

Chapter 9

Profit Planning

Solutions to Questions

9-1 A budget is a detailed quantitative plan for the acquisition and use of financial and other resources over a given time period. Budgetary control involves the use of budgets to control the *actual* activities of a firm.

9-2

1. Budgets communicate management's plans throughout the organization.
2. Budgets force managers to think about and plan for the future.
3. The budgeting process provides a means of allocating resources to those parts of the organization where they can be used most effectively.
4. The budgeting process can uncover potential bottlenecks before they occur.
5. Budgets coordinate the activities of the entire organization by integrating the plans of its various parts. Budgeting helps to ensure that everyone in the organization is pulling in the same direction.
6. Budgets define goals and objectives that can serve as benchmarks for evaluating subsequent performance.

9-3 Responsibility accounting is a system in which a manager is held responsible for those items of revenues and costs—and only those items—that the manager can control to a significant extent. Each line item in the budget is made the responsibility of a manager who is then held responsible for differences between budgeted and actual results.

9-4 A master budget represents a summary of all of management's plans and goals for the future, and outlines the way in which these plans are to be accomplished. The master budget is composed of a number of smaller, specific budgets encompassing sales, production, raw materials, direct labor, manufacturing

overhead, selling and administrative expenses, and inventories. The master budget generally also contains a budgeted income statement, budgeted balance sheet, and cash budget.

9-5 The level of sales impacts virtually every other aspect of the firm's activities. It determines the production budget, cash collections, cash disbursements, and selling and administrative budget that in turn determine the cash budget and budgeted income statement and balance sheet.

9-6 No. Planning and control are different, although related, concepts. Planning involves developing goals and developing budgets to achieve those goals. Control, by contrast, involves the means by which management attempts to ensure that the goals set down at the planning stage are attained.

9-7 The flow of budgeting information moves in two directions—upward and downward. The initial flow should be from the bottom of the organization upward. Each person having responsibility over revenues or costs should prepare the budget data against which his or her subsequent performance will be measured. As the budget data are communicated upward, higher-level managers should review the budgets for consistency with the overall goals of the organization and the plans of other units in the organization. Any issues should be resolved in discussions between the individuals who prepared the budgets and their managers.

All levels of an organization should participate in the budgeting process—not just top management or the accounting department. Generally, the lower levels will be more familiar with detailed, day-to-day operating data, and for this reason will have primary responsibility for developing the specifics in the budget. Top lev-

els of management should have a better perspective concerning the company's strategy.

9-8 A self-imposed budget is one in which persons with responsibility over cost control prepare their own budgets. This is in contrast to a budget that is imposed from above. The major advantages of a self-imposed budget are: (1) Individuals at all levels of the organization are recognized as members of the team whose views and judgments are valued. (2) Budget estimates prepared by front-line managers are often more accurate and reliable than estimates prepared by top managers who have less intimate knowledge of markets and day-to-day operations. (3) Motivation is generally higher when individuals participate in setting their own goals than when the goals are imposed from above. Self-imposed budgets create commitment. (4) A manager who is not able to meet a budget that has been imposed from above can always say that the budget was unrealistic and impossible

to meet. With a self-imposed budget, this excuse is not available.

Self-imposed budgets do carry with them the risk of budgetary slack. The budgets prepared by lower-level managers should be carefully reviewed to prevent too much slack.

9-9 Budgeting can assist a company forecast its workforce staffing needs through direct labor and other budgets. By careful planning through the budget process, a company can often smooth out its activities and avoid erratic hiring and laying off employees.

9-10 No, although this is clearly one of the purposes of the cash budget. The principal purpose is to provide information on probable cash needs *during* the budget period, so that bank loans and other sources of financing can be anticipated and arranged well in advance.

