

A PI greater than 1 indicates a positive NPV that the project is expected to deliver value. Using a 3 discount rate of 10%, calculate the profitability index (PI) for this project and determine if it is financially viable. Since the PI is greater than 1, the project is considered financially viable according to the profitability index criterion.

1.137. Profitability Index (PI) A company is considering investing in a new venture that requires an initial investment of \$500,000. For example, compare two projects with different initial investments and determine the best value for different cash flows. A shorter payback period is generally preferred because it means a faster return on the initial investment.

For Project A: Initial investment (I) = \$200,000
Annual cash flow (CF) = \$50,000 Payback period (PP) = ?

For project B: Initial investment (I) = \$200,000
Annual cash flow (CF) = \$40,000 Payback period (PP) = ?

$$\begin{aligned}
 \text{Profitability Index (PI)} &= \frac{568,392.74}{500,000} = 1.13678548 \\
 &= \frac{150,000}{500,000} \left\{ \frac{1}{(1+0.10)^1} + \frac{1}{(1+0.10)^2} + \frac{1}{(1+0.10)^3} \right. \\
 &\quad \left. + \frac{1}{(1+0.10)^4} + \frac{1}{(1+0.10)^5} \right\} \\
 &= \frac{150,000}{500,000} \left\{ 1.10^{-1} + 1.10^{-2} + 1.10^{-3} + 1.10^{-4} + 1.10^{-5} \right\} \\
 &= \frac{150,000}{500,000} \left\{ 0.9091 + 0.8264 + 0.7513 + 0.6830 + 0.6209 \right\} \\
 &= \frac{150,000}{500,000} \left\{ 3.3907 \right\} = 1.0172
 \end{aligned}$$