

**Chem-Med Company****Case 2*****Ratio Analysis***

Purpose: The case allows the student to go into financial analyses in more depth than is possible with end-of-chapter problems. In addition to computing a series of ratios, the student must consider industry data and trends for the purpose of evaluating relative performance. The student must also make use of the Du Pont system of analysis. Of special interest are the debt and performance covenants established by the potential financier. Finally, the student is forced to identify the impact of extraordinary income on ratio analysis and how it can distort one year's performance.

Relation to Text: The case should follow Chapter 3.

Complexity: The case is moderately complex. It should require 1-1½ hours.

## Solutions

- Sales Growth = (Sales this year – Sales last year) / Sales last year

for 2007	\$ 3,814	–	\$3,051	/	\$3,051	=	+	25%
for 2008	5,340	–	3,814	/	3,814	=	+	40%
for 2009	7,475	–	5,340	/	5,340	=	+	40%
for 2010	10,466	–	7,475	/	7,475	=	+	40%
- Net income growth = (Net income this year – Net income last year) / Net Income last year

for 2007	\$1,150	–	\$ 766	/	\$ 766	=	+	50%
for 2008	1,609	–	1,150	/	1,150	=	+	40%
for 2009	1,943	–	1,609	/	1,609	=	+	21%
for 2010	2,903	–	1,943	/	1,943	=	+	49%

According to Dr. Swan's estimates net income growth will exceed sales growth in 2007, match sales growth in 2008, then slack off and rebound in 2010. However, Dr. Swan's figures are misleading: in 2008 they include \$500,000 worth of extraordinary income expected to be received from the settlement of the suit with Pharmacia. The astute analyst will realize that this amount should be excluded from his/her calculations because (1) receiving the amount is by no means certain, and (2) it is a one-time event which has nothing to do with the operations of the company. When the amount is excluded from 2008's figures we see that net income growth for 2008 is actually considerably less than 40%.

Aftertax effect of removing \$500,000 from gross income = \$500 x (1 – tax rate) = \$500 x (1 – .33) = – \$335

New net income = \$1,609 – \$335 = \$1,274

Appropriate net income growth for 2008 =  $(\$1,274 - \$1,150) / \$1,150$   
= + 11%

Also changes 2009 net income growth =  $\frac{1,943 - 1,274}{1,274}$  = + 53%

Failing to exclude the extraordinary amount has the effect of obscuring the “real” profitability ratios—ROE in 2008 would be 23%, not 29%. Net profit margin would be 24%, not 30%. These are facts a potential investor would want to know.

- Chem-Med's current ratio = Current Assets / Current Liabilities:

for 2007	=	\$1,720	/	\$ 593	=	2.90
for 2010	=	\$3,261	/	\$1,647	=	1.98

Pharmacia had a current ratio in 2007 of 2.8, and the industry average was 2.4. Chem-Med, therefore, in 2007 was slightly more liquid than the average company. This would probably be looked upon favorably by someone considering loaning money to the company; however, the banker with whom Dr. Swan had lunch would have a problem with Chem-Med's current ratio for 2010: it falls below the 2.25 to 1 limit he would establish as a restrictive covenant. In view of that, Dr. Swan needs to revise his financial plan for 2010 in such a way that less money is invested in fixed assets, and more is held in cash & equivalents (or, alternatively, shift some current liabilities to long-term debt and/or equity).

4. Chem-Med's total debt to assets ratio = total liabilities / total assets

for 2007	=	\$ 614	/	\$ 4,491	=	.137
for 2008	=	\$ 857	/	\$ 6,343	=	.135
for 2009	=	\$1,212	/	\$ 8,641	=	.140
for 2010	=	\$1,664	/	\$11,995	=	.139

The variation from year to year is small—no trend can be established, except, of course, that the ratio remains nearly constant, indicating that Chem-Med is doing a good job in managing its debt. It was doing especially well in 2007 compared to other companies in the industry, where the average debt to assets ratio was .52 (and Pharmacia's was .55). A potential investor in Chem-Med's stock might be pleased or displeased depending on his/her tolerance for risk and outlook for the future. (Chem-Med has much less financial risk than average, but the company, which is in a growth situation, might be considered to be underleveraged.)

5. Chem-Med's average accounts receivable collection period = accounts receivable / sales per day

for 2007	=	\$ 564	/	(\$ 3,814/360)	=	53 days
for 2008	=	\$ 907	/	(\$ 5,340/360)	=	61 days
for 2009	=	\$1,495	/	(\$ 7,475/360)	=	72 days
for 2010	=	\$2,351	/	(\$10,466/360)	=	81 days

This is not a good sign. The average length of time that Chem-Med's customers are taking to pay for products they've bought is increasing steadily every year. If Chem-Med's credit policy is, say, 2/10, net 30, it is clear that very few customers are adhering to it, and the situation is getting worse. Not only is Chem-Med, in effect, granting free credit to those customers by allowing them to delay payment for so long, it is paying for such credit itself. The company's higher balances of accounts receivable must be financed in some way, either through additional debt or equity, and these additions have a cost.

6. Chem-Med's return on equity ratio = net income / total equity for 2007 = \$1,150 / \$3,877 = 29.7%

Pharmacie's ROE in 2007 was 29.7%, and the industry average was only 12.3%. A potential investor in Chem-Med would be very pleased; Chem-Med is offering a handsome return that's almost two and a half times that of the average company in the industry. Now, the investor will want to use the Du Pont method to look further at Chem-Med and Pharmacia to determine the source of this return.

	ROE	=	Profit Margin	x	Asset Turnover	/	(1 – Debt to Assets)
Chem-Med, 2007	.2970	=	.3015	x	.85	/	(1 – .137)
Pharmacia:	.2956	=	.07	x	1.9	/	(1 – .55)

Note the drastic difference in the operation of the two companies, even though their ROEs are nearly the same. Chem-Med makes relatively few sales (low asset turnover), but makes a lot of money on each one (30%). Pharmacia is just the opposite: it makes a lot of sales, and only a little profit (7%) on each one. Pharmacia's ROE is also being propped up by greater use of debt than Chem-Med (Pharmacia has relatively less equity; so the same amount of income will represent a greater return to Pharmacia's equity holders than Chem-Med's). All other considerations being equal, a potential investor would probably prefer Chem-Med's position, but it's by no means certain (for example, it's much more serious for Chem-Med to lose a sale).