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Financial Accounting Ratio Analysis

Ratio Analysis

Ratio means comparison of quantitative relationship between two common variables that expresses how much bigger one is than the other.

Accounting ratio analysis is a scientific and effective tool of evaluating operating and financial position of a company by determining and interpreting quantitative relationship among variables of financial statement.

Types of Accounting Ratio

Broadly Accounting ratio has been classified into four categories:

1. **Liquidity ratio**

These ratios are calculated to measure the firm's ability to meet short term obligations.

2. **Solvency ratio**

It is calculated to assess long term financial position of the company and ability to pay off long term obligations.

3. **Turnover or Activity ratio**

These ratios help to assess how efficiently a company is utilizing its resources.

4. **Profitability ratio**

These ratios help to assess business ability to generate profit out of sales and expenses incurred on generation sales.

Types of Liquidity ratio

I. **Current ratio** = Current Asset ÷ Current Liability (2:1 is ideal)

II. **Liquid ratio/ Quick ratio/ Acid Test Ratio** = Liquid or quick asset ÷ Current Liability (1:1 is ideal)

Note:

Current Asset = Current Investment + Inventories (excluding spares & loose tools)+Net Trade receivables (Trade Receivable - Provision for doubtful debts and discount on debtors) +Cash & Cash equivalent+Short term loans & advances+Other current assets such as Prepaid expenses, Accrued income, Interest receivable, advance tax

Current liability = Short term borrowing +Trade payables+Short term provisions+Other current liability such as Outstanding expense, Income received in advance.

Liquid Asset = Current asset – Inventory – Prepaid expense

Working Capital = Current Asset – Current Liability

Types of Solvency ratios

I. **Debt to Equity Ratio** = Long term Debt or Non Current liability ÷ Equity or Shareholders' fund

II. **Total asset to debt ratio** = Total asset ÷ Non Current liability or Long term debt

III. **Proprietary ratio** = Shareholders' fund or proprietors' fund ÷ Total asset

IV. **Interest Coverage ratio** = Earning or Profit before interest and tax (EBIT or PBIT) ÷ Interest on long term Debt (NCL)*

Note:

Non-Current liability (NCL) or Long term debt = Long term borrowing such as Debentures, Long term loans + Deferred tax liability + Long term provisions such as Long Term Provision for Gratuity, Leave Encashment, Provision workmen compensation towards VRS etc + Other

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long term liabilities

Or NCL = Total asset (Excluding Non Trade Investment) – Shareholders' fund – Current liability

Or NCL = Capital Employed – Shareholders' Fund

Capital Employed = NCL + Shareholders' Fund

Or Capital Employed = Total Asset(Excluding Non Trade Investment) – Current Liability

Noncurrent asset (NCA) = Tangible asset less depreciation+ Intangible asset less amortization or Depreciation + Capital work in progress + Non Current Investment (Excluding Non Trade Investment) + Long term Loans & Advances + Deferred Tax Asset + Intangible Assets under Development + Other Non current Asset

Total Asset = Non Current Asset (NCA) + Current Asset

Net Asset or Shareholders' fund (SHF) Or Proprietors' Fund = Share capital + Reserve & Surplus + Money received against share warrant + Share application pending allotment

Or SHF = Total asset – NCL – Current liability (CL)

Or SHF = NCA + Working capital – NCL

Net Asset Or SHF = Total Asset – Total Liability

Working Capital = Current Asset – Current Liability

Note:

Always remember, Non Trade Investment is not included while Calculating Total Asset of a Company. Depreciation or Amortization is subtracted From Tangible Asset & Intangible asset to calculate Total Asset.

When accumulated Depreciation is given in the question, we should not subtract it from Fixed Asset (Tangible & Intangible) as it is already adjusted in Fixed Assets.

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EBIT / PBIT calculation:

Two ways to derive EBIT from question point of view	
Method I	**Method II**
Earning / Profit before Interest and tax (EBIT) Less: interest on long term debt (debentures & loans)	Profit after tax Add: tax (tax rate ÷ 100 × Profit or earning before tax)

Add: Interest on Non-Current Investment	
Earning or profit before tax (EBT or PBT) Less: tax (tax rate ÷ 100 × Profit or earning before tax	Earning or profit before tax (EBT or PBT) Add: interest on long term debt (debentures & loans) **Less: Interest on Non Current Investment**
Profit after tax	Earning / Profit before Interest and tax (EBIT)

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Types of Activity Ratio / Turnover Ratio

I. **Inventory turnover ratio (ITR)** =

Cost of Revenue from operations (CORFO) or cost of goods sold (COGS) ÷ Average inventory

- Inventory conversion period = 365 days / 52 weeks / 12 months ÷ ITR
- Average Inventory = (Opening inventory + Closing inventory) ÷2

Inventory includes Raw materials, Work in progress (WIP), Finished goods, Stock in trade (stores, spares and loose tools are excluded).

If Cost of revenue from operations is not given in the question, we can take Revenue from operations in formula.

II. **Trade receivable Turnover ratio (TRTR)** =

Credit revenue from operations or credit sales ÷ average trade receivable

- Trade receivable average collection period or Trade receivable velocity = (365 /52/12) ÷ TRTR
- Average Trade Receivable = (Opening trade receivable + Closing trade receivable) ÷ 2

Trade receivable includes debtors, sundry debtors, bill receivable, and account receivable.

If credit revenue from operations is not given in the question, we can take revenue from operations in the formula.