Exercise 9-1 (20 minutes)

1.	<i>July</i>	<i>August</i>	<i>September</i>	<i>Total</i>
May sales:				
\$430,000 × 10%	\$ 43,000			\$ 43,000
June sales:				
\$540,000 × 70%,				
10%	378,000	\$ 54,000		432,000
July sales:				
\$600,000 × 20%,				
70%, 10%	120,000	420,000	\$ 60,000	600,000
August sales:				
\$900,000 × 20%,				
70%		180,000	630,000	810,000
September sales:				
\$500,000 × 20%			<u>100,000</u>	<u>100,000</u>
Total cash collections.....	<u>\$541,000</u>	<u>\$654,000</u>	<u>\$790,000</u>	<u>\$1,985,000</u>

Notice that even though sales peak in August, cash collections peak in September. This occurs because the bulk of the company's customers pay in the month following sale. The lag in collections that this creates is even more pronounced in some companies. Indeed, it is not unusual for a company to have the least cash available in the months when sales are greatest.

2. Accounts receivable at September 30:

From August sales: \$900,000 × 10%	\$ 90,000
From September sales:	
\$500,000 × (70% + 10%)	<u>400,000</u>
Total accounts receivable	<u>\$490,000</u>

Exercise 9-2 (10 minutes)

	<i>July</i>	<i>August</i>	<i>Septem- ber</i>	<i>Quarter</i>
Budgeted sales in units.....	30,000	45,000	60,000	135,000
Add desired ending inventory* .	<u>4,500</u>	<u>6,000</u>	<u>5,000</u>	<u>5,000</u>
Total needs.....	34,500	51,000	65,000	140,000
Less beginning inventory	<u>3,000</u>	<u>4,500</u>	<u>6,000</u>	<u>3,000</u>
Required production	<u>31,500</u>	<u>46,500</u>	<u>59,000</u>	<u>137,000</u>

*10% of the following month's sales

Exercise 9-3 (15 minutes)

	<i>Quarter—Year 2</i>				<i>Year 3</i>
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>First</i>
Required production of calculators	60,000	90,000	150,000	100,000	80,000
Number of chips per calculator	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>
Total production needs—chips	<u>180,000</u>	<u>270,000</u>	<u>450,000</u>	<u>300,000</u>	<u>240,000</u>

	<i>Year 2</i>				
	<i>First</i>	<i>Second</i>	<i>Third</i>	<i>Fourth</i>	<i>Year</i>
Production needs—chips	180,000	270,000	450,000	300,000	1,200,000
Add desired ending inventory—chips	<u>54,000</u>	<u>90,000</u>	<u>60,000</u>	<u>48,000</u>	<u>48,000</u>
Total needs—chips.....	234,000	360,000	510,000	348,000	1,248,000
Less beginning inventory—chips	<u>36,000</u>	<u>54,000</u>	<u>90,000</u>	<u>60,000</u>	<u>36,000</u>
Required purchases—chips.....	<u>198,000</u>	<u>306,000</u>	<u>420,000</u>	<u>288,000</u>	<u>1,212,000</u>
Cost of purchases at \$2 per chip.....	<u>\$396,000</u>	<u>\$612,000</u>	<u>\$840,000</u>	<u>\$576,000</u>	<u>\$2,424,000</u>

Exercise 9-4 (20 minutes)

1. Assuming that the direct labor workforce is adjusted each quarter, the direct labor budget would be:

	<i>1st Quarter</i>	<i>2nd Quarter</i>	<i>3rd Quarter</i>	<i>4th Quarter</i>	<i>Year</i>
Units to be produced	5,000	4,400	4,500	4,900	18,800
Direct labor time per unit (hours) .	<u>×0.40</u>	<u>×0.40</u>	<u>×0.40</u>	<u>×0.40</u>	<u>×0.40</u>
Total direct labor hours needed....	2,000	1,760	1,800	1,960	7,520
Direct labor cost per hour	<u>×\$11.00</u>	<u>×\$11.00</u>	<u>×\$11.00</u>	<u>×\$11.00</u>	<u>×\$11.00</u>
Total direct labor cost.....	<u>\$22,000</u>	<u>\$19,360</u>	<u>\$19,800</u>	<u>\$21,560</u>	<u>\$82,720</u>

2. Assuming that the direct labor workforce is not adjusted each quarter and that overtime wages are paid, the direct labor budget would be:

