# Financial statement Analysis.

## Ratio Analysis

Ratios
- Profitability ratios
- Activity ratios
- coverage ratios.
- Market test ratios.
- Liquidity ratios.
- Long term solvency ratios.

### 1. Profitability ratios

1. Cost of Goods sold ratio

$$= \frac{\text{Cost of goods sold}}{\text{Net sales}} \times 100.$$

where COGS = opening stock + purchases + Direct expenses − closing stock.

Net sales = Total sales − sales returns.

2. Gross profit ratio

$$= \frac{G.P}{\text{Net sales}} \times 100$$

where Gross profit = Net sales − cost of goods sold.

*. relationship between COGS ratio and G.P ratio.

⇒ 100 − G.P ratio = COGS ratio

⇒ COGS ratio + G.P ratio = 100.

⇒ G.P ratio = 100 − COGS ratio.

3. Expenses ratio:-

(a) office and administrative expenses ratio =

$$\frac{\text{office and administrative expenses}}{\text{Net sales}} \times 100.$$

(b) selling and distribution expenses ratio

$$= \frac{\text{S\&D exp}}{\text{Net sales}} \times 100.$$

(c) Fixed expenses ratio

$$= \frac{\text{Fixed expenses}}{\text{Net sales}} \times 100$$

Variable expenses ratio = $\frac{\text{Variable expenses}}{\text{Net sales}} \times 100$

4. Profit/volume ratio (P/V ratio).

P/V ratio = $\frac{\text{Contribution}}{\text{Net sales}} \times 100$

Contribution = sales − variable cost

or

Contribution = Fixed cost + profit

5. Operating Ratio:-

= $\frac{\text{Operating cost}}{\text{Net sales}} \times 100$

= $\frac{\text{Cost of good sold + other operating costs}}{\text{Net sales}}$

Where other operating expenses = ~~Adm~~ Administration overheads + selling and distribution overheads

6. Net operating profit ratio

= $\frac{\text{Net operating profits or EBIT}}{\text{Net sales}} \times 100$

EBIT = Gross profit − other operating expenses

7. Net profit ratio

⇒ $\frac{\text{Net profit}}{\text{Net sales}} \times 100$

⇒ Net profit = Profits after tax.

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**Return on capital Employed :-**

$$\Rightarrow \frac{\text{operating net profit before interest and Tax or EBIT}}{\text{Capital employed}} \times 100.$$

Where

1. EBIT = Gross profits - other operating expenses.
2. capital employed = Equity + Reserves & surplus + preference share capital + Long term debt - fictitious assets - Non trade assets.

or.

Capital Employed = Net fixed assets + Net working capital + Trade Investments.

Return on share holders funds ratio

$$= \frac{\text{Net profit after tax}}{\text{share holders funds}} \times 100.$$

Where

Share holders funds = equity + preference shares + reserves & surplus - fictitious assets and Losses.

Return on Equity share holders funds ratio

$$\frac{\text{Net profit after tax and preference dividend}}{\text{Equity share holders funds}} \times 100.$$

⇒ Equity share holders funds

= Equity share capital

(+) Reserves & surplus (except revaluation reserve)

− Fictitious Assets & Losses.

**Return on operating assets :-**

$$= \frac{\text{Net operating profits after tax}}{\text{operating assets}} \times 100.$$

NOPAT = EBIT (1 − Income tax rate)

Operating Assets = Total assets (excluding Fictitious assets) − Non trade assets

11. Return on Total Assets:-

$$= \frac{\text{Net profit after tax}}{\text{Total assets (excluding ficticious assets)}} \times 100$$

## Activity or performance or Turnover ratios.

1. Fixed assets turnover ratio:-

$$\Rightarrow \frac{\text{Net sales}}{\text{Net fixed assets}}$$

(i) Net fixed assets = Gross fixed assets − Accummulated depreciation.

2. Total assets turnover ratio

$$\Rightarrow \frac{\text{Net sales}}{\text{Total assets}}$$

3. Current assets turnover ratio:

$$\Rightarrow \frac{\text{Net sales}}{\text{current assets}}$$

4. Capital Turnover ratios:

$$\Rightarrow \frac{\text{Net sales}}{\text{capital Employed}}$$

5. Net working capital Turnover ratio

$$\Rightarrow \frac{\text{Net sales}}{\text{Net working capital}}$$

Net working capital = current assets − current Liabilities.

6. Debtors turnover ratio or receivables turnover ratio

$$= \frac{\text{Net credit sales}}{\text{Accounts receivable (Debtors + Bills receivable)}}$$

where Net credit sales = Total sales - cash sales.

7. Stock or Inventory turnover ratio:-

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

8. Raw materials turnover ratio.

$$= \frac{\text{Raw materials consumed}}{\text{Inventory of raw materials}}$$

<u>Solvency ratios</u> → short term solvency → Liquidity ratio.

1. current ratio = $\frac{\text{current assets}}{\text{current Liabilities}}$

Ideal → 2:1

2. Acid test / Quick / Liquid ratio:-

$$= \frac{\text{Liquid assets}}{\text{current Liabilities}}$$

where Liquid assets = current assets – stock - prepaid exp.

Ideal ⇒ 1:1

Quick ratio = $\frac{\text{quick assets}}{\text{quick Liabilities}}$

Quick Liabilities = current Liabilities - Bank over draft - cash credit.

3. Absolute Liquidity / cash ratio / super quick ratio

$$= \frac{\text{Cash Reservoir}}{\text{Current Liabilities}}$$

Cash reservoir = cash in hand and at Bank + short term marketable securities.

Ideal :- 1:2

4. Defensive Interval / cash Interval ratio.

$$= \frac{\text{Cash reservoir + receivables}}{\text{Projected daily cash requirement}}$$

Coverage ratios

* Debt service coverage ratio.

$$\frac{\text{EAT + Depreciation + other non cash expenditure}}{\text{Interest on long term Liabilities + Installment of principle. Loan repayment}}$$

* Turnover ratios

Creditors turnover ratio = $\frac{\text{Net credit purchases}}{\text{Accounts payable (Creditors + Bills payable)}}$.

Net credit purchases = Total purchases − cash purchases.

Average collection period = $\frac{360/12/52}{\text{Debtors turnover ratio}}$

⇒ or

$360/12/52 \times \frac{\text{Average debtors + Bills receivable}}{\text{Net credit sales}}$

* Return on Assets = $\frac{\text{PAT}}{\text{Total assets}} \times 100$.

Net profit Margin = $\frac{PAT}{sales} \times 100$.

Return on equity = $\frac{PAT}{Equity} \times 100$.