Chapter 3

CT

1.  
   a. If inventory is purchased with cash, then there is no change in the current ratio. If inventory is purchased on credit, then there is a decrease in the current ratio if it was initially greater than 1.0.
   b. Reducing accounts payable with cash increases the current ratio if it was initially greater than 1.0.
   c. Reducing short-term debt with cash increases the current ratio if it was initially greater than 1.0.
   d. As long-term debt approaches maturity, the principal repayment and the remaining interest expense become current liabilities. Thus, if debt is paid off with cash, the current ratio increases if it was initially greater than 1.0. If the debt has not yet become a current liability, then paying it off will reduce the current ratio since current liabilities are not affected.
   e. Reduction of accounts receivables and an increase in cash leaves the current ratio unchanged.
   f. Inventory sold at cost reduces inventory and raises cash, so the current ratio is unchanged.
   g. Inventory sold for a profit raises cash in excess of the inventory recorded at cost, so the current ratio increases.

3.  
   A current ratio of 0.50 means that the firm has twice as much in current liabilities as it does in current assets; the firm potentially has poor liquidity. If pressed by its short-term creditors and suppliers for immediate payment, the firm might have a difficult time meeting its obligations. A current ratio of 1.50 means the firm has 50% more current assets than it does current liabilities. This probably represents an improvement in liquidity; short-term obligations can generally be met completely with a safety factor built in. A current ratio of 15.0, however, might be excessive. Any excess funds sitting in current assets generally earn little or no return. These excess funds might be put to better use by investing in productive long-term assets or distributing the funds to shareholders.

4.  
   a. Quick ratio provides a measure of the short-term liquidity of the firm, after removing the effects of inventory, generally the least liquid of the firm’s current assets.
   b. Cash ratio represents the ability of the firm to completely pay off its current liabilities balance with its most liquid asset (cash).
   c. The capital intensity ratio tells us the dollar amount investment in assets needed to generate one dollar in sales.
   d. Total asset turnover measures how much in sales is generated by each dollar of firm assets.
   e. Equity multiplier represents the degree of leverage for an equity investor of the firm; it measures the dollar worth of firm assets each equity dollar has a claim to.
   f. Long-term debt ratio measures the percentage of total firm capitalization funded by long-term debt.
g. Times interest earned ratio provides a relative measure of how well the firm’s operating earnings can cover current interest obligations.

h. Profit margin is the accounting measure of bottom-line profit per dollar of sales.

i. Return on assets is a measure of bottom-line profit per dollar of total assets.

j. Return on equity is a measure of bottom-line profit per dollar of equity.

k. Price-earnings ratio reflects how much value per share the market places on a dollar of accounting earnings for a firm.

6. Peer group analysis involves comparing the financial ratios and operating performance of a particular firm to a set of peer group firms in the same industry or line of business. Comparing a firm to its peers allows the financial manager to evaluate whether some aspects of the firm’s operations, finances, or investment activities are out of line with the norm, thereby providing some guidance on appropriate actions to take to adjust these ratios if appropriate. An aspirant group would be a set of firms whose performance the company in question would like to emulate. The financial manager often uses the financial ratios of aspirant groups as the target ratios for his or her firm; some managers are evaluated by how well they match the performance of an identified aspirant group.

8. The book-to-bill ratio is intended to measure whether demand is growing or falling. It is closely followed because it is a barometer for the entire high-tech industry where levels of revenues and earnings have been relatively volatile.

Problems

14. \[ \text{ROE} = (\text{PM})(\text{TAT})(\text{EM}) = (.065)(1.90)(2.05) = 25.32\% \]
   \[ b = 1 – .30 = .70; \text{ sustainable } g = \left[ .2532(.70) \right] / \left[ 1 – .2532(.70) \right] = 21.54\% \]

15.

