

RATIO ANALYSIS

A ratio is nothing more than a simple division of two numbers. Often numbers by themselves do not convey anything until they are related. It needs a contextual reference. Several ratios, calculated from the accounting data, can be grouped into various classes according to the financial activity or function to be evaluated.

DuPont Analysis: Return on equity is a measure that most investors are greatly concerned about as it is a measure of what return the company is able to generate on the shareholder's money. While there is no doubt as to its relevance, the return can in itself be broken down into three components to further analyze how these returns were earned and what mainly helped in generating the same. The DuPont analysis helps to understand where the return on equity is derived from, by breaking it down to its components, and by then comparing it with companies in similar industries (or between industries). DuPont breaks down the return on equity into three components with various balance sheet items canceling each other out due to cross multiplication and ultimately yielding profit after tax divided (PAT) by equity. However in the process, we also do come to know how each item has performed individually. It is calculated as follows:

$$\text{Return on Equity} = (\text{PAT}/\text{Revenues}) * (\text{Revenues}/\text{Total Assets}) * (\text{Total Assets}/\text{Equity})$$

PAT/Revenues: The return on sales ratio measures the company's profitability by showing profit margins generated by the company. It is indicative in a limited sense of its pricing ability and cost control when compared with its own performance and with the performance of other companies.

Revenue/Total Assets: The asset turnover ratio is indicative of how efficiently the company has managed to utilize its assets. A high ratio as compared to others is indicative of the company being able to put its assets to more productive use as compared to other companies.

Total Assets/Equity: The equity multiplier is indicative of the leverage employed by the company. It reflects the extent to which a company relies on debt to finance its assets. While we are not suggesting that debt is bad for a company but too much of it can put the company in trouble when headwinds get generated in an industry.

Importance of DuPont Analysis

Any decision affecting the product prices, per unit costs, volume or efficiency has an impact on the profit margin or turnover ratios. Similarly, any decision affecting the amount and ratio of debt or equity used will affect the financial structure and the overall cost of capital of a company. Therefore, these financial concepts are very important to evaluate as every business is competing for limited capital resources. Additionally, people should not be swayed by high Return on Equity without breaking it down to these components and then comparing it to other companies in similar industries as companies can inflate the ROE by simply tweaking one of the components of this ratio. Thus, to truly understand the profitability and productivity of a company and its resources it is vital to divide the ratio and compare it to the ratios of other companies belonging to similar industries. Also, understanding the inter-relationships among the various ratios such as turnover ratios, leverage, and profitability ratios helps companies in utilizing their money in areas where the risk adjusted return is the maximum.

The following are the important categories of ratios:

- Liquidity ratios
- Leverage ratios
- Activity/Operating ratios
- Profitability ratios

Liquidity ratios measure the firm's ability to meet current obligations. They establish a relationship between cash and other current assets to current obligations and current liabilities to provide a quick measure of liquidity. A firm should ensure that it does not suffer from lack of liquidity and also that it does not have excess liquidity. Lack of sufficient liquidity can result in poor creditworthiness, loss of creditor's confidence and insolvency. Contrastingly, very high liquidity is also bad because it reflects idle and non-earning assets. Therefore, it is necessary to strike a proper balance between high liquidity and lack of liquidity.

The ratios which indicate the extent of liquidity or lack of it are:

- Current ratio
- Quick ratio
- Interval measure
- Net working capital ratio.

These ratios can be further well understood and clarified with the help of the tables as under

