

Problem 7-12

Goal: Determine most profitable alternative investment

Given: available funds \$1,000,000 **P**

(1) alternative A - investment = \$1,000,000 I_{total} depreciation 20% equivalent to 5 yr
gross income = \$1,000,000 income tax rate 35%
total annual costs = \$800,000

(2) alternative B - investment = \$600,000
net annual income = \$220,000
loan return interest rate = 6.0%

Approach: Determine annual cash flow for each option

ASSUME - Given operating cost do not include depreciation, hence must add 20%
Alt. A - gross income - costs - taxes paid
Alt. B - invest remaining capital in loan, interest income is taxable

Calculations:

(1) Net return **\$200,000** = \$1,000,000 - \$800,000

20.0% return on investment
depreciation deduction \$200,000 = \$1,000,000 * 0.20
Taxable Income \$0 = \$200,000 - \$200,000
Taxes Paid \$0 = \$0 * 0.35
After Tax Cash Flow \$200,000 = \$200,000 - \$0

(2) left over funds to loan \$400,000.00 = \$1,000,000 - \$600,000
depreciation deduction \$120,000 = \$600,000 * 0.20
Taxable Income \$100,000 = \$220,000 - \$120,000
Taxes Paid \$35,000 = \$100,000 * 0.35
After Tax Cash Flow \$185,000 = \$220,000 - \$35,000

return loan interest \$24,000.00
Taxes Paid \$8,400 = \$24,000 * 0.35
After Tax Cash Flow \$15,600 = \$24,000 - \$8,400

Total return **\$200,600** = \$185,000 + \$15,600

20.06% overall return on investment

Answer

Option 2 is very slightly better

Discussion: Option 2 is lower after taxes just from the cash flow difference on the projects
The added interest income after taxes on the loaned funds makes it \$600 better

prepared by: D. C. Drown

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