THE TIMES 100
BUSINESS CASE STUDIES

Teacher guide

Investment appraisal (Payback and ARR) - Syngenta

Where does the lesson fit?

This session could be used in a finance module to explore the concept of investment appraisal in terms of Payback and Average Annual Rate of Return. It could be used alongside a session on other investment appraisal techniques such as Net Present Value.

Suggested resources & activities related to investment appraisal and Syngenta

- Full Syngenta case study
- Investment Decision Making PowerPoint
- Investment Appraisal (NPV) lesson resources
- Syngenta crossword
- Syngenta word search

Answers to questions

1. What is meant by investment appraisal?
   Investment appraisal techniques are quantitative decision-making tools that can be used to decide between different capital investments.
   Investment appraisal tools include:
   - Payback
   - Average annual rate of return (AARR)
   - Net present value (NPV)

2. Describe the three main reasons for capital investment.
   The main reasons for capital investment are:
   - Renewal of worn out assets
   - Acquisition of additional assets to expand the business and increase output
   - Innovation to reduce costs and/or to create new value.

3. What are the advantages and disadvantages of using Payback as an investment appraisal technique?

Advantages of payback	Disadvantages of payback
• Easy to calculate • Easy to understand • Considers the timings of cash flows • Is useful for firms operating in markets that undergo fast change	• Can encourage short-term thinking rather than long term planning • Does not consider profitability of the investment • Ignores revenues and costs that occur after payback has been achieved

4. What are the advantages and disadvantages of using Average Annual Rate of Return as an investment appraisal technique?

Advantages of AARR	Disadvantages of AARR
• Measures profitability • Considers the whole life of the project • Easy to compare returns of different options	• Does not consider timings of cash flows • More difficult to calculate than Payback • Does not consider the time value of money

5. An organisation is considering an investment opportunity. The initial cost would be £75 million and the project is expected to have a useful life of 5 years.
   The expected net returns each year are as follows:

Year	Net return (£m)
1	35
2	60
3	65
4	60
5	45

   a) Calculate the Payback period and Average Annual Rate of Return for the project.

Year	Net return (£m)	Cumulate returns (£m)
1	35	35
2	60	95
3	65	160
4	60	220
5	45	265

It would take two thirds of the year through the second year to payback the initial investment of £75m, so **payback is therefore 1yr 8months.**

Total net return	= £265m - £75m	= £190m
Annual return	= £190m / 5	= £38
AARR	**=** (£38 / £75) x 100	**= 50.7%**

b) Do you think it is a worthwhile investment?
Payback is relatively quick at less than two years and an ARR of over £50% is much higher than would be attained in interest if that money were just put in a bank. Based solely on these figures, the investment seems viable.

c) What other factors might the business need to take into account before making a final decision?
Net present value is another investment appraisal technique that could be used. In addition to this, qualitative factors might also be taken into account. These include:

- The aims and objectives of the firm
- The current and expected state of the economy
- Possible impacts on image and reputation
- Environmental and ethical considerations
- Past experience
- Levels of risk and the directors' approach to it.