

## SOLUTIONS

## Learning Goal 30

## Multiple Choice

1. d
  2. d
  3. b
  4. a Earnings per share is also used directly for comparing profitability on a per-share basis.
  5. d
  6. c An airline would have a much greater investment in property, plant, and equipment assets than an accounting firm. Therefore, the denominator in the fraction will be much bigger, making the answer for turnover much smaller. A much bigger asset investment is needed to create a dollar of revenue in an airline. An accounting firm and an airline are service businesses and do not have merchandise inventory or cost of goods sold.
  7. b First, this focuses blame on the old management. Second, future years' results will now look better when compared to the current large loss year in which the "big bath" was recorded.
  8. c Both ratios relate to potential near-term cash flow and are also indicators of management efficiency.
  9. d If sales on account are overstated, the average balance of accounts receivable will also be overstated. Also, these overstated receivables will remain uncollected. The denominator in the ratio calculation will increase, which reduces the turnover and increases the days.  
*Example:* Assume correct amounts are: sales 100, beginning A/R 14, and ending A/R 10.  
*Answer:*  $[100/(14 + 10)]/2 = 8.33$ . Now assume sales overstated by 20. *Answer:*  $[120/(14 + 30)]/2 = 5.45$  (lower turnover). (*Note:* The gross profit ratio will also provide a clue as it begins to increase above historical averages.)
  10. b Changing from LIFO to FIFO in a period of rising prices reduces cost of goods sold, and the numerator of the ratio becomes smaller. As well, the ending inventory becomes greater, which increases the average inventory in the denominator. These changes decrease the inventory turnover answer, although items are not actually being sold any slower. Be careful when comparing companies using different inventory methods!
  11. d
  12. a This organization was created by the Sarbanes-Oxley Act in 2002.
  13. d This is an off-balance sheet financing technique. All the other items represent potential liability of varying degrees of probability.
  14. b
  15. b Trading on equity can result in either better returns or worse returns and increased risk.
  16. c
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**SOLUTIONS****Learning Goal 30, continued****Reinforcement Problems**

**LG 30-1.** See the table on pages 882 and 883.

**LG 30-2.** Grand Forks Company

	2008 changes		2007 changes	
Net sales . . . . .	\$116,000	23.7%	\$71,000	16.9%
Cost of goods sold . . . . .	<u>82,000</u>	<u>29.7</u>	<u>25,000</u>	<u>10.0</u>
Gross profit . . . . .	34,000	16.0	46,000	27.5
Operating expenses . . . . .	<u>25,000</u>	<u>17.9</u>	<u>14,000</u>	<u>11.1</u>
Income from operations . . . . .	9,000	12.3	32,000	78.0
Interest expense . . . . .	<u>1,000</u>	<u>100.0</u>	<u>(1,000)</u>	<u>(50.0)</u>
Net income . . . . .	<u>\$ 8,000</u>	<u>11.1%</u>	<u>\$33,000</u>	<u>84.6%</u>

In 2007, net income increased by a greater percentage than sales because total expenses increased by a lower percentage than sales. As the biggest expense item, cost of goods sold had the biggest effect. In 2008, net income increased by a lower percentage than sales because the total expenses increased by a higher percentage than sales. Cost of goods sold again had the greatest effect, as operating expenses actually increased by a lesser percentage than sales.

**LG 30-3.** Ketchikan Company

Current ratio: 2.13:1 $(14,000 + 15,700 + 24,300 + 2,500)/(11,000 + 15,500)$	Accounts receivable turnover: 15.4 times per year $312,000/[(15,700 + 24,800)/2] = 15.4$
Average collection period: 24 days $(312,000)/[(15,700 + 24,800)/2] = 15.4$ $365/15.4 = \text{aprox. } 24 \text{ days}$	Inventory turnover: 6.76 times per year $210,000/[(24,300 + 37,800)/2] = 6.76$
Debt ratio: 35.3% $(11,000 + 15,500 + 98,700)/355,000 = .353$	Cash flow to debt ratio: 28% $36,300/[(125,200 + 134,300)/2] = .279$
Rate of return on total assets: 11% $37,600/[(355,000 + 325,700)/2] = .11$	Rate of return on equity: 17.9% $37,600/[(229,800 + 191,400)/2] = .1785$
Earnings per share: \$.18 per common share $37,600/210,000 = .179$	Quick ratio: 1.12 $(\$14,000 + \$15,700)/\$26,500 = 1.12$
Profit margin ratio: .12 (about 12%) $\$37,600/\$312,000 = .12$	

(Note: No preferred stock or dividends in this problem.)

