

Post partition  
Debt ratio  
 $1 : 2 : 3$

Ratio  
Rate of  
fines  
percentage  
40%  
fraction  
 $\frac{1}{3} \frac{1}{4}$

Module 3	Ratio Analysis	6 hours
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Nature of Ratio Analysis, Liquidity Ratio, Leverage Ratio, Activity Ratio, Profitability Ratio, DuPont Analysis, Comparative statement and Trend Analysis, Inter-firm Analysis.

↳ if we have to comment → ratio ideal  
hai ya haan ✓

# Recap

- ▶ Financial statement analysis
- ▶ It is the process of identifying strengths and weaknesses → between BS and P &L a/c.
- ▶ Can be undertaken by the management or by the parties outside the firm
- ▶ Trade creditors: short period → liquidity position
- ▶ Suppliers of long-term debt → long-term solvency and survival
- ▶ Investors: steady growth in earning → profitability
- ▶ Management: every aspect

working capital = *Current asset - Current liability*

# Nature of Ratio Analysis

- ▶ **Ratio:** “Quotient of two mathematical expression” and as “the relationship between two or more things”
- ▶ Used as a benchmark for evaluating the financial position and performance of a firm
- ▶ An accounting figure conveys meaning when it is related to some other relevant information.  
*15 : 1      2040      82 annual*
- ▶ Can be expressed as a fraction, proportion, percentage and a number of times
- ▶ Helps to summarize large *quantities* of financial data and to make *qualitative* judgment about financial performance.
- ▶ **Standards of Comparison** *Benchmark*



