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# *ABC CORPORATION*

## *EXERCISE IN*

## *FINANCIAL RATIOS & ANALYSIS*

## INTRODUCTION

This exercise is designed to provide familiarity with the financial ratios that can be useful in answering some of the questions suggested in "Is you company financially sound?" The summarized consolidated financial data of ABC Corporation for the six-year period ending December 31, 2003 are presented in Appendix 1 and Appendix 2 of this document. A number of questions are asked which you are required to answer. On the basis of your analysis, has the financial condition of the company changed during the five-year period? What are the most significant changes as indicated by the financial ratios? What is your overall assessment of the financial condition of ABC Corporation?

## FINANCIAL RATIOS AND FINANCIAL ANALYSIS

The two basic sources of financial data for a business entity are the income statement and the balance sheet, and their accompanying footnotes. The income statement summaries revenues and expenses over a period of time; for example, for the year ended December 31, 2003. The balance sheet is a list of what the business owns (its assets), what is owes (its liabilities), and what has been invested by the owners (owners' equity) at a specific point in time; for example, at December 31, 2003.

From the numbers found on the income statement and the balance sheet, one can calculate the following types of financial ratios: (A summary of ratios is presented in Exhibit I.)

1. Profitability ratios
2. Activity ratios
3. Leverage ratios
4. Liquidity ratios

## I. How Profitable is ABC Corporation Profitability Ratios

One measure of the profitability of a business is its "profit as a percentage of sales" (Profit Attributable to Ordinary Shareholders/Revenue). The information necessary to determine company's profit as a percentage of sales can be found in the company's ____________

a. ABC Corporation profit as a percentage of sales for 2003 (see Appendix) 1) was $__________ divided by $_____________, or _______%-

b. This represented an increase/decrease from ________% in 1998.

Management and investors often are more interested in the returns earned on the funds invested than in the level of profits as a percentage of sales. Companies operating in business requiring very little investment in assets often have low profit margins but earn very attractive returns on invested funds. Conversely, there are numerous examples of companies in very capital-intensive businesses that earn miserably low returns on invested funds, despite seemingly attractive profit margins.

Therefore, it is useful to examine both the level of, and the trend in, the company's operating profits as a percentage of total assets. To increase the comparability across companies within the same industry, it is useful to use profit before taxes and before any interest charges. (The figure is also called "earnings before interest and taxes, or "EBIT".) This allows the analyst to focus on the profitability of operations, without any distortion due to fax factors and/or the method by which the company has financed itself.

c. ABC Corporation had a total of $__________ invested in assets at year-end 2003 and earned before interest and taxes $______ during 2003. Its EBIT as a percentage of total assets (EBIT/Total Assets) in 2003 was

_____%, which represented an increase/decrease from the ______% earned in 1998.

d. Form the viewpoint of the shareholders, an equally important figure is the company's return on equity. Return on equity is calculated by dividing profit after tax by the owners' equity (Profit Attributable to Ordinary Shareholders/Owners' Equity). It indicates how profitably the company is utilizing shareholders' funds.

e. ABC Corporation had $________ of owners' equity and earned $______ after taxes in 2003. Its return on equity was ______%, an improvement/deterioration from the ______% earned in 1998.

## II. Are there any "Hidden" Problems - Activity Ratios

The second basic type of financial ratio is the activity ratio. Activity ratios indicate how well a company employs its assets. Ineffective utilization of assets results in the need for more finance, unnecessary interest costs, and a correspondingly lower return on capital employed. Furthermore, low activity ratios and/or a deterioration in the activity ratios may indicate uncollectible debtors or obsolete stock or equipment.

"Total asset turnover" measures the effectiveness of the company in utilizing its total assets and is calculated by dividing total assets into sales (Revenue/Total Assets).

a. Total asset turnover for ABC in 2003 can be calculated by dividing $_______ into $______. The asset turnover was ______ times in 2003.

