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A Note on Financial Ratio Analysis

*This technical note was written by **MK Srikanth**, under the direction of **Vivek Gupta**, ICFAI Center for Management Research (ICMR). It is intended to be used as the basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation.*

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A NOTE ON FINANCIAL RATIO ANALYSIS

ABSTRACT:

This technical note explains in detail the analysis of financial statements of a company. It provides insights into two widely used financial tools, ratio analysis and common size statements analysis. The objective of this note is to help the reader understand how these tools should be used to analyze the financial position of a firm. To demonstrate the process of financial analysis, Hindustan Lever Limited's (HLL's) balance sheet and income statements are analyzed in this note.

INTRODUCTION:

The major financial statements of a company are the balance sheet, income statement and cash flow statement (statement of sources and applications of funds). These statements present an overview of the financial position of a firm to both the stakeholders and the management of the firm. But unless the information provided by these statements is analyzed and interpreted systematically, the true financial position of the firm cannot be understood. The analysis of financial statements plays an important role in determining the financial strengths and weaknesses of a company relative to that of other companies in the same industry. The analysis also reveals whether the company's financial position has been improving or deteriorating over time.

FINANCIAL RATIO ANALYSIS:

Financial ratio analysis involves the calculation and comparison of ratios which are derived from the information given in the company's financial statements. The historical trends of these ratios can be used to make inferences about a company's financial condition, its operations and its investment attractiveness.

Financial ratio analysis groups the ratios into categories that tell us about the different facets of a company's financial state of affairs. Some of the categories of ratios are described below:

- **Liquidity Ratios** give a picture of a company's short term financial situation or solvency.
- **Operational/Turnover Ratios** show how efficient a company's operations and how well it is using its assets.
- **Leverage/Capital Structure Ratios** show the quantum of debt in a company's capital structure.
- **Profitability Ratios** use margin analysis and show the return on sales and capital employed.
- **Valuation Ratios** show the performance of a company in the capital market.

LIQUIDITY RATIOS

Liquidity refers to the ability of a firm to meet its short-term (usually up to 1 year) obligations. The ratios which indicate the liquidity of a company are Current ratio, Quick/Acid-Test ratio, and Cash ratio. These ratios are discussed below.

CURRENT RATIO

Current ratio (CR) is the ratio of total current assets (CA) to total current liabilities (CL). Current assets include cash and bank balances; inventory of raw materials, semi-finished and finished goods; marketable securities; debtors (net of provision for bad and doubtful debts); bills receivable; and prepaid expenses. Current liabilities consist of trade creditors, bills

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payable, bank credit, provision for taxation, dividends payable and outstanding expenses. This ratio measures the liquidity of the current assets and the ability of a company to meet its short-term debt obligation.

Current Ratio = Current Assets / Current Liabilities

CR measures the ability of the company to meet its CL, i.e., CA gets converted into cash in the operating cycle of the firm and provides the funds needed to pay for CL. The higher the current ratio, the greater the short-term solvency. While interpreting the current ratio, the composition of current assets must not be overlooked. A firm with a high proportion of current assets in the form of cash and debtors is more liquid than one with a high proportion of current assets in the form of inventories, even though both the firms have the same current ratio. Internationally, a current ratio of 2:1 is considered satisfactory.

QUICK OR ACID-TEST RATIO

Quick Ratio (QR) is the ratio between quick current assets (QA) and CL. QA refers to those current assets that can be converted into cash immediately without any value dilution. QA includes cash and bank balances, short-term marketable securities, and sundry debtors. Inventory and prepaid expenses are excluded since these cannot be turned into cash as and when required.

Quick Ratio = Quick Assets / Current Liabilities

QR indicates the extent to which a company can pay its current liabilities without relying on the sale of inventory. This is a fairly stringent measure of liquidity because it is based on those current assets which are highly liquid. Inventories are excluded from the numerator of this ratio because they are deemed the least liquid component of current assets. Generally, a quick ratio of 1:1 is considered good. One drawback of the quick ratio is that it ignores the timing of receipts and payments.

CASH RATIO

Since cash and bank balances and short term marketable securities are the most liquid assets of a firm, financial analysts look at the cash ratio. The cash ratio is computed as follows:

Cash Ratio = (Cash and Bank Balances + Current Investments) / Current Liabilities

The cash ratio is the most stringent ratio for measuring liquidity.

OPERATIONAL/TURNOVER RATIOS

These ratios determine how quickly certain current assets can be converted into cash. They are also called efficiency ratios or asset utilization ratios as they measure the efficiency of a firm in managing assets. These ratios are based on the relationship between the level of activity represented by sales or cost of goods sold and levels of investment in various assets. The important turnover ratios are debtors turnover ratio, average collection period, inventory/stock turnover ratio, fixed assets turnover ratio, and total assets turnover ratio. These are described below:

DEBTORS TURNOVER RATIO (DTO)

DTO is calculated by dividing the net credit sales by average debtors outstanding during the year. It measures the liquidity of a firm's debts. Net credit sales are the gross credit sales minus returns, if any, from customers. Average debtors is the average of debtors at the

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beginning and at the end of the year. This ratio shows how rapidly debts are collected. The higher the DTO, the better it is for the organization.

Debtors Turnover Ratio = Net Credit Sales / Average Debtors

AVERAGE COLLECTION PERIOD (ACP)

ACP is calculated by dividing the days in a year by the debtors' turnover. The average collection period represents the number of day's worth of credit sales that is blocked with the debtors (accounts receivable). It is computed as follows:

Average Collection Ratio = Months (days) in a Year / Debtors Turnover

The ACP and the accounts receivables turnover are related as:

ACP = 365 / Accounts Receivable Turnover

The ACP can be compared with the firm's credit terms to judge the efficiency of credit management. For example, if the credit terms are 2/10, net 45, an ACP of 85 days means that the collection is slow and an ACP of 40 days means that the collection is prompt.