(i) Past ratio

✓ (ii) Competitor's ratio

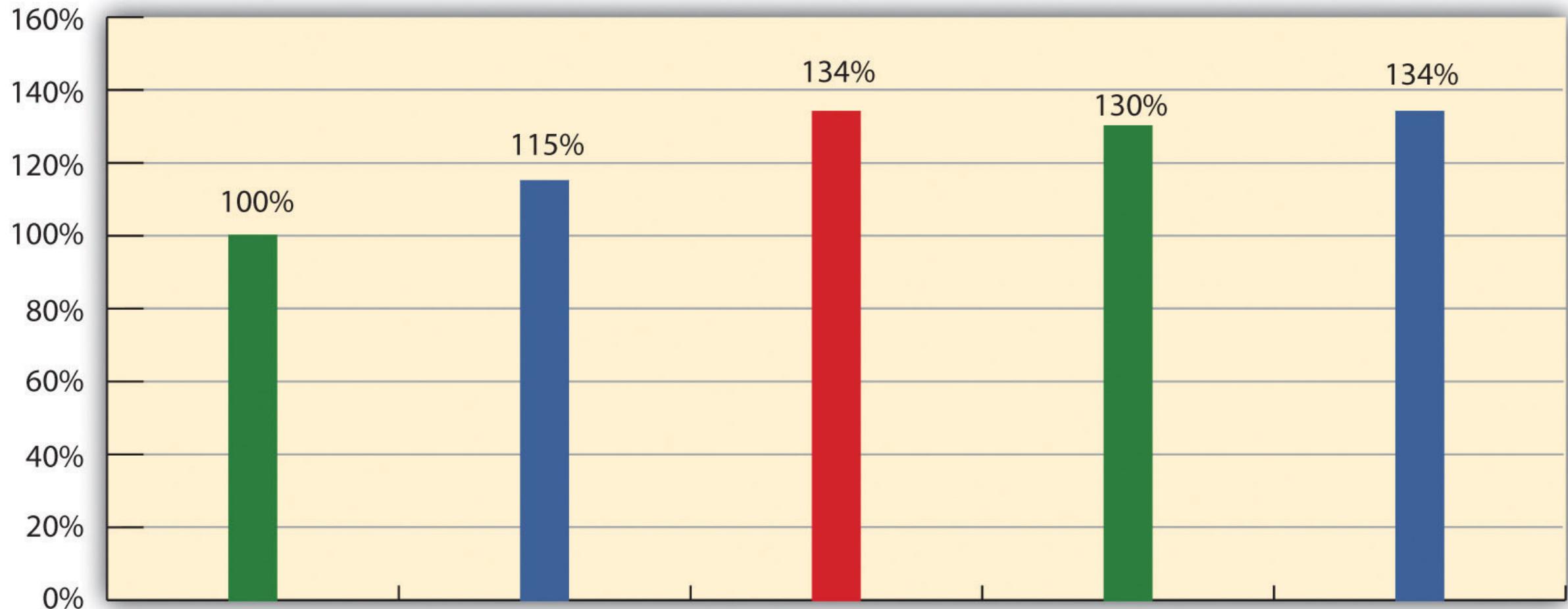
(iii) Industry ratio

(iv) Projected ratio

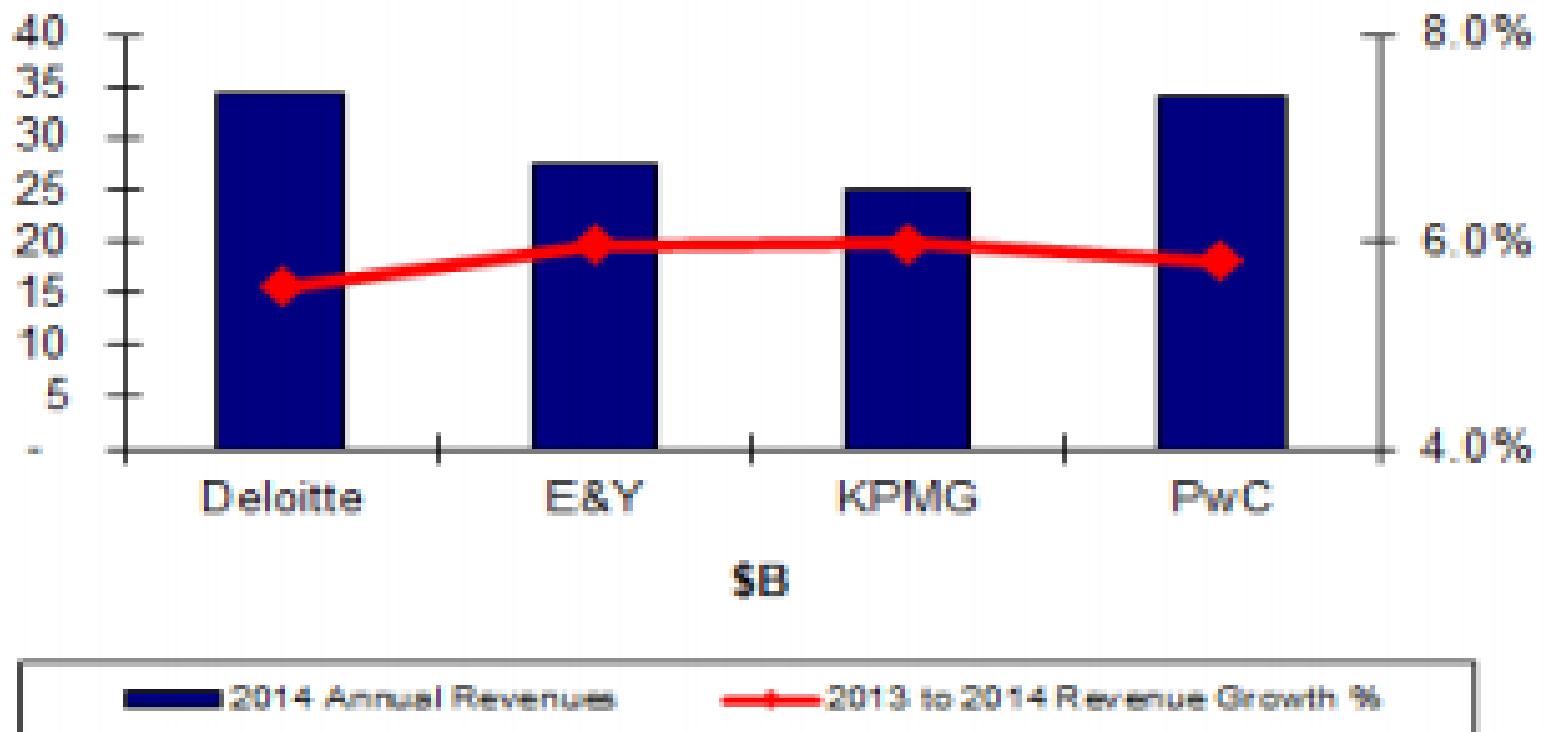
# Objectives

- ▶ To know the areas of the business which need more attention;
- ▶ To know about the potential areas which can be improved
- ▶ Deeper analysis of the profitability, liquidity, solvency and efficiency levels
- ▶ For cross-sectional analysis
- ▶ For projections and estimates for the future.

