Chapter 18

Financial Planning

Answers to Concept Review Questions

1. What is the financial planning process? What is a strategic plan? Describe the roles that financial managers play with regard to strategic planning.

The financial planning process is the firm’s attempt to forecast the future, both the long and short-term future for sales, expenses, etc. The financial manager must assess the feasibility of the firm’s strategic objectives. What does it cost? Can the company afford it? Will the investment add to shareholder wealth? What kind of financing can be raised for the project? In other words, the financial manager adds numbers to the strategic goals. Financial managers also perform a control function, for example, preparing and updating cash budgets to ensure the firm does not have a liquidity problem. The finance function also includes risk management, including managing the firm’s exposures through hedging.

2. What does the word sustainable mean in “sustainable growth model”?

Sustainable growth refers to how fast a firm can grow while maintaining a balance between its sources and uses of funds. It states how much growth a company can achieve with its current profit margin, asset efficiency, retained earnings and leverage.

3. In what ways can the sustainable growth model highlight conflicts between a firm’s competing objectives?

The sustainable growth model highlights conflicts between a firm’s competing objectives. For example, the sales manager may want to have the highest sales growth possible, while the finance manager may want to maintain a certain credit rating. High growth may mean higher borrowing is needed. More debt may mean a lower credit rating. Higher sales growth could mean a wide variety of products is needed, which in turn calls for higher inventory. Higher inventory levels may mean less efficient use of assets (lower asset turnover).

4. With reference to Equation 18.1, explain how each of the variables influences the firm’s sustainable growth rate. If high leverage allows a firm to increase its sustainable growth rate, does that mean that higher leverage is necessarily good for the firm?

In equation 18-1, a higher asset turnover ratio (greater asset efficiency) means a higher sustainable growth rate. A lower dividend payout ratio means higher growth, as does a higher profit margin. A higher leverage ratio (assets to equity) also means a higher sustainable growth rate. Although higher leverage means a higher sustainable growth rate, other things equal, higher leverage is not necessarily good for the firm. For instance, when a firm increases its leverage ratios, it may find that its borrowing costs rise, which in turn may lead to a shrinking profit margin. A firm with too much leverage
may have difficulty meeting its interest or principal obligations and go into financial default.

5. A firm chooses to grow at a rate above its sustainable rate. What changes might we expect to see on the firm’s financial statements in the next year? What changes would result from growing at a rate below the firm’s sustainable rate?

If a firm chooses to grow at a rate above its sustainable rate, you might see higher debt (the firm borrows to increase its asset to equity ratio), more retained earnings (the firm lowers its dividend payout ratio), a higher profit margin (the firm cuts costs), or fewer assets (the firm makes more efficient use of its assets).

If a firm chooses to grow at a rate below its sustainable rate, you might see lower debt (the firm repays some of its debt), less retained earnings (the firm pays more in dividends), lower profit margins, or more assets (the firm increases its assets faster than its sales growth).

6. Describe the differences between top-down and bottom-up sales forecasting methods. Describe advantages and disadvantages of each. Do you think one approach is likely to be more accurate than the other?

A top-down sales forecast relies heavily on macroeconomic and industry forecasts. A firm could use a statistical model or subscribe to a forecast made by firms specializing in econometric modeling. Senior managers establish firm objectives for increased sales. Divisions then receive goals to collectively achieve the increased sales goal. The bottom up method for forecasting sales starts with talking to customers. Estimates from each division are developed and passed up to senior managers to create an overall forecast for the company.

7. What is the logic of the percentage-of-sales method for constructing pro forma statements?

The logic behind percent of sales method for calculating pro forma statements is that most accounts increase or decrease as sales increase or decrease. This may not be a completely linear relationship, but it is a rough enough guide to a company’s future needs as its sales increase.

8. On a year-to-year basis, which balance sheet and income statement items do you think will fluctuate most closely with sales, and which items are not likely to vary as directly with sales volume?

