

ACCT 102 – Chapter 24
Capital Budgeting and Investment Analysis
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The major goal of this chapter is to be familiar with and be able to implement four capital investment analysis techniques.

Capital budgeting is a bit more challenging than other types of management decisions, because the impact involves longer term predictions and estimates that can impact the company for many years to come.

Capital budgeting and investment analysis can take one of two directions:

1. Non-present value methods that do not consider the time value of money
2. Present value methods that do consider the time value of money

See last page for a summary of the advantages and disadvantages of these methods.

NON PRESENT VALUE METHODS –
These DO NOT consider the time value of money

Cash Payback Method

This represents the expected time period to recover the initial amount invested. The shorter the recovery period, the better the investment is because you can now use your cash for other purposes. You must compute the expected cash flows over the life of the product. Non-cash expenses (like depreciation and accruals and deferrals) are not considered and therefore are backed out.

Payback Period = Cost of Investment / Annual net cash flow
(assumes equal cash flows)

Note that the answer will be in a period of months or years.

If cash flows are uneven, you can accumulate the cash over the life until you reach the investment amount similar to the table in your text.

Accounting Rate of Return

This method, also called the return on average investment, is the only method that uses GAAP net income as opposed to cash.

Formula:
$$\frac{\text{After Tax Net income}}{\text{Average Amount Invested}} = \text{Accounting Rate of Return}$$

* (Average Book Values summed up / the number of years of the asset) **OR**

Alternatively for assets that use SL as method of depreciation
(Beg BV + End BV)/2

OR

If an asset has salvage value then (Beg BV + SV)/2

<p style="text-align: center;">PRESENT VALUE METHODS THAT DO CONSIDER THE TIME VALUE OF MONEY</p>
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Net Present Value – This method applies the time value of money to future cash inflows and outflows so that management can determine whether it is earning above its minimum desired rate of return, also called its “cost of capital” or sometimes “hurdle rate.”

We know that a dollar received today is worth more than the same dollar to be received a year from now. The present value is what the future inflows on the assets would be worth in TODAY’s dollars. We will run through a basic PV calculation in class, and then discuss how tables can help us shortcut our calculations.

The net present value method schedules out cash flows and present values the amounts back using the present value tables located in your book.

If the present values of the cash flows are greater than the cost, then the investment is earning above what management desires. If not, and the resulting net present value is negative, then the investment is earning less than what management desires and should be rejected.

If assets have salvage value, then a separate cash flow at the end of the life should be utilized and added on to the schedule of cash flows.

If assets have differing costs, then you need calculate a profitability index in order to rank the investments, because they will not be automatically comparable.

Profitability Index = NPV of cash flows/Amount of investment.

Computing the Internal Rate of Return – IRR

This method actually backs into the return, given the assets cash flows and life. It will yield the rate that yields an NPV of zero for a given investment.

Step 1 – Compute the “Factor” for the investment

Factor = Amount Invested/Net annual cash flows

Step 2 – Look up the factor that you calculated based on life of the assets.

If it isn’t exact, then you can estimate as shown in text.

Excel provides an easy formula to calculate the IRR – and it will be demonstrated in class.

METHODS USED TO EVALUATE CAPITAL INVESTMENTS

METHOD	ADVANTAGES	DISADVANTAGES
Average Rate of Return	<p>Easy to calculate</p> <p>Considers accounting income (often used to evaluate managers)</p>	<p>Ignores cash flows</p> <p>Ignores the time value of money</p>
Cash Payback	<p>Considers cash flows</p> <p>Shows when funds are available for reinvestment</p>	<p>Ignores profitability (accounting income)</p> <p>Ignores cash flows after the payback period</p> <p>Ignores the time value of money</p>
Net Present Value	<p>Considers cash flows and the time value of money</p>	<p>Assumes that cash received from the project can be reinvested at the rate of return</p> <p>Necessary to evaluate projects of unequal size using a present value index</p>
Internal Rate of Return	<p>Considers cash flows and the time value of money</p> <p>Ability to compare projects of unequal size</p>	<p>Requires complex calculations or trial-and-error methods</p> <p>Assumes that cash received from the project can be reinvested at the internal rate of return</p>