INVENTORY OR STOCK TURNOVER RATIO (ITR)

ITR refers to the number of times the inventory is sold and replaced during the accounting period. It is calculated as follows:

Inventory Turnover Ratio = Cost of Goods Sold / Average Inventory

ITR reflects the efficiency of inventory management. The higher the ratio, the more efficient is the management of inventories, and vice versa. However, a high inventory turnover may also result from a low level of inventory which may lead to frequent stock outs and loss of sales and customer goodwill. For calculating ITR, the average of inventories at the beginning and the end of the year is taken. In general, averages may be used when a flow figure (in this case, cost of goods sold) is related to a stock figure (inventories).

FIXED ASSETS TURNOVER (FAT)

The FAT ratio measures the net sales per rupee of investment in fixed assets. It can be computed as follows:

FAT = Net sales / Average net fixed assets

This ratio measures the efficiency with which fixed assets are employed. A high ratio indicates a high degree of efficiency in asset utilization while a low ratio reflects an inefficient use of assets. However, this ratio should be used with caution because when the fixed assets of a firm are old and substantially depreciated, the fixed assets turnover ratio tends to be high (because the denominator of the ratio is very low).

TOTAL ASSETS TURNOVER (TAT)

TAT is the ratio between the net sales and the average total assets. It can be computed as follows:

TAT = Net sales / Average total assets

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This ratio measures how efficiently an organization is utilizing its assets.

LEVERAGE/CAPITAL STRUCTURE RATIO

These ratios measure the long-term solvency of a firm. Financial leverage refers to the use of debt finance. While debt capital is a cheaper source of finance, it is also a risky source. Leverage ratios help us assess the risk arising from the use of debt capital. Two types of ratios are commonly used to analyze financial leverage – structural ratios and coverage ratios. Structural ratios are based on the proportions of debt and equity in the financial structure of a firm. Coverage ratios show the relationship between the debt commitments and the sources for meeting them. The long-term creditors of a firm evaluate its financial strength on the basis of its ability to pay the interest on the loan regularly during the period of the loan and its ability to pay the principal on maturity.

RATIOS COMPUTED FROM BALANCE SHEET

Debt-Equity: This ratio shows the relative proportions of debt and equity in financing the assets of a firm. The debt includes short-term and long-term borrowings. The equity includes the networth (paid-up equity capital and reserves and surplus) and preference capital. It can be calculated as:

Debt / Equity

Debt-Asset Ratio: The debt-asset ratio measures the extent to which the borrowed funds support the firm's assets. It can be calculated as:

Debt / Assets

The numerator of the ratio includes all debt, short-term as well as long-term, and the denominator of the ratio includes all the assets (the balance sheet total).

RATIOS CALCULATED FROM P&L ACCOUNT /COVERAGE RATIOS

The claims of the creditors are met by the proceeds of sales and the operating profits. These claims include:

- interest on loans
- preference dividend
- redemption of preference capital on maturity

Coverage ratios measure the relationship between the earnings from operations and the claims of creditors.

Interest Coverage Ratio: This ratio determines the long-term debt servicing capacity of a firm. It is calculated as follows:

Profit before interest and taxes / Interest

Profit before interest and taxes is used in the numerator of this ratio because the ability of a firm to pay interest is not affected by its tax payment, as interest on debt fund is a tax-deductible expense. A high interest coverage ratio indicates that the firm can easily meet its interest burden. A low ratio indicates the excessive use of debt and the inability of the firm to offer regular payment of interest to the creditors. This ratio is widely used by lenders to assess a firm's debt capacity and shows the number of times the interest charges are covered by EBIT.

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However, this ratio is not a very appropriate measure of interest coverage because the source of interest payment is cash flow before interest and taxes, and not profit before interest and taxes. Hence, some companies use a modified interest coverage ratio:

Profit before interest and taxes + Depreciation / Debt interest

Fixed Charges Coverage Ratio: This ratio shows how many times the pre-tax operating income covers all fixed financing charges. It is calculated as follows:

PBIT + Depreciation / Interest + {Repayment of loan / (1-Tax rate)}

In the denominator of this ratio, only the repayment of loan is adjusted for the tax factor because the loan repayment amount, unlike interest, is not tax deductible. This ratio measures a firm's debt servicing ability in a comprehensive manner because it considers both the interest and the principal repayment obligations.

Debt Service Coverage Ratio: Popularly used by term-lending financial institutions in India, the debt service coverage ratio can be calculated as follows:

PAT + Depreciation + Other non-cash charges + Interest on term loan/Interest on the term loan + Repayment of term loan

Financial institutions calculate the average debt service coverage ratio for the period during which the term loan for the project is repayable. Normally, financial institutions regard a debt service coverage ratio of 1.5 to 2.0 as satisfactory.

PROFITABILITY RATIOS

These ratios help measure the profitability of a firm. There are two types of profitability ratios:

- Profitability ratios in relation to sales and
- Profitability ratios in relation to investments

PROFITABILITY RATIOS IN RELATION TO SALES

A firm which generates a substantial amount of profits per rupee of sales can comfortably meet its operating expenses and provide more returns to its shareholders. The relationship between profit and sales is measured by profitability ratios. There are two types of profitability ratios: Gross Profit Margin and Net Profit Margin.