On a year-to-year basis, the company’s current assets, accounts receivable, cash and inventory, are most likely to be tied closely to sales increases and decreases. Capital expenses are also tied to sales, but most likely not as directly. Capital expenditures may increase more as step function – level with a certain range of sales, followed by a jump up when high enough sales mandate further investment in plant or equipment.
9. Why does it make sense to let the firm’s cash balance or a short-term liability account serve as the plug figure in pro forma projections? Why not use gross fixed assets as the plug?

It makes sense to have cash or short-term debt as the plug. If a firm has excess cash, it will likely put it into a safe, short-term investment, such as a money market security. Likewise, if the company has a shortfall it is likely that it will cover the shortfall with short-term borrowing, at least initially. A decision to increase fixed assets is a longer term decision, generally requiring more analysis. The firm may not need addition fixed assets – perhaps the best use for excess cash will be paying a dividend, rather than investing in more assets.

10. Why might pro forma statements and the equation for external funds required yield different projections for a firm’s financing needs?

There may be a discrepancy between the results of the external funds requirement equation and pro forma statements. The equation for the external funds requirement is a shortcut and will not necessarily take into account the complexities of the firm. A firm may not have a constant ratio of assets to sale, for example.

11. What is the difference between the conservative strategy, the aggressive strategy, and the matching strategy for funding the long-term trend and the seasonal fluctuations in a business? Which strategy is most risky? Which is least profitable?

The conservative strategy uses long-term financing (30-year bonds) to cover its fixed assets, current assets, and seasonal financing requirements. The aggressive strategy relies primarily on short-term financing (commercial paper or commercial lines of credit) to fund seasonal investments as well as the long-term growth of the firm. The matching strategy uses long-term financing to fund long-term projects (issuing a 10-yr senior note to fund a 10-yr project), and uses short-term financing to fund temporary or seasonal asset requirements (issuing 3-month commercial paper to fund an upcoming purchase of inventory).

The level of risk and profitability are really dependent on where we are in the interest rate cycle. When rates are expected to fall (inverted/flat yield curve like in 2000-2001) the conservative strategy would be considered the most risky because the liability (debt) will not reprice when rates fall (like they did from 2001 to 2003). In the last scenario (inverted/flat yield curve) an aggressive strategy would be the most profitable because the short-term debt (say 3-month commercial paper) will reprice at a lower interest rate as rates fall. The opposite argument could currently be made with interest rates coming off of forty-five-year lows. If interest rates are expected to be higher the conservative strategy would be more favorable than the aggressive strategy because of its longer repricing characteristics.

12. How is a cash budget different from a set of pro forma financial statements? Why do you think that firms typically create cash budgets at higher frequencies than they create pro forma statements?

Cash budgets show when cash is received and when it is paid. This may be different from when expenses and revenues are “booked” on a pro forma balance sheet or income
statement. For example, a cash budget will show outflows for equipment expenditures when the equipment is actually purchased. A pro forma income statement subtracts only the allowed depreciation for the equipment as an expense, not the full amount of the equipment. Cash budgets are typically created more frequently than pro forma statements because a firm wishes to know if it has sufficient cash to pay its bills on time or if it will need to borrow to meet those needs.

13. Explain how slower inventory turns, slower receivables collections, or faster payments to suppliers would influence the numbers produced by a cash budget.

Slower inventory turns means more cash is tied up in inventory – more of an inventory expense needs to be made to keep more inventory on hand. This will reduce cash. Slower receivables collections will also reduce cash. The firm that collects more slowly will have more of an investment in accounts receivable, a use of cash. Faster payments to creditors also reduces cash. The faster money goes out to creditors, the less that is available for use to support inventories or accounts receivable.

Answers to Self-Test Problems

ST18-1. Some key financial data from the most recent annual report of Rancho, Inc. is listed below.