Sr No	Ratio	Standard Norms	Formula	Compostion	Significance
1.1	Current ratio	2:1	<u>Current Assets</u> Current liabilities	<p>Current Assets:</p> <ol style="list-style-type: none"> 1. Sundry Debtors 2. Stocks of raw materials, work in process, stores and spares 3. Loans ,Deposits and Advances 4. Cash and bank balances 5. Prepaid expenses 6. Bills receivable <p>Current liabilities:</p> <ol style="list-style-type: none"> 1. Sundry creditors 2. Bills payable 3. Unclaimed dividends 4. Provision for taxes 5. Advances received 6. Outstanding liabilities 7. Interest accrued but not paid 8. Bank overdraft 	<ul style="list-style-type: none"> ▪ Ability to pay current liabilities as and when they arise, i.e. solvency of concern ▪ Short-term financial strength ▪ Working capital position .i.e. whether concern has enough short-term funds to run day to day operations effectively <p>High ratio indicates:</p> <ul style="list-style-type: none"> ▪ Sound Solvency ▪ Too high reflects idle non-earning assets <p>Low ratio indicates:</p> <ul style="list-style-type: none"> ▪ Inadequate working capital ▪ Higher proportion of payments are overdue to sundry creditors ▪ Danger of insolvency, though business may be profitable

1.2	Quick ratio	1:1	<u>Quick Assets</u> <u>Quick Liabilities</u>	Quick assets: Current Assets As per 1.1 Less: 1. Prepaid Expenses 2. Stock Quick Liabilities: Current liabilities As per 1.1 Less: 1. Bank Overdraft 2. Pre-received or advance Income	<ul style="list-style-type: none"> ▪ Measures the immediate solvency of concern to meet its most current obligations ▪ Sees the liquidity of business, i.e. convertibility of assets into cash during normal course High ratio indicates : <ul style="list-style-type: none"> ▪ Favorable financial position but sometimes also reveals unwise use of funds and low stocks. Low ratio indicates: <ul style="list-style-type: none"> ▪ Financial difficulty or larger stocks due to increased activity or even inefficient maintenance of stocks
1.3	Interval Measure	NA	<u>Cur. assets-stock</u> <u>Avg.operating exp</u>	Avg. Operating Expenses* = Operating Exp./2 *from income statement	Another ratio which assesses a firm's ability to meet its regular cash expenses
1.4	Net working capital	NA	<u>Net working cap</u> <u>Net assets</u>	Net working capital: Difference between current assets and current liabilities excluding short term banking. Net assets: Share capital plus Reserves (or total assets – current Liabilities)	Measures the firm's potential reservoir of funds

Leverage ratios: Long-term creditors like debenture holders, financial institutions etc. are more concerned with the firm's long-term financial strength. In fact, a firm should have both a strong short-term and a strong long-term financial position. The long-term financial position can be assessed through financial leverage and capital structure ratios. They measure financial strength and reflect the firm's ability of using debt to shareholder's advantage.

They are classified into 5 different ratios:

- Debt ratio
- Net-Worth ratio
- Debt-Equity ratio
- Other Debt ratios
- Coverage ratio

Sr.No	Ratio	Standard Norms	Formula	Composition	Significance
2.1	Debt ratio	NA	$\frac{\text{Total Debt}}{\text{Net Assets}}$	<p>Total Debt: Will include short-term and long-term borrowings from financial institutions, debentures, bank borrowings, public deposits and any other interest bearing loan.</p> <p>Net assets: As per 1.4</p>	Used to analyze the long term solvency of a firm.
2.2	Net Worth Ratio	65% to 75%	$\frac{\text{Proprietor's Funds}}{\text{Total Assets}}$	<p>Proprietor's Funds:</p> <ol style="list-style-type: none"> 1. Equity Share Capital 2. Preference Share Capital 3. Capital and Revenue Reserves 4. Undistributed profits <p>Less</p> <ol style="list-style-type: none"> 1. Accumulated losses 2. Fictitious Assets <p>Total Assets:</p> <ol style="list-style-type: none"> 1. Fixed Assets 2. Investments 3. Current Assets. 	<p>It indicates the capital structure and reflects long-term solvency</p> <p>High ratio indicates:</p> <ol style="list-style-type: none"> 1. Great margin of safety for creditors 2. Sound financial position and solvency in the long-run <p>Low ratio indicates:</p> <ol style="list-style-type: none"> 1. Low margin of safety for creditors; 2. Financial position not very sound.
2.3	Debt-Equity ratio	NA	$\frac{\text{Total Debt}}{\text{Net Worth}}$	<p>Net Worth: (Share capital + Reserves) – Accumulated Losses</p>	The relationship describes the lenders contribution for each rupee of the owners
2.4	Other Debt ratios	NA	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	<p>Total liabilities:</p> <ol style="list-style-type: none"> 1. Sundry creditors 2. Bills payable 3. Unclaimed dividends 4. Provision for taxes 5. Advances received 6. Outstanding liabilities 	It assesses the proportion of total funds, short-term and long-term, provided by outsiders to finance total assets

