

Topic 8

[week 13 and 14]



**Investment Appraisal –
Capital Budgeting**

Learning Outcomes

Upon completion of this topic, the students should be able to:

- **Describe the uses, advantages, and disadvantages of the investment appraisal methods**
- **Make use of all the methods discussed**

The Decision to Invest

Assuming that finance is available, the decision to invest will depend on:

- **The investor's beliefs about the future**
- **The alternatives available in which to invest**
- **The investor's attitude to risk**

Investment Appraisal Methods

- **Accounting rate of return [ARR]**
- **Payback period**
- **Net present value [NPV]**
- **Internal rate of return [IRR]**

Accounting Rate of Return [ARR]

Can be defined as the ratio of average profits, after depreciation, to the capital invested. However, there are few interpretations regarding the definition above, for example:

- **Profits may be before or after tax**
- **Capital invested may be the initial capital invested or the average capital invested over the life of the project**
- **Capital may or may not include working capital**

ARR Rule

Based on ARR rule, a project is acceptable if its average accounting return exceeds a target average accounting return.



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Advantages of ARR

- **Simplicity of calculations**
- **Needed information will usually be available**




Disadvantages of ARR

- **Not a true rate of return, where the time value of money is ignored**
- **Uses an arbitrary benchmark cutoff rate**
- **Based on accounting net income and book values, not cash flows and market values**

Payback Period

Can be defined as the time it takes for the cash inflows from a capital investment to equal the cash outflows, where it is usually expressed in years.



Payback Period Rule

Based on the period. In Payback period rule, an investment is acceptable if its calculated payback period is less than some pre-specified number of years, or in evaluating between alternatives, the one chosen is the alternative with the shortest payback.

Advantages of Payback Period

- **Easy to understand**
- **Adjusts for uncertainty of later cash flows**
- **Biased towards liquidity**



Disadvantages of Payback Period Rule

- **Ignores the time value of money**
- **Requires an arbitrary cut-off point**
- **Ignores cash flows beyond the cut-off date**
- **Biased against long-term projects, such as research and development, and new projects**

Discounted Cash Flows [DCF]

The two main DCF methods are the NPV and IRR. The two main characteristics of DCF methods are:

- **Use cash flows instead of accounting profit**
- **Make due allowance for the time value of money**

Net Present Value [NPV]

NPV can be defined as the value in present day terms of the various cash inflows and outflows expected to arise at differing periods in the future [the difference between an investment's market value and its cost]. In addition, NPV has no serious flaws, where it's the preferred decision criterion.

NPV RULE

An investment should be accepted if the NPV is positive and rejected if it's negative, or in evaluating between alternatives, the one chosen is the alternative with the biggest NPV.

Internal Rate of Return [IRR]

Can be defined as the discount rate that makes the estimated NPV of an investment equal to zero. IRR is also known as the discounted cash flows [DCF] return.