	<i>1st Quarter</i>	<i>2nd Quarter</i>	<i>3rd Quarter</i>	<i>4th Quarter</i>	<i>Year</i>
Units to be produced	5,000	4,400	4,500	4,900	18,800
Direct labor time per unit (hours) .	<u>×0.40</u>	<u>×0.40</u>	<u>×0.40</u>	<u>×0.40</u>	<u>×0.40</u>
Total direct labor hours needed....	2,000	1,760	1,800	1,960	7,520
Regular hours paid	<u>1,800</u>	<u>1,800</u>	<u>1,800</u>	<u>1,800</u>	<u>7,200</u>
Overtime hours paid.....	<u>200</u>	<u>0</u>	<u>0</u>	<u>160</u>	<u>360</u>
Wages for regular hours (@ \$11.00 per hour)	\$19,800	\$19,800	\$19,800	\$19,800	\$79,200
Overtime wages (@ \$11.00 per hour × 1.5 hours).....	<u>3,300</u>	<u>0</u>	<u>0</u>	<u>2,640</u>	<u>5,940</u>
Total direct labor cost.....	<u>\$23,100</u>	<u>\$19,800</u>	<u>\$19,800</u>	<u>\$22,440</u>	<u>\$85,140</u>

Exercise 9-5 (15 minutes)

1.

Krispin Corporation
Manufacturing Overhead Budget

	<i>1st</i> <i>Quarter</i>	<i>2nd</i> <i>Quarter</i>	<i>3rd</i> <i>Quarter</i>	<i>4th</i> <i>Quarter</i>	<i>Year</i>
Budgeted direct labor-hours.....	5,000	4,800	5,200	5,400	20,400
Variable overhead rate	× \$1.75	× \$1.75	× \$1.75	× \$1.75	× \$1.75
Variable manufacturing overhead .	\$ 8,750	\$ 8,400	\$ 9,100	\$ 9,450	\$ 35,700
Fixed manufacturing overhead	<u>35,000</u>	<u>35,000</u>	<u>35,000</u>	<u>35,000</u>	<u>140,000</u>
Total manufacturing overhead	43,750	43,400	44,100	44,450	175,700
Less depreciation	<u>15,000</u>	<u>15,000</u>	<u>15,000</u>	<u>15,000</u>	<u>60,000</u>
Cash disbursements for manufacturing overhead.....	<u>\$28,750</u>	<u>\$28,400</u>	<u>\$29,100</u>	<u>\$29,450</u>	<u>\$115,700</u>

2. Total budgeted manufacturing overhead for the year (a) \$175,700
 Total budgeted direct labor-hours for the year (b) 20,400
 Predetermined overhead rate for the year (a) ÷ (b)..... \$8.61

Exercise 9-6 (15 minutes)

Haerve Company
Selling and Administrative Expense Budget

	<i>1st Quarter</i>	<i>2nd Quarter</i>	<i>3rd Quarter</i>	<i>4th Quarter</i>	<i>Year</i>
Budgeted unit sales	12,000	14,000	11,000	10,000	47,000
Variable selling and administrative expense per unit	<u>× \$2.75</u>	<u>× \$2.75</u>	<u>× \$2.75</u>	<u>× \$2.75</u>	<u>× \$2.75</u>
Variable expense	<u>\$ 33,000</u>	<u>\$ 38,500</u>	<u>\$ 30,250</u>	<u>\$ 27,500</u>	<u>\$129,250</u>
Fixed selling and administrative expenses:					
Advertising	12,000	12,000	12,000	12,000	48,000
Executive salaries	40,000	40,000	40,000	40,000	160,000
Insurance		6,000		6,000	12,000
Property taxes			6,000		6,000
Depreciation	<u>16,000</u>	<u>16,000</u>	<u>16,000</u>	<u>16,000</u>	<u>64,000</u>
Total fixed selling and administrative ex- penses	<u>68,000</u>	<u>74,000</u>	<u>74,000</u>	<u>74,000</u>	<u>290,000</u>
Total selling and administrative expenses ...	101,000	112,500	104,250	101,500	419,250
Less depreciation	<u>16,000</u>	<u>16,000</u>	<u>16,000</u>	<u>16,000</u>	<u>64,000</u>
Cash disbursements for selling and admin- istrative expenses	<u>\$ 85,000</u>	<u>\$ 96,500</u>	<u>\$ 88,250</u>	<u>\$ 85,500</u>	<u>\$355,250</u>

