

Chapter 14

Short-Term Financial Planning



Learning Objectives

- Use the percent of sales method to forecast the financing requirements of a firm.
- Describe the limitations of the percent of sales forecast methods.
- Prepare a cash budget and use it to evaluate the amount and timing of a firm's financing needs.

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FINANCIAL FORECASTING

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Financial Forecasting

- Financial forecasting is the process of attempting to estimate a firm's future financing requirements. Three basic steps are involved:
  1. Project the firm's sales revenues and expenses over the planning period.
  2. Estimate the levels of investment in current and fixed assets that are needed to support the projected sales forecast.
  3. Determine the firm's financing needs throughout the planning period that are required to fund its assets.

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The Sales Forecast

- The key ingredient in a firm's planning process is the sales forecast. It reflects:
  1. Past trend in sales that is expected to carry through into the new year; and
  2. The influence of any anticipated events that might materially affect that trend.

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Forecasting Financial Variables

- Traditional financial forecasting takes the sales forecast as a given and projects its impact on the firm's various expenses, assets, and liabilities.
- Most common method used for making these projections is the **percent of sales method**.

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The Percent of Sales Method

- It involves estimating the level of an expense, asset, or liability for a future period as a percentage of the sales forecast.
- The percentages used can come from recent financial statements or from averages over past years, from the judgment of an analyst or some combination of sources (see Table 14-1).

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TABLE 14-1 Using the Percent of Sales Method to Forecast Drew Inc.'s Financing Requirements for 2016

	A	B	C	D	E	F	G	H	I	J	K
1	**Drew Inc.**						**Drew Inc.**				
2	**Income Statement for 2015**						**Pro forma Income Statement for 2016**				
3					**% of 2015 Sales**						
4								Alternative Growth Rates in Sales	**0%**	**20%**	**40%**
5	Sales		$ 10,000,000				Sales		$ 10,000,000	$ 12,000,000	$ 14,000,000
6	Net Income		$ 500,000	$500,000/$10,000,000 =	5.0%		Net Income		$ 500,000	$ 600,000	$ 700,000
7											
8											
9	**Drew Inc.**						**Drew Inc.**				
10	**Balance Sheet for 2015**						**Pro forma Balance Sheet for 2016**				
11					**% of 2015 Sales**			**Calculation**			
12											
13	Current assets		$ 2,000,000	[$2m /$10m] =	20.0%		Current assets	.20 x$12m =	$ 2,000,000	$ 2,400,000	$ 2,800,000
14	Net fixed assets		4,000,000	[$4m /$10m] =	40.0%		Net fixed assets	.40 x$12m =	4,000,000	$ 4,800,000	$ 5,600,000
15	Total		$ 6,000,000				Total		$ 6,000,000	$ 7,200,000	$ 8,400,000
16											
17	Accounts payable		$ 1,000,000	[$1m /$10m] =	10.0%		Accounts payable	.10 x$12m =	$ 1,000,000	$ 1,200,000	$ 1,400,000
18	Accrued expenses		1,000,000	[$1m /$10m] =	10.0%		Accrued expenses	.10 x$12m =	1,000,000	1,200,000	1,400,000
19	Notes payable		500,000		NA[a]		Notes payable	No change	500,000	500,000	500,000
20	Current Liabilities		$ 2,500,000				Current Liabilities		$ 2,500,000	$ 2,900,000	$ 3,300,000
21	Long-term debt		2,000,000		NA[a]		Long-term debt	No change	2,000,000	2,000,000	2,000,000
22	Total Liabilities		$ 4,500,000				Total Liabilities		$ 4,500,000	$ 4,900,000	$ 5,300,000
23	Common stock (par)		100,000		NA[a]		Common stock (par)	No change	$ 100,000	$ 100,000	$ 100,000
24	Paid-in capital		200,000		NA[a]		Paid-in capital	No change	200,000	200,000	200,000
25	Retained earnings		1,200,000				Retained earnings	Calculation[b]	1,450,000	1,500,000	1,550,000
26	Common Equity		$ 1,500,000				Common Equity		$ 1,750,000	$ 1,800,000	$ 1,850,000
27	Total		$ 6,000,000				Total Financing Provided		$ 6,250,000	$ 6,700,000	$ 7,150,000
28							Discretionary Financing Needed (Plug)[c]		$ (250,000)	**$ 500,000**	$ 1,250,000
29							Total Financing Needed = Total Assets		$ 6,000,000	$ 7,200,000	$ 8,400,000
30											
31	[a]Not applicable. These account balances do not vary with sales.										
32	[b]Projected retained earnings for 2016 based on the 20% growth rate scenario is $1,500,000 and is calculated as follows: The 2015 retained earnings of $1,200,000 added to 2016 projected net										
33	income of $600,000 less common dividends of $300,000. Note that dividends are assumed to be 50% or net income, so dividends vary across the three scenarios.										
34	[c]Discretionary financing needed (DFN) for 2016 and the 20% growth rate scenario is a "plug figure" that equals the difference in the firm's projected total financing requirements or total assets of										
35	$7,200,000 and total financing provided of $6,700,000. In this scenario DFN is $500,000.										
36											
37											
38											

