

UNIT V

FINANCIAL ANALYSIS THROUGH RATIOS

Session No. 59

Ratio Analysis is most widely used powerful tool of financial analysis. It is an important technique of analysis and interpretation of financial statements. It is also used to analyze various aspects of operational efficiency and degree of profitability.

Ratio Analysis is based on different ratios which are calculated from the accounting information contained in the financial statements. Different ratios are used for different purposes.

Meaning of Ratio

- Ratio is a figure expressed in terms of another.
- It is an expression of relationship between one figure, two figures and the other figures which are mutually inter-dependent.
- In other words a ratio is a mathematical relationship between two items expressed in a quantitative form. When ratio is explained with reference to the items shown in the financial statements.
- It is called as an Accounting Ratio.

Uses or Advantages or Importance of Ratio Analysis:

Ratio Analysis stands for the process of determining and presenting the relationship of items and groups of items in the financial statements. It is an important technique of financial analysis. The following are the main uses of Ratio analysis:

Useful in financial position analysis: Accounting reveals the financial position of the concern. This helps banks, insurance companies and other financial institution in lending and making investment decisions.

Useful in simplifying accounting figures: Accounting ratios simplify, summaries and

systematic the accounting figures in order to make them more understandable and in lucid form.

Useful in assessing the operational efficiency: Accounting ratios helps to have an idea of the working of a concern. The efficiency of the firm becomes evident when analysis is based on accounting ratio. This helps the management to assess financial requirements and the capabilities of various business units.

Useful in forecasting purposes: If accounting ratios are calculated for number of years, then a trend is established. This trend helps in setting up future plans and forecasting.

Useful in locating the weak spots of the business: Accounting ratios are of great assistance in locating the weak spots in the business even through the overall performance may be efficient.

Useful in comparison of performance: Managers are usually interested to know which department performance is good and for that he compare one department with the another department of the same firm. Ratios also help him to make any change in the organisation structure.

Limitations of Ratio Analysis:

These limitations should be kept in mind while making use of ratio analyses for interpreting the financial statements. The following are the main limitations of ratio analysis.

1. **False results if based on incorrect accounting data:** Accounting ratios can be correct only if the data (on which they are based) is correct. Sometimes, the information given in the financial statements is affected by window dressing, i. e. showing position better than what actually is.
2. **No idea of probable happenings in future:** Ratios are an attempt to make an analysis of the past financial statements; so they are historical documents. Now-a-days keeping in view the complexities of the business, it is important to have an idea of the probable happenings in future.
3. **Variation in accounting methods:** The two firms' results are comparable with the help of accounting ratios only if they follow the same accounting methods or bases. Comparison will become difficult if the two concerns follow the different methods of providing depreciation or valuing stock.
4. **Price level change:** Change in price levels make comparison for various years difficult.
5. **Only one method of analysis:** Ratio analysis is only a beginning and gives just a fraction of information needed for decision-making so, to have a comprehensive analysis of financial statements, ratios should be used along with other methods of analysis.
6. **No common standards:** It is very difficult to lay down a common standard for comparison because circumstances differ from concern to concern and the nature of each industry is different.
7. **Different meanings assigned to the some term:** Different firms, in order to calculate ratio may assign different meanings. This may affect the calculation of ratio in different firms and such ratio when used for comparison may lead to wrong conclusions.
8. **Ignores qualitative factors:** Accounting ratios are tools of quantitative analysis only. But sometimes qualitative factors may surmount the quantitative aspects. The calculations derived from the ratio analysis under such circumstances may get distorted.
9. **No use if ratios are worked out for insignificant and unrelated figure:** Accounting

rations should be calculated on the basis of cause and effect relationship. One should be clear as to what cause is and what effect is before calculating a ratio between two figures.

