

*from*

Finance and Accounting for Nonfinancial Managers,  
Fourth Edition, by William G. Droms  
(Reading, MA: Perseus Books, 1997)

## 7

---

# *Financial Forecasting and Cash Budgeting*

### **OBJECTIVES OF FINANCIAL FORECASTING**

Adequate financial planning is a key element in the success of any business venture. Conversely, the lack of adequate financial planning is often a key element in the failure of many business enterprises. In this chapter, we will examine commonly used techniques for both short-term and long-term financial forecasting and budgeting. The objectives for both short-term and long-term planning are the same, and the techniques employed differ primarily in the degree of detail developed in the analysis. Both types of planning have as their overriding objective the development of a financial planning and control system to guide the financial future of the firm. Short-term forecasts tend to focus closely on cash budgeting and cash flow planning, while long-term forecasts tend to focus more on planning for future growth in sales and assets and for the financing of this growth.

### **SHORT-TERM FORECASTS AND CASH BUDGETING**

A *short-term forecast and cash budget* is simply a plan for the near future expressed in monetary terms. The objective of this plan is to provide a planning and *control* system to guide the next few months or quarters of the company's operations. Emphasis is placed on the word *control* to highlight the key role of the financial plan in guiding a company's fiscal course. It is obviously unreasonable to expect a monthly budget to be 100 percent accurate over a planning period of six to twelve months. This, of course, is not the intent of the budget. The

intent of the budget is to lay out a plan, and the guidelines provided by the budget should be used to control the operations of the firm according to the plan. Thus, rather than look at the budget as simply a device for controlling expenditures, one should see it as a dynamic financial planning and control tool to guide the financial future of the firm. As general economic conditions and business opportunities change, so must the budget change. As actual operations deviate from the plan, the financial manager must take a hard look at the reason for the variation and take corrective action where appropriate.

The Cutler Toy Company will be used to illustrate the use of a short-term financial planning and control system. The system illustrated here follows a logical sequence of development resulting in a short-term financial planning and cash budgeting system. This particular application illustrates the use of this system to set up and monitor a line of credit to be established for a seasonal inventory buildup. The general procedure can be used for a variety of planning needs and follows the following logical steps:

1. Develop sales forecast for upcoming year.
2. Develop estimates of next year's expected profitability.
3. Develop forecasted (pro-forma) income statement for upcoming year.
4. Estimate cash payment and collection lags.
5. Develop detailed cash collections and payments forecast.
6. Construct cash budget.
7. Develop forecasted (pro-forma) balance sheet for end of next year.

#### **FINANCIAL FORECAST FOR THE CUTLER TOY COMPANY**

The Cutler Toy Company was founded in 1989 by William Cutler, a mathematician who began devising intricate toys as a hobby while a graduate student in the early 1980s. From 1989 through the 1996 Christmas season, Cutler Toys had been run as a "seat-of-the-pants" operation by Cutler and three part-time employees. Cutler performed all management functions for the company when he was not busy teaching at the local university, where he was employed as an assistant professor of applied mathematics. By the early spring of 1997 it

was evident that the company had become much too large to be run by Cutler alone, so Cutler hired a full-time general manager, Neville Hook. Hook and Cutler agreed that if the past successful growth of the company were to continue into the future, a formal financial planning system would have to be implemented as soon as possible.

As the first step in setting up her planning and control system, Neville requested and received a sales forecast for the next ten months from Cutler. On the basis of this forecast, which is shown in Exhibit 7.1, and an analysis of the previous year's financial statements (Exhibits 7.2 and 7.3), Neville next planned to construct a cash payments and collections forecast, a cash budget, and a pro-forma balance sheet for December 1998.

As with any financial planning system, the first area of concern is the revenue forecast, in this case, Cutler's sales forecast. The entire planning and budgeting effort is based on this sales forecast—the end product can be only as good as this key cornerstone. As can be seen from Exhibit 7.1, Cutler is planning a major expansion of Cutler Toys' operations and is forecasting a total 1998 sales volume of \$250,000, an increase of 150 percent over last year. This sales increase is a result of Cutler's decision to make the transition to a full-time operation under the control of his new general manager.