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Spontaneous Financing

- Accrued expenses and accounts payable are the only liabilities allowed to vary with sales. Because they vary directly with the level of sales, they are referred to as sources of spontaneous financing.

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Discretionary Financing Needs (*DFN*)

- Requires explicit decisions on the part of the firm's management every time funds are raised.
- Does not normally vary directly with the level of sales.
- Examples: Notes payable, long-term debt, common stock, paid-in capital.

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Calculation of *DFN*: 4 Steps (example: Table 14-1)

1. Current assets as a % of sales: Convert each asset and liability account that varies directly with firm sales to a percentage of the current year's sales

$$\frac{\text{Current assets}}{\text{sales}} = \frac{\$2M}{\$10M} = 0.2, \text{ or } 20\%$$

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Calculation of *DFN*

2. Predicting current assets: Project the level of each asset and liability account in the balance sheet using its percentage of sale multiplied by projected sales or by leaving the account balance unchanged when the account does not vary with the level of sales.

$$\text{Projected current assets} = \text{projected sales} \times \frac{\text{current assets}}{\text{sales}} = \$12M \times 0.2 = \$2.4M$$

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Calculation of *DFN*

3. Predicting additional retained earnings: Project the addition to retained earnings available to help finance the firm's operations. This equals projected net income for the period less planned common stock dividends.

$$\text{Projected addition to retained earnings} = \text{projected sales} \times \frac{\text{net income}}{\text{sales}} \times \left(1 - \frac{\text{cash dividends}}{\text{net income}}\right)$$

$$= \$12\text{M} \times 0.05 \times (1 - 0.5) = \$300{,}000$$

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Calculation of *DFN*

4. Predicting *DFN*: Project the firm's *DFN* as the projected level of total assets less projected liabilities and owners' equity.

Discretionary financing needed

$$= \text{projected total assets} - \text{projected total liabilities} - \text{projected owners' equity}$$