It is useful to examine the turnover ratios for each type of asset, as the use of total assets may hide important problems in one of the specific asset categories. One important category is debtors. The "average collection period" measures the number of days that the company must wait on average between the time of sales and the time when it is paid. The "average collection period" is calculated in two steps. First, divide annual credit sales by 365 days to determine average sales per day (Net sales /365 days). Then, divide the debtors by the average sales per day to determine the number of days of sales that are still unpaid (Debtors/Average sales per day).

b. ABC had \$______ invested in debtors at year-end 2003. Its average sales per day were \$____ during 2003 and its average collection period was ______ days. This represented an improvement/deterioration from the average collection period of _____ days in 1998.

c. A third activity ratio is the "Days stock ratio" which indicates the company's effectiveness in managing stock. It represents the average length of time an item of stock is held. Since stock is held at cost and not at sales value it is advisable to use cost of goods sold in this ratio. Many companies do not disclose cost of goods sold (or cost of sales) and, therefore, sales is often used as a substitute. It is recommended that for comparison purposes, the practice of using sales is followed in this exercise. The Days stock ratio is calculated in two stages. Firstly, a stock turnover ratio may be computed by dividing sales by stock. ABC apparently needed \$________ of stock at December 31, 2003 to support operations for that year. Its activity during 2003 as measured by Revenue was \$_______. Stock turnover was therefore _______ times in 2003. This represents an increase/decrease over 1998. The next stage involves dividing the stock turnover into 1 (1/stock turnover) and multiplying by 365. This ratio for 2003 is _____ and may be interpreted as the average number of days an item is held in stock by ABC. (The above two steps may be seen as equivalent to dividing the average sales per day into stock to permit the above interpretation).

d. To this point, we have discussed three measures of profitability. They are (1)________________________, (2)_________________________ and (3)________________________.

e. The change in ABC's operating profits as a percentage of total assets between 1998 and 2003 was primarily due to_____________________.

## III. How Soundly is ABC Financed - Leverage Ratios

The third basic type of financial ratios is the leverage ratio. The various leverage ratios measure the relationship of the funds supplied by the owners. The use of borrowed funds by profitable companies will improve the return on equity. However, it increases the riskiness of the business and, if used in excessive amounts, can result in financial embarrassment.

a. One leverage ratio - "the debt ratio" - measures the total funds provided by creditors as a percentage of total assets (Total debt/Total assets). Total debt includes both current and long-term liabilities.
The total debt of ABC as of December 31, 2003, was $_______, or ________% of total assets. This represented an <u>increase/decrease</u> from ________% as of December 31,1998.

b. The extent of financial gearing enjoyed by ABC's shareholders can be measured by dividing total equity into total assets (Assets/Equity). The total assets of ABC at December 31, 2003 amounted to $_______ and total shareholders equity at this date amounted to $________. The "leverage ratio" (Assets/Equity) was _______ at December 31, 2003 which was an <u>increase/decrease</u> since December 31, 1998.

c. The ability of ABC to meet its interest payments can be estimated by relating its earnings before interest and taxes to its interest payments

(Earnings before interest and taxes/Interest charges). This ratio is called the "times interest earned ratio".

ABC's earnings before interest and taxes (EBIT) was $______ in 2003 and its interest charges were $________. Its times interest earned was _____ time. This represented an improvement/deterioration form the 1998 level of _____ times.

d. The change in ABC's profitability, as measured by its return on equity, form 1998 to 2003 resulted from the combined impact of _____________ and _________________.

e. The financial riskiness of ABC increased/decreased between 1998 and 2003.

## IV. How Liquid is the Company - Liquidity Ratios

The fourth type of financial ratio is the liquidity ratio. These ratios measure a company's ability to meet financial obligations as they become current liabilities. (Current assets/Current liabilities), considers current assets as being much more readily and assuredly convertible into cash. It relates these fairly liquid assets to the claims that are due within one year - the current liabilities.

a. ABC held $_______ of current assets at year-end 2003 and owed $______ to creditors due to be paid within one year. Its current ratio was ________, an improvement/declaration from the ratio of __________ at year-end 1998.

b. The "quick ratio" or "acid test" is similar to the current ratio but excludes stock from the current assets (Current assets - stock/Current liabilities). Stock are excluded as they often are difficult to convert into cash - at least at book value - if the company is struck by adversity.

The "quick ratio" for ABC at year-end 2003 was ________, an improvement/deterioration from the ratio of _________ at year-end 1998.

c. A third and final liquidity ratio is the "number of days payable". This ratio measures the average number of days that the company is taking to pay its suppliers of raw materials. It is calculated by dividing annual purchases by 365 days to determine average purchases per day (Annual purchases/356 days). Creditors are then divided by average purchases per day (Creditors/Average purchases per day) to determine the number of days of purchases that are still unpaid.