**LG 30-4.**

- 1a. The current ratio improves! (Current assets and current liabilities each decrease by \$10,000.) The new ratio is 2.8:1.
- 1b. The debt ratio also improves. (Total debt and total assets each decrease by \$10,000.) The new ratio is 33.3%.

## SOLUTIONS

## Learning Goal 30, continued

LG 30-4, *continued*

- 2a. The current ratio decreases. (Current assets and current liabilities each increase by \$20,000.) The new ratio is approximately 1.165:1.
- 2b. The inventory turnover ratio decreases as more inventory is added. (Average inventory increases.) The new ratio is 5.1 times per year.
- 3a. The debt ratio increases. (Total assets and total debt each increase by \$50,000.) The new ratio is 43%.
- 3b. The cash flow to debt percentage decreases. (Operating cash flow is unchanged, but total debt increases by \$50,000.) The new ratio is 23%.
- 4a. The current ratio increases. (Two items affect the current ratio here! Accounts receivable increases by \$19,000; inventory decreases by \$10,000 so there is a net increase in current assets of \$9,000.) The new ratio is 2.47:1.
- 4b. The accounts receivable turnover ratio decreases as another account receivable is added. (Accounts receivable and sales increase by \$19,000.) The new ratio is 11 times per year.
- 4c. The inventory turnover ratio increases because cost of goods sold increases \$10,000 and average inventory decreases by \$5,000. The new ratio is 8.45 times per year.
- 4d. The rate of return on equity increases because the sale increases net income by \$9,000. The new ratio is 22%.
- 5a. The current ratio decreases because less cash is received. The new current ratio is 2:1.
- 5b. The ratio increases. Normally a discount taken means that a receivable is paid more quickly, so we can assume that net sales decrease by \$500 and ending accounts receivable decrease by \$7,500. The new ratio is 18.9.
- 6a. The current ratio decreases as follows: current assets decrease by \$10,000 for Accounts Receivable decrease, but current assets increase by \$6,000 for inventory returned. This is a net \$4,000 decrease in current assets and the new ratio is 1.98:1.
- 6b. The accounts receivable turnover ratio is affected as follows: net sales decrease to \$302,000 and average accounts receivable decrease to \$15,250. The new ratio increases to 19.8 times per year! A somewhat misleading result caused only by a return of merchandise. However, the result on the income statement will be a decrease in net income due to the decrease in net sales.
- 6c. Average inventory increases by \$3,000 and cost of goods sold decreases by \$6,000. The new inventory turnover ratio decreases to 6 times.
- 7a. The rate of return on equity is reduced because uncollectible accounts expense is debited and reduces the net income. The rate decreases to 16.9%.
- 7b. The accounts receivable turnover will actually increase! (Because Allowance for Uncollectible Accounts is credited, which increases the account, thereby decreasing the net accounts receivable.) The changed accounts receivable turnover ratio would be 16.2 times per year.

**LG 30-5. Hilo Enterprises—analysis:** The primary concern of a lender is to be *paid back* the principal and interest on a loan. Therefore, the primary focus of most loan evaluations will be on liquidity and cash flow and solvency. The loan officer is correct: Operating and net income have been increasing, the working capital as of 2008 is \$162,000 (\$285,000 – \$123,000), and the current ratio is good and from 2007 to 2008 has improved from 1.95:1 to 2.3:1. The 2008 acid-test ratio is good at 1.27:1 and is stable. However, unfortunately the loan officer has not focused on the cash balance. An essential question is: “Why is cash decreasing if the company is profitable?”

## SOLUTIONS

## Learning Goal 30, continued

LG 30-5, *continued*

A further analysis shows that there has been a build-up in both accounts receivable and inventory. These are unfavorable warning signs that the recorded sales are not easily being collected (or worse—they are questionable sales) and that much of the inventory being purchased is not being sold, which ties up cash and also carries the risk of inventory write-offs. The accounts receivable turnover in 2007 is  $\$397,000/(\$49,000 + \$62,000)/2 = 7.15$  times per year, which is about 51 days average wait for collection. In 2008 this worsened to  $\$456,000/(\$62,000 + \$119,000)/2 = 5.04$ , which is about 72 days. The inventory turnover in 2007 is  $\$188,000/(\$51,000 + \$78,000)/2 = 2.92$  times per year, which is about 125 days to sell the average level of inventory. In 2008 this worsened to  $\$214,000/(\$78,000 + \$127,000)/2 = 2.09$ , which is about 175 days to sell inventory. Liquidity is definitely worsening. Considering this, it is also interesting that land was sold in 2008. To obtain cash? The debt ratio trend is 48%, 51%, and 46% in 2006, 2007, and 2008. Although relatively stable, the ratio is substantial.

