

68.1 A drill to practise the idea of profitability

Consider each of the investment projects below, and determine which is the most profitable.

	A	B	C
capital investment required	£ 200 000	£ 800 000	£1 000 000
projected profit	£ 50 000	£ 120 000	£1
expected time to generate profit	1 year	6 months	1 minute

Assuming that each project could be repeated indefinitely, and that all carry the same degree of risk, which would you prefer to invest in?

Response

If each project carries the same rate of risk, a rational investor will prefer to invest in the project with the highest rate of return. This depends not just on the ratio of profit to value invested, but also on the speed at which the project promises to generate the profit. Basic calculations are shown below:

	A	B	C
capital investment required	£ 200 000	£ 800 000	£1 000 000
projected profit	£ 50 000	£ 120 000	£1
expected time to generate profit	1 year	6 months	1 minute
<i>arithmetic</i>	$\frac{£50\,000}{£200\,000}$	$\frac{£120\,000}{£800\,000}$	$\frac{£1}{£1\,000\,000}$
rate of return	25% <i>per year</i>	15% <i>per half year</i>	0.0001% <i>per minute</i>

Project A promises a rate of return of 25 % per year.

Project B promises 15% per half-year, which is approximately equal to 30% per year. Project B therefore promises to be more profitable than Project A.

Project C requires an investment of £1 000 000, and promises a profit of only £1 each time it is undertaken. £1 is only 0.0001% of £1 000 000, but this is a rate of return *per minute*, and if the project can be repeated indefinitely, with 60 minutes in an hour, 24 hours in a day and 365 days in a year, we could take £1 per minute to be equal to £525 600 per year. On an investment of £1 000 000, this would be a rate of return of 52.56% per year.

Project C therefore promises to be the most profitable investment, and should be the one that is chosen.