Classification of ratios: All the ratios broadly classified into four types due to the interest of different parties for different purposes. They are:

1. Financial ratios or liquidity ratios
2. Turn over ratios or activity ratios
3. Profitability ratios
4. Leverage ratio or solvency ratios or capital structure

Session No. 60 & 61

I. FINANCIAL RATIOS OR LIQUIDITY RATIOS:

Liquidity refers to ability of organisation to meet its current obligation. These ratios are used to measure the financial status of an organisation. These ratios help to the management to make the decisions about the maintained level of current assets & current liabilities of the business. The main purpose to calculate these ratios is to know the short terms solvency of the concern. These ratios are useful to various parties having interest in the enterprise over a short period – such parties include banks, Lenders, suppliers, employees and other. The liquidity ratios assess the capacity of the company to repay its short term liabilities.

- i) **Current ratio** = Current Assets/ Current Liabilities.

Current assets= cash+ cash at bank+ debtors+ stock+ B/R+ prepaid expenses

Current liabilities = creditors + B/P + outstanding expenses

Note: The ideal ratio is 2:1
i.e., current assets should be twice than the current liabilities.

- ii) **Quick ratio or liquid ratio or acid test ratio**
= Liquid (quick) Assets / current Liabilities
or
=Current assets – (stock + prepaid expenses)/current liabilities

Quick assets = cash in hand + cash at bank + short term investments + debtors + bills receivables
short term investments are also known as marketable securities.

Here the ideal ratio is 1:1 is, quick assets should be equal to the current liabilities.

- iii) **Absolute liquid ratio**= Absolute liquid Assets / Current Liabilities
Here

Absolute liquid assets=cash in hand + cash at bank + short term investments + marketable securities.

Here, the ideal ratio is 0.0:1 or 1:2 it, absolute liquid assets must be half of current liabilities.

Session No. 62 & 63

II. TURN OVER RATIOS OR ACTIVITY RATIOS:

These ratios measure how efficiency the enterprise employees the resources of assets at its command. They indicate the performance of the business. The performance if an enterprise is judged with its save. It means ratios are also laced efficiency ratios. The turnover ratios are measured to help the management in taking the decisions regarding the levels maintained in the assets, and raw materials and in the funds.

- i) **Stock turnover ratio** = Cost of Goods Sold / Average inventory at cost
or
=Net Sales / Average Inventory at cost or Closing stock or selling price

Here,

Cost of goods sold (COGS) = opening stock + purchase + wages + other direct expenses - closing stock - gross profit.

Average Stock = Opening Stock + Closing Stock /2

Note: Higher the ratio, the better it is.

- ii) **Working capital turnover ratio**= Cost of Sales or net sales / Working Capital
Working capital = current assets - current liabilities

Note: Higher the ratio the better it is.

- iii) **Fixed assets turnover ratio** = Sales / Fixed Assets
or

Cost of sales / Fixed Assets at cost Less Accumulated Depreciation.

Note: Higher the ratio the better it is.

- iv) **Total assets turnover ratio** = Sales / Total Assets

Note: Higher the ratio the better it is.

- v) **Capital turnover ratio** = Sales / Capital Employed
or
= Net sales / capital employed

Capital employed = equity share capital + preference share capital + reserves & surpluses
+ undistributed profits + debentures + public deposit + securities + long term loan
+ other long term liability - factious assets (preliminary expressed & profit & loss
account debt balance)

Note: Higher the ratio the better it is.

- vi) **Debtors turnover ratio** = Net Credit Sales / Average Debtors.

vi) (i) **Debtors collection period or Average Collection Period** (in terms of days) = (365 Days or 12 Months) / (Debtors / Receivable Turnover Ratio)

- vii) **Creditors turnover ratio** = Purchases or Credit purchases /
Average Creditors (Debtors / Credit Sales) x 365Days.
or

365 DAYS / Debtors Turnover Ratio

Here,

Average debtors = Opening debtors + Closing debtors/2

Debtors = debtors + bills receivable

Note: Higher the ratio the better it is.

- vii) (i) **creditors collection period** = 356 (or) 12 / Creditor turnover ratio

Here,

Average Creditor = Opening + Closing Creditors/2

Creditors = Creditors + bills Payable.