## Operating Income Trend at Coca-Cola (2006 is the base year)



## 2014 Performance at Big Four Firms



# Types of Ratios

$$\text{Current Ratio} = \frac{\text{Current Asset}}{\text{Current Liability}}$$
$$\text{Quick ratio} = \frac{\text{CA} - \text{PIA}}{\text{CL}}$$

- solvency*
- Liquidity ratios
  - Leverage ratios
  - Activity ratios
  - Profitability ratios
- ability*
- turnover*
- $$\text{Debt-Equity} = \frac{\text{Long Term Dclbt}}{\text{SHF}}$$
- $$\text{TA-Dclbt} = \frac{\text{TA}}{\text{long term Dclbt}}$$
- $$\text{Proprietary Ratio} = \text{SHF} / \text{TA}$$
- $$\text{Inventory TR} = \text{COGS} / \text{Avg Inventory}$$
- $$\text{Asset Turnover R} = \text{Net Sales} / \text{TS}$$

$$\text{Gross Profit} = \frac{\text{NS} - \text{COGS}}{\text{NS}}$$

$$\text{Net Profit} = \frac{\text{NPAI}}{\text{NS}}$$

$$\text{Operating Profit}$$

short form my performance check

Liquidity ratio  Current ratio  
Quick Ratio or Acid test

- ▶ Ability of a firm to meet its current obligations
- ▶ High and lack of liquidity are creating problem.
- ▶ 1. **Current ratio:**  $\frac{\text{Current Asset}}{\text{Current liability}}$
- ▶ Measures firm's **short-term solvency**
- ▶ *Indicates the availability of current assets in rupee for every one rupee of current liability [2 is satisfactory]*
- ▶ Represent a margin of safety
- ▶ Since it include inventory, may lead to overestimation of the liquidity position

2:1 rule of thumb  
प्रेसे माला आ गाला नो

Working capital = current assets - current liabilities

- ▶ Current investments,
- ▶ Inventories,
- ▶ Trade receivables (debtors and bills receivables)
- ▶ Cash and cash equivalents,
- ▶ Short-term loans and advances
- ▶ Other current assets such as prepaid expenses, advance tax and accrued income

- Cash = \$15 million
  - Marketable securities = \$20 million
  - Inventory = \$25 million
  - Short-term debt = \$15 million
  - Accounts payables = \$15 million
- **Current assets = 15 + 20 + 25 = 60 million**
- **Current liabilities = 15 + 15 = 30 million**
- ▶ Current ratio = 60 million / 30 million = 2.0

$$\frac{50,000 + \cancel{5,000} + 4,000 - \cancel{13,000}}{100,000 + 4,000} = 1.29$$

Calculate Current Ratio from the following information:

Particulars	(Rs.)
Inventories	50,000
Trade receivables	50,000
Advance tax	4,000
Cash and cash equivalents	30,000
Trade payables	1,00,000
Short-term borrowings (bank overdraft)	4,000

# Interpreting current ratio

- ▶ A 'good' or 'bad' ratio depends on how it is changing

	2017	2018	2019	2020	2021	2022
Sara's co	.73	.82	.93	.95	.97	1.00
Mews Ltd	1.25	1.14	1.35	1.26	1.15	1.00

$$QR = \frac{\text{Quick Asset} / \text{Liquid Asset}}{\text{Current Liab}}$$

Quick Asset = Current Asset - I P A  
 Liquid Asset = Current Asset - Inventory - Advance Tax

