a. The operating plan provides detailed implementation guidance designed to accomplish corporate objectives. It details who is responsible for what particular function, and when specific tasks are to be accomplished. Many companies use an operating plan that spans a 5-year period, and hence is called the "five-year plan."

b. The financial plan details the financial aspects of the corporation's operating plan. In addition to an analysis of the firm's current financial condition, the financial plan normally includes a sales forecast, the capital budget, the cash budget, pro forma financial statements, and the external financing plan.

c. A sales forecast is merely the forecast of unit and dollar sales for some future period. Of course, a lot of work is required to produce a good sales forecast. Generally, sales forecasts are based on the recent trend in sales plus forecasts of the economic prospects for the nation, industry, region, and so forth. The sales forecast is critical to good financial planning.

d. With the percent of sales forecasting method, many items on the income statement and balance sheets are assumed to increase proportionally with sales. As sales increase, these items that are tied to sales also increase, and the values of these items for a particular year are estimated as percentages of the forecasted sales for that year.

e. Funds are spontaneously generated if a liability account increases spontaneously (automatically) as sales increase. An increase in a liability account is a source of funds, thus funds have been generated. Two examples of spontaneous liability accounts are accounts payable and accrued wages. Note that notes payable, although a current liability account, is not a spontaneous source of funds since an increase in notes payable requires a specific action between the firm and a creditor.

f. The percentage of earnings paid out as dividends to stockholders is the dividend payout ratio.

g. A pro forma financial statement shows how an actual statement would look if certain assumptions are realized.
h. Additional funds needed (AFN) are those funds required from external sources to increase the firm's assets to support a sales increase. A sales increase will normally require an increase in assets. However, some of this increase is usually offset by a spontaneous increase in liabilities as well as by earnings retained in the firm. Those funds that are required but not generated internally must be obtained from external sources. Although most firms' forecasts of capital requirements are made by constructing pro forma income statements and balance sheets, the AFN formula is sometimes used to forecast financial requirements. It is written as follows:

\[
AFN = \text{Additional funds} = \left( \frac{A'}{S} \right) \Delta S - \left( \frac{L}{S} \right) \Delta S - M_S (1 - d).
\]

i. Capital intensity is the dollar amount of assets required to produce a dollar of sales. The capital intensity ratio is the reciprocal of the total assets turnover ratio.

j. "Lumpy" assets are those assets that cannot be acquired smoothly, but require large, discrete additions. For example, an electric utility that is operating at full capacity cannot add a small amount of generating capacity, at least not economically.

k. Financing feedbacks are the effects on the income statement and balance sheet of actions taken to finance increases in assets.

l. Simple linear regression is used to estimate how specific balance sheet accounts vary in proportion to sales. The process involves regressing past account levels against past sales figures, which yields a regression equation which can be used to forecast the amount of the balance sheet item required to support an estimated sales level.

m. Computerized financial planning models allow firms to easily assess the effects of different sales levels, different relationships between sales and operating assets, different assumptions about sales prices and operating costs, and different financing methods. Such forecasting models would then generate pro forma financial statements which management can use to assess whether the initial financial plan is feasible or whether it must be revised. Lotus 1-2-3 and Excel are readily available and popular programs that are used for computerized financial planning.

8-2

Accounts payable, accrued wages, and accrued taxes increase spontaneously and proportionately with sales. Retained earnings increase, but not proportionately.
The equation gives good forecasts of financial requirements if the ratios $A'/S$ and $L'/S$, as well as $M$ and $d$, are stable. Otherwise, another forecasting technique should be used.

False. At low growth rates, internal financing will take care of the firm's needs.

a. +.
b. -. The firm needs less manufacturing facilities, raw materials, and work in process.
c. +. It reduces spontaneous funds; however, it may eventually increase retained earnings.
d. +.
e. +.
f. Probably +. This should stimulate sales, so it may be offset in part by increased profits.
g. 0.
h. +.
SOLUTIONS TO END-OF-CHAPTER PROBLEMS

8-1
\[
\text{AFN} = \left( \frac{A'}{S_0} \right) \Delta S - (L' / S_0) \Delta S - M S_1 (1 - d)
\]
\[
= \left( \frac{30,000,000}{\$1,000,000} \right) \left( \frac{\$500,000}{\$50,000} \right) \left( \$1,000,000 - 0.05(\$6,000,000) (1 - 0.7) \right)
\]
\[
= (0.6)(\$1,000,000) - (0.1)(\$1,000,000) - (\$300,000)(0.3)
\]
\[
= \$600,000 - \$100,000 - \$90,000
\]
\[
= \$410,000.
\]

8-2
\[
\text{AFN} = \left( \frac{4,000,000}{\$5,000,000} \right) \left( \$1,000,000 - (0.1)(\$1,000,000) \right) - (\$300,000)(0.3)
\]
\[
= (0.8)(\$1,000,000) - \$100,000 - \$90,000
\]
\[
= \$800,000 - \$190,000
\]
\[
= \$610,000.
\]

The capital intensity ratio is measured as \( A' / S_0 \). This firm's capital intensity ratio is higher than that of the firm in Problem 8-1; therefore, this firm is more capital intensive—it would require a large increase in total assets to support the increase in sales.

8-3
\[
\text{AFN} = (0.6)(\$1,000,000) - (0.1)(\$1,000,000) - 0.05(\$6,000,000)(1 - 0)
\]
\[
= \$600,000 - \$100,000 - \$300,000
\]
\[
= \$200,000.
\]

Under this scenario the company would have a higher level of retained earnings which would reduce the amount of additional funds needed.

8-4
\[
S_{2001} = \$2,000,000; \ A_{2001} = \$1,500,000; \ CL_{2001} = \$500,000;
\]
\[
NF_{2001} = \$200,000; \ A / P_{2001} = \$200,000; \ Accruals_{2001} = \$100,000;
\]
\[
FM = 5%; \ d = 60%; \ A' / S_2 = 0.75.
\]
\[
\text{AFN} = \left( \frac{A' / S_2}{} \right) \Delta S - (L' / S_2) \Delta S - M S_1 (1 - d)
\]
\[
= (0.75) \Delta S - \left( \frac{\$300,000}{\$2,000,000} \right) \Delta S - (0.05) (S_1) (1 - 0.6)
\]
\[
= (0.75) \Delta S - (0.15) \Delta S - (0.02) S_1
\]
\[
= (0.6) \Delta S - (0.02) S_1
\]
\[
= 0.6(S_1 - S_2) - (0.02) S_1
\]
\[
= 0.6(S_1 - \$2,000,000) - (0.02) S_1
\]
\[
= 0.6S_1 - \$1,200,000 - 0.02S_1
\]
\[
= \$1,200,000 - 0.58S_1
\]
\[
S_2 = \$2,068,965.52
\]

Sales can increase by \$2,068,965.52 - \$2,000,000 = \$68,965.52 without additional funds being needed.

Answers and Solutions: 8 - 10