Note: We do not subtract provision for doubtful debts while calculating average trade receivable because the motive is to calculate number of days money will be stuck in trade receivable rather than realizable value of trade receivable.

III. **Trade Payable turnover ratio (TPTR)** = Net credit Purchase ÷ Average trade payable

- Trade payable average payment period or Trade payable velocity = (365/52/12) ÷TPTR

Trade payable includes creditors, sundry creditors, bill payable and account payable

Note: We do not subtract provision for discount on creditor while calculating average trade payable.

IV. **Working Capital Turnover ratio** = Revenue from operations or sales ÷ Working capital

When revenue from operations is not given in the question, we can take cost of revenue from operations in the formula.

Note:

Answers of Turnover Ratio are written as……..Times. For example If answer for Debtor Turnover ratio came 4, it will be written as 4 Times.

Types of Profitability ratio

I. **Gross profit / margin ratio** **(GP ratio)** = (Gross profit ÷ Net Sales or Net Revenue from operations) × 100

II. **Operation ratio** = (Operating cost ÷ Net Revenue from operations) × 100

III. **Operating profit ratio** = (Operating profit ÷ Net Revenue from operations) ×100

IV. Operation ratio + Operating profit ratio = 1

V. **Net profit ratio** = (Net profit after tax ÷ Net revenue from operations) × 100

VI. Return on Investment or capital employed =

Earnings before interest, tax and dividend ÷ Capital employed

VII. Return on shareholders' fund or Return on net worth =

Net profit after tax ÷ Shareholders' fund

VIII. Return on Common equity share =

(Net profit after tax – Preference dividend) ÷ Shareholders' fund excluding Preference share

***While calculating change in inventory, exclude spare parts and loose tools. Inventory includes raw materials, work in progress and finished goods.**

**** Direct expenses includes Wages, Power & fuel, Carriage inward, Cartage inward, Expense on purchase, Freight inward, Octroi, Manufacturing expenses, Power & fuel etc.**

Notes:

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Gross Profit = Net Revenue from operations – Cost of revenue from operations

Net Revenue from operations or net sales = Revenue from operations – Revenue return

Or Net Revenue from operations or net sales = Sales – Sales return

Cost of revenue from operations or cost of goods sold

= Opening inventory + Net Purchase + Direct expenses – Closing inventory

= Cost of material consumed + Purchase of stock in trade + Change in inventory of stock in trade, Work in progress, Finished goods + Direct expenses

= Net revenue from operations – Gross Profit

Net purchase = Purchase – Purchase return

Note:

If instead of change in inventory decrease or increase in inventory is given;

Add decrease in inventory (Decrease in inventory means difference between opening inventory and closing inventory is positive value, so we add it. Further, it means opening inventory value is greater than closing inventory value.)

Subtract increase in inventory in the above formula (Increase in inventory means difference between opening inventory and closing inventory is negative value, so we add it. Further, it means opening inventory value is smaller than closing inventory value.)

Remember when we are including increase or decrease in inventory in formula, we do not write change in inventory even it is given in the question.

Operating Cost = operating Expenses + Cost of Revenue from operations

Operating Expenses = Employee benefit expenses + Depreciation & amortization + other expenses excluding non operating expenses

Or Operating expenses = Office & administration expenses + Selling & Distribution Expenses + Employee Benefit expenses + Depreciation & amortization expenses

Other expenses = Office & administration expenses + Selling & Distribution Expenses

Operating Profit = Net revenue from operations + other operating income – Operating Cost

Or Operating Profit = Gross Profit + other operating income – Operating Expenses

Or Operating Profit = Net revenue from operations + other operating income – Cost of Revenue from operations – Operating expenses.

Or Operating Profit = Net Profit Before tax – Non operating income + Non operating expenses

Or Operating Profit = Net Profit after tax + Corporate tax – Non operating income + Non

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operating expenses
Net profit after Tax = Net revenue from operations – Cost of revenue from operations – Operating expenses – Non operating Expenses + non Operating Income – Corporate tax.
Or Net profit after Tax = Net revenue from operations – Operating cost – Non operating Expenses + non Operating Income – Corporate tax.
Or Net profit after Tax = Gross Profit – Operating expenses – Non operating Expenses + non Operating Income – Corporate tax.
Or Net profit after Tax = Operating Profit – Non operating Expenses + non Operating Income – Corporate tax.
Note:
Cost of revenue from operations and cost of goods sold is same
Net revenue from operation and net sales is same.
Revenue from operation or sales = Cash revenue from operation + Credit revenue from operations
Or Revenue from operation or sales = Cash sales + Credit sales

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Income statement Format to understand Profitability Ratios formula	Amount	Amount
A. Net Revenue from operations (revenue from operations – revenue return) or (sales – sales return)		
B. cost of revenue from operations: Change in inventory (Opening inventory – closing inventory)* Net purchase (Purchase – Purchase return) Direct expenses**		
C. Gross Profit (A - B)		
D. operating Expense Office & administration expenses Selling & Distribution expenses Employee benefit expenses Depreciation & amortization expenses		
E. Other operating income		

Bad debts recovered		
F. Operating Profit (C- D + E)		
G. Non-operating expenses Interest on loans & advances, debentures Loss on sale of asset Abnormal losses such as loss by fire		
H. Non-operating Income Interest received Rent received Gain on sale of asset dividend received other non operating income		
I. Net Profit before tax (F – G + H)		
Less : Income tax paid / provision for income tax		
J .Net profit after tax		
Less : Preference Dividend		
K. Earnings available for Shareholders		

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