Note: Lower the ratio the better it is.

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III. PROFITABILITY RATIOS: These ratios are calculated to understand the profit positions of the business. These ratios measure the profit earning capacity of an enterprise. These ratios can be related its save or capital to a certain margin on sales or profitability of capital employ. These ratios are of interest to management. Who are responsible for success and growth of enterprise? Owners as well as financiers are interested in profitability ratios as these reflect ability of enterprises to generate return on capital employ important profitability ratios are:

Profitability ratios in relation to sales:

i) **Gross profit ratio**= (Gross Profit / Net Sales) x100

or

(Net Sales- cost of goods sold / net sales) x 100

Here

Gross Profit = Net Sales – Cost of Goods Sold

Net Sales = Sales – Return Inwards

Cost of Goods Sold = Opening Stock + Purchases*- Closing Stock + Any Direct Expenses Incurred

Note: Higher the ratio the better it is

ii) **Net profit ratio**= Net Profit after Interest & Tax / Net Sales *100

Note: Higher the ratio the better it is.

iii) **Operating ratio (Operating expenses ratio)** =

$$\frac{\text{Cost of goods sold} + \text{operating expenses}}{\text{Net sales}} \times 100$$

or

(Cost of goods sold + operating expenses) / Net Sales.

(COGS) Cost of goods sold= opening stock + purchase + wages + other direct expenses- closing stock (or) sales – gross profit.

Operating expenses = administration expenses + selling and distribution expenses

Note: Lower the ratio the better it is

iv) **Operating profit ratio**= (Operating Net profit / Net Sales) x100

or

=100% - Operating Ratio

Note: Higher the ratio the better it is.

Operating profit = gross profit - operating expense.

Operating profit = Gross profit - Administration and selling expenses

- v) **Expenses ratio** = $\frac{\text{Concern Expense}}{\text{Net Sales}} \times 100$

Note: Lower the ratio the better it is

Profitability ratios in relation to investments:

- i) **Return on Investments** = $\frac{\text{Net Profit after tax} & \text{Latest Depreciation}}{\text{Shares Holders funds}} \times 100$

Holders funds * 100

or

$$= (\text{Net Profit after Interest and Taxes} / \text{Shareholders Funds}) \times 100$$

Share holders funds = equity share capital + preference share capital + receives & surpluses + undistributed profits.

Note: Higher the ratio the better it is

- ii) **Return on Equity Capital** = $\frac{\text{Net Profit after tax} & \text{interest} - \text{Preference Dividend}}{\text{Equity Share Capital}} \times 100$

or

$$= (\text{Net profit after interest, Taxes and Dividend} / \text{Equity Shareholders Funds}) \times 100$$

- iii) **Earnings per share** = $\frac{\text{Net Profit after tax} - \text{Preference dividend}}{\text{No of Equity Shares}}$

Or

$$(\text{Net Profit after Taxes} - \text{Preference Dividend}) / \text{Number of Equity Shares}$$

- iv) **Return on Capital Employed** = $\frac{\text{Operating Profit}}{\text{Capital Employed}} \times 100$

- v) **Return on Total Assets** = $\frac{\text{Net profit after tax} & \text{Interest}}{\text{Total Assets}}$

Here,

Capital employed = equity share capital + preference share capital + reserves & surpluses + undistributed profits + debentures + public deposit + securities + long term loan + other long term liability - factious assets (preliminary expressed & profit & loss account debt balance)

- vi) **Returns on Shareholders Funds** = (Net Profit after Interest and Taxes / Shareholders Funds) x 100
- vii) **Dividend Payout Ratio** = Dividend per Share / Earnings per share.
- viii) **Price Earnings Ratio (P/E Ratio)** = Market Price per Equity Share / Earnings per share.

