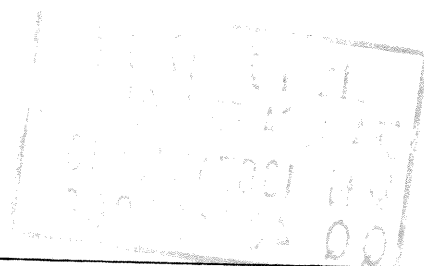


BOOK 3 – FINANCIAL STATEMENT ANALYSIS

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FORMULAS

free cash flow = operating cash flow – net capital expenditures

common-size income statement ratios = $\frac{\text{income statement account}}{\text{sales}}$

common-size balance-sheet ratios = $\frac{\text{balance sheet account}}{\text{total assets}}$

current ratio = $\frac{\text{current assets}}{\text{current liabilities}}$

quick ratio = $\frac{\text{cash} + \text{marketable securities} + \text{receivables}}{\text{current liabilities}}$

cash ratio = $\frac{\text{cash} + \text{marketable securities}}{\text{current liabilities}}$

receivables turnover = $\frac{\text{net annual sales}}{\text{average receivables}}$

average receivables collection period = $\frac{365}{\text{receivables turnover}}$

inventory turnover = $\frac{\text{cost of goods sold}}{\text{average inventory}}$

average inventory processing period = $\frac{365}{\text{inventory turnover}}$

payables turnover ratio = $\frac{\text{cost of goods sold}}{\text{average trade payables}}$

payables payment period = $\frac{365}{\text{payables turnover ratio}}$

cash conversion cycle = $\left(\frac{\text{average receivables}}{\text{collection period}} \right) + \left(\frac{\text{average inventory}}{\text{processing period}} \right) - \left(\frac{\text{payables payment}}{\text{period}} \right)$

total asset turnover = $\frac{\text{net sales}}{\text{average total net assets}}$

Financial Statement Analysis
Formulas

$$\text{fixed asset turnover} = \frac{\text{net sales}}{\text{average net fixed assets}}$$

$$\text{equity turnover} = \frac{\text{net sales}}{\text{average equity}}$$

$$\text{gross profit margin} = \frac{\text{gross profit}}{\text{net sales}}$$

$$\text{operating profit margin} = \frac{\text{operating profit}}{\text{net sales}} = \frac{\text{EBIT}}{\text{net sales}}$$

$$\text{net profit margin} = \frac{\text{net income}}{\text{net sales}}$$

$$\text{return on total capital} = \frac{\text{net income} + \text{interest expense}}{\text{average total capital}}$$

$$\text{return on total equity} = \frac{\text{net income}}{\text{average total equity}}$$

$$\text{return on common equity} = \frac{\text{net income} - \text{preferred dividends}}{\text{average common equity}} = \frac{\text{net income available to common}}{\text{average common equity}}$$

$$\text{business risk} = \frac{\sigma \text{ of operating income}}{\text{mean operating income}} = \frac{\text{std. deviation of EBIT}}{\text{mean EBIT}}$$

$$\text{debt-to-equity ratio} = \frac{\text{total long-term debt}}{\text{total equity}} = \frac{\text{long-term liabilities} + \text{deferred taxes} + \left(\text{present value of lease obligations} \right)}{\text{common} + \text{preferred equity}}$$

$$\text{long-term debt-to-total long-term capital} = \frac{\text{total long-term debt}}{\text{total long-term capital}}$$

$$\text{total debt ratio} = \frac{\text{current liabilities} + \text{total long-term debt}}{\text{total debt} + \text{total equity}}$$

$$\text{interest coverage} = \frac{\text{earnings before interest and taxes}}{\text{interest expense}}$$

$$\text{fixed financial cost ratio} = \frac{\text{EBIT} + \text{ELIE}}{\text{gross interest expense} + \text{ELIE}}$$

$$\text{cash flow coverage of fixed financial costs} = \frac{\text{CFO} + \text{interest expense} + \text{ELIE}}{\text{interest expense} + \text{ELIE}}$$

$$\text{cash flow to long-term debt} = \frac{\text{CFO}}{\text{BV of long-term debt} + \text{PV of operating leases}}$$

$$\left(\frac{\text{cash flow to}}{\text{total interest-bearing debt}} \right) = \frac{\text{CFO}}{\text{total long-term debt} + \text{current interest-bearing liabilities}}$$

$$\text{original DuPont equation: ROE} = \left(\frac{\text{net profit}}{\text{margin}} \right) \left(\frac{\text{asset}}{\text{turnover}} \right) \left(\frac{\text{equity}}{\text{multiplier}} \right)$$

$$\text{extended DuPont equation: ROE} = \left[\left(\frac{\text{EBIT}}{\text{sales}} \right) \left(\frac{\text{sales}}{\text{assets}} \right) - \left(\frac{\text{interest expense}}{\text{assets}} \right) \right] \left(\frac{\text{assets}}{\text{equity}} \right) (1 - t)$$

$$\text{basic EPS} = \frac{\text{net income} - \text{preferred dividends}}{\text{weighted average number of common shares outstanding}}$$

$$\text{diluted EPS} = \frac{\left[\text{net income} - \text{preferred dividends} \right] + \left[\frac{\text{convertible preferred dividends}}{\text{dividends}} \right] + \left[\frac{\text{convertible debt interest}}{\text{interest}} \right] (1 - t)}{\left(\frac{\text{weighted average shares}}{\text{shares}} \right) + \left(\frac{\text{shares from conversion of conv. pfd. shares}}{\text{conv. pfd. shares}} \right) + \left(\frac{\text{shares from conversion of conv. debt}}{\text{conv. debt}} \right) + \left(\frac{\text{shares issuable from stock options}}{\text{stock options}} \right)}$$

$$\text{ending inventory} = \text{beginning inventory} + \text{purchases} - \text{COGS}$$

$$\text{current cost of inventory (FIFO)} = \text{LIFO inventory} + \text{LIFO reserve}$$

$$\text{COGS}_{\text{FIFO}} = \text{COGS}_{\text{LIFO}} - (\text{ending LIFO reserve} - \text{beginning LIFO reserve})$$

$$\text{straight-line depreciation} = \frac{\text{cost} - \text{salvage value}}{\text{useful life}}$$

$$\text{DDB depreciation} = \left(\frac{2}{\text{useful life}} \right) (\text{cost} - \text{accumulated depreciation})$$

$$\text{sum of the years' digits: depreciation in year } x = \frac{(\text{original cost} - \text{salvage value}) \times (n - x + 1)}{\text{SYD}}$$

$$\text{where SYD} = \frac{n(n+1)}{2}$$

Financial Statement Analysis
Formulas

$$\text{average age in years} = \frac{\text{accumulated depreciation}}{\text{depreciation expense}}$$

$$\text{average age as a percentage} = \frac{\text{accumulated depreciation}}{\text{ending gross investment}}$$

$$\text{average depreciable life} = \frac{\text{ending gross investment}}{\text{depreciation expense}}$$

$$\text{income tax expense} = \text{taxes payable} + \Delta \text{DTL} - \Delta \text{DTA}$$

$$\text{interest expense} = \left(\frac{\text{the market rate}}{\text{at issue}} \right) \times \left(\frac{\text{the balance sheet value}}{\text{of the liability at}} \right. \\ \left. \frac{\text{the beginning of the period}}{\text{the beginning of the period}} \right)$$

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