Exercise 9-7 (20 minutes)

	<i>Quarter (000 omitted)</i>				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Year</i>
Cash balance, beginning	\$ 9 *	\$ 5	\$ 5	\$ 5	\$ 9
Add collections from customers	<u>76</u>	<u>90</u>	<u>125</u> *	<u>100</u>	<u>391</u> *
Total cash available	<u>85</u> *	<u>95</u>	<u>130</u>	<u>105</u>	<u>400</u>
Less disbursements:					
Purchase of inventory.....	40 *	58 *	36	32 *	166
Operating expenses	36	42 *	54 *	48	180 *
Equipment purchases	10 *	8 *	8 *	10	36 *
Dividends	<u>2</u> *	<u>2</u> *	<u>2</u> *	<u>2</u> *	<u>8</u>
Total disbursements.....	<u>88</u>	<u>110</u> *	<u>100</u>	<u>92</u>	<u>390</u>
Excess (deficiency) of cash available over disbursements .	<u>(3)</u> *	<u>(15)</u>	<u>30</u> *	<u>13</u>	<u>10</u>
Financing:					
Borrowings.....	8	20 *	0	0	28
Repayments (including inter- est)	<u>0</u>	<u>0</u>	<u>(25)</u>	<u>(7)</u> *	<u>(32)</u>
Total financing	<u>8</u>	<u>20</u>	<u>(25)</u>	<u>(7)</u>	<u>(4)</u>
Cash balance, ending.....	<u>\$ 5</u>	<u>\$ 5</u>	<u>\$ 5</u>	<u>\$ 6</u>	<u>\$ 6</u>

*Given.

Problem 9-9 (30 minutes)

1. September cash sales.....	\$ 7,400
September collections on account:	
July sales: \$20,000 × 18%.....	3,600
August sales: \$30,000 × 70%	21,000
September sales: \$40,000 × 10%.....	<u>4,000</u>
Total cash collections.....	<u>\$36,000</u>
2. Payments to suppliers:	
August purchases (accounts payable).....	\$16,000
September purchases: \$25,000 × 20%	<u>5,000</u>
Total cash payments.....	<u>\$21,000</u>

3.

Calgon Products
Cash Budget
For the Month of September

Cash balance, September 1	\$ 9,000
Add cash receipts:	
Collections from customers.....	<u>36,000</u>
Total cash available before current financing	45,000
Less disbursements:	
Payments to suppliers for inventory	\$21,000
Selling and administrative expenses	9,000 *
Equipment purchases.....	18,000
Dividends paid	<u>3,000</u>
Total disbursements	<u>51,000</u>
Excess (deficiency) of cash available over dis- bursements.....	<u>(6,000)</u>
Financing:	
Borrowings	11,000
Repayments	0
Interest	<u>0</u>
Total financing.....	<u>11,000</u>
Cash balance, September 30.....	<u>\$ 5,000</u>
* \$13,000 – \$4,000 = \$9,000.	

Problem 9-11 (45 minutes)

1. Production budget:

	<i>July</i>	<i>August</i>	<i>September</i>	<i>October</i>
Budgeted sales (units).....	40,000	50,000	70,000	35,000
Add desired ending inventory.	<u>20,000</u>	<u>26,000</u>	<u>15,500</u>	<u>11,000</u>
Total needs.....	60,000	76,000	85,500	46,000
Less beginning inventory	<u>17,000</u>	<u>20,000</u>	<u>26,000</u>	<u>15,500</u>
Required production.....	<u>43,000</u>	<u>56,000</u>	<u>59,500</u>	<u>30,500</u>

2. During July and August the company is building inventories in anticipation of peak sales in September. Therefore, production exceeds sales during these months. In September and October inventories are being reduced in anticipation of a decrease in sales during the last months of the year. Therefore, production is less than sales during these months to cut back on inventory levels.