$$= \$7.2M - \$4.9M - \$1.8M = \$500{,}000$$

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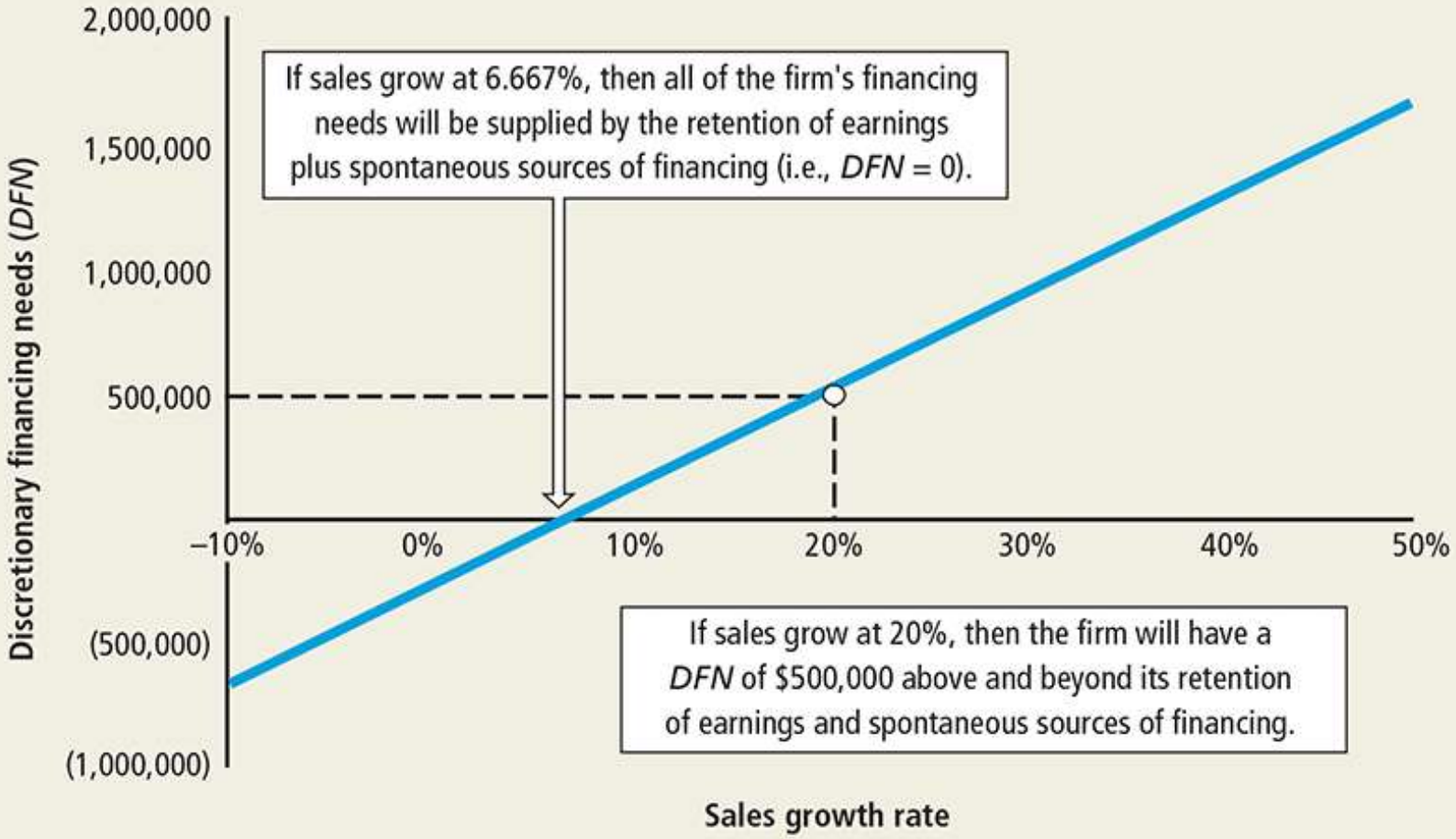
DFN Relationships

$$DFN = \begin{matrix}\text{predicted change} \\ \text{in total assets}\end{matrix} - \begin{matrix}\text{predicted change} \\ \text{in spontaneous liabilities}\end{matrix} - \begin{matrix}\text{predicted change} \\ \text{in retained earnings}\end{matrix} \quad (14\text{-}1)$$

- Figure 14-1 graphically shows the relationship between growth rates for sales and *DFN*. At sales growth rate of 6.67%, *DFN* = 0, i.e., no need for external financing.