Gross Profit Margin: This ratio measures the relationship between gross profit and sales. It is calculated as follows:

Gross Profit Margin = Gross Profit/Net sales * 100

This ratio shows the profit that remains after the manufacturing costs have been met. It measures the efficiency of production as well as pricing.

Net Profit Margin: This ratio is computed using the following formula:

Net profit / Net sales

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This ratio shows the net earnings (to be distributed to both equity and preference shareholders) as a percentage of net sales. It measures the overall efficiency of production, administration, selling, financing, pricing and tax management. Jointly considered, the gross and net profit margin ratios provide an understanding of the cost and profit structure of a firm.

PROFITABILITY RATIOS IN RELATION TO INVESTMENT

These ratios measure the relationship between the profits and investments of a firm. There are three such ratios: Return on Assets, Return on Capital Employed, and Return on Shareholders' Equity.

Return on Assets (ROA): This ratio measures the profitability of the assets of a firm. The formula for calculating ROA is:

ROA = EAT + Interest – Tax Advantage on Interest / Average Total Assets

Return on Capital Employed (ROCE): Capital employed refers to the long-term funds invested by the creditors and the owners of a firm. It is the sum of long-term liabilities and owner's equity. ROCE indicates the efficiency with which the long-term funds of a firm are utilized. It is computed by the following formula:

ROCE = (EBIT / Average Total Capital Employed) * 100

Return on Shareholders' Equity: This ratio measures the return on shareholders' funds. It can be calculated using the following methods:

- Rate of return on total shareholders' equity.
- Rate of return on ordinary shareholders
- Earnings per share
- Dividends per share
- Dividend pay-out ratio
- Earning and Dividend yield

(i) Return on Total Shareholders' Equity

The total shareholders' equity consists of preference share capital, ordinary share capital consisting of equity share capital, share premium, reserves and surplus less accumulated losses.

Return on total shareholders' equity = (Net profit after taxes) * 100 /Average total shareholders' equity

(ii) Return on Ordinary Shareholder's Equity (ROSE)

This ratio is calculated by dividing the net profits after taxes and preference dividend by the average equity capital held by the ordinary shareholders.

ROSE = (Net Profit after Taxes – Preference Dividend) * 100 / Networth

(iii) Earnings per Share (EPS)

EPS measures the profits available to the equity shareholders on each share held. The formula for calculating EPS is:

EPS = Net Profits Available to Equity Holders / Number of Ordinary Shares Outstanding

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(iv) Dividend per Share (DPS)

DPS shows how much is paid as dividend to the shareholders on each share held. The formula for calculating EPS is:

DPS = Dividend Paid to Ordinary Shareholders / Number of Ordinary Shares Outstanding

(v) Dividend Pay-out Ratio (D/P Ratio)

D/P ratio shows the percentage share of net profits after taxes and after preference dividend has been paid to the preference equity holders.

D/P ratio = Dividend per Share (DPS) / Earnings per Share * 100

(vi) Earning & Dividend Yield

Earning yield is also known as earning-price ratio and is expressed in terms of the market value per share.

Earning Yield = EPS / Market Value per Share * 100

Dividend Yield is expressed in terms of the market value per share.

Dividend Yield = (DPS / Market Value per Share) * 100

VALUATION RATIOS

Valuation ratios indicate the performance of the equity stock of a company in the stock market. Since the market value of equity reflects the combined influence of risk and return, valuation ratios play an important role in assessing a company's performance in the stock market. The important valuation ratios are the Price-Earnings Ratio and the Market Value to Book Value Ratio.

Price-Earnings (P/E) Ratio

The P/E ratio is the ratio between the market price of the shares of a firm and the firm's earnings per share. The formula for calculating the P/E ratio is:

P/E ratio = Market Price of Share / Earnings per Share

The price-earnings ratio indicates the growth prospects, risk characteristics, degree of liquidity, shareholder orientation, and corporate image of a company.

Market Value to Book Value Ratio

This is the ratio between the market price per share (MPS) and actual book value per share. It can be calculated as follows:

Market Value to Book Value Ratio = Market Price per Share / Book Value per Share

This ratio reflects the contribution of a company to the wealth of its shareholders. When this ratio exceeds 1, it means that the company has contributed to the creation of wealth of its shareholders.

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DUPONT ANALYSIS

Dupont Analysis is a technique that breaks ROA and ROE measures down into three basic components that determine a firm's profit efficacy, asset efficiency and leverage. The analysis attempts to isolate the factors that contribute to the strengths and weaknesses in a company's financial performance. Poor asset management, expenses getting out of control, production or marketing inefficiency could be potential weaknesses within a company. Expressing these individual components rather than interpreting ROE, may help the company identify these weaknesses in a better way. This model was developed by the US based DuPont company. The model breaks down return on networth (RONW) into three basic components, reflecting the quality of earnings along with possible risk levels.

$$RONW = PAT / NW$$

Where,

PAT = Profit after Tax
NW = Networth

The above formula can be further broken down into:

$$RONW = PAT / Sales * Sales / CE * CE / NW$$

Where, CE = Capital Employed.

COMMON SIZE STATEMENTS

A common size statement is an extension of ratio analysis. In a common size statement, each individual asset and liability is shown as a percentage of total assets and liabilities respectively. Such a statement prepared for a firm over a number of years would give insights into the relative changes in expenses, assets and liabilities. In a common size income statement gross sales/net sales are taken as 100 per cent and each expense item is shown as a percentage of gross sales/net sales.

CALCULATING FINANCIAL RATIOS OF HLL

Let us understand how the above financial ratios are calculated using the balance sheet and income statement of HLL, the largest fast moving consumer goods company in India.