3. Direct materials budget:

	<i>July</i>	<i>August</i>	<i>September</i>	<i>Third Quarter</i>
Required production (units) ..	43,000	56,000	59,500	158,500
Material A135 needed per unit	<u>× 3 lbs.</u>	<u>× 3 lbs.</u>	<u>× 3 lbs.</u>	<u>× 3 lbs.</u>
Production needs (lbs.)	129,000	168,000	178,500	475,500
Add desired ending inventory (lbs.)	<u>84,000</u>	<u>89,250</u>	<u>45,750</u> *	<u>45,750</u>
Total Material A135 needs	213,000	257,250	224,250	521,250
Less beginning inventory (lbs.)	<u>64,500</u>	<u>84,000</u>	<u>89,250</u>	<u>64,500</u>
Material A135 purchases (lbs.)	<u>148,500</u>	<u>173,250</u>	<u>135,000</u>	<u>456,750</u>

* 30,500 units (October production) × 3 lbs. per unit = 91,500 lbs.;
 91,500 lbs. × 0.5 = 45,750 lbs.

As shown in part (1), production is greatest in September. However, as shown in the raw material purchases budget, the purchases of materials is greatest a month earlier because materials must be on hand to support the heavy production scheduled for September.

Problem 9-12 (30 minutes)

1.

Priston Company
Direct Materials Budget

	<i>1st</i> <i>Quarter</i>	<i>2nd</i> <i>Quarter</i>	<i>3rd</i> <i>Quarter</i>	<i>4th</i> <i>Quarter</i>	<i>Year</i>
Required production.....	6,000	7,000	8,000	5,000	26,000
Raw materials per unit	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>
Production needs	18,000	21,000	24,000	15,000	78,000
Add desired ending inventory.....	<u>4,200</u>	<u>4,800</u>	<u>3,000</u>	<u>3,700</u>	<u>3,700</u>
Total needs	22,200	25,800	27,000	18,700	81,700
Less beginning inventory	<u>3,600</u>	<u>4,200</u>	<u>4,800</u>	<u>3,000</u>	<u>3,600</u>
Raw materials to be purchased	<u>18,600</u>	<u>21,600</u>	<u>22,200</u>	<u>15,700</u>	<u>78,100</u>
Cost of raw materials to be purchased at \$2.50 per pound.....	<u>\$46,500</u>	<u>\$54,000</u>	<u>\$55,500</u>	<u>\$39,250</u>	<u>\$195,250</u>

Schedule of Expected Cash Disbursements for Materials

Accounts payable, beginning balance.....	\$11,775				\$ 11,775
1st Quarter purchases	32,550	\$13,950			46,500
2nd Quarter purchases		37,800	\$16,200		54,000
3rd Quarter purchases.....			38,850	\$16,650	55,500
4th Quarter purchases.....				<u>27,475</u>	<u>27,475</u>
Total cash disbursements for materials ..	<u>\$44,325</u>	<u>\$51,750</u>	<u>\$55,050</u>	<u>\$44,125</u>	<u>\$195,250</u>

Problem 9-12 (continued)

2.

Priston Company
Direct Labor Budget

	<i>1st</i> <i>Quarter</i>	<i>2nd</i> <i>Quarter</i>	<i>3rd</i> <i>Quarter</i>	<i>4th</i> <i>Quarter</i>	<i>Year</i>
Units to be produced	6,000	7,000	8,000	5,000	26,000
Direct labor time per unit (hours)	<u>× 0.50</u>	<u>× 0.50</u>	<u>× 0.50</u>	<u>× 0.50</u>	<u>× 0.50</u>
Total direct labor-hours needed	3,000	3,500	4,000	2,500	13,000
Direct labor cost per hour	<u>× \$12.00</u>	<u>× \$12.00</u>	<u>× \$12.00</u>	<u>× \$12.00</u>	<u>× \$12.00</u>
Total direct labor cost.....	<u>\$ 36,000</u>	<u>\$ 42,000</u>	<u>\$ 48,000</u>	<u>\$ 30,000</u>	<u>\$156,000</u>