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FIGURE 14-1 Sales Growth and the Discretionary Financing Needs of the Firm



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TABLE 14-2 Discretionary Financing Needs (*DFN*) and the Growth Rate in Sales

	A	B	C	D	E	F	G	H	I	J
1	**Drew Inc.**						**Drew Inc.**			
2	**Income Statement for 2015**						**Pro forma Income Statement for 2016**			
3					**% of 2015 Sales**			**Calculation**		
4							Sales growth rate =	20%		
5	Sales		$ 10,000,000				Sales	$10 million x (1+.20) =	$ 12,000,000	
6	Net Income		$ 500,000	$500,000/$10,000,000 =	5.0%		Net Income	$12 million x .05 =	$ 600,000	
7										
8										
9										
10	**Drew Inc.**						**Drew Inc.**			
11	**Balance Sheet for 2015**						**Pro forma Balance Sheet for 2016**			
12					**% of 2015 Sales**			**Calculation**		
13										
14	Current assets		$ 2,000,000	[$2m /$10m] =	20.0%		Current assets	.20 x $12m =	$ 2,400,000	
15	Net fixed assets		4,000,000	[$4m /$10m] =	40.0%		Net fixed assets	.40 x $12m =	$ 4,800,000	
16	Total		$ 6,000,000				Total		$ 7,200,000	
17										
18	Accounts payable		$ 1,000,000	[$1m /$10m] =	10.0%		Accounts payable	.10 x $12m =	$ 1,200,000	
19	Accrued expenses		1,000,000	[$1m /$10m] =	10.0%		Accrued expenses	.10 x $12m =	1,200,000	
20	Notes payable		500,000		NA[a]		Notes payable	No change	500,000	
21	Current Liabilities		$ 2,500,000				Current Liabilities		$ 2,900,000	
22	Long-term debt		2,000,000		NA[a]		Long-term debt	No change	$ 2,000,000	
23	Total Liabilities		$ 4,500,000				Total Liabilities		$ 4,900,000	
24	Common stock (par)		100,000		NA[a]		Common stock (par)	No change	100,000	
25	Paid-in capital		200,000		NA[a]		Paid-in capital	No change	200,000	
26	Retained earnings		1,200,000				Retained earnings	Calculation[b]	1,500,000	
27	Common Equity		$ 1,500,000				Common Equity		1,800,000	
28	Total		$ 6,000,000				Total Financing Provided		$ 6,700,000	
29							Discretionary Financing Needed (Plug)[c]		$ 500,000	
30							Total Financing Needed = Total Assets		$ 7,200,000	
31										
32	[a]Not applicable. These account balances do not vary with sales.									
33	[b]Projected retained earnings for 2016 equals $1,500,000 which is equal to the 2015 level of retained earnings of $1,200,000 plus net income of $600,000 less common dividends									
34	equal to 50% of projected net income or $300,000.									
35	[c]Discretionary financing needed (DFN) for 2016 is a "plug figure" that equals the difference in the firm's projected total financing requirements or total assets equal to $7,200,000									
36	and total financing provided which is $6,700,000. In this scenario DFN is $500,000.									
37										
38										

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External Financing Needs (*EFN*)

- *EFN* includes all the firm's needs for financing beyond the funds provided internally through the retention of earnings.

$$EFN = \text{predicted change in total assets} - \text{change in retained earnings} \qquad (14\text{-}2)$$