				7. Interest accrued but not paid 8. Bank overdraft Total Assets : 1. Fixed Assets 2. Investments 3. Current Assets.	
2.5	Interest Coverage ratio	Depends upon the debt component in capital structure usually higher the better	<u>(EBIT)</u> Interest	EBIT Net profit before Taxes plus interest. Interest: Interest on Fixed (long term) loans/debentures.	It measures the margin of safety for interest payments to lenders.

Activity/Operating Ratios are employed to evaluate the efficiency with which firms manage and utilize their assets. These ratios are also called turnover ratios because they indicate the speed with which assets are being converted or turned over into sales; thus, these ratios usually reflect a relationship between sales and assets. A proper balance between sales and assets reflects that assets are managed well.

There are four types of Activity/Operating Ratios:

- Asset Turnover Ratio (Mentioned with Du Pont Analysis)
- Stock Turnover Ratio
- Debtors Turnover ratio
- Fixed Assets Turnover Ratio
- Current Assets Turnover Ratio

Sr. No	Ratio	Standard Norms	Formula	Composition	Significance
3.1	Stock Turnover Ratio Or Inventory Ratio Or Stock Velocity Ratio	No. of times	<u>Cost of Sales</u> Average Stock	Cost of Sales Opening stock Add: Purchase of Raw materials Purchase expenses Direct labor Factory overheads Less: Closing Stock Average Stock (Opening Stock + Closing Stock)/2 NOTE: In the absence of availability of either opening or closing stock,	<ul style="list-style-type: none"> ▪ Indicates the rate at which the inventories are sold or replaced ▪ Evaluates efficiency and productivity of the use and control of inventory High Ratio Indicates <ul style="list-style-type: none"> ▪ Short investment in stocks ▪ Efficient inventory control ▪ Increasing business and fast movement of stocks ▪ However, a very high ratio is indicative of under investment in inventory

				the Stock-Turnover Ratio must be worked out on the basis of the value of stock available.	Low Ratio Indicates <ul style="list-style-type: none"> ▪ Excessive investment in stock ▪ Accumulation of stocks either being obsolete or slow moving ▪ Slackness in business activity ▪ Inefficient inventory control
3.2	Debtors Turnover Ratio Or Debtors Velocity Ratio Or Debt Collection Period	6 to 8 times About 1.5 to 2 months About 45 to 60 days	$\frac{\text{Credit Sales}}{\text{Debtors + Bills Receivable}}$ $\frac{(\text{Debtors + Bills Receivable}) * 12}{\text{Credit Sales}}$ Or $\frac{12}{\text{Debtors Turnover Ratio}}$ $\frac{(\text{Debtors + Bills Receivable}) * 365}{\text{Credit Sales}}$ Or $\frac{365}{\text{Debtors Turnover Ratio}}$	Sundry Debtors and Bills Receivables: Note: if there is a significance rise or fall in the balance of debtors then average opening and closing balances is to be considered	<ul style="list-style-type: none"> ▪ Ascertains the speed with which Credit Sales are converted into Cash ▪ Helps finding out credit period allowed to customers ▪ High ratio reflects efficiency of Collecting debts High Period Indicates <ul style="list-style-type: none"> ▪ Higher credit period granted to customers ▪ Time lag in recovery of dues from sundry debtors ▪ Danger of Doubtful Debts Low Period Indicates <ul style="list-style-type: none"> ▪ Adequate period granted to customers ▪ Recovery of dues from customer on time ▪ Efficient collection department
3.3	Fixed Assets Turnover Ratio	Depend upon type of industry higher the better	$\frac{\text{Cost of Sales}}{\text{Fixed Assets}}$	Cost of Sales As per 3.2 Fixed Assets Good Will Land Building Plant and Machinery Office Equipment Furniture & Fixtures Vehicles	<ul style="list-style-type: none"> ▪ Measures the ability to utilize assets ▪ Evaluates bottlenecks faced by concern in achieving maximum efficiency ▪ It indicates weather there was adequate investments in the fixed assets and if there over or under