Session No. 66, 67 & 68

IV. LEVERAGE RATIO OR SOLVENCY RATIOS OR CAPITAL STRUCTURE:
 Solvency refers to the ability of a business to honor long term obligations like interest and installments associated with long term debts. Solvency ratios indicate long term stability of an enterprise. These ratios are used to understand the yield rate of the organization. Lenders like financial institutions, debenture, holders, and banks are interested in ascertaining solvency of the enterprise. The important solvency ratios are:

- i) **Debt – equity ratio**= Outsiders funds / Share Holders funds
 or
 Long-Term Debts/ Shareholders Funds
 or
 External Equity / Internal Equity
 or
 $=\text{debt} / \text{equity}$

Here,

Outsiders funds = Debentures + public deposits + securities + long term bank loans + other long term liabilities.

Share holders funds = equity share capital + preference share capital + reserves & surpluses + undistributed profits.

The ideal ratio is 2:1

- ii) **Preprimary ratio or equity ratio**= Share Holder funds / total Assets

The ideal ratio is 1:3 or 0.33:1

- iii) **Capital gearing ratio** = (equity share capital + reserves & surpluses + undistributed profits) / (Outsiders funds + Preference Share Capital)

Here,

higher gearing ratio is not good for a new company or the company in which future earnings are uncertain.

iv) Proprietary Ratio=Shareholders' Funds / Total Assets

v) Interest Coverage Ratio or debt service ratio=Earnings before Interest and Taxes (EBIT) / Fixed Interest Charges

vi) Debt to total fund ratio = Outsiders Funds / Capital employed

or
Debts / Total Funds.

Capital employed= outsiders funds + share holders funds = debt + equity.

The ideal ratio is 0.6.7 :1 or 2:3.

Problems 1:

Calculate a) current ratio and b) liquid ratio

Cash 10000

Cash at bank 5000

Debtors 20000

Creditors 16000

Bills payable 4000

Bills receivable 5000

Stock 9000

Prepaid expenses 3000

Outstanding expenses 2000

Solution: a) current ratio=current assets/ current liabilities

=52000/22000= 2.36 times

Current assets= cash+ cash at bank+ debtors+ stock+ B/R+ prepaid expenses

=10000+5000+20000+9000+5000+3000

=52000

Current liabilities = creditors + B/P + outstanding expenses

=16000+4000+2000

=22000

b) liquid ratio = liquid assets/ current liabilities

=40000/22000 =1.8 times

liquid assets = CA- (stock+prepaid expenses)

=52000-(9000+3000)

=40000

Comment: short term financial position of the enterprise is sound because both the current and liquid ratio are 2.36 and 1.8 times respectively, which is more than the standard current ratio of 2:1 and liquid ratio of 1:1.

Problem 2:

Calculate 1. Total capital turnover ratio

2. Working capital ratio

3. Fixed assets turnover ratio from the following information:

Liabilities:

share capital 100000

12% debentures 80000

Reserves 20000

Current liabilities 70000

Assets :

fixed assets 170000

Current assets 100000

Net sales during the year is 300000.

Solution:

1) Total capital turnover ratio = net sales / capital employed

$$=300000/200000$$

=1.5 times

Capital employed = share capital + debentures + reserves = $100000+80000+20000=200000$

or

(fixed assets + working capital)= $(170000+30000)=200000$

2) Working capital turnover ratio = net sales / working capital

$$=300000/30000=10 \text{ times}$$

Working capital = current assets - current liabilities

$$=100000-70000=30000.$$

3) Fixed assets turnover ratio = net sales / fixed assets

$$=300000/170000$$

=1.76 times.

Problem 3.

Particulars	Amount	Particulars	Amount
Sales	300000	Gross profit	150000
Sales returns	50000	Cost of goods sold	60000
No. of equity shares 15000@10/-	150000	Office expenses	20000
Preference dividend	50000	Selling expenses	15000
Sundry creditors Bills payable	10000 30000	Profit after tax stock	300000 15000
Total	560000	Total	560000

Calculate the following ratios:

- A) Gross profit ratio
- B) Net profit ratio
- C) EPS
- D) Price earning ratio
- E) Operating ratio