The note at the bottom of Exhibit 7.1 indicates that the sales forecast is based on Cutler's personal survey of his present customers, and thus represents these customers' forecasted purchases, assuming Cutler goes ahead with his expansion plans. Since Cutler has been in business many years and presumably has a great deal of experience in dealing with these customers, it seems reasonable to accept his forecast at face value. Cutler's note to Exhibit 7.1 also indicates that his building and fixtures will have to be expanded by 25 percent (\$5,000) and that this expansion will be financed by an increase in the long-term bank loan to \$15,000 from its current level of \$10,000.

As a baseline for her 1998 forecasts, Neville will use the actual income statement and balance sheet for Cutler Toys for the calendar year 1997. These statements are shown in Exhibits 7.2 and 7.3.

The next logical step in our planning system is to develop a forecasted, or *pro-forma*, income statement for the year. To develop this statement, we must first develop a set of profitability estimates for this year's operations. Several estimates based on past performance

**EXHIBIT 7.1 CUTLER TOY COMPANY  
MONTHLY SALES FORECAST, MAY 1998-FEBRUARY 1999**

January-April (actual sales)	\$35,000
May	10,000
June	10,000
July	15,000
August	20,000
September	30,000
October	40,000
November	60,000
December	<u>30,000</u>
Total calendar year 1998	<u>\$250,000</u>
January 1999	<u>\$25,000</u>
February 1999	7,000

Note from Cutler:

This forecast is based on my survey of the stores we are now supplying and the assumption that our fixed assets (building and fixtures) will have to be expanded by 25 percent with a corresponding increase in the long-term bank loan to \$15,000.

and expected future operating characteristics must be made at this point. Certainly one of the most important and most sensitive variables to be estimated is the gross profit margin. It is generally best to develop a relatively conservative estimate here, as fairly small

**EXHIBIT 7.2 CUTLER TOY COMPANY  
INCOME STATEMENT, 1997**

Sales		\$100,000
Cost of goods sold		<u>75,000</u>
Gross margin		\$25,000
Expenses:		
Depreciation	\$2,400	
Employee wages	10,000	
Other expenses	1,000	
Interest	<u>1,200</u>	
Total expenses		<u>14,600</u>
Net income before tax		10,400
Taxes		<u>2,300</u>
Net profit		<u>\$8,100</u>

**EXHIBIT 7.3 CUTLER TOY COMPANY  
BALANCE SHEET, DECEMBER 31, 1997****ASSETS**

Cash		\$10,500
Accounts receivable		10,000
Inventory		16,000
Building and fixtures	\$20,000	
Less: Accumulated depreciation	<u>6,000</u>	<u>14,000</u>
Total assets		<u>\$50,500</u>

**LIABILITIES AND EQUITY**

## Liabilities:

Accounts payable	8,000	
Long-term bank loan*	<u>10,000</u>	\$18,000

## Equity:

Common stock		17,500
Retained earnings		<u>15,000</u>
Total liabilities and equity		<u>\$50,500</u>

\* Interest payable quarterly at the rate of 3%, or \$300, per quarter

percentage changes in the gross margin often result in fairly large percentage changes in the bottom line. On the basis of past experience (see the actual 1997 income statement in Exhibit 7.2), the gross profit margin for 1998 is estimated at 25 percent.

Three other key variables—depreciation, employee wages, and other expenses—are best estimated from Cutler's projections of the upcoming year's operations. Depreciation, which is essentially a policy variable determined by Cutler's choice of depreciation methods, is fixed at \$3,400, an increase of \$1,000 over last year. Employee wages for the year are estimated at \$22,000 and other expenses at \$1,800. For purposes of developing the cash budget, it is further estimated that remaining wages to be paid in 1998 (\$4,400 has been paid so far) will be paid at the rate of \$2,200 per month and that other expenses will occur evenly at the rate of \$150 per month. Finally, interest expense on the long-term bank loan is payable quarterly at the rate of 12 percent per year. Total payments of \$1,500 will be made, with \$300 due at the end of March and June and \$450 due at the end of September and December. The \$150 quarterly increase reflects the increase in size of the loan concomitant with the fixed asset expansion. The end result of all of these estimates is the

pro-forma income statement for calendar year 1998, shown in Exhibit 7.4. A gross margin of \$62,500 is anticipated on \$250,000 in sales. Deducting depreciation expenses, employee wages, interest, and other expenses yields income before tax of \$33,800. Deducting taxes of \$7,400 leaves an after-tax profit of \$26,400.

