

# The Capital Budgeting Decision

## LEARNING OBJECTIVES

- L0 12-1** A capital budgeting decision represents a long-term investment decision.
- L0 12-2** Cash flow rather than earnings is used in the capital budgeting decision.
- L0 12-3** The payback method considers the importance of liquidity, but fails to consider the time value of money.
- L0 12-4** The net present value and internal rate of return are generally the preferred methods of capital budgeting analysis.
- L0 12-5** The discount or cutoff rate is normally the cost of capital.

**T**he decision on capital outlays is among the most significant a firm has to make. A decision to build a new plant or expand into a foreign market may influence the performance of the firm over the next decade. The airline industry has shown a tendency to expand in excess of its needs, while other industries have insufficient capacity. The auto industry has often miscalculated its product mix and has had to shift down from one car size to another at an enormous expense.

The capital budgeting decision involves the planning of expenditures for a project with a life of at least one year, and usually considerably longer. In the public utilities sector, a time horizon of 25 years is not unusual. The capital expenditure decision requires extensive planning to ensure that engineering and marketing information is available, product design is completed, necessary patents are acquired, and the capital markets are tapped for the necessary funds. Throughout this chapter we will use techniques developed under the discussion of the time value of money to equate future cash flows to the present, while using the cost of capital as the basic discount rate.

As the time horizon moves farther into the future, uncertainty becomes a greater hazard. The manager is uncertain about annual costs and inflows, product life, interest rates, economic conditions, and technological change. A good example of the vagueness of the marketplace can be observed in the pocket calculator industry going back to the 1970s. A number of firms tooled up in the early 1970s in the hope of being first to break through the \$100 price range for pocket calculators, assuming that penetration of the \$100 barrier would bring a larger market share and high profitability. However, technological advancement, price cutting, and the appearance of Texas Instruments in the consumer market drove prices down by 60 to 90 percent and made the \$100 pocket calculator a museum piece. Rapid Data Systems, the first entry into the under-\$100 market, went into bankruptcy. The same type of change, though less dramatic, can be viewed in the personal computer industry over the last 20 years. IBM and Apple took the early lead in product development and had no difficulty selling their products in the \$2,000 to \$5,000 range. As Compaq, Dell, and foreign competitors moved into the market, prices dropped by 50 percent and consumer demand for quality went up.

Not all new developments are so perilous, and a number of techniques, which will be treated in the next chapter, have been devised to cope with the impact of uncertainty on decision making.

Not only is capital budgeting important to people in finance or accounting, it is essential to people throughout the business organization. For example, a marketing or production manager who is proposing a new product must be familiar with the capital budgeting procedures of the firm. If he or she is not familiar with the concepts presented in this chapter, the best idea in the world may not be approved because it has not been properly evaluated and presented. You must be familiar not only with your product but also with its financial viability.

In this chapter, capital budgeting is studied under the following major topical headings: administrative considerations, accounting flows versus cash flows, methods of ranking investment proposals, selection strategy, capital rationing, combining cash flow analysis and selection strategy, and the replacement decision. Later in the chapter, taxes and their impact on depreciation and capital budgeting decisions are emphasized.

## Administrative Considerations

A good capital budgeting program requires that a number of steps be taken in the decision-making process:

1. Search for and discovery of investment opportunities.
2. Collection of data.
3. Evaluation and decision making.
4. Reevaluation and adjustment.

The search for new opportunities is often the least emphasized, though perhaps the most important, of the four steps. The collection of data should go beyond engineering data and market surveys and should attempt to capture the relative likelihood of the occurrence of various events. The probabilities of increases or slumps in product demand may be evaluated from statistical analysis, while other outcomes may be estimated subjectively.

After all data have been collected and evaluated, the final decision must be made. Generally, determinations involving relatively small amounts of money will be made at the department or division level, while major expenditures can be approved only by top management. A constant monitoring of the results of a given decision may indicate that a new set of probabilities must be developed, based on first-year experience, and the initial decision to choose Product A over Product B must be reevaluated and perhaps reversed. The preceding factors are illustrated in Figure 12-1.

## Accounting Flows versus Cash Flows

In most capital budgeting decisions the emphasis is on **cash flow**, rather than reported income. Let us consider the logic of using cash flow in the capital budgeting process. Because depreciation does not represent an actual expenditure of funds in arriving at profit, it is added back to profit to determine the amount of cash flow