

CMA EXAM

RATIO DEFINITIONS (Effective January 2020)

Abbreviations

EBIT = Earnings before interest and taxes

EBITDA = Earnings before interest, taxes, depreciation and amortization

EBT = Earnings before taxes

EPS = Earnings per share

ROA = Return on assets

ROE = Return on equity

Part 1 Financial Reporting, Planning, Performance, and Control

Section C Performance Management

Section C.3 Performance measures

e*. $ROI = \text{Income of business unit} / \text{Assets of business unit}$

g. $\text{Residual Income (RI)} = \text{Income of business unit} - (\text{Assets of business unit} \times \text{required rate of return})$

Note: "Income" means operating income unless otherwise noted

Part 2 Financial Decision Making

Section A Financial Statement Analysis

Section A.1 Basic Financial Statement Analysis

- a. Common size statement = line items on income statement and statement of cash flows presented as a percent of sales; line items on balance sheet presented as a percent of total assets
- b. Common base year statements = $(\text{new line item amount} / \text{base year line item amount}) \times 100$
- c. Annual growth rate of line items = $(\text{new line item amount} / \text{old line item amount}) - 1$

* Letter references refer to subtopics in Learning Outcome Statements

Section A.2 Financial Ratios

Unless otherwise indicated, end of year data is used for balance sheet items; full year data is used for income statement and statement of cash flow items.

Liquidity

- a(1) Current ratio = current assets / current liabilities
- a(2) Quick ratio or acid test ratio = (cash + marketable securities + accounts receivable) / current liabilities
- a(3) Cash ratio = (cash + marketable securities) / current liabilities
- a(4) Cash flow ratio = operating cash flow / current liabilities
- a(5) Net working capital ratio = net working capital / total assets

Leverage

- f(1) Degree of financial leverage = % change in net income / % change in EBIT, or = EBIT / EBT
- f(2) Degree of operating leverage = % change in EBIT / % change in sales, or = contribution margin / EBIT

- h. Financial leverage ratio = assets / equity

- i(1) Debt to equity ratio = total debt / equity
- i(2) Long-term debt to equity ratio = (total debt – current liabilities) / equity
- i(3) Debt to total assets ratio = total debt / total assets

- j(1) Fixed charge coverage = earnings before fixed charges and taxes / fixed charges
fixed charges include interest, required principal repayment, and leases
- j(2) Interest coverage (times interest earned) = EBIT / interest expense
- j(3) Cash flow to fixed charges = (cash from operations + fixed charges + tax payments) / fixed charges. Note: cash from operations is after-tax.

Activity

- l(1) Accounts receivable turnover = credit sales / average gross accounts receivables
- l(2) Inventory turnover = cost of goods sold / average inventory
- l(3) Accounts payable turnover = credit purchases / average accounts payable

- m(1) Days sales in receivables = average accounts receivable / (credit sales / 365), or = 365 / accounts receivable turnover
- m(2) Days sales in inventory = average inventory / (cost of sales / 365), or = 365 / inventory turnover
- m(3) Days purchases in payables = average payables / (purchase / 365), or = 365 / payables turnover

- n(1) Operating cycle = days sales in receivables + days sales in inventory
- n(2) Cash cycle = Operating cycle – days purchases in payables

- o(1) Total asset turnover = sales / average total assets
- o(2) Fixed asset turnover = sales / average net plant, property and equipment

Profitability

- p(1) Gross profit margin percentage = gross profit / sales
- p(2) Operating profit margin percentage = operating income / sales
- p(3) Net profit margin percentage = net income / sales
- p(4) EBITDA margin = EBITDA / sales

- q(1) ROA = net income / average total assets
- q(2) ROE = net income / average equity

Market

- r(1) Market-to-book ratio = current stock price / book value per share
- r(2) Price earnings ratio = market price per share / EPS

- s. Book value per share = (total stockholders' equity – preferred equity) / number of common shares outstanding

- u(1) Basic EPS = (net income – preferred dividends) / weighted average common shares outstanding
(Number of shares outstanding is weighted by the number of months shares are outstanding)
- u(2) Diluted EPS = (net income – preferred dividends) / diluted weighted average common shares outstanding
(Diluted EPS adjusts common shares by adding shares that may be issued for convertible securities and options)

- v(1) Earnings yield = EPS / current market price per common share
- v(2) Dividend yield = annual dividends per share / market price per share
- v(3) Dividend payout ratio = common dividend / earnings available to common shareholders
- v(4) Shareholder return = (ending stock price – beginning stock price + annual dividends per share) / beginning stock price

Section A.3 Profitability Analysis

- a(1) ROA = Net profit margin x total asset turnover; (net income / sales) x (sales / average total assets) = net income / average total assets
- b(2) ROE = ROA x financial leverage; (net income / average total assets) x (average total assets / average equity) = net income / average equity

- g(1) Operating profit margin percentage = operating income / sales
- g(2) Net profit margin percentage = net income / sales

- j. Sustainable growth rate = (1- dividend payout ratio) x ROE

Section B Corporate Finance

Section B.4 Working capital management

- b. Net working capital = current assets – current liabilities

Section C Decision Analysis

Section C.1 Cost/volume/profit analysis

- f(1) Breakeven point in units = fixed costs / unit contribution margin
- f(2) Breakeven point in dollars = fixed costs / (unit contribution margin / selling price)

- i(1) Margin of safety = planned sales – breakeven sales
- i(2) Margin of safety ratio = margin of safety / planned sales

Section C.3 Pricing

- n. Elasticity is calculated using the midpoint formula. For price elasticity of demand
 $E = [\text{change in quantity} / (\text{average of quantities})] / [\text{change in price} / (\text{average of prices})]$