

Making the Connection: INTEGRATIVE EXERCISE

RELEVANT COSTING, COST-BASED PRICING, COST BEHAVIOR, AND
NET PRESENT VALUE ANALYSIS FOR NOFAT

Special Sales Offer Relevant Analysis:

1. **Note:** Sales commission costs and advertising costs are irrelevant because they are marketing in nature. Similarly, customer hotline service costs are irrelevant because they are customer service in nature (see bulleted points in exercise).

a. Relevant *revenues* from the special sales offer:

Price per pound × Number of pounds
= $\$2.20 \times 10,000$
= \$22,000 of relevant (incremental) revenues from the special sale

b. Relevant *costs* from the special sales offer:

Relevant *variable* costs:

Direct materials	\$1.00
Variable manufacturing overhead	0.75
Direct manufacturing labor	0.25
	<u>\$2.00/pound</u>

= $\$2.00/\text{pound} \times 10,000$ special sales pounds
= \$20,000 relevant variable costs

Relevant *fixed* costs:

Batch costs = Cost per batch × Number of batches required by special sales offer

Batch cost for special sales offer = (Batch costs/Number of batches) × (Special sales units/Number of units per batch)
= $(\$40,000/20) \times [10,000/(100,000/20)]$
= (\$2,000 cost per batch) × (2 batches required by special sales offer)
= \$4,000

Plant inspection team cost if special sale is accepted

= \$1,000
= \$4,000 + \$1,000 = \$5,000 relevant fixed costs

So,

Relevant costs from special sales offer

= \$20,000 relevant variable costs + \$5,000 relevant fixed costs
= \$25,000

c. Relevant profit from special sales offer:

Relevant revenues	\$ 22,000
<u>– Relevant costs</u>	<u>(25,000)</u>
= Relevant profit	<u>\$ (3,000)</u>

No, the relevant cost of \$25,000 is higher than the relevant revenue of \$22,000 offered by PU making the relevant (or incremental) profit of (\$3,000) negative—so, reject the offer.

3. A potentially important qualitative factor is product reputation, namely the public's perception of olestra's safety. In particular, some (possibly large) percentage of NoFat's customers might be concerned that olestra is not a safe ingredient for human ingestion given its apparent effectiveness in cleaning up toxic waste sites. As a result, the acceptance of PU's special sales offer might significantly decrease NoFat's regular sales of olestra.

Cost-Based Pricing:**4. a. NoFat's cost-plus pricing rule produces the following total revenue:**

$$\begin{aligned}
 \text{Total revenue} &= (\text{Number of units} \times \text{Variable cost per unit}) \times 1.10 \\
 &= [10,000 \text{ units} \times (\$1.00 + \$0.75 + \$0.50 + \$0.25)] \times 1.10 \\
 &= (10,000 \text{ units} \times \$2.50) \times 1.10 \\
 &= \$25,000 \times 1.10 \\
 &= \$27,500
 \end{aligned}$$

$$\begin{aligned}
 \text{The selling price per unit} &= \text{Total revenue from special sale} / \text{Number of units} \\
 &= \$27,500 / 10,000 \\
 &= \$2.75 \text{ selling price per unit}
 \end{aligned}$$

b.

Relevant revenue	\$ 27,500 (see solution to Requirement 4a)
<u>– Relevant costs</u>	<u>(25,000) (see solution to Requirement 1b)</u>
= Relevant profit	<u>\$ 2,500</u>

- c. Yes, NoFat should accept the special sales offer if PU will agree to pay the price of \$2.75 per unit that results from NoFat's cost-plus pricing formula.

Incorporating a Long-Term Horizon into the Decision Analysis:

5. a. Annual net cash inflow from special sales relevant profit \times Discount factor
= $\$10,000 \times 3.791$ (discount factor from Exhibit 14B-2 in Appendix 14B
to Chapter 14 for an annuity of uniform cash flows that corresponds to a rate
of 10 percent and a 5-year time period) = **\$37,910** NPV of accepting special
sales offer over five-year time horizon
- b. Net cash inflow from downsizing the facility:
- (1) Cash inflow from immediate sale of one building for \$30,000 (no need
to discount cash flow because it occurs at time 0)
 - (2) Annual lease cost decreases from \$12,000 to \$9,000. This cost decrease of
\$3,000 represents an annual \$3,000 increase in cash inflow. The present
value of this annuity equals:
 $\$3,000 \times 3.791$ (discount factor from Exhibit 14B-2 in Appendix 14B to Chapter
14 for an annuity of uniform cash flows that corresponds to a rate of 10 percent
and a 5-year time period) = \$11,373
- Therefore,
Total NPV of downsizing = $\$30,000 + \$11,373$
= **\$41,373**
- c. Based on the NPV of Calculations a and b, the downsizing alternative (i.e.,
Calculation b) appears to be the best long-term alternative for NoFat to pursue
because it is estimated to provide a larger positive NPV (\$41,373) than the
special sales alternative of Calculation a (\$37,910).