It is often difficult to determine the purchases of a company. Instead, the income statement shows cost of goods sold - a figure that includes not only raw materials but also labor and overhead. Thus, it often is only possible to gain a rough idea as to whether or not a company is becoming more or less dependent on its suppliers for finance. This can be done by relating creditors to cost of goods sold (Creditors/Cost of goods sold) and following this ratio over time. However, as with the days stock ratio sales is used as a substitute for cost of goods sold.

ABC owed its suppliers $_______ at year-end 2003. This represented _______% of sales and was an increase/decrease from the _____% at year-end 1998. The company appears to be more/less prompt in paying its supplies in 2003 than in 1998.

**Exhibit 1**

**Assessing the Financial Soundness of ABC Corporation**

**Summary of Financial Ratios**

| Ratio | Formula | Indication |
|---|---|---|
| Profitability Ratios: | | |
| 1) Profit margin (%) | $\frac{\text{Profit Attributable to Ordinary Shareholders}}{\text{Revenue}}$ | Profit margin on sales |
| 2) Return on assets (%) | $\frac{\text{EBIT}}{\text{Total assets}}$ | Return on total investment |
| 3) Return on equity (%) | $\frac{\text{Profit Attributable to Ordinary Shareholders}}{\text{Total equity}}$ | Return on owners investment |
| Activity Ratios: | | |

| | | |
|---|---|---|
| 4) Asset turnover | $\frac{\text{Revenue}}{\text{Total assets}}$ | Turnover on total assets |
| 5) Stock days | $\frac{\text{Stock X 365}}{\text{Revenue}}$ | Days stock held |
| 6) Debtors days | $\frac{\text{Debtors X 365}}{\text{Revenue}}$ | Days to collect cash from sales |

**Exhibit 1 (continued)**

| Ratio | Formula | Indication |
|---|---|---|
| Leverage Ratios: | | |
| 7) Debt ratio | $\frac{\text{Total debt}}{\text{Total assets}}$ | Proportion of assets financed via debt |

| | | |
|---|---|---|
| 8) Leverage | $\frac{\text{Total assets}}{\text{Total equity}}$ | Extent of financial gearing |
| 9) Times interest earned | $\frac{\text{EBIT}}{\text{Interest paid}}$ | Ability to meet debt obligations |
| <u>Liquidity</u>: | | |
| 10) Current ratio | $\frac{\text{Current assets}}{\text{Current liabilities}}$ | Short-term solvency |
| 11) Quick ratio | $\frac{\text{Current assets – Stock}}{\text{Current liabilities}}$ | Very short-term solvency |
| 12) Accounts payable days | $\frac{\text{Creditors X 365}}{\text{Revenue}}$ | Days to pay cash for purchases |

## APPENDIX 1

## ABC CORPORATION

| INCOME STATEMENT | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|
| **$ Millions** | **Dec31** | **Dec31** | **Dec31** | **Dec31** | **Dec31** | **Dec31** |
| REVENUE | 1221.200 | 1214.150 | 1337.400 | 1400.250 | 1524.700 | 1499.100 |
| COST OF SALES | 731.700 | 717.050 | 745.400 | 810.450 | 844.350 | 848.450 |
| GROSS MARGIN | 489.500 | 497.100 | 592.000 | 589.800 | 680.350 | 650.650 |
| OPERATING COST | 384.250 | 388.900 | 477.550 | 490.450 | 605.250 | 567.250 |
| Selling & Marketing | 320.650 | 327.800 | 406.850 | 417.800 | 519.350 | 486.950 |
| Administration | 63.600 | 61.100 | 70.700 | 72.650 | 83.900 | 80.300 |
| EBIT | 105.250 | 108.200 | 114.450 | 99.350 | 77.100 | 83.400 |
| FINANCE COST/INCOME | 10.700 | 10.650 | 15.850 | 18.200 | 18.750 | 16.500 |
| Interest Received | -4.300 | -2.550 | -3.050 | -3.900 | -3.000 | -2.550 |
| Interest Paid | 15.000 | 13.200 | 18.900 | 22.100 | 21.750 | 19.050 |
| PROFIT BEFORE TAX | 94.550 | 97.550 | 98.600 | 81.150 | 58.350 | 66.900 |
| EXCHANGE LOSS | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NET PROFIT BEFORE TAX | 94.550 | 97.550 | 98.600 | 81.150 | 58.350 | 66.900 |
| TAXATION | 30.200 | 32.150 | 32.150 | 25.200 | 24.950 | 22.850 |