*Risks:* (1) There may be significant losses because of write-offs of accounts receivable and inventory next year, and (2) the indicators above are early warnings signs that business is worsening, with unfavorable future cash flow and solvency implications.

*Recommendation:* (1) Obtain a statement of cash flows to confirm operating cash flow concerns and also to calculate the solvency measures of cash flow to debt, cash basis times interest earned and free cash flow. (2) Discuss the situation with the owner and ask about her business plan. (3) A secured loan at a higher interest rate probably will be justified, as will a reduced loan amount.

## LG 30-6.

**De Kalb Decor, Inc.**  
**Comparative Common-Size Income Statement**  
**Years Ended December 31**

	2008	2007	2006
Net sales . . . . .	100%	100%	100%
Cost of goods sold . . . . .	<u>58</u>	<u>60</u>	<u>67</u>
Gross profit . . . . .	42	40	33
Operating expenses:			
Selling and marketing . . . . .	15	16	13
General and administrative . . . . .	<u>23</u>	<u>24</u>	<u>23</u>
Income (loss) from operations . . . . .	4	—	(3)
Other revenues and gains and expenses and losses:			
Other revenue . . . . .	—0—	3	2
Interest expense . . . . .	(2)	(2)	(1)
Loss on sale of short-term investments . . . . .	(3)		
Income before income taxes . . . . .	(1)	1	(2)
Income tax expense . . . . .	—	—	—
Net income (loss) . . . . .	<u>(1%)</u>	<u>1%</u>	<u>(2%)</u>

## SOLUTIONS

## Learning Goal 30, continued

LG 30-6, *continued*

Ratio	2008	2007	2006	Interpretation
<b>Liquidity Ratios</b>				
Current Ratio	3:1	3:1	5.2:1	Above-average and stable current ratio means company has substantial current assets to meet short-term liabilities (if receivables and inventory are good).
Quick Ratio	2.1:1	2.1:1	3.3:1	Very strong quick ratio indicates substantial very liquid assets available to pay short-term liabilities.
A/R days to collect	38 days	41 days	—	Collection time is satisfactory for typical sales on account and is also improving. Industry norms would be useful.
Inventory days turnover	67 days	78 days	—	Company appears to sell inventory relatively quickly, and the average time on hand is decreasing noticeably. Industry norm is needed for comparison.
<b>Solvency Ratios</b>				
Debt ratio	41%	36%	22%	Debt is significantly increasing as a percent of total assets. Why is this happening? <i>What is the money needed for?</i>
Cash basis times-interest earned	3.5	2.8	2.0	The availability of cash flow for interest payments is now very good; despite increase in debt the ability to service (make payments on) the debt has actually improved.
Asset turnover	1.4	1.3	—	For every dollar of assets, about \$1.40 of sales revenue is created. Industry norm is needed for comparison.
Cash flow to debt	30%	24%	—	If operating cash flow were applied entirely to debt, flow is sufficient to pay off 30% of total existing debt per year or about 3.3 years to pay off all debt ( $1/.30 = 3.3$ ).
Free cash flow	\$45,000	(\$12,000)	(\$82,000)	Measures the cash available after paying for long-term asset acquisitions and replacements.
<b>Profitability Ratios</b>				
Profit margin	(1%)	1%	(2.5%)	No net income—slight loss.
Gross profit	42%	40%	33%	Gross profit percentage of sales revenue is increasing—probably now above average but industry norm is needed for comparison.
Earnings per share				We need to know the number of shares outstanding; however, we know earnings per share will be minimal or negative by looking at the net income.
<b>Investment Return Ratios</b>				
Return on equity	(2.7%)	1.7%	—	No recent return on equity.
Dividend ratio	7.6%	0%	—	Probably not important for a new growing company.

## SOLUTIONS

## Learning Goal 30, continued

LG 30-6, *continued*

*Analysis:* If you were to focus only on the “bottom line”—the minimal net income and the net losses of this company—you would overlook the information that indicates that this appears to be a well managed and vigorously growing company. Revenue has increased each year and 45% over the last two years, whereas the cost of goods sold percentage has been decreasing. This is a powerful combination. Operating expenses have been increasing substantially but have not changed as a percentage of revenue. In the meantime, the company is handling receivables and inventory efficiently as indicated by good and improving turnover ratios.

Liquidity and cash flow are good and improving. The company appears to have been financing much of its growth by increased borrowing; however, the solvency indicators remain strong. These will also improve if the business uses some of the new cash to pay down liabilities. Consistently good and improving cash flow also tends to indicate minimal “earnings management.” Recent net income and rate of return measures are not really meaningful for a new company—especially for one that appears to be coming into profitability. I would be very interested in this company; however, before reaching a final decision, I would want to obtain more information about industry norms for comparison. Some detailed productivity data also would be useful.