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LIMITATIONS OF THE PERCENT OF SALES FORECASTING METHOD

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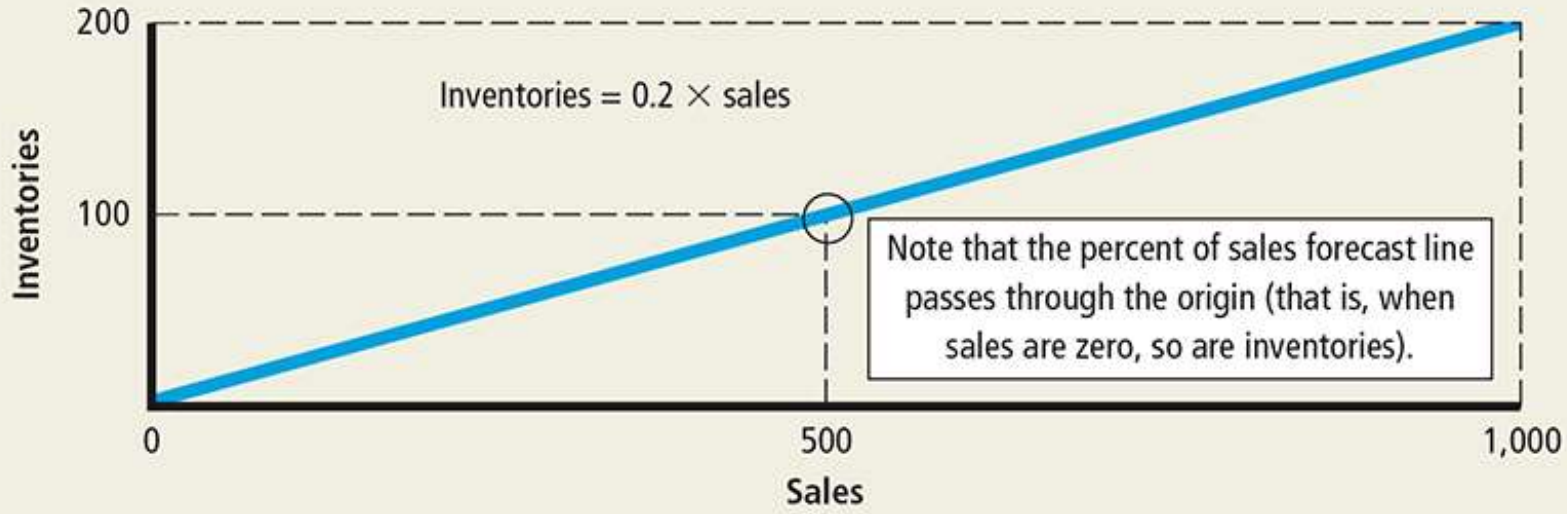


Limitations of the Percent of Sales Forecasting Method

- The method provides reasonable estimates of financing requirements only when asset requirements and financing sources can be accurately forecast as a constant percent of sales (Figure 14-2A). However, this relationship may not always hold true:
  - Economies of scale are sometimes realized from investing in certain types of assets (Figure 14-2B).
  - Some assets are *lumpy assets* or assets that must be purchased in large, nondivisible components (Figure 14-2C).