				Other like Patent	investments in the fixed assets High Ratio Indicates <ul style="list-style-type: none"> Effective utilization of men, machine and materials Low Ratio Indicates <ul style="list-style-type: none"> Higher investment in Fixed Assets. Higher cost of depreciation reducing overall profitability.
3.4	Current Assets Turnover Ratio	Depends on type of industry	$\frac{\text{Cost of Sales}}{\text{Gross Current Assets}}$	Cost of sales: As per 3.2 Current Assets : As per 1.1	<ul style="list-style-type: none"> Ascertains the efficient use of current assets High Ratio Indicates <ul style="list-style-type: none"> Larger profit margin Effective use of current assets Low Ratio Indicates <ul style="list-style-type: none"> In effective use of current assets.

Profitability Ratios: Profit is the difference between revenues & expenses over a period of time (usually one year). The financial manager should continuously evaluate the company in terms of profits because profit maximization is the ultimate goal of all profit-seeking companies. The Profitability Ratios are calculated to measure the relationships between profit and its constituents such as sales and investments.

Generally, two types of profitability ratios are calculated:

- Profitability in relation to sales
- Profitability in relation to investment

Sr. No	Ratio	Standard Norms	Formula	Composition	Interpretation Significance
4.1	Gross Profit Ratio or Gross Margin Ratio	Should be compared with previous years' ratio and ratio of other companies in the same industry	$\frac{\text{Gross Profit} \times 100}{\text{Net Sales}}$ $\frac{\text{Gross Profit} \times 100}{\text{Cost of Sales}}$	Gross Profit Net Sales – Cost of Sales Net Sales Gross sales – Returns (if any) Cost of Sales As per 3.1	<ul style="list-style-type: none"> Analyses the basic profitability A significant indicator of effective management Used by auditors for review of operations High Ratio Indicates <ul style="list-style-type: none"> Increase in selling price without reduction in corresponding sales Decrease in cost of sales without decline in sales High profitability of

					<p>concern due to efficiency of sales department and effective cost control</p> <p>Low Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Increase in cost of sales without corresponding increase in sales ▪ Decrease in selling price without corresponding decrease in cost of sales ▪ Lower profitability due to inefficient operations
4.2	Net Profit Ratio	Should be compared with ratio of previous year	$\frac{\text{Operating Net Profit} \times 100}{\text{Net Sales}}$ $\frac{\text{Net Profit before tax} \times 100}{\text{Net Sales}}$	<p>Operating Net Profit Sale Less: i. Cost of Sales. ii. Operating Expenses (Administration + Setting and Distribution+ Financial Expenses)</p> <p>Net Profit Before Taxes Operating net profit add: Non-Operating Income less: Non-Operating Expenses</p>	<ul style="list-style-type: none"> ▪ Indicates the number of paise that remains as net operating profit out of a rupee of sale ▪ Final indication of operational efficiency of management i.e. its ability to generate profits through day-to-day operations. <p>High Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Higher surplus for distribution to shareholders and/or retention <p>Low Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Operational inefficiency
4.3	Operating Ratios Operating Cost Ratio	75% to 85%	$\frac{\text{Operating Cost} \times 100}{\text{Net Sales}}$	<p>Operating cost: Cost of sales (Cost of materials, labor, factory overheads) Add: Operating Expenses Administrative + Selling and distribution + finance Exp)</p>	<p>measure and ascertain operational efficiency of management in its daily operations including production</p> <p>High Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Inefficient working of management. <p>Low Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Better operational efficiency
4.4	Return on Equity Capital	NA	$\frac{\text{Net Profit after tax less Preference Dividend} \times 100}{\text{Equity share capital}}$	<p>Equity Share Capital Paid up Equity Shares</p> <ul style="list-style-type: none"> ▪ Shows efficiency of management in running the business and utilizing equity 	