BALANCE SHEET OF HINDUSTAN LEVER LIMITED

Hindustan Lever Ltd. Rs. Crore[1]	**Dec 1996 12 mths**	**Dec 1997 12 mths**	**Dec 1998 12 mths**	**Dec 1999 12 mths**	**Dec 2000 12 mths**	**Dec 2001 12 mths**
Gross fixed assets	**1047.9**	**1122.8**	**1364.40**	**1454.1**	**1669.6**	**1889.45**
Land & building	223.7	278.30	347.91	385.6	425.3	504.97
Plant & machinery	628.0	636.5	762.28	779.6	877.6	1013.71
Other fixed assets	102.4	120.9	163.84	185.00	237.1	260.24
Capital WIP	93.8	87.1	90.37	103.9	129.6	110.53
Less: cumulative depreciation	326.4	328.8	400.1	447.1	511.5	586.90
Net fixed assets	**721.5**	**794.0**	**964.30**	**1007.1**	**1158.2**	**1302.55**
Revalued assets	0.6	0.6	0.6	0.6	0.6	0.6
Investments	328.6	544.5	729.51	1068.0	1832.1	1668.93
In group/associate cos.	191.8	253.6	296.46	299.1	440.3	352.60

[1] Rs. 1 billion = Rs. 100 crores

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In mutual funds	2.7	77.70	77.67	80.8	104.8	504.42
Other investments	134.1	213.2	355.38	688.1	1287.0	811.91
Marketable investment	**76.30**	**183.5**	**370.50**	**523.80**	**935.6**	**586.83**
Market value of quoted investment	215.3	573.7	645.14	863.20	969.9	593.85
Deferred tax assets	0.00	0.00	0.00	0.00	0.00	349.61
Inventories	**903.4**	**1044.6**	**1145.68**	**1309.8**	**1181.8**	**1240.05**
Raw materials and stores	389.8	484.2	560.06	593.4	539.2	597.12
Raw materials	366.3	455.6	534.78	565.1	514.6	568.31
Stores and spares	23.5	28.6	25.28	28.3	24.6	28.81
Finished and semi-finished goods	514.1	560.4	585.62	716.4	638.9	635.71
Finished goods	470.00	521.2	548.63	673.8	589.7	587.99
Semi-finished goods	44.1	39.2	36.99	42.6	49.2	47.72
Other stock	0.00	0.00	0.00	0.00	3.78	7.22
Receivables	**720.8**	**582.11**	**803.16**	**860.4**	**1054.8**	**1268.70**
Sundry debtors	143.5	145.4	192.94	233.7	264.5	424.79
Debtors exceeding six months	30.3	22.8	14.63	10.70	7.6	7.82
Accrued income	9.3	8.3	13.68	27.4	46.4	45.75
Advances/loans to corporate bodies	30.6	56.1	144.07	51.7	291.6	214.85
Group/associate cos.	30.6	56.1	144.07	51.7	76.8	74.85
Other cos.	0.00	0.00	0.00	0.00	0.00	0.00
Deposits with govt./agencies	16.8	33.5	35.62	42.2	37.7	45.73
Advance payment of tax	0.00	0.010	0.00	0.00	0.00	0.00
Other receivables	520.6	338.8	416.85	505.4	414.6	537.58
Cash & bank balance	**203.3**	**574.50**	**659.88**	**810.3**	**522.0**	**913.15**
Cash in hand	1.3	2.50	1.59	5.47	1.47	1.41
Bank balance	202.8	572.0	658.29	804.9	520.6	911.74
Intangible assets (not written off)	0.00	0.00	89.47	80.0	47.3	22.38
Intangible assets (goodwill, etc.)	0.00	0.00	89.47	80.0	47.3	22.38
Total Assets	**2878.1**	**3539.71**	**4392.00**	**5135.6**	**5796.2**	**6765.37**

Hindustan Lever Ltd. Rs. Crore	**Dec 1996 12 mths**	**Dec 1997 12 mths**	**Dec 1998 12 mths**	**Dec 1999 12 mths**	**Dec 2000 12 mths**	**Dec 2001 12 mths**
Networth	**938.1**	**1261.2**	**1713.03**	**2102.5**	**2488.0**	**3043.69**
Authorized capital	225.00	225.00	225.00	225.00	225.00	225.00
Issued capital	145.8	199.1	219.57	219.5	220.0	220.12
Paid-up equity capital[2]	145.8	199.1	219.57	219.5	220.0	220.12
Preference capital	0.00	0.00	0.00	0.00	0.00	0.00
Reserves & surplus	**792.37**	**1062.1**	**1493.46**	**1883.0**	**2268.0**	**2823.57**
Free Reserves	761.80	1030.5	1459.40	1861.7	2249.4	2802.64
Share premium reserves	46.0	121.2	178.00	194.9	194.9	263.26
Other free reserves	715.8	909.3	1281.40	1666.8	2054.5	2539.38
Specific reserves	29.90	31.0	33.39	20.7	18.0	20.26
Revaluation reserves	0.6	0.6	0.6	0.6	0.6	0.67
Accumulated losses	0.00	0.00	0.00	0.00	0.00	0.00
Borrowings	**260.0**	**186.4**	**264.31**	**177.2**	**111.5**	**83.73**
Bank borrowing	35.1	3.2	90.57	110.9	55.5	24.70
Short-term bank borrowings	31.2	3.2	90.57	110.9	55.5	24.70
Long-term bank borrowings	3.9	0.00	0.00	0.00	0.00	0.00
Financial institutional borrowings	12.2	8.0	4.11	0.2	0.00	0.00
Govt./sales tax deferral borrowings	0.00	0.00	0.00	0.00	0.00	0.00
Debentures/bonds	18.6	18.5	17.78	0.00	0.00	0.00
Fixed deposits	91.3	87.3	86.72	5.2	0.00	0.00
Borrowings from corporate bodies	1.50	0.00	0.00	0.00	0.00	0.00
Commercial paper	15.00	0.00	0.00	0.00	0.00	0.00
Other borrowings	86.3	69.4	65.13	60.9	56.00	59.03
Secured borrowings	96.4	65.7	146.75	141.30	69.20	43.04

[2] Assuming that there is no buyback of shares and share split. Share face value of Rs.100 each.

