuable because of the earlier timing of those expected cash flows

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- Long-Term Investment Decision/Capital Budgeting:

- Non Traditional or Discounted Investment Criteria:
  - ✓ Net Present Value (NPV)

https://www.wallstreetmojo.com/advantages-and-disadvantages-of-npv/

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- ***Long-Term Investment Decision/Capital Budgeting:***

  - ➢ Non Traditional or Discounted Investment Criteria:

    - ✓ Internal Rate of Return (RRR)

      - The IRR method provides a single number summarizing the merits of a project
      - IRR is the discount rate at which the NPV of the proposal is zero - equates the PV of cash inflows with PV of cash outflows
      - The discount rate is determined internally and is intrinsic to the project (does not depend on the interest rate prevailing in the capital market

Discount rate= C1/(-C0) - 1

C1 is the payoff CF

C0 is the required investment (negative)

The discount rate that makes NPV 0 = the rate of return.

***Corporation IE IRR*=12.96%**

$$0 = -\$350{,}000 + \frac{\$16{,}000}{(1+\text{IRR})} + \frac{\$16{,}000}{(1+\text{IRR})^2} + \frac{\$466{,}000}{(1+\text{IRR})^3}$$

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- ***Long-Term Investment Decision/Capital Budgeting:***
  - ➢ Non Traditional or Discounted Investment Criteria:
    - ✓ Internal Rate of Return (RRR)

      Advantages:
      - Considers Time Value of Money
      - Simple to Use and Understand
      - Hurdle Rate Not Required

      Disadvantage:
      - Ignores the Size of the Project
      - Ignores Future Costs

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- ***Long-Term Investment Decision/Capital Budgeting:***

IRR and Mutually Exclusive Projects: If the business chooses one, they cannot choose the other

Use the following decision rules:

- NPV – choose the project with the higher NPV
- IRR – choose the project with the higher IRR

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The NPV method results in a dollar (any currency) value that a project will produce, while IRR generates the percentage return that the project is expected to create

- NPV, and IRR consider the time value of money, and are the most commonly used primary investment criteria
- NPV is the best and preferred method in practice
- Corporations should consider several investment criteria when making decisions
- Payback Period is also used commonly by CFOs