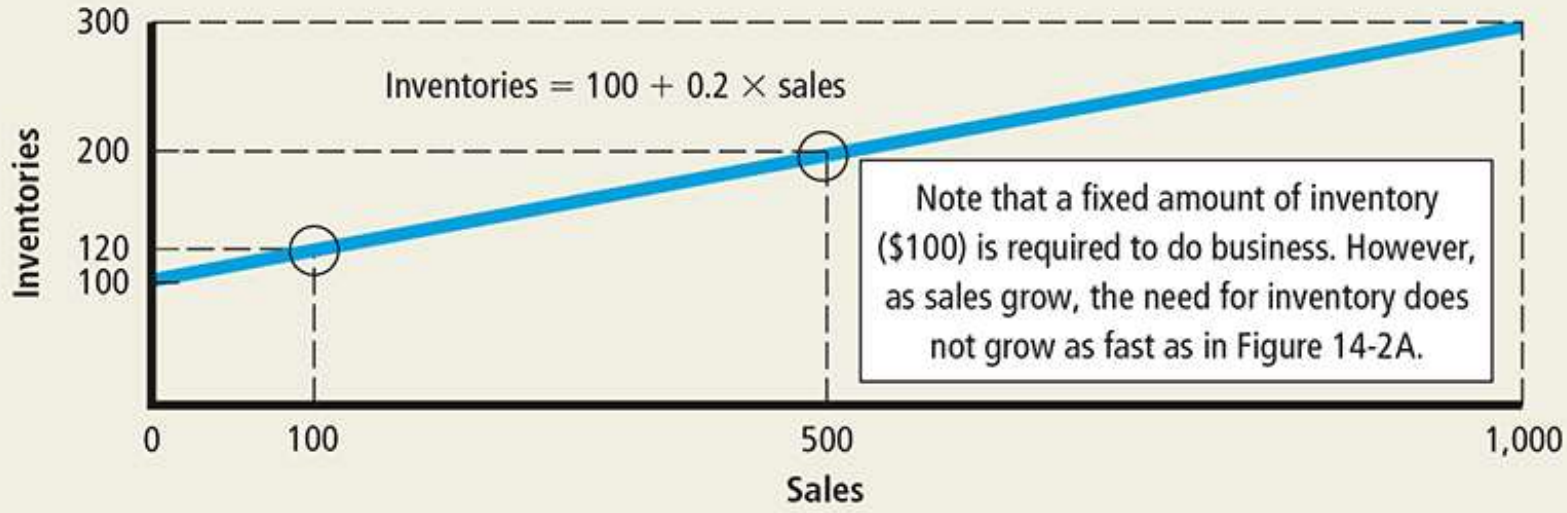
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FIGURE 14-2A Percent of Sales Forecast



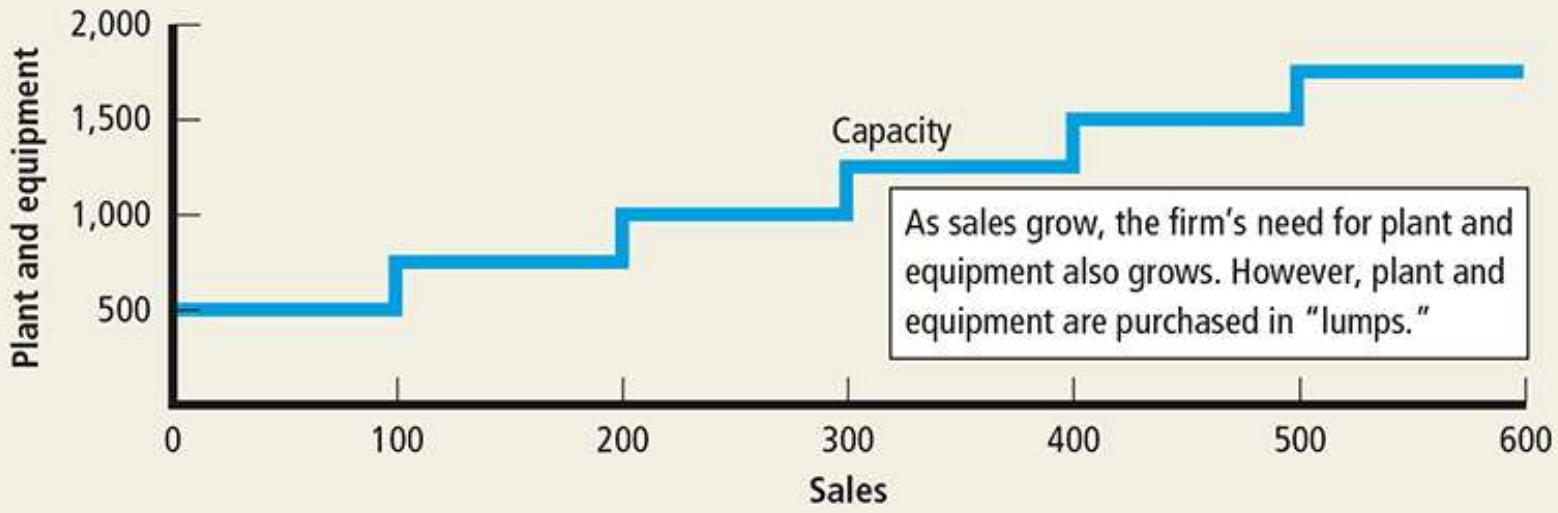
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FIGURE 14-2B Economies of Scale