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Unsecured borrowings	163.6	120.7	117.56	35.9	42.3	40.69
Current portion of long term debt	22.6	4.1	2.79	2.3	11.0	3.33
Total foreign currency borrowings	0.00	0.00	0.00	0.00	0.00	0.00
Deferred tax liabilities	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**103.13**
Current liabilities & provisions	**1680.0**	**2092.11**	**2414.66**	**2855.9**	**3196.7**	**3534.82**
Current liabilities	1438.0	1673.61	1858.02	2143.4	2233.9	2410.42
Sundry creditors	1142.3	1596.01	1787.36	2081.4	2163.3	2347.19
Interest accrued/due	15.4	17.8	16.50	7.5	5.3	2.63
Creditors for capital goods	0.00	0.00	0.00	0.00	0.00	0.00
Other current liabilities	280.3	59.8	54.16	54.5	65.3	60.60
Share application money	230.9	0.00	0.00	0.00	0.00	0.00
Advance against WIP	0.00	0.00	0.00	0.00	3.0	7.09
Provisions	**242.0**	**418.5**	**556.64**	**712.5**	**962.8**	**1124.40**
Tax provision	26.40	71.8	40.20	49.	172.2	51.89
Dividend provision	129.4	189.2	272.27	374.6	440.1	550.31
Dividend tax provision	0.00	0.00	0.00	0.00	0.00	0.00
Other provisions	86.2	157.5	244.17	288.00	350.5	522.20
Total liabilities	**2878.1**	**3539.71**	**4392.00**	**5135.6**	**5796.2**	**6765.37**
Contingent liabilities						
Bills discounted	30.4	41.4	30.83	31.9	99.5	74.65
Disputed taxes	0.00	0.00	0.00	0.00	0.00	0.00
Letters of credit	0.00	0.00	0.00	0.00	0.00	0.00
Total guarantees	59.3	55.3	57.37	12.00	49.6	39.22
Future lease rent payable	0.00	0.00	0.00	0.00	0.00	0.00
Liabilities on capital account	39.2	49.0	39.09	0.00	0.00	0.00

INCOME STATEMENT OF HINDUSTAN LEVER LIMITED

Hindustan Lever Ltd. **Rs. Crore**	**Dec 1996** **12 mths**	**Dec 1997** **12 mths**	**Dec 1998** **12 mths**	**Dec 1999** **12 mths**	**Dec 2000** **12 mths**	**Dec 2001** **12 mths**
Income	7137.8	8363.30	10261.57	10978.3	11458.30	11861.77
Other income	106.7	165.20	183.93	269.3	305.9	283.14
Change in stocks	15.2	46.40	-7.90	128.52	-83.85	-4.63
Non-recurring income	137.8	50.4	47.15	14.4	47.8	310.93
Expenditure						
Raw materials, stores, etc.	4533.4	5201.9	6158.31	6548.4	6388.8	6381.54
Wages & salaries	385.0	448.7	527.23	584.1	614.3	591.70
Energy (power & fuel)	105.8	110.8	118.43	123.1	139.9	152.77
Indirect taxes (excise, etc.)	577.1	626.5	835.44	861.8	870.1	920.66
Advertising & marketing expenses	283.0	490.6	676.86	746.5	709.2	835.75
Distribution expenses	279.2	289.1	345.77	366.2	446.0	465.86
Others	386.60	474.9	544.02	596.9	712.4	761.80
Non-recurring expenses	139.9	54.00	49.43	20.4	20.7	146.01
Profits/losses						
PBDIT	707.5	928.8	1229.4	1543.1	1826.8	2195.13
Financial charges (incl. Lease rent)	57.00	33.8	29.28	22.3	13.1	7.74
PBDT	650.5	895.0	1200.2	1520.8	1813.7	2187.39
Depreciation	55.2	57.9	101.05	128.7	130.9	144.66
PBT	595.3	837.1	1099.2	1392.1	1682.8	2042.73
Tax provision	192.55	270.00	293.00	318.00	355.00	402.42
PAT	**402.8**	**567.1**	**806.2**	**1074.1**	**1327..8**	**1640.31**
Appropriation of profits						
Dividends	261.9	372.44	531.35	711.09	942.3	1158.31
Equity dividend	249.0	338.5	463.46	638.1	770.2	1100.62
Dividend tax	12.9	33.9	67.9	72.9	172.1	57.69
Retained earnings	140.9	194.7	274.9	363.1	385.5	482.00

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Current Ratio

Calculation of current ratio for HLL

	1997	1998	1999	2000	2001
Current assets	2240.99	2753.33	3295.08	3321.35	3712.06
Current liabilities	2093.01	2503.92	2966.85	3252.71	3559.52
Current ratio	1.071	1.100	1.111	1.021	1.043

The norm for the current ratio in FMCG industry is 2:1. The current ratio of HLL is almost equal to 1:1, which is less than the norm. On an average, for every rupee of current liability, HLL has Rs. 1.069 of current assets. The current ratio can be better judged if it is studied along with ratios such as inventory turnover and receivables turnover.