| | | | | | | |
|---|---|---|---|---|---|---|
| PROFIT AFTER TAX | 64.350 | 65.400 | 66.450 | 55.950 | 33.400 | 44.050 |
| MINORITY INTEREST | 1.450 | 1.350 | 1.150 | 0.700 | -0.050 | 0.150 |
| PROFIT BEFORE EI | 62.900 | 64.050 | 65.300 | 55.250 | 33.450 | 43.900 |
| EXTRAORDINARY ITEMS (EI) | -39.450 | 5.900 | 0.000 | 0.000 | 0.000 | 0.000 |
| PROFIT ATTRIBUTABLE TO ORDINARY SHAREHOLDERS | 102.350 | 58.150 | 65.300 | 55.250 | 33.450 | 43.900 |
| DIVIDENDS | 29.750 | 31.900 | 35.650 | 38.850 | 38.450 | 40.300 |
| RETAINED PROFITS | 72.600 | 26.250 | 29.650 | 16.400 | -5.000 | 3.600 |

## APPENDIX 2

## ABC CORPORATION

| EMPLOYMENT OF CAPITAL | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|
| **$ Millions** | **Dec31** | **Dec31** | **Dec31** | **Dec31** | **Dec31** | **Dec31** |
| FIXED ASSETS | 385.100 | 438.500 | 483.800 | 565.450 | 576.500 | 614.050 |
| Tangible | 319.250 | 352.050 | 394.300 | 462.800 | 468.200 | 490.000 |
| Intangible | 65.850 | 86.450 | 89.500 | 102.650 | 108.300 | 124.050 |
| CURRENT ASSETS | 304.650 | 315.550 | 337.800 | 398.900 | 389.650 | 389.500 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Stock | 109.100 | 110.250 | 107.100 | 108.100 | 98.150 | 105.500 |
| Debtors | 157.150 | 169.450 | 191.250 | 192.250 | 213.250 | 216.500 |
| Pre-paid & other | 0.400 | 0.300 | 0.200 | 0.350 | 19.250 | 16.650 |
| S.T. Investments | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Cash at bank | 38.000 | 35.550 | 39.250 | 98.200 | 59.000 | 50.850 |
| TOTAL ASSETS | 689.750 | 754.050 | 821.600 | 964.350 | 966.150 | 1003.550 |

| **CAPITAL EMPLOYED** | **1998** | **1999** | **2000** | **2001** | **2002** | **2003** |
|---|---|---|---|---|---|---|
| **$ Millions** | | | | | | |
| | **Dec31** | **Dec31** | **Dec31** | **Dec31** | **Dec31** | **Dec31** |
| SHAREHOLDERS' EQUITY | 302.400 | 273.500 | 349.550 | 432.900 | 372.600 | 361.650 |
| Called up Capital | 55.150 | 55.550 | 60.250 | 64.950 | 65.650 | 65.850 |
| Share Premium | 23.900 | 26.400 | 72.150 | 126.750 | 133.850 | 134.400 |
| Reserves | 223.350 | 191.550 | 217.150 | 241.200 | 173.100 | 161.400 |
| MINORITY INTEREST | 41.400 | 43.050 | 21.550 | 6.500 | 2.800 | 2.600 |
| DEFERRED TAX | 22.650 | 48.200 | 44.650 | 45.800 | 83.300 | 82.000 |
| L.T. LIABILITIES | 65.200 | 80.800 | 123.500 | 179.400 | 150.000 | 184.650 |
| CURRENT LIABILITIES | 258.100 | 308.500 | 282.350 | 299.750 | 357.450 | 372.650 |
| Creditors | 144.950 | 159.850 | 163.500 | 163.000 | 189.550 | 201.850 |
| Other | 113.150 | 148.650 | 118.850 | 136.750 | 167.900 | 170.800 |
| TOTAL DEBT | 387.350 | 480.550 | 472.050 | 531.450 | 593.550 | 641.900 |
| TOTAL CAPITAL | 689.750 | 754.050 | 821.600 | 964.350 | 966.150 | 1003.550 |