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>#15</th>
<th>2003</th>
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<tbody>
<tr>
<td>Assets</td>
<td></td>
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<tr>
<td>Current assets</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Cash</td>
<td>$16,150</td>
<td>2.30%</td>
<td>$19,125</td>
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<tr>
<td>2.57%</td>
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<tr>
<td>Accounts receivable</td>
<td>48,734</td>
<td>6.93%</td>
<td>52,816</td>
<td>7.09%</td>
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<tr>
<td>Inventory</td>
<td>100,387</td>
<td>14.28%</td>
<td>137,806</td>
<td>18.50%</td>
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<tr>
<td>Total</td>
<td>$165,271</td>
<td>23.51%</td>
<td>$209,747</td>
<td>28.15%</td>
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<td>Fixed assets</td>
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<tr>
<td>Net plant and equipment</td>
<td>537,691</td>
<td>76.49%</td>
<td>535,227</td>
<td>71.85%</td>
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<td>Total assets</td>
<td>$702,962</td>
<td>100%</td>
<td>$744,974</td>
<td>100%</td>
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<tr>
<td>Liabilities and Owners’ Equity</td>
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<tr>
<td>Current liabilities</td>
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</tr>
<tr>
<td>Accounts payable</td>
<td>$161,710</td>
<td>23.00%</td>
<td>$137,830</td>
<td>18.50%</td>
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<td>Notes payable</td>
<td>74,391</td>
<td>10.58%</td>
<td>96,318</td>
<td>12.93%</td>
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<td>Total</td>
<td>$236,101</td>
<td>33.59%</td>
<td>$234,148</td>
<td>31.43%</td>
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<td>Long-term debt</td>
<td>150,000</td>
<td>21.34%</td>
<td>125,000</td>
<td>16.78%</td>
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<td>Owners’ equity</td>
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<td>---------------------------------------------------</td>
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<tr>
<td>Common stock and paid-in surplus</td>
<td>$150,000</td>
<td>21.34%</td>
<td>$150,000</td>
<td>20.13%</td>
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<tr>
<td>Accumulated retained earnings</td>
<td>$166,861</td>
<td>23.74%</td>
<td>$235,826</td>
<td>31.66%</td>
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<tr>
<td>Total</td>
<td>$316,861</td>
<td>45.08%</td>
<td>$385,826</td>
<td>51.79%</td>
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<tr>
<td>Total liabilities and owners’ equity</td>
<td>$702,962</td>
<td>100%</td>
<td>$744,974</td>
<td>100%</td>
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</table>

34. Short-term solvency ratios:

CR02 = $10,210 / $3,014 = 3.39 times
CR03 = $12,700 / $3,050 = 4.16 times
QR02 = ($10,210 – 6,218) / $3,014 = 1.32 times
QR03 = ($12,700 – 6,462) / $3,050 = 2.05 times
Cash ratio02 = $1,180 / $3,014 = 0.39 times
Cash ratio03 = $2,122 / $3,050 = 0.70 times
Asset utilization ratios:
TAT = $26,800 / $36,516 = 0.73 times
Inventory turnover = $8,400 / $6,462 = 1.30 times
Receivables turnover = $26,800 / $4,116 = 6.51 times

Long-term solvency ratios:
Total debt ratio02 = ($3,014 + 9,815) / $33,582 = 0.38
Total debt ratio03 = ($3,050 + 10,518) / $36,516 = 0.37
D/E02 = ($3,014 + 9,815) / $20,753 = 0.62
D/E03 = ($3,050 + 10,518) / $22,984 = 0.59
EM02 = 1 + D/E02 = 1.62; EM03 = 1 + D/E03 = 1.59
TIE ratio = $17,000 / $1,250 = 13.60 times
Cash coverage ratio = ($17,000 + 1,400) / $1,250 = 14.72 times

Profitability ratios:
PM = $10,395 / $26,800 = 38.79%
ROA = $10,395 / $36,516 = 28.47%
ROE = $10,395 / $22,948 = 45.30%

35. ROE = (NI / Sales)(Sales / TA)(TA / E)
    = ($10,395 / $26,800)($26,800 / $36,516)($36,516 / $22,948) = 0.4530

36. EPS = $10,395 / 10,000 shares = $1.0395 per share
    P/E ratio = $24 / $1.0395 = 23.09 times
    DPS = $8,200 / 10,000 shares = $0.82 per share
    BVPS = $22,948 / 10,000 shares = $2.2948 per share
    Market-to-book ratio = $24.00 / $2.2948 = 10.46 times

37. The current ratio appears to be relatively high when compared to the median, however it is below the upper quartile, meaning that at least 25 percent of firms in the industry have a higher current ratio. Overall, it does not appear that the current ratio is out of line with the industry. The total asset turnover is low when compared to the industry. In fact, the total asset turnover is in the lower quartile. This means that the company does not use assets as efficiently overall or that the company has newer assets than the industry. This would mean that the assets have not been depreciated, which would mean a higher book value and a lower total asset turnover. The debt-equity ratio is in line with the industry, between the mean and the upper quartile. The profit margin is approximately three times as large as the industry median and over twice as large as the upper quartile, which is exceptional. The company may be better at controlling costs, or has a better product which enables them to charge a premium price.