The higher the receivables and inventory turnover, greater the firm's ability to pay its current liabilities. Generally, a low current ratio indicates the firm's inability to meet its current obligations. But a high current ratio may represent unnecessary blocking of liquid assets such as cash and cash equivalents.

Quick Ratio

Calculation of quick ratio for HLL

	1997	1998	1999	2000	2001
Quick assets	792.53	1126.87	1399.13	1632.7	1835.23
Current liabilities	2093.01	2503.92	2966.85	3252.71	3559.52
Quick ratio	0.38	0.45	0.47	0.50	0.52

A quick ratio of 1:1 is usually considered satisfactory. In the case of HLL, a low quick ratio as well as a low current ratio may indicate poor working capital management.

Debtors Turnover Ratio

Calculation of debtors' turnover ratio for HLL

	1997	1998	1999	2000	2001
Net credit sales	8363.30	10261.57	10978.31	11458.30	11861.77
Average debtors	144.49	169.19	213.34	249.13	344.65
Debtors' turnover ratio	57.88	60.65	51.45	45.99	34.41

The debtors' turnover ratio of HLL shows a downward trend. In this case, the average collection period of HLL must also be calculated and analyzed.

Average Collection Period

Calculation of average collection period:

	1997	1998	1999	2000	2001
Days in a year	365	365	365	365	365
Debtors' turnover	57.88	60.65	51.46	45.99	34.41
ACP	6.3	6	7	7.9	10.6

Here, the average collection period is gradually increasing, indicating that an extended line of credit has been allowed. There was a sharp decline in the debtors' turnover ratio in 1999, and

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the decline continued till 2001. The fall in debtors' turnover ratio can be attributed to any of the following reasons:

- There might be an increase in the volume of sales relative to the increase in debtors.
- The firm might have extended the credit period for debtors.
- The firm's debt collection team is not performing well, as a result rate of which the realization has come down.

Inventory or Stock Turnover Ratio

Calculation of Stock Turnover for HLL:

	1997	1998	1999	2000	2001
Sales	8363.30	10261.57	10978.31	11458.30	11861.77
Closing inventory	1044.6	1145.68	1309.8	1181.8	1240.05
Stock turnover	8	8.9	8.4	9.7	9.5

The stock turnover ratio of HLL shows a mixed trend. Generally, a high stock turnover ratio is considered better than a low turnover ratio. However, as mentioned earlier, a high ratio may indicate low investment in inventories.

Interest Coverage Ratio

Calculation of interest coverage ratio for HLL:

	1997	1998	1999	2000	2001
PBIT/interest	870.9/33.8	1128.4/29.2	1414.4/22.3	1695.9/13.1	2050.47/7.74
Interest coverage	25.76	38.64	63.43	129.46	264.92

This ratio shows the number of times the interest charges on long-term liabilities have been collected before the deduction of interest and tax. A high interest coverage ratio implies that the company can easily meet its interest burden even if profit before interest and taxes suffers a sharp decline. The interest coverage ratio for HLL is going up every year, implying that it can meet its interest obligations even if there is a decline in profits. From the creditors' point of view, the larger the coverage; the greater the firm's capacity to handle fixed-charge liabilities and the more assured the payment of interest to the creditors. A low ratio is a warning signal which indicates that the firm is using excessive debt and does not have the ability to pay interest to creditors. However, a very high ratio implies an unused debt capacity.

Gross Profit Margin

Calculation of Gross Margin for HLL:

	1997	1998	1999	2000	2001
Gross profit/Net Sales * 100	928.8 / 7736.75	1229.4/ 9426.13	1543.1/ 10116.45	1826.8/ 10588.18	2195.13/ 10941.11
Gross margin	12.00	13.04	15.25	17.25	20.06

The gross margin has been increasing steadily since 1997. The reasons for this increase can be:

- Higher sales prices but cost of goods sold remaining constant.
- Lower cost of goods sold, sales prices remaining constant.
- A combination of changes in sales prices and costs, widening the margin between them.

The high gross margin reported by HLL reflects the company's ability to maintain a low cost of production.

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Net Profit Margin

Calculation of net profit margin for HLL:

	1997	1998	1999	2000	2001
Net Profit/Net Sales × 100	567.1 / 7736.75	806.2 / 9426.13	1074.1/ 10116.45	1327.8/ 10588.18	1640.31/ 10941.11
Net Margin	7.32	8.55	10.61	12.54	14.99

The net profit margin of HLL has increased significantly. The high net profit margin implies higher returns to shareholders in the form of dividends and stock price appreciation.

Investment Turnover Ratio

Calculation of investment turnover for HLL:

	1997	1998	1999	2000	2001
Value of production/ Average total assets	7783.15/ 3208.9	9418.23/ 3965.85	10244.97/ 476382	10504.23/ 5465.9	10936.48/ 6280.78
Investment Turnover	2.425	2.375	2.150	1.921	1.741

The investment turnover ratio measures the relationship between the value of production and average total assets. This ratio measures the asset utilization efficiency of a firm. In the case of HLL, the investment turnover shows a downward trend. This trend can be attributed to the increasing underutilization of the firm's available production capacity.