Now that we have an estimate of the year's profitability and income tax expense, we may move ahead to the next three steps, which involve estimating cash payment and collection lags, developing cash payment and collection forecasts, and constructing the cash budget. These three steps are actually undertaken simultaneously because they are largely interdependent and will collectively culminate in the cash budget. First, the *cash collections forecast* is developed. In Cutler's case, this is a relatively simple task, since he deals mainly with department stores, toy specialty shops, and discount chains, all of which customarily pay him no later than the month following the sale. Thus, the cash collections forecast is a simple matter of "lagging sales" one month: cash collections in one month will be equal to sales from the previous month. Exhibit 7.5 shows the result of this process.

The next step, estimating *expected cash payments* over the next year, is a bit more complex, mainly because of the need to estimate future inventory purchases. As a first step, a decision must be made to establish an inventory policy—that is, to determine how much inventory should normally be carried. In Cutler Toys' case, the

**EXHIBIT 7.4 CUTLER TOY COMPANY  
PRO-FORMA INCOME STATEMENT, 1998**

Sales		\$250,000
Cost of goods sold		<u>187,500</u>
Gross margin		\$62,500
Expenses:		
Depreciation	\$3,400	
Employee wages	22,000	
Other expenses	1,800	
Interest	<u>1,500</u>	
Total expenses		<u>28,700</u>
Income before tax		\$33,800
Taxes		<u>7,400</u>
Net profit		<u>\$26,400</u>

**EXHIBIT 7.5 CUTLER TOY COMPANY  
CASH COLLECTIONS FORECAST, 1998**

	<b>SALES</b>	<b>CASH COLLECTIONS</b>
April	\$ 8,000	n.a.
May	10,000	\$ 8,000
June	10,000	10,000
July	15,000	10,000
August	20,000	15,000
September	30,000	20,000
October	40,000	30,000
November	60,000	40,000
December	30,000	60,000

inventory policy is that the dollar value of inventory on hand at the end of each month should be approximately equal to the next two months' expected sales at cost. Using cost values will result in the physical volume of inventory being approximately equal to the upcoming two months' physical sales volume. Since the gross profit margin is 25 percent, this policy results in a target ending inventory approximately equal to 75 percent of the next two months' sales at retail.

Given our estimate of required ending inventory and the known quantity of inventory on hand at the beginning of the month, we need consider only one more variable in determining the current month's purchases. This last variable is the amount of inventory expected to be used up during the month to support the current month's sales. This, of course, will be equal to 75 percent of the current month's sales at sales prices. Now to estimate our required monthly purchases, we need only add the required ending inventory to the inventory expected to be used up during the month and deduct beginning inventory. Required ending inventory for each month "moves ahead" to become the estimate of beginning inventory for the following month, and the process is repeated.

Exhibit 7.6 illustrates the overall process. Required ending inventory for May is equal to \$18,750 which is 75 percent of forecasted sales during June and July (\$25,000). Expected sales during May of \$10,000 (at sales prices) will use up \$7,500 of inventory (at cost) during the month of May. Thus, total inventory requirements

for May are \$26,250. Subtracting beginning inventory of \$15,000 results in purchases of \$11,250. Assuming that Cutler normally pays for purchases during the month following the purchase, the \$11,250 cash outflow will occur during June. May's cash outflow will be equal to the accounts payable balance on April 30 of \$12,000. Finally, required ending inventory at the end of May is "moved forward" to become our estimate of beginning inventory for June, and the process is repeated. Exhibit 7.6 traces the process through the end of the calendar year 1998. Note that required ending inventory and purchases peak in September, while cash payments on purchases peak in October.

Only a few remaining items are necessary to develop the cash budget. First we must consider the impact of tax payments. Cutler's total tax bill of \$7,400 is payable in quarterly installments of \$1,850 on April 15, June 30, September 30, and December 31. The April 15 payment has already been made, so the next payment is due on June 30. Second, we know from developing the pro-forma income statement that wages of \$2,200 per month and other expenses of \$150 per month must be paid. Third, as a policy matter, normal prudence suggests that some minimum level of cash on hand should be maintained. In fact, since bank borrowing is anticipated to support seasonal inventory needs, it is highly likely that a minimal balance in the form of a compensating balance will be required. In Cutler's case, a minimum balance of \$2,000 is specified.

Finally, in constructing the cash budget, we are assuming that if a cash shortage is indicated for any month, bank credit will be available. Thus, the cash budget assumes approval of a credit line and is designed as a planning and control technique to monitor the credit line. If the credit line is not already approved, then the cash budget will become a key document in supporting the credit application.

