

flow each year, and the change in working capital each year. Note that the company will terminate the project in year six. Then calculate the project's IRR and NPV if the project's discount rate is 14%.

## MINI-CASE BioCom, Inc.: Part 2, Evaluating a New Product Line

This mini-case is available in MyFinanceLab.

BioCom, Inc. is weighing a proposal to manufacture and market a fiber-optic device that will continuously monitor blood pressure during cardiovascular surgery and other medical procedures in which precise, real-time measurements are critical. The device will continuously transmit information to a computer via a thin fiber-optic cable and display measurements on several large monitors in view of operating room personnel. It will also store the data and display it graphically for review during or after procedures. BioCom will market various versions of the device, but manufacture all of them in the same facility using the same equipment. The versions will have similar markups and cost structures. If management decides to bring this device to market, BioCom will stop selling an earlier, less sophisticated version of the monitor. The product that BioCom will discontinue now contributes about \$1,650,000 per year to operating cash flow, and projected sales are flat. BioCom focuses exclusively on cutting-edge applications, so it expects to discontinue the new monitor after five years. At that time, it will sell the technology and used manufacturing equipment to a foreign company for an estimated \$2,400,000.

Cost analysts have collected the following figures and submitted them to the treasurer's office for additional study and a final decision on whether to proceed. You, as assistant to the treasurer, must compute and evaluate the basic capital budgeting criteria. The project will initially increase working capital by \$480,000, which the company will recover at the end of the project when it sells remaining inventory and collects accounts receivable. The analysts are not quite sure if they should include \$450,000 that the company already spent on research and development for the new product. They also disagree about whether the effect of the discontinued monitor on the company's overall operating cash flows is relevant to the decision on the new product line, so you must decide how to deal with these two items.

|                                                                    |              |
|--------------------------------------------------------------------|--------------|
| Cost of new plant and equipment                                    | \$24,000,000 |
| Designs and prototypes                                             | \$ 450,000   |
| Estimated salvage value of technology and equipment, end of year 5 | \$ 2,400,000 |
| First-year sales forecast                                          | \$16,500,000 |

|                                               |              |
|-----------------------------------------------|--------------|
| Projected annual rate of sales increases      | 6%           |
| Cost of goods sold                            | 40% of sales |
| Selling, general, and administrative expenses | 5% of sales  |
| Annual fixed cost                             | \$600,000    |
| Operating cash flow from current desk sales   | \$1,650,000  |
| Economic life of the project                  | 5 years      |
| Initial change in net working capital         | \$480,000    |
| Depreciation                                  | 5-year MACRS |
| Tax rate                                      | 34%          |
| Discount rate = cost of capital               | 9%           |

## QUESTIONS

1.

What is the total relevant initial investment for BioCom's new product line? Would you include the designs and prototypes? Would you include the change in net working capital?

2.

What is the cash flow resulting from disposal of the equipment at the end of the project?

3.

Compute a schedule of depreciation for the plant and equipment.

4.

Compute a schedule of operating cash flows for BioCom's new product.

5.

Compute a schedule of incremental cash flows for BioCom's new product.

6.

Compute the project's net present value.

7.

Does your answer to Question 6 indicate that management should accept or reject the product?

8.

**Challenge question.** Use a spreadsheet for this question.

- a. Recompute your answers to Questions 4 through 7 assuming sales grow at 12% per year.
- b. Recompute your answers to Questions 4 through 7 assuming sales grow at 0% per year.
- c. Comment on the sensitivity of the NPV to the growth rate of sales.

## CHAPTER 10 Cash Flow Estimation



### AT A GLANCE

#### LO1 Understand the importance of cash flow and the distinction between cash flow and profits.

Profits are the accounting-measured performance of a company over a specific period of time. Because of accrual accounting, profits do not always equal cash flow for the period. In fact, profits and cash flow are rarely the same. Cash flow is the important variable for decision making.

#### LO2 Identify incremental cash flow.

Incremental cash flow is the increase in cash above the current cash flow that is generated by the addition of a new project. Some costs and revenues would appear on the surface to be associated with a project, but, in fact, are not used in the decision to accept or reject a project. Such is the case of sunk costs. There are also hidden costs that do need to be added to the project's overall cash flow, including opportunity costs, erosion costs, synergy gains, and working capital. Capital expenditures, depreciation, and depreciation's effect on both taxes and disposal of equipment are also part of the estimation of incremental cash flow.