Debt-Equity Ratio

Calculation of debt-equity ratio for HLL:

	1997	1998	1999	2000	2001
Debt/Networth	186.4/1261.2	264.31/1713.03	177.2/2102.5	111.5/2488	83.73/3043.69
Debt-equity Ratio	0.148	0.154	0.084	0.045	0.028

The debt-equity ratio of HLL shows a downward trend. This implies that the company is relying more on its owner's equity to finance its assets rather than on borrowed funds. Though the firm is using relatively less proportion of debt, the returns on equity investments have been profitable. This can be explained by calculating the average rate of return earned on the capital employed in assets and comparing that rate with the average interest rate paid for borrowed funds.

Calculation of rate of return on capital employed:

	1997	1998	1999	2000	2001
Borrowed funds	186.4	264.31	177.2	111.5	83.73
Owner's equity	1261.2	1713.03	2102.5	2488.0	3043.69
Total (a)	1447.6	1977.34	2279.7	2599.35	3127.42
PBDIT (b)	928.8	1229.4	1543.1	1826.8	2195.13
Rate of return (b/a)	64%	62.2%	67.6%	70.2%	70.1%
Interest charges	30.55%	11.07%	12.6%	11.73%	9.24%

For each rupee of capital invested in assets, HLL realized an average return of 66.82%, whereas it paid only 15.04% on an average as interests.

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Return on Assets (ROA)

Calculation of ROA for HLL:

	1997	1998	1999	2000	2001
PAT/Average total assets × 100	567.1/ 3208.9	806.2/ 3965.85	1074.1/ 4763.8	1327.8/ 5465.9	1640.31/ 6280.78
ROA	17.67	20.32	22.55	24.29	26.12

The above calculations show an upward trend in the return on total assets. However, these calculations do not include the interest payable to the creditors of the firm in the net profits. To calculate the actual returns on total assets, interest should be included in net profits, because assets are financed by owners as well as creditors. The following formula is used to find out the real return on total assets.

	1997	1998	1999	2000	2001
PAT + Interest/Average total assets * 100	600.9/ 3208.9	835.4/ 3965.85	1096.4/ 4763.8	1340.43/ 5465.9	1648.05/ 6280.78
ROA	18.73	21.06	23.01	24.52	26.24

Return on Capital Employed (ROCE)

Calculation of Return on Capital Employed:

	1997	1998	1999	2000	2001
PBIT/Average total capital employed × 100	870.9/ 1447.6	1128.4/ 1977.34	1414.4/ 2279.7	1695.9/ 2599.4	2050.47/ 3230.55
ROCE	60.16	57.07	62.04	65.22	63.47

This ratio measures how well the long-term funds of owners and creditors are used. The higher the ratio, the more efficient the utilization of capital employed.

Return on Total Shareholders' Equity

Calculation of return on total shareholders' equity:

	1997	1998	1999	2000	2001
Net profit after taxes	567.1	806.2	1074.1	1327.8	1640.31
Average total shareholders' equity	172.45	209.33	219.50	219.75	220.06
Return on total shareholders' equity	3.29	3.85	4.89	6.04	7.45

The return on total shareholders' equity has been increasing since 1997. This increase is due to the three-fold increase in net profits available to equity shareholders.

Dividend per Share

Calculation of dividend per share for HLL:

	1997	1998	1999	2000	2001
Dividend to ordinary shareholders	338.5	463.4	638.1	770.2	1100.62
Number of shares outstanding	1.99	2.19	2.19	2.20	2.20
Dividend per share	170.14	211.62	291.37	350.10	500.28

The dividend pay-out to ordinary shareholders has been increasing year after year, resulting in an increase in DPS. Higher dividends may have been declared because of stagnation in the business, as a result of which earnings were not retained. However, the increase in dividends also indicates that the company is generating profits consistently.

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Earnings per Share:

Calculation of earnings per share:

	1997	1998	1999	2000	2001
Net profits available to equity holders	567.1	806.2	1074.1	1327.8	1640.31
Number of ordinary shares outstanding	1.99	2.19	2.19	2.20	2.20
Earnings per share	284.97	368.13	490.46	603.54	745.60

EPS as a measure of the profitability of a company from the owner's point of view should be used cautiously as it does not recognize the effect of an increase in the networth of the company (caused by retention of earnings).

Dividend Pay-out Ratio

The Dividend pay-out ratio can be calculated by dividing the earnings per share by the market value per share. This ratio is also known as the earnings price ratio. The calculation of the dividend pay-out ratio is as follows:

	1997	1998	1999	2000	2001
DPS	170.14	211.62	291.37	350.10	500.28
EPS	284.97	368.13	490.46	603.54	745.60
Dividend pay-out	59.70	57.48	59.41	58.01	67.10

Earnings Yield

	1997	1998	1999	2000	2001
Market value per share	1383.5	1663.5	2250	2063.5	2236.5

Calculation of earnings yield for HLL:

	1997	1998	1999	2000	2001
EPS*100	284.97	368.13	490.46	603.54	745.60
Market value per share (MVS)	1383.5	1663.5	2250	2063.5	2236.5
Earnings yield	20.59	22.13	21.80	29.25	33.34

In the case of HLL, MVS is also increasing with EPS year after year, which may indicate better valuation of its shares in the secondary market.

Dividend Yield

Calculation of dividend yield:

	1997	1998	1999	2000	2001
DPS*100	170.14	211.62	291.37	350.10	500.28
Market value per share	1383.5	1663.5	2250	2063.5	2236.5
Dividend yield	12.30	12.72	12.95	16.97	22.37

The dividend yield is generally low for companies whose share price is very high compared to the face value of the share. In HLL's case, the face value is Rs. 100 and the market value per share is increasing every year. The dividend yield is also increasing year after year, indicating good financial performance of its shares.