Exhibit 7.7 presents the finished product—the *cash budget* for May through December 1998. The top line—cash collections from sales—comes directly from Exhibit 7.5, the cash collections forecast. Cash outflows are also straightforward. Purchases payments are as developed in Exhibit 7.6, while wages, other expenses, and interest

\* Banks frequently require borrowing firms to maintain a minimum level of cash in their checking account. This amount is called a compensating balance and effectively raises the cost of interest.



**EXHIBIT 7.6 CUTLER TOY COMPANY  
PURCHASES AND PURCHASES PAYMENTS FORECAST, 1998**

	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Required ending inventory*	\$18,750	\$26,250	\$37,500	\$52,500	\$75,000	\$67,500	\$41,250	\$24,000
Expected sales at cost~	7,500	7,500	11,250	15,000	22,500	30,000	45,000	22,500
Total	\$26,250	\$33,750	\$48,750	\$67,500	\$97,500	\$97,500	\$86,250	\$46,500
Less: Beginning inventory*	15,000	18,750	26,250	37,500	52,500	75,000	67,500	41,250
Purchases	\$11,250	\$15,000	\$22,500	\$30,000	\$45,000	\$22,500	\$18,750	\$5,250
Purchases payments^	\$12,000	\$11,250	\$15,000	\$22,500	\$30,000	\$45,000	\$22,500	\$18,750

\* Next two months' estimated sales x 75% = Next two months' sales at cost

~ Estimated current month's sales x 75% = Inventory required at cost to support current month's sales

^ May figure equals April 30 inventory balance

^ May figure equals April 30 accounts payable balance

are as previously specified. Taxes represent the three quarterly payments remaining on Cutler's 1998 tax liability. Total inflows minus total outflows results in the predicted net cash gain or loss during the month. Deducting the loss from (or adding the gain to) the cash balance at the beginning of the month yields Cutler's cumulative end-of-month cash balance if no outside financing is obtained.

At this point, following the cash budget becomes slightly more complicated. The *cumulative cash if no financing account* represents Cutler's projected levels of cash if outside financing (in this case, bank financing) were not available. If the cash outflow continues to exceed inflows, then this account will eventually become negative, indicating a need for external financing. In addition to this financing need, the desired minimum level of \$2,000 must also be considered. Thus, in May, a cash balance of \$12,750 is indicated. Deducting the desired minimum level of \$2,000 shows that Cutler expects to have on hand \$10,750 in excess of his desired minimum level. If this indicated balance were negative a need for cash would be indicated.

Cutler's first external financing needs are indicated in July. At the end of July, a cash loss of \$7,350 subtracted from beginning cash of \$7,000 results in cumulative cash without financing of a negative \$350. Deducting the \$2,000 minimum cash level from this cumulative balance shows total financing needs of \$2,350—\$350 to cover the operating deficit and \$2,000 to maintain the required minimum level of cash. Additional cash loans will be required in August (\$9,850), September (\$14,650), and October (\$17,350), so that the cumulative loan balance at the end of October will stand at \$44,200. Finally, in November, cash inflows begin to exceed outflows following the seasonal sales peak (that is, cash collections begin to accelerate while purchases slow down) and a net cash gain of \$15,150 is realized. This gain is applied to the outstanding loan balance, reducing it to \$29,050. The remainder of the loan is then paid off in December.

Exhibit 7.8 provides a schedule of Cutler's cash and loan balances for the period covered by the cash budget. This schedule simply lists the beginning cash, required bank borrowing, net cash gain or loss, repayments (when possible), ending loan balance, and ending cash balance. The usefulness of this type of schedule lies primarily in its explicit listing of the amount and timing of loan requirements and repayments.