Solution :

a) Gross profit ratio = gross profit / net sales * 100

$$\begin{aligned} \text{Net sales} &= \text{sales} - \text{returns} = 300000 - 50000 = 250000 \\ &= 150000/250000 * 100 = 60\% \end{aligned}$$

b) Net profit ratio = net profit after tax / net sales * 100
 $= 300000/250000 = 120\%$

c) EPS = net profit after tax and preference dividend / no. of equity shares

$$\begin{aligned} &= \text{net profit after tax} - \text{preference dividend} = 300000 - 50000 = 250000 \\ &= 250000/15000 = 16.67 \end{aligned}$$

d) Price earning ratio = market price per equity share / earning per share
 $= 10/16.67 = 0.59$

f) Operating ratio = operating costs / net sales * 100

$$\begin{aligned} \text{Operating costs} &= \text{office expenses} + \text{selling expenses} \\ &= 20000 + 15000 = 35000 \end{aligned}$$

$$\begin{aligned} \text{Operating ratio} &= 35000/250000 * 100 \\ &= 14\% \end{aligned}$$

Problem 4

From the following data. Calculate

1. debt equity ratio and
2. stock turn over ratio.

10% long term loan	325000
14% debentures	150000
Share capital (fund)	300000
cost of goods sold	600000
stock (opening)	144000
stock (closing)	256000

solution :

$$1) \text{debt equity ratio} = \text{long term debts} / \text{shareholders funds}$$

$$\begin{aligned}\text{long term debts} &= \text{long term loan} + \text{debentures} \\ &= 325000 + 150000 \\ &= 475000 \\ \text{Shareholders funds} &= 300000\end{aligned}$$

$$\begin{aligned}\text{Debt equity ratio} &= 475000 / 300000 \\ &= 1.58\end{aligned}$$

$$2) \text{Stock turnover ratio} = \text{cost of goods sold} / \text{average inventory}$$

$$\text{COGS} = 600000$$

$$\begin{aligned}\text{Average inventory} &= \text{opening stock} + \text{closing stock} / 2 \\ &= 144000 + 256000 / 2 \\ &= 200000\end{aligned}$$

$$\text{Stock turnover ratio} = 600000 / 200000 = 3 \text{ times}$$

Session No. 69 to 71

Funds flow statement:

Funds flow statement is a statement which discloses the analytical information about the different sources of a fund and the application of the same in an accounting cycle. It deals with the transactions which change either the amount of current assets and current liabilities (in the form of decrease or increase in working capital) or fixed assets, long-term loans including ownership fund.

It gives a clear picture about the movement of funds between the opening and closing dates of the Balance Sheet. It is also called the Statement of Sources and Applications of Funds, Movement of Funds Statement; Where Got—Where Gone Statement: Inflow and Outflow of Fund Statement, etc. No doubt, Funds Flow Statement is an important indicator of financial

analysis and control. It is valuable and also helps to determine how the funds are financed. The financial analyst can evaluate the future flows of a firm on the basis of past data.

Significance / Importance of Fund Flow Statement:

1. It shows the various sources and **uses or applications of funds** between the two accounting periods.
2. Fund flow statements assist in determining the shift in amount of current assets investment and current liabilities financing.
3. It works as a crucial instrument for allocation of resources of a firm. It allows an organization for making plans for optimal allocation of resources.
4. It highlights the financial power and weak spots of a firm.
5. It helps the investors to determine about how the company has employed the funds given by them & its financial strength. Based on comparative study of the past with the present, investors can identify & discover potential drains on funds in the future.
6. It assists the management to take *remedial measures* in case of deviations between two balance sheet figures.
7. It helps the investors for effective decisions at the time of their investment proposals.
8. It also offers detailed information concerning profitability, operational efficiency and financial matters of a firm.

Session No. 70 to 71

Cash Flow Statement:

Cash Flow Statement is a statement showing changes in cash position of the firm from one

period to another. It explains the inflows (receipts) and outflows (disbursements) of cash over a period of time. The inflows of cash may occur from sale of goods, sale of assets, receipts from debtors, interest, dividend, rent, issue of new shares and debentures, raising of loans, short-term borrowing, etc. The cash outflows may occur on account of purchase of goods, purchase of assets, payment of loans loss on operations, payment of tax and dividend, etc.