## LG 30-7. Bedford and Bufdord Companies

*Bedford, Inc.*

- |                               |                            |                                  |
|-------------------------------|----------------------------|----------------------------------|
| ■ Current ratio: 1.7:1        | ■ Quick ratio: .8:1        | ■ Receivables turnover: 12 times |
| ■ Inventory turnover: 3 times | ■ Debt ratio: 27%          | ■ Gross profit ratio: 43%        |
| ■ Asset turnover: .97         | ■ Profit margin ratio: 17% | ■ Return on equity: 25%          |

*Buford Inc.*

- |                                 |                            |                                  |
|---------------------------------|----------------------------|----------------------------------|
| ■ Current ratio: 2.2:1          | ■ Quick ratio: 1.1:1       | ■ Receivables turnover: 13 times |
| ■ Inventory turnover: 3.5 times | ■ Debt ratio: 31%          | ■ Gross profit ratio: 35%        |
| ■ Asset turnover: 1.0           | ■ Profit margin ratio: 17% | ■ Return on equity: 27%          |

*Analysis:* This is not an easy choice. Buford has better liquidity ratios and is managing the receivables and inventory more efficiently. On the other hand, Bedford has a lower debt ratio and higher gross profit percentage, which indicate better solvency. Buford apparently has better control of operating expenses, because it has the same net income profit margin percentage as Bedford at 17%, even though Bedford has the higher gross profit percentage.

The deciding factor may be the price earnings ratio. Although the stock price of Buford is lower at \$16.50 per share, it is *more expensive* (higher price earnings ratio) relative to the earnings per share (probably because of Buford’s higher return on equity).

*Calculation of PE ratios:*

Bedford price earnings ratio:  $(\$17.20 \text{ stock price per share}) / (\$.95 \text{ earnings per share}) = 18 \text{ times}$

Buford price earnings ratio:  $(\$16.40 \text{ stock price per share}) / (\$.72 \text{ earnings per share}) = 23 \text{ times}$

## SOLUTIONS

## Learning Goal 30, continued

## LG 30-8. Mystery Company

- A. Using accounts receivable turnover:  $(\$63,000 + \$67,000)/2 = \$65,000$  average balance  $\times 12 = \$780,000$ .
- B. Using the gross profit percentage: A 40% gross profit means a 60% cost of goods sold.  
Therefore,  $\$780,000 \times .6 = \$468,000$
- C.  $\$780,000 \times .4 = \$312,000$
- D.  $\$312,000 - (\$55,000 + \$127,500) = \$129,500$
- E.  $\$129,500 + \$1,500 - \$11,250 = \$119,750$
- F. Use acid-test ratio for total "quick" assets:  $x/\$130,000 = .8$  Cash is:  $\$104,000 - \$67,000 = \$37,000$
- G. Using the inventory turnover ratio, write the ratio and what it equals in an equation form and then use some algebra to solve for G in the equation:  
 $[(G + \$101,000)/2] \times 4.5 = \$468,000$  To solve for G,  
 $[1/2(G) + 1/2(\$101,000)] \times 4.5 = \$468,000$  then,  
 $[1/2(G) + 50,500] \times 4.5 = \$468,000$  then,  
 $2.25(G) + 227,250 = \$468,000$  then,  
 $2.25(G) = \$240,750$  Therefore,  $G = \$107,000$ .
- H.  $\$37,000$  (from F)  $+ \$67,000 + \$3,000 + \$107,000 = \$214,000$
- I. Total assets =  $H + (\$246,500 - 54,000) + 100,000 = \$506,500$
- J. Calculate (K) first. Then,  $\$329,225 - \$130,000 = \$199,225$
- K. Total liabilities, using the debt ratio:  $\$506,500 \times .65 = \$329,225$
- L. Owner's equity is total assets – total liabilities:  $\$506,500 - \$329,225 = \$177,275$
- M.  $M = I = \$506,500$
- N.  $\$211,250 + (286,000 - \$76,000) + \$100,000 = \$521,250$
- O. Using the current ratio:  $\$211,250/x = 2.6$  Result:  $x = \$81,250$
- P.  $\$81,250 + \$278,500 = \$359,750$
- Q.  $\$521,250$  (from N)  $- \$359,750$  (from P)  $= \$161,500$  (Notice that the owner's equity decreased from 2006 to 2007, even though the business had net income. This means there were owner withdrawals during 2007.)
- R.  $R = N = \$521,250$