**EXHIBIT 7.7 CUTLER TOY COMPANY  
CASH BUDGET, 1998**

	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Cash collections:								
Collection from sales	\$8,000	\$10,000	\$10,000	\$15,000	\$20,000	\$30,000	\$40,000	\$60,000
Cash outflows:								
Purchases	12,000	11,250	15,000	22,500	30,000	45,000	22,500	18,750
Wages	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200
Other expenses	150	150	150	150	150	150	150	150
Interest	0	300	0	0	450	0	0	450
Taxes	0	1,850	0	0	1,850	0	0	1,850
Total outflows	\$14,350	\$15,750	\$17,350	\$24,850	\$34,650	\$47,350	\$24,850	\$23,400
Net cash gain (loss) during month	(6,350)	(5,750)	(7,350)	(9,850)	(14,650)	(17,350)	15,150	36,600
Cash beginning of month*	19,100	12,750	7,000	(350)	(10,200)	(24,850)	(42,200)	(27,050)
Cumulative cash if no financing	\$12,750	\$7,000	(\$350)	(\$10,200)	(\$24,850)	(\$42,200)	(\$27,050)	\$9,550
Desired minimum cash level	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Cumulative cash above minimum needs (or financing needs)	\$10,750	\$5,000	(\$2,350)	(\$12,200)	(\$26,850)	(\$44,200)	(\$29,050)	\$7,550

\* May figure is April 30 cash balance

**EXHIBIT 7.8 CUTLER TOY COMPANY  
SCHEDULE OF CASH AND LOAN BALANCES, 1998**

	(1) BEGINNING CASH	(2) BANK BORROWINGS	(3) TOTAL (1+2)	(4) NET CASH GAIN (LOSS)	(5) BANK REPAYMENTS	(6) LOAN BALANCE	(7) ENDING CASH (3+4-5)
May	\$19,100	0	\$19,100	(\$6,350)	0	0	\$12,750
June	12,750	0	12,750	(5,750)	0	0	7,000
July	7,000	\$2,350	9,350	(7,350)	0	\$2,350	2,000
August	2,000	9,850	11,850	(9,850)	0	12,200	2,000
September	2,000	14,650	16,650	(14,650)	0	26,850	2,000
October	2,000	17,350	19,350	(17,350)	0	44,200	2,000
November	2,000	0	2,000	15,150	\$15,150	29,050	2,000
December	2,000	0	2,000	36,600	29,050	0	9,550

The final exhibit of the forecasting package, Exhibit 7.9, is Cutler's pro-forma balance sheet for the year ending December 31, 1998. All accounts from the balance sheet follow directly from the previous exhibits, thus providing a convenient computational check on the internal consistency of the set of forecasts. As can be seen from the balance sheet, Cutler's total assets are expected to be \$79,150, with liabilities of \$20,250 and equity of \$58,900.

At this point, one important observation is worth repeating. It must be stressed that the foregoing budgeting system must be viewed as dynamic rather than static in nature. Certainly, one cannot expect the forecasted figures to be completely accurate for each month. The most important use of the budget is as a *planning and control* device. A budget is simply a plan in dollar terms. As the future planning period becomes the current operating period, the budget becomes the basic document for checking operations against plans and taking corrective action where appropriate—either revising the plan or controlling operations to agree with the plan. In this regard, the observant reader will note that the plan contains no provision for interest payments on the credit line. To allow for interest, one may

**EXHIBIT 7.9 CUTLER TOY COMPANY  
PRO-FORMA BALANCE SHEET, DECEMBER 31, 1998**

**ASSETS**

Cash (Exhibit 7.7)		\$9,550
Accounts receivable (December sales)		30,000
Inventory (Exhibit 7.6)		24,000
Building and fixtures*	\$25,000	
Less: Accumulated depreciation~	<u>9,400</u>	<u>15,600</u>
Total assets		<u>\$79,150</u>

**LIABILITIES AND EQUITY**

Liabilities:

Accounts payable (Exhibit 7.6)	5,250	
Long-term bank loan^	<u>15,000</u>	<u>\$20,250</u>

Equity:

Common stock		17,500
Retained earnings*		<u>41,400</u>
Total liabilities and equity		<u>\$79,150</u>

\* Beginning balance of \$20,000 + \$5,000 addition

~ Beginning balance of \$6,000 + \$3,400 1998 depreciation expense

^ Beginning balance of \$10,000 + \$5,000 addition

# Beginning balance of \$15,000 + \$26,400 1998 earnings

wish to go back and revise the budget to allow for the interest payments or, if the interest amount appears relatively small, simply adjust the budget for interest expense as the planning period unfolds.

Before moving to the topic of long-term forecasting, a final caveat is necessary. The cash budget developed for Cutler Toys focuses on the firm's financial position as of the last day of each month and implicitly assumes that cash inflows and outflows occur at a fairly uniform rate during the month. If this is not the case—for example, if most expenses are paid early in the month while most cash collections come in late in the month—it will be necessary to shift the date of the cash budget from the end of the month to the point at which peak cash needs may be anticipated. In the case of early outflows and late inflows, the fifteenth of the month may be the most appropriate date. The final cash position at the end of the planning period will be the same, of course, but greater loan needs during individual months will be shown.