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FIGURE 14-2C Economies of Scale with Lumpy Investments



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CONSTRUCTING AND USING A CASH BUDGET

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Budget Functions

- A budget is simply a forecast of future events.
- Budgets performs three functions:
  - They indicate the amount and timing of the firm's needs for future financing.
  - They provide the basis for taking corrective action in the event budgeted figures do not match actual or realized figures.
  - They provide the basis for performance evaluation and control.

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Cash Budget

- The cash budget represents a detailed plan of future cash flows and is composed of four elements:
  - Cash receipts
  - Cash disbursement
  - Net change in cash for the period
  - New financing needed
- See Table 14-3.

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TABLE 14-3 Salco Furniture Co. Inc. Cash Budget for 6 Months Ended June 30, 2016

	A	B	C	D	E	F	G	H	I	J	K	L
1		October	November	December	January	February	March	April	May	June	July	August
2	Worksheet											
3	Sales (forecasted)	55,000	62,000	50,000	60,000	75,000	88,000	100,000	110,000	100,000	80,000	75,000
4	Purchases (75% of sales in 2 months)			56,250	66,000	75,000	82,500	75,000	60,000	56,250		
5												
6	Cash Receipts											
7	Collections:											
8	First Month after sale (30%)				15,000	18,000	22,500	26,400	30,000	33,000		
9	Second Month after sale (50%)				31,000	25,000	30,000	37,500	44,000	50,000		
10	Third Month after sale (20%)				11,000	12,400	10,000	12,000	15,000	17,600		
11	Total Cash Receipts				57,000	55,400	62,500	75,900	89,000	100,600		
12												
13	Cash Disbursements											
14	Payments (one-month lag of purchases from row 4)				56,250	66,000	75,000	82,500	75,000	60,000		
15	Wages and Salaries				3,000	10,000	7,000	8,000	6,000	4,000		
16	Rent				4,000	4,000	4,000	4,000	4,000	4,000		
17	Other Expenses				1,000	500	1,200	1,500	1,500	1,200		
18	Interest expense on existing debt[a]								600	7,500		
19	Taxes						4,460			5,200		
20	Purchase of Equipment					14,000						
21	Loan Repayment[b]								12,000			
22	Total Cash Disbursements				64,250	94,500	91,660	96,000	99,100	81,900		
23												
24	Net Change in Cash for the Period				(7,250)	(39,100)	(29,160)	(20,100)	(10,100)	18,700		
25	Plus: Beginning cash balance				20,000	12,750	10,000	10,000	10,000	10,000		
26	Less: Interest on short-term borrowing				0	0	(364)	(659)	(866)	(976)		
27	Equals: Ending cash balance before short-term borrowing				12,750	(26,350)	(19,524)	(10,759)	(966)	27,724		
28												
29	New Financing Needed[c]				0	36,350	29,524	20,759	10,966	(17,724)[d]		
30	Ending cash balance				12,750	10,000	10,000	10,000	10,000	10,000		
31	Cumulative borrowing				0	36,350	65,874	86,633	97,599	79,875		
32												
33												
34	[a]An interest payment of $600 on the $12,000 loan is due in May, and an interest payment of $7500 on the $150,000 long-term debt is due in June.											
35	[b]The principal amount of the $12,000 loan is also due in May.											
36	[c]The amount of financing that is required to raise the firm's ending cash balance up to its $10,000 desired cash balance.											
37	[d]Negative financing needed simply means the firm has excess cash that can be used to retire a part of its short-term borrowing from prior months.											
38												

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Key Terms

- Budget
- Cash budget
- Discretionary financing
- External financing needs
- Intercept
- Percentage of sales method
- Slope coefficient
- Spontaneous financing

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