

Answer of Problem #17

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Problem Statement 17

During 2021, Raines Umbrella Corp. had sales of \$865,000. Cost of goods sold, administrative and selling expenses, and depreciation expenses were \$535,000, \$125,000, and \$170,000, respectively. In addition, the company had an interest expense of \$90,000 and a tax rate of 25 percent. (Ignore any tax loss carryforward provisions and assume interest expense is fully deductible.)

- a. What is the company's net income for 2021?
 - b. What is its operating cash flow?
 - c. Explain your results in parts (a) and (b).
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1. Profit and Loss Statements

Case 1: Without Tax Loss Carryforward

| Description | Amount (\$) |
|----------------------|-----------------|
| Sales | 865,000 |
| COGS | (535,000) |
| Gross Profit | 330,000 |
| Adm & Sell Expenses | (125,000) |
| Depreciation Expense | (170,000) |
| EBIT | 35,000 |
| Interest Expense | (90,000) |
| EBT | (55,000) |
| Taxes (0%) | 0 |
| Net Profit | (55,000) |

Case 2: With Tax Loss Carryforward

| Description | Amount (\$) |
|----------------------|-----------------|
| Sales | 865,000 |
| COGS | (535,000) |
| Gross Profit | 330,000 |
| Adm & Sell Expenses | (125,000) |
| Depreciation Expense | (170,000) |
| EBIT | 35,000 |
| Interest Expense | (90,000) |
| EBT | (55,000) |
| Taxes (25%) | (13,750) |
| Net Profit | (41,250) |

2. Operating Cash Flow (OCF) Calculations

Formula I: EBIT Method

The formula for OCF is defined as:

$$\text{OCF} = \text{EBIT} + \text{Depreciation} - \text{Taxes}$$

Without Tax Loss Carryforward:

$$\text{OCF} = 35,000 + 170,000 - 0 = 205,000$$

With Tax Loss Carryforward:

$$\text{OCF} = 35,000 + 170,000 - (-13,750) = 218,750$$

Formula II: Tax Shield Method

The alternative approach accounts for the depreciation and interest tax shields:

$$\text{OCF} = (\text{Sales} - \text{Costs})(1 - T) + (\text{Depreciation} \times T) + (\text{Interest} \times T)$$

| Component | Value (\$) |
|---|----------------|
| Sales | 865,000 |
| Cost and Expenses | 660,000 |
| (Sales - Costs) \times (1 - T) | 153,750 |
| Depreciation | 170,000 |
| Depreciation Tax Shield (Depr \times T) | 42,500 |
| Interest | 90,000 |
| Interest Tax Shield (Int \times T) | 22,500 |
| Total OCF | 218,750 |

3. Conclusion

The analysis shows that when we account for negative tax (the tax credit from the loss), both Formula I and Formula II yield the same OCF result of \$218,750. This demonstrates that despite a net loss on the income statement, the non-cash nature of depreciation and the tax deductibility of interest result in an increase of operating cash flow for the period.