Having examined short-term financial planning techniques, it is now appropriate to examine long-term financial planning techniques. As previously noted, long-term forecasts differ from short-term forecasts primarily in the level of detail required. The major objective remains the development of financial planning and control systems, but we will now shift our attention toward planning for future growth in sales and assets and the financing of this growth.

### **LONG-TERM FINANCIAL PLANNING**

In developing long-term financial plans, one is most often concerned with planning for future sales growth and devising plans to finance this growth. Probably the most common approach to this makes use of the *percentage of sales* technique. The essential logic of this technique is that, as future sales grow, assets will also have to increase to support the sales increases. These increased assets will be financed partially by reinvested earnings and partially by increases in so-called spontaneous liabilities such as accounts payable. Some short-term notes payable may also be available. Any shortages of financing sources (overages are not usually a problem!) will have to be provided for from external financing sources, usually long-term debt or additional equity. The nature of this forecasting technique will be illustrated by a continuation of the Cutler Toy Company example.

Suppose that following our 1998 planning period, Cutler believes that sales can be expanded by an additional 25 percent in 1999 and 2000, by 15 percent in 2001, and by 10 percent in 2002, with this growth leveling off to approximately 5 percent per year thereafter. If we wish to develop a five-year financial plan for Cutler Toys, the percentage of sales technique requires that we first develop a five-year profit forecast.

Devising the five-year forecast requires several key estimates. First, it is estimated that cost of sales will remain at 75 percent of sales as in the past. Second, although expenses in the past have been approximately 11.5 percent of sales, allowance must now be made for hiring additional workers, a few of whom will be full time, and paying Neville Hook's salary. According to Neville's estimates, expenses may be expected to increase to 16 percent of sales. Finally, although Cutler has been reinvesting his profits for the past two years in order to provide funds for growth, he now expects to draw a salary from the expanded company. The five-year profit forecast (to the nearest thousand dollars) is now as shown in Exhibit 7.10.

The next step is to forecast Cutler's balance sheet position at the end of each year. The objective here is to determine how much—if any—external financing will be required to support the expected sales levels. All asset and liability accounts that are expected to increase with sales are estimated as a percentage of sales, with the appropriate percentage determined according to the account's past relationship to sales. In Cutler's case, if we assume that his year-end balance sheet accounts for 1998 as a percentage of 1998 sales are reasonably representative, then we can estimate cash at 4 percent of

**EXHIBIT 7.10 CUTLER TOY COMPANY  
FIVE-YEAR SALES AND INCOME FORECAST**

	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Sales	\$313,000	\$391,000	\$450,000	\$495,000	\$520,000
Cost of sales (75%)	<u>234,750</u>	<u>293,250</u>	<u>337,500</u>	<u>371,250</u>	<u>390,000</u>
Gross profit	<u>\$ 78,250</u>	<u>\$ 97,750</u>	<u>\$112,500</u>	<u>\$123,750</u>	<u>\$130,000</u>
Expenses (16%)	50,080	62,560	72,000	79,200	83,200
Cutler salary	<u>20,000</u>	<u>20,000</u>	<u>25,000</u>	<u>25,000</u>	<u>25,000</u>
Income before tax	<u>\$ 8,170</u>	<u>\$ 15,190</u>	<u>\$ 15,500</u>	<u>\$ 19,550</u>	<u>\$ 21,800</u>
Taxes	<u>2,170</u>	<u>3,190</u>	<u>3,500</u>	<u>3,550</u>	<u>4,800</u>
Net profit	<u><u>\$ 6,000</u></u>	<u><u>\$ 12,000</u></u>	<u><u>\$ 12,000</u></u>	<u><u>\$ 16,000</u></u>	<u><u>\$ 17,000</u></u>

sales, accounts receivable at 12 percent, inventory at 10 percent, net fixed assets at 6 percent, and accounts payable at 5 percent. The long-term bank loan and equity accounts, which are not expected to maintain a constant relationship to sales, must be treated separately. In this case, the principal amount due on the long-term bank loan is payable at the rate of \$5,000 per year for the next three years. The equity amount, of course, is straightforward. In the absence of any stock sales or redemptions, the common stock account will remain constant. The retained earnings account will increase by the amount of after-tax profit earned each year (if dividends were paid, they would be deducted from the retained earnings account). Finally, in order to force the total of liabilities and equity to equal total assets, a “force,” or “plug,” figure is used to bring liabilities and equity up to total assets. This figure represents Cutler’s external financing requirements—that is, the amount of money required over and above current liabilities and reinvested earnings to finance expected future growth. The five-year plan for Cutler is shown in Exhibit 7.11.