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Sales</td>
<td>$12.7 million</td>
</tr>
<tr>
<td>Net income</td>
<td>$1.3 million</td>
</tr>
<tr>
<td>Total assets</td>
<td>$7.6 million</td>
</tr>
<tr>
<td>Total equity</td>
<td>$5.2 million</td>
</tr>
<tr>
<td>Dividends</td>
<td>$0.3 million</td>
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</tbody>
</table>

The firm’s CFO wishes to use this data to estimate the firm’s sustainable growth rate.

a. Use the data provided to calculate Rancho’s net profit margin, assets-to-equity ratio, asset turnover ratio, and its dividend payout ratio.

b. Use your findings in part a to find Rancho’s sustainable growth rate.

c. Interpret the sustainable growth rate calculated in part b. Does this rate of growth assure shareholder wealth maximization? Explain.

d. If the firm’s Board feels that it is best for its shareholders to grow the firm more slowly, what alterations in each of the baseline assumptions would be necessary to achieve this objective?

\[
\begin{align*}
\text{m} & = \text{net profit margin} = \frac{1.3 \text{ million}}{12.7 \text{ million}} = 0.1024 \\
\text{A/E} & = \text{assets-to-equity ratio} = \frac{7.6 \text{ million}}{5.2 \text{ million}} = 1.46 \\
\text{S/A} & = \text{asset turnover ratio} = \frac{12.7 \text{ million}}{7.6 \text{ million}} = 1.67 \\
\text{Note: A/S} & = 1.0 \div \text{S/A} = 1.0 \div 1.67 = 0.599 \\
\text{d} & = \text{dividend payout ratio} = \frac{0.3 \text{ million}}{1.3 \text{ million}} = 0.231
\end{align*}
\]
b. Substituting the relevant values from part a into Equation 18.1, we get
\[ g^* = \frac{0.1024x(1.0 - 0.231)x1.46}{0.599-(0.1024x(1.0-0.231)x1.46)} \]
\[ = 0.1150 \div 0.4840 = 0.2376 = 23.76\% \]

c. The 23.76 percent sustainable growth rate calculated in part b indicates that the firm can increase sales by this percentage in the coming year and maintain its balance sheet identity, i.e., its outflows (increases in assets) and inflows (increases in liabilities and equity) will be in balance. This growth rate does not assure wealth maximization of the wealth of Rancho’s shareholders. It merely serves as a planning device that the firm can use to prepare for the consequences of its growth plans, which will be driven by the growth rate believed consistent with shareholder wealth maximization.

d. A lower profit margin (clearly not a good idea), a decrease in asset turnover (clearly not a good idea), a decrease in leverage, or an increase in the dividend payout ratio would lower Rancho’s sustainable growth rate. Clearly the best strategy for lowering the firm’s sustainable growth rate would be to either reduce leverage or pay out a larger percentage of net income as dividends.

**ST18-2.** Planet Inc. wishes to construct a pro forma income statement and a pro forma balance sheet for the coming year using the following data.

1. Sales are forecast to grow by 5% from $809.5 million last year to $850 million in the coming year.
2. Cost of goods sold is expected to represent 72% of forecast sales.
3. Operating expenses are expected to represent 11% of forecast sales.
4. Depreciation expense on the firm’s existing net fixed assets, which currently total $275 million, is expected to remain at $55 million per year for at least four more years.
5. Planet’s marginal tax rate is expected to remain at 40%.
6. Planet is expected to continue its policy of paying out 10% of net income as dividends.
7. Planet’s net profit margin last year was 5.2%.
8. Planet wishes to maintain a minimum cash balance of $8 million in the coming year.
9. The firm’s accounts receivable are expected to equal about 15% of sales.
10. The firm’s inventory has historically averaged about 12% of cost of goods sold.
11. Planet is planning to invest an additional $35 million in fixed assets that will be depreciated on a straight-line basis over a 7-year life.
12. The firm’s accounts payable, which totaled $63.5 million at the end of last year, are expected to equal about 11% of cost of goods sold in the coming year.
13. Planet plans to maintain its notes payable of $42 million requiring annual interest of 5%, which totals $2.1 million.

14. The firm has $80 million of long-term debt that matures as a lump-sum due and payable in full in 5 years. Annual interest of $4.8 million must be paid on this debt.