### ► 2. Quick Ratio ( Acid-test ratio ) :

- Indicator of a companies short-term liquidity position and measures its ability to meet the short term obligations using the most liquid assets
- Ratio of *liquid* asset to current liability.
- ( cash, debtors, money market instruments, marketable securities)
- Exclude inventories, prepaid expenses, and advance tax
- Commercial paper, CD
- [ 1: 1 is a good measure]

Check seal sy bhi kaam ml performance  
2 - 3 months

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► **3. Cash Ratio** ( expressed in percentage)

$$CR = \frac{Cash + Marketable\ Securities}{Current\ Liabilities}$$

- ▶ **4. Interval Measure**
- ▶ **Provides information about how many days a company will can continue to operate using the funds it has its own.**
- ▶ Relates liquid assets to average daily operating expenses
- ▶ Operating expenses: cost of good sold, selling, administrative and general expenditure less depreciations
  
- ▶ Interval Measures = 
$$\frac{\text{Current Assets} - \text{Inventories}}{\text{Average daily operating expenses}}$$
- ▶ Could be expressed in number of days

# Leverage Ratios

- ▶ L R Shows firms 'long terms debt-paying ability'
- ▶ Long term investors are more concerned with long term financial position.
- ▶ These ratios indicate mix of funds provided by owners and lenders.
- ▶ Between debt and equity
- ▶ *The process of magnifying the share holders return through the use of debt is called financial leverage.*

# Capital structure

Debt  $\rightarrow$   $\text{Eq} 20\%$  Bonds, only long term provisions

## ► 1. Debt-Equity Ratio :

- A relationship that describes the lenders contribution for each rupee of owners
- For eg:  $60/40 = 1.5$  (lenders contribution is 1.5 times of owners). *aaj ka soch*
- $\text{DER} = \frac{\text{Total Debt (TD)}}{\text{Net Worth (NW)}}$  or  $= \frac{(\text{Long-Term Debt})}{(\text{Share holders fund})}$

↳ **Equity**

↓  
Share capital  
prefer. shares

Max 2:1 [safest]

## *Equity ↗*

- ▶ **Shareholders fund** = Share capital + Reserves and Surpluses+ Money Received against share Warrant+ share application money pending allotment

## *Liability ↗*

- ▶ **Net Worth** = Non-Current asset + Working Capital- Non-Current Liability

- ▶ High debt ratio (higher claim of creditors) leads to debt trap
- ▶ Lower debt ratio ( higher claim of owners)

Particulars	Note No.	Amount (Rs.)
<b>I. Equity and Liabilities</b>		
<b>1. Shareholders' funds</b>		
a) Share capital		12,00,000
b) Reserves and surplus		2,00,000
c) Money received against share warrants		1,00,000
<b>2. Non-current Liabilities</b>		
a) Long-term borrowings		4,00,000
b) Other long-term liabilities		40,000
c) Long-term provisions		60,000
<b>3. Current Liabilities</b>		
a) Short-term borrowings		2,00,000
b) Trade payables		1,00,000
c) Other current liabilities		50,000
d) Short-term provisions		1,50,000
		<b>25,00,000</b>
<b>II. Assets</b>		
<b>1. Non-Current Assets</b>		
a) Fixed assets		15,00,000
b) Non-current investments		2,00,000
c) Long-term loans and advances		1,00,000
<b>2. Current Assets</b>		
a) Current investments		1,50,000
b) Inventories		1,50,000
c) Trade receivables		1,00,000
d) Cash and cash equivalents		2,50,000
e) Short-term loans and advances		50,000
		<b>25,00,000</b>

3E

} b

15,00,000  
—  
5,00,000

$$\frac{\text{Equity}}{\text{Total assets}}$$

► 2. **Proprietary Ratio** =

Expresses relationship of proprietor's (shareholders) funds to net assets

- Proprietary Ratio = Shareholders' Funds/Capital employed (or net assets)
- Higher proportion of shareholders funds in financing the assets is a positive feature as it provides security to creditors.

Total Asset  
Long term debt

### **3. Total Assets to Debt Ratio**

- This ratio measures the extent of the coverage of long-term debts by assets.
- Total assets to Debt Ratio = Total assets/Long-term debts
- The higher ratio indicates that assets have been mainly financed by owners funds and the long-term loans is adequately covered by assets.
- This ratio primarily indicates the rate of external funds in financing the assets and the extent of coverage of their debts are covered by assets.