				<p>capital</p> <p>High Ratio Indicates</p> <ul style="list-style-type: none"> ▪ High Profitability of the company ▪ Higher dividend for equity share holders ▪ Highly geared company <p>Low Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Inefficient utilization of equity capital by management ▪ Less profitability and lower earning per share
4.5	Earning Per Share (“EPS”)	NA	<p>Net Profit after Tax Less <u>Preference Dividend</u></p> <p>Number of Equity Shares</p>	<ul style="list-style-type: none"> ▪ It measures per share profit available for distribution to equity shareholders ▪ Influences share price movement ▪ Determines exchange ratio for corporate mergers ▪ It is an effective tool in the hands of financial management of an entity to determine capital structure ▪ EPS as a measure of profitability needs to be used with proper care as it does not recognize the effect of increase in Shareholders Equity as a result of plowing back of profits <p>High Ratio Indicates</p> <ul style="list-style-type: none"> ▪ More profits available to share holders ▪ Enhances the possibility of more cash dividend or bonus shares. <p>Low Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Low returns to Shareholders ▪ Low ratio as compared with EBIT implies conservative financing

					policy
4.6	Dividend Payout Ratio	Depend upon type of industries and capital structure. Normally it is 30 to 40%.	<u>Dividend per Share</u> Earnings per Share Or <u>DPS x 100</u> EPS	Dividend per Share Total dividends for the year proposed <u>less preference</u> <u>Dividend proposed</u> Total Number Of Equity Shares Or <u>Equity Dividend proposed</u> Total number of equity shares	<ul style="list-style-type: none"> ▪ Measures relationships between distributable earnings and distributed earnings. In other words it measures percentage of earnings paid out as dividends and what is ploughed back in to business ▪ Reveals the dividend policy followed by management ▪ Dividend pay out ratio should be determined with references to two basic objectives: Maximizing wealth of owners and providing sufficient funds to finance for growth <p>High Ratio Indicates</p> <ul style="list-style-type: none"> ▪ High returns to shareholders on the investment and low retained earnings ▪ Liberal dividend policy <p>Low Ratio Indicates</p> <ul style="list-style-type: none"> ▪ Conservative Dividend Policy ▪ Low return to shareholders on investments ▪ More earning retained to finance growth
4.7	Price-Earnings Ratio Or Earnings Multiple	About 10 to 15 times	<u>Market Price</u> Earning Per Share		<ul style="list-style-type: none"> ▪ Measures how much the investors are willing to pay for the company's earnings ▪ Measures investor's expectations and market appraisal of performance of the company ▪ Used by research analyst to asses a company's performance as expected by investors

					<p>and determined whether the share is under-price or over-priced</p> <ul style="list-style-type: none"> Predicts market price of a share by projecting the earnings (EPS) of the company on the basis of information available from various sources and applying 'earning multiple' <p>High Ratio Indicates</p> <ul style="list-style-type: none"> Investor's confidence in stability of management and growth of company's profitability Better position of shareholders in terms of return Bright prospects for company and the same is recognized by the market <p>Low Ratio Indicates</p> <ul style="list-style-type: none"> Lack of investor's confidence Does not necessarily imply that the company is not doing well since it may be due to unawareness on part of market about the company's prospects and performance.
4.8	Yield Ratio	Higher yield is better	<u>Dividends per Share</u> x 100 Market Price	Dividend per share <u>Total dividend Paid</u> <u>/Proceed</u> Number of equity share	<ul style="list-style-type: none"> Measures cash returns to investors if he were to purchase the shares from the market Enables investors to make decision among alternative opportunities of investments <p>High Ratio Indicates</p> <ul style="list-style-type: none"> Distribution of dividends is higher compared to market

					<p>price of share</p> <p>Low Ratio Indicates</p> <ul style="list-style-type: none">▪ Market price of the share is higher compared to dividends distributed▪ Market price of the share is very high compared to dividends paid▪ PE ratio is also high and the share is liked by the market or can be hyped
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