Incremental Analysis or The Stand-alone Principal

One way to value a project is to value the whole business with and without the project and then calculate the difference.

$$V_{project} = V_{business\ with\ project} - V_{business\ without\ project}$$

But this is usually unfeasible because it is difficult and time-consuming to value the whole business.

An easier method is to only consider the incremental cash flows due to the project. That is, cash flows that will occur **only** if the project is accepted.

$$V_{project} = PV(\text{incremental cash flows due to project})$$

The 'stand-alone principle' allows us to analyse each project in isolation from the firm, simply by focusing on incremental cash flows.

Sunk costs should be ignored

Sunk costs are unrecoverable costs incurred in the past. They must be paid whether or not the project is accepted or rejected, or they have already been paid, so they are irrelevant to valuing the project going forward.

For example,

- a marketing survey that has already been completed to gauge consumer interest in a proposed new product.
- research and development of patents, processes or recipes which cannot be sold.

Opportunity costs should be subtracted

The opportunity cost of doing something is the cost of the next-best alternative forgone.

Question: Your business owns a truck which is unused. You have an idea to setup a truck delivery project to make some extra cash for the company. There's no payment to anyone for using the truck, so is it therefore free?

Answer: No. The truck could be sold if the project did not go ahead. Therefore the potential sale price of the truck should be included as a cost of the delivery project when finding its NPV.

Note that you could also rent the truck instead of selling it. If the present value of renting is more than selling then the

present value of the rent is the correct opportunity cost to subtract.

But you can't subtract all opportunity costs, only the largest one which is the **'next best alternative'** to the project.

Positive and Negative Side Effects should be added and subtracted

Positive side effects are benefits to other projects and should be added. For example, a project at a car dealer to expand the car yard and sell more cars will also lead to more car loans which is valuable, and this gain should be included.

Negative side effects are costs to other projects and should be subtracted. A typical example is **'cannibalisation'**, where the sale of a new product steals revenue from an existing product made by the same company. However, this only occurs in a non-competitive market where there is little danger of competitors introducing the new product. If the market is

competitive, and competitors are likely to bring the new product to market, then there is no cannibalisation since the old product was doomed regardless of the firm's actions.

Tax effects should be included

Tax deductible **expenses** should appear inside the brackets of the Net Income formula:

$$NI = (Rev - \boldsymbol{COGS} - \boldsymbol{FC} - \boldsymbol{Depr} - \boldsymbol{IntExp}).(1 - t_c)$$

Corporate tax t_c on profits is a flat (constant) rate of around 30% in Australia.

Remember to include the effect of capital gains tax (CGT) when assets are sold for a capital gain or loss.

Questions: Opportunity cost and sunk cost

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