Table of Difference between Funds Flow Statement and Cash Flow Statement

Basis of Difference	Funds Flow Statement	Cash Flow Statement
Basis of Analysis	Funds flow statement is based on broader concept i.e. working capital.	Cash flow statement is based on narrow concept i.e. cash, which is only one of the elements of working capital.
Source	Funds flow statement tells about the various sources from where the funds generated with various uses to which they are put.	Cash flow statement starts with the opening balance of cash and reaches to the closing balance of cash by proceeding through sources and uses.
Usage	Funds flow statement is more useful in assessing the long-range financial strategy.	Cash flow statement is useful in understanding the short-term phenomena affecting the liquidity of the business.
Schedule of Changes in Working Capital	In funds flow statement changes in current assets and current liabilities are shown through the schedule of changes in working capital.	In cash flow statement changes in current assets and current liabilities are shown in the cash flow statement itself.
End Result	Funds flow statement shows the causes of changes in net working capital.	Cash flow statement shows the causes of changes in cash.
Principal of Accounting	Funds flow statement is in alignment with the accrual basis of accounting.	In cash flow statement data obtained on accrual basis are converted into cash basis.

Problem 1:

From the following balance sheet of A Company Ltd. you are required to prepare a schedule of changes in working capital and statement of flow of funds.

Balance Sheet of A Company Ltd., as on 31st March

Liabilities	2004	2005	Assets	2004	2005
Share Capital	1,00,000	1,10,000	Land and Building	60,000	60,000
Profit and Loss a/c	20,000	23,000	Plant and Machinery	35,000	45,000
Loans	—	10,000	Stock	20,000	25,000
Creditors	15,000	18,000	Debtors	18,000	28,000
	5,000	4,000		2,000	1,000

Solution:

Schedule of Changes in Working Capital

Particulars	2004 Rs.	2005 Rs.	Increase Rs.	decrease Rs.
Current Assets				
Stock	20,000	25,000	5,000	—
Debtors	18,000	28,000	10,000	—
Bills Receivable	2,000	1,000	—	1,000
Cash	5,000	6,000	1,000	
A	45,000	60,000		
Less Current Liabilities				
Creditors	15,000	18,000		3,000
Bills Payable	5,000	4,000	1,000	
B	20,000	22,000	17,000	4,000
A-B	25,000	38,000	—	13,000
Increase in W.C.	38,000	38,000	17,000	17,000

Fund Flow Statement

Sources	Rs.	Application	Rs.
Issued Share Capital	10,000	Purchase of Plant and Machinery	10,000
Loan	10,000	Increase in Working Capital	13,000
Funds from Operations	3,000		
	23,000		23,000

Problem 2.

Balance Sheet of A Company Ltd., as on 31st March

Liabilities	2004	2005	Assets	2004	2005
Share Capital	1,00,000	1,10,000	Land and Building	60,000	60,000
Profit and Loss a/c	20,000	23,000	Plant and Machinery	35,000	45,000
Loans	—	10,000	Stock	20,000	25,000
Creditors	15,000	18,000	Debtors	18,000	28,000
Bills payable	5,000	~ 4,000	Bills receivable	2,000	1,000
			Cash	5,000	6,000
	1,40,000	1,65,000		1,40,000	1,65,000

Statement.\

From
the above
data
prepare a
Cash
Flow

Cash Flow Statement

Inflow	Rs.	Outflow	Rs.
Balance b/d	5,000	Purchase of plant	10,000
Issued Share Capital	10,000	Stock	5,000
Loan	10,000	DEBTORS	10,000
Cash Opening Profit	3,000	Decrease in Bills Payable	1,000
Decrease in Bills Receivable	1,000	Balance c/d	6,000
Increase in Creditors	3,000		
TOTAL	32,000	TOTAL	32,000