# Activity Ratios (Turnover ratio)

*is always calculated in times*

- ▶ Evaluates the efficiency with which the firm manages and utilizes its asset
- ▶ Estimates the relationship between sales and assets

## 1. Inventory Turnover :

1. Efficiency of firm in producing and selling its product.
2. Number of days a company will take to sell the inventory on hand

$$\blacktriangleright \text{ Inv. Turn} = \frac{\text{Cost of good sold}}{\text{Average Inventory}}$$

- ▶ Average Inventory = (beginning inventory + ending inventory)/number of months in the A/c period

$$\blacktriangleright \text{ Alternate} = \frac{\text{Sales}}{\text{Inventory}}$$

$$\text{Inventory holding days} = \frac{365}{\text{IT Ratio}}$$

$$\text{Avg} = \frac{o+c}{2} \text{ (days)}$$

# Example

- ▶ Cherry Woods Furniture is a specialized supplier of handmade dining sets made from specialty woods. Over Q3, its busiest period, the retailer posted \$48,000 in COGS and \$16,000 in average inventory. To find the inventory turnover ratio, we divide \$48,000 by \$16,000. **The inventory turnover is 3.**
- ▶ In the second example, we'll use the same company and the same scenario as above, **but this time compute the average inventory period**—meaning how long it will take to sell the inventory currently on hand.
- ▶  $365/3=121.67$  days

- ▶ **2. Assets Turnover Ratio:**  $\frac{\text{Sales}}{\text{Net Assets}}$  or  $\frac{\text{Sales}}{\text{Total Assets}}$

$$\frac{\text{Sales}}{\text{Net Assets}}$$
$$\frac{\text{Sales}}{\text{Total Assets}}$$

SAF + NCL      nCA + CA - CL

# Profitability Ratio

ek company ki profit  
kamne ki kya ability hai

1. Profitability in relation to sales
2. Profitability in relation to investment

## Profitability in relation to sales

- 1. Gross Profit Margin (GPM) :  $\frac{\text{Sales} - \text{Cost of goods sold}}{\text{Sales}}$  (in %)
- 2. Net Profit Margin (NPM) :  $\frac{\text{Net Profit After Tax}}{\text{Sales}}$
- 3. Operating Expense Ratio :  $\frac{\text{Operating Expenses}}{\text{Sales}}$

To Business ko operate  
karne ke liye karte hai  
Salaries, Electricity bill (office), bills all  
Maintenance

↳ Ro I

$$9. \text{ Return on Investment} = \frac{\text{Net Profit before tax \& dividend}}{\text{Capital Employed}}$$

SyF + NCL  
NCA + CA - CL

- ▶ Measures the probability of gaining a return from an investment
- ▶ ROI is calculated by subtracting the initial value of the investment from the final value of the investment (which equals the net return), then dividing this new number (the net return) by the cost of the investment, then finally, multiplying it by 100.
- ▶ Using net return because it may be positive or negative

## Example

- ▶ Number of shares bought=1000
- ▶ Cost per share =10
- ▶ Selling price after one year =12.5
- ▶ Earner dividend=500(total)
- ▶ Trading cost= 125 (total)
- ▶ 
$$\text{ROI} = \frac{(12.5 - 10) \times 1000 + (500 - 125)}{(10 \times 1000)} \times 100 = 28.75\%$$

# ROE

- ▶ Shows how efficiently a company (management team) is handling the money that shareholder have contributed to it.
- ▶ Return on Equity (ROE) :  $\frac{\text{Profit After Tax}}{\text{Net Worth (Equity)}}$  or (net income/equity)

# DuPont analysis

- In ROE, we use book value of a company's common equity
- A generalized method of calculating the ROE
- Used to decompose the different drivers of ROE
- The decomposition allows investors to focus on the key matrices of financial performance individually to identify the strength and weaknesses
- DuPont Analysis  $\text{ROE} = \text{NPM} \times \text{Asset Turnover} \times \text{Equity multiplier}$
- Equity multiplier = Average total assets/ Average shareholders equity
- ▶ Equity multiplier is a risk indicator