15. Planet has no preferred stock outstanding and its retained earnings and common stock currently total $250 million.

16. Planet’s total assets at the end of last year were $435 million.

a. Use the preceding data to prepare Planet’s pro forma income statement for the coming year.

b. Use the data provided and your findings in part a to prepare Planet’s pro forma balance sheet for the coming year. Use notes payable as the balancing figure and ignore any change in annual interest expense caused by the change in notes payable.

c. Explain the balancing figure used to make notes payable the balancing figure in part b. Indicate the resulting amount of the plug figure needed to create the balancing figure. Will Planet be able to fund its planned growth internally? Explain.

d. Use Equation 18.2 along with Planet’s relevant data to determine its external funds required (EFR). Compare this value to the plug figure you found in part c and explain in general terms why differences between these two values might result.

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a. **Sales:**

\[
\begin{align*}
\text{Less: COGS (72\% \times 850)} & \quad 612 \\
\text{Less: Operating expense (0.11 \times 850)} & \quad 93.5 \\
\text{Less: Depreciation expense \[\text{[$55 + (\frac{35}{7})]}\]} & \quad 60.0 \\
\text{Operating profit} & \quad 84.5 \\
\text{Less: Interest expense (2.1 + 4.8)} & \quad 6.9 \\
\text{Pretax income} & \quad 77.6 \\
\text{Less: Taxes (0.40 \times 77.6)} & \quad 31.0 \\
\text{Net income} & \quad 46.6 \\
\text{Less: Dividends (0.10 \times 46.6)} & \quad 4.7 \\
\text{To retained earnings} & \quad 41.9
\end{align*}
\]

b. **Planet Inc.**

\[
\begin{align*}
\text{Cash} & \quad 8.0 \\
\text{Accts rec. (0.15 \times 850)} & \quad 127.5 \\
\text{Inventory (0.12 \times 850)} & \quad 73.4 \\
\text{Current assets} & \quad 208.9 \\
\text{Net fixed assets ($275 + 35 \div 7)} & \quad 250.0 \\
\text{Total assets} & \quad 458.9 \\
\text{Accounts payable (0.11 \times 612)} & \quad 67.3 \\
\text{Notes payable [$42.0]} & \quad 19.7 \\
\text{Current liabilities} & \quad 87.0 \\
\text{Long-term debt} & \quad 80.0 \\
\text{Retained earn. and common stock ($250 + 41.9)} & \quad 291.9 \\
\text{Total liabilities and equity} & \quad 458.9
\end{align*}
\]

c. The balancing figure of $19.7 of notes payable resulted from the fact that the initial notes payable of $42.0 were more than was necessary to allow Planet’s total
liabilities and equity to equal its forecast $458.9 of total assets. With the initial $42.0 of notes payable, Planet’s total liabilities and equity would have totaled $481.2; in other words Planet had more financing than it needed to support its assets in the coming year. Therefore, using the notes payable as the balancing figure, the firm can pay down its notes by $22.3 million ($481.2 - $458.9) reducing them to $19.7 million ($42.0 - $22.3) as noted on the pro forma balance sheet. The $22.3 million reduction in notes payable is the plug figure. During the coming year Planet’s internally generated financing is in excess of its need and it therefore it can pay down its notes payable as shown.

d. Using the data provided, the values of the key variables needed to apply Equation 18.2 to find the external funds required (EFR) are:

\[
\begin{align*}
\text{A/S} &= \frac{435 \text{ million}}{809.5 \text{ million}} = 0.5374 \\
\Delta S &= 850 \text{ million} - 809.5 \text{ million} = 40.5 \text{ million} \\
\text{AP/S} &= \frac{63.5 \text{ million}}{809.5 \text{ million}} = 0.0784 \\
\text{m} &= \text{net profit margin} = 0.052 \\
\text{g} &= \text{growth rate of sales} = 0.050 \\
\text{d} &= \text{dividend payout ratio} = 0.10
\end{align*}
\]

Substituting these values into Equation 18.2 we get Planet’s external funds required (EFR):

\[
\text{EFR} = (0.5374 \times 40.5 \text{ million}) - (0.0784 \times 40.5 \text{ million}) \\
- [0.052 \times 809.5 \text{ million} \times (1.00 + 0.05) \times (1.00 - 0.10)] \\
= 21.8 \text{ million} - 3.18 \text{ million} - 39.8 \text{ million} \\
= -21.19 \text{ million}
\]

