

$$\begin{aligned}
CF &= (S - C)(1 - T) + TD \\
&= (220,000 - 90,000)(1 - 0.40) + 0.40(35,000) \\
&= 130,000(0.60) + 0.40(35,000) = 78,000 + 14,000 = \$92,000
\end{aligned}$$

Equation 2-8 is the after-tax sales and cash expenses plus the depreciation tax savings. The analyst can use either equation.

Equation 2-9 provides the terminal year nonoperating cash flow:

$$\begin{aligned}
TNOCF &= \text{Sal}_T + \text{NWCInv} - T(\text{Sal}_T - B_T) \\
&= 50,000 + 30,000 - 0.40(50,000 - 25,000) \\
&= 50,000 + 30,000 - 10,000 = \$70,000
\end{aligned}$$

The old fixed capital (including land) is sold for \$50,000, but \$10,000 of taxes must be paid on the gain. Including the \$30,000 return of net working capital gives a terminal year nonoperating cash flow of \$70,000.

The NPV of the project is the present value of the cash flows—an outlay of \$230,000 at time zero, an annuity of \$92,000 for five years, plus a single payment of \$70,000 in five years:

$$\text{NPV} = -230,000 + \sum_{t=1}^5 \frac{92,000}{(1.10)^t} + \frac{70,000}{(1.10)^5} = -230,000 + 348,752 + 43,465 = \$162,217$$

We obtain an identical NPV of \$162,217 whether we use a tabular format collecting cash flows by year, a tabular format collecting cash flows by type, or an equation format using Equations 2-6 through 2-9. The analyst usually has some flexibility in choosing how to solve a problem. Furthermore, the analysis that an analyst receives from someone else could be in varying formats. The analyst must interpret this information correctly regardless of format. An analyst may need to present information in alternative formats, depending on what the client or user of the information wishes to see. All that is important is that the cash flows are complete (with no cash flows omitted and none double-counted), that their timing is recognized, and that the discounting is done correctly.

6. MORE ON CASH FLOW PROJECTIONS

Cash flow analysis can become fairly complicated. Section 6 extends the analysis of the previous section to include more details on depreciation methods, replacement projects (as opposed to simple expansion projects), the use of spreadsheets, and the effects of inflation.

6.1. Straight-Line and Accelerated Depreciation Methods

Before going on to more complicated investment decisions, we should mention the variety of depreciation methods that are in use. The example in Section 5.1 assumed straight-line depreciation down to a zero salvage value. Most accounting texts give a good description of the straight-line method, the sum-of-years digits method, the double-declining balance