The preceding analysis indicates that Cutler’s external financing needs will grow during the high growth years 1999–2001, and then

**EXHIBIT 7.11 CUTLER TOY COMPANY  
FIVE-YEAR PRO-FORMA BALANCE SHEET**

	1999	2000	2001	2002	2003
<b>ASSETS</b>					
Cash (4%)	\$12,520	\$15,640	\$18,000	\$19,800	\$20,800
Accounts receivable (12%)	37,560	46,920	54,000	59,400	62,400
Inventory (10%)	31,300	39,100	45,000	49,500	52,000
Net fixed assets (6%)	18,780	23,460	27,000	29,700	31,200
Total assets	<u>\$100,160</u>	<u>\$125,120</u>	<u>\$144,000</u>	<u>\$158,400</u>	<u>\$166,400</u>
<b>LIABILITIES AND EQUITY</b>					
Accounts payable (5%)	\$15,650	\$19,550	\$22,500	\$24,750	\$26,000
Long-term bank loan	10,000	5,000	0	0	0
Required external financing	17,110	31,170	40,100	36,250	26,000
Common stock	10,000	10,000	10,000	10,000	10,000
Retained earnings	47,400	59,400	71,400	87,400	104,400
Total liabilities and equity	<u>\$100,160</u>	<u>\$125,120</u>	<u>\$144,000</u>	<u>\$158,400</u>	<u>\$166,400</u>



begin to decline as growth tapers off in 2002–2003. It must be noted that these external financing requirements are in addition to the normal seasonal fund requirements indicated on the one-year cash budget illustrated for 1998. Thus, the external requirements indicated represent a permanent need for funds that will not begin to decline until over three years from now.

At this point, Cutler must assess his financing options. The most obvious source of financing would be a long-term loan, with principal repayments beginning in 2002. A bank or potential private financing source may be approached in this regard. Failing a loan, Cutler can finance growth by giving up his salary and reinvesting more earnings in the company. Bearing in mind that the external financing needs indicated on the balance sheet represent cumulative needs at year end, it can be seen that each year's incremental need through 2001 can be covered by Cutler's salary. If Cutler is unwilling or unable to sacrifice his salary, a private stock sale may be appropriate. In any event, it appears that adequate financing can be arranged.

#### SUMMARY

The objective of a short-term forecast and cash budget is to provide a formal planning and control system to guide a company's operations. Developing a short-term forecast and cash budget follows a logical, seven-step procedure: (1) develop a sales forecast for the upcoming year; (2) develop estimates of next year's expected profitability; (3) develop a pro-forma income statement; (4) estimate cash payment and collection lags; (5) develop a detailed cash collections and payments forecast; (6) construct a cash budget; and (7) develop a pro-forma balance sheet. A budget system should be used as a dynamic planning and control device that is revised as the future planning period becomes the current operating period, and the budget is used to check operations against plans.

Long-term financial planning centers on planning for the future growth of the company and devising plans to finance this growth. Long-term plans differ from short-term plans primarily in the level of detail required. Long-term plans require the development of pro-forma income statements and balance sheets for a three- to five-year period; detailed cash budget forecasts are not required. The percent-

age of sales method is commonly used to determine the future external financing requirements of a growing business organization.

The cash budgeting and financial forecasting system illustrated here highlights the importance of an adequate financial planning and control system to guide a company's fiscal course. The system is useful both as an explicit statement of management's future goals and as a control device to chart the firm's progress toward these goals. In evaluating the quality of an overall management system, the existence of an explicit financial plan is a key prerequisite for a favorable assessment.

---

**KEY POINTS**

<b>OBJECTIVES</b>	Planning seasonal fund needs Planning financing needs for growth Controlling to plan
<b>SHORT-TERM FORECAST</b>	Monthly sales forecasts Pro-forma income statement Monthly cash budget Pro-forma balance sheet
<b>LONG-TERM FORECAST</b>	Annual sales forecasts Annual pro-forma income statements Annual pro-forma balance sheets Identification of long-term financing requirements

---