The EFR of -$21.19 is very close to the -$22.3 million plug figure, which represented the reduction in notes payable discussed in part c. The difference in these two estimates is attributable to the fact that some of the assumptions in Equation 18.2 do not hold in the more detailed pro forma analysis. For example, in the EFR equation we assumed that the assets-to-sales ratio (A/S) was 0.5374, but in the pro forma calculations it becomes 0.5399 ($458.9 million ÷ 850 million). Other similar differences further contribute to the difference between the EFR and the plug figure.
ST18-3. The financial analyst for Sportif, Inc. has compiled sales and total cash disbursement estimates for the coming months of January through May. Historically, 60 percent of sales are for cash with the remaining 40 percent collected in the following month. The ending cash balance in January is $1,000. The firm’s minimum cash balance is $1,000. The analyst plans to use this data to prepare a cash budget for the months of February through May.

Sportif, Inc.

<table>
<thead>
<tr>
<th>Month</th>
<th>Sales</th>
<th>Total cash Disbursements</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>$5,000</td>
<td>$6,000</td>
</tr>
<tr>
<td>February</td>
<td>6,000</td>
<td>8,000</td>
</tr>
<tr>
<td>March</td>
<td>10,000</td>
<td>8,000</td>
</tr>
<tr>
<td>April</td>
<td>10,000</td>
<td>6,000</td>
</tr>
<tr>
<td>May</td>
<td>10,000</td>
<td>5,000</td>
</tr>
</tbody>
</table>

a. Use the data provided to prepare Sportif’s cash budget for the four months February through May.

b. How much total financing will Sportif need to meet its financial requirements for the period February to May?

c. If a pro forma balance sheet dated at the end of May were prepared from the information presented, how much would Sportif have in accounts receivable?

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<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales  ($000)</td>
<td>$5.0</td>
<td>$6.0</td>
<td>$10.0</td>
<td>$10.0</td>
<td>$10.0</td>
</tr>
<tr>
<td>Cash sales(0.60)</td>
<td>$3.0</td>
<td>$3.6</td>
<td>$6.0</td>
<td>$6.0</td>
<td>$6.0</td>
</tr>
<tr>
<td>Collections(0.40(t-1))</td>
<td>2.0</td>
<td>2.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Total Receipts</td>
<td>$5.6</td>
<td>$8.4</td>
<td>$10.0</td>
<td>$10.0</td>
<td>$10.0</td>
</tr>
<tr>
<td>Less: Total disbursements</td>
<td>$8.0</td>
<td>$8.4</td>
<td>$6.0</td>
<td>$8.0</td>
<td>$5.0</td>
</tr>
<tr>
<td>Net cash flow</td>
<td>-$2.4</td>
<td>$0.4</td>
<td>$4.0</td>
<td>$5.0</td>
<td>$5.0</td>
</tr>
<tr>
<td>Add: Beginning cash</td>
<td>1.0</td>
<td>-1.0</td>
<td>-1.0</td>
<td>-1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>Ending cash balance</td>
<td>-$1.4</td>
<td>-$1.0</td>
<td>$3.0</td>
<td>$8.0</td>
<td>$10.0</td>
</tr>
<tr>
<td>Less: Minimum cash balance</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Required total financing (N/P)</td>
<td>$2.4</td>
<td>$2.0</td>
<td>$2.0</td>
<td>$2.0</td>
<td>$2.0</td>
</tr>
<tr>
<td>Excess cash balance (M/S)</td>
<td>$2.0</td>
<td>$7.0</td>
<td>$7.0</td>
<td>$7.0</td>
<td>$7.0</td>
</tr>
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b. Based on the cash budget prepared in part a, Sportif will need to be able to borrow up to $2.4 thousand to cover its shortages in the months of February and March.

c. Sportif would have accounts receivable of $4.0 thousand at the end of May. The receivables would represent the 40% of May’s sales of $10.0 thousand that would be uncollected at that time.