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Price-earnings Ratio

Calculation of price-earnings ratio:

	1997	1998	1999	2000	2001
Market value per share	1383.5	1663.5	2250	2063.5	2236.5
EPS	284.97	368.13	490.46	603.54	745.60
Price-earnings ratio	4.85	4.52	4.59	3.42	3.00

To calculate the P/E ratio, the current market price of a company's share is divided by its actual earnings per share. When calculating the earnings per share, earnings from regular operations are taken and all extraordinary revenue items are discarded. In HLL's case, the P/E ratio is decreasing year after year, starting from 4.85 in 1997 and falling to 3.00 in 2001. This indicates that the 'discounting' given by the market for HLL's share is coming down.

Non-operating Income Ratio

This ratio indicates the extent to which a firm is dependent on its non-operating income to pay dividends. A rising trend in this ratio suggests that the company is relying more on its non-operating income than its operating income to pay dividends.

Calculation of non-operating income ratio:

	1997	1998	1999	2000	2001
Non-operating income	165.2	183.9	269.3	305.9	283.14
Profit before tax	837.1	1099.2	1392.10	1682.80	2042.73
Non-operating income ratio	0.197	0.167	0.193	0.181	0.138

Interest Incidence Ratio

This ratio shows how much of the operating profit is used to meet interest obligations:

Calculation of interest incidence:

	1997	1998	1999	2000	2001
Interest	33.80	29.20	22.30	13.1	7.74
Operating profit	928.8	1229.4	1543.1	1826.8	2195.13
Interest incidence ratio	0.036	0.024	0.014	0.007	0.003

The interest incidence ratio shows a downward trend indicating that the interest obligations are met not depending on the operating profit solely. The low interest incidence ratio may be due to a low proportion of debt in the firm's capital structure.

Credit Strength Ratio

The unsecured lenders of a firm (such as suppliers) examine the networth of the company to assess the risk of default. Hence, a firm must take the required action if current liabilities increase beyond a certain multiple of networth. A high credit strength ratio indicates a firm's increasing dependence on current liabilities, which may prove fatal if the firm does not have enough current assets to finance current liabilities. A credit strength ratio of 2:1 is considered satisfactory.

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Calculation of credit strength ratio:

	1997	1998	1999	2000	2001
Operating current liabilities	2093.01	2503.92	2966.85	3252.71	3559.52
Networth	1261.5	1713.03	2103.25	2488.24	3043.69
Credit strength ratio	1.659	1.46	1.41	1.30	1.169

In the case of HLL, the credit strength ratio shows a downward trend.

Direct Marketing Expenses Ratio (DMER)

The direct marketing expenses include salaries and allowances for marketing and sales people, forwarding expenses, sales commission, traveling and expenditure on advertisements. The DMER indicates whether the manufacturing and marketing functions of a company are moving hand in hand. The marketing department of a firm must always be in a position to convert production into sales as soon as possible, whenever there is a capacity addition in the manufacturing department. If it cannot do so, the firm may have to incur additional overheads.

Calculation of direct marketing expenses ratio for HLL

	1997	1998	1999	2000	2001
Direct marketing expenses	490.60	676.80	746.50	709.20	835.75
Net sales	7736.75	9426.13	10116.45	10588.18	10941.11
Direct marketing expenses ratio	0.063	0.071	0.073	0.066	0.076

The mixed trend in the ratio implies that HLL may have gone for a major capacity expansion in 1998-2001.

Sales Assets Turnover Ratio

Trade debtors and finished goods are important assets of marketing department in any organization. These two assets are together called 'sales assets.' A marketing department is regarded as an efficient department when its sales assets turnover is high.

Calculation of sales assets turnover ratio:

	1997	1998	1999	2000	2001
Gross sales	8363.3	10261.50	10978.30	11458.3	11861.77
Trade debtors + finished goods inventory	666.60	741.57	907.50	854.20	1012.78
Sales assets turnover ratio	12.54	13.83	12.09	13.41	11.71

The downward trend in this ratio may have been caused by an extended product line and liberal credit terms for debtors.

Value Coverage Ratio

This ratio measures the value of the output in relation to the relative value of input materials. It also shows the extent to which a company is technology driven. A technology intensive firm has greater economies of scale. A downward trend in this ratio indicates an increase in the economies of scale. While an upward trend implies the wastage of materials and the use of obsolete technology, with a low level of skills.

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Calculation of value coverage ratio:

	1997	1998	1999	2000	2001
Consumption of materials	7258.89	8552.74	9276.74	9142.43	9033.58
Value added	524.26	865.49	968.23	1361.9	1902.9
Value coverage ratio	13.85	9.88	9.58	6.71	4.75

A downward trend in the ratio indicates that the firm has been investing highly in introducing the latest technology available.

Over Trading Ratio

A company intending to increase its sales should ensure that it has sufficient net working capital to fall back on in the event of creditors becoming due for payment or else the company may have to face a severe liquidity crisis. An increase in the net working capital along with an increase in sales will help the company avoid a liquidity crisis.

Calculation of over trading ratio:

	1997	1998	1999	2000	2001
Net working capital	147.98	249.41	328.23	68.64	152.54
Credit sales	8363.3	10261.57	10978.31	11458.3	11861.77
Over trading ratio	0.017	0.024	0.029	0.006	0.013

The over trading ratio for HLL shows an upward trend till 1999, which indicates an increase in the net working capital, along with an increase in sales. But in 2000 and 2001, the company's net working capital did not increase in proportion to the increase in sales.

Working Capital Performance Ratio

This ratio refers to the sources through which the debtors of a firm are financed. A company can finance its debtors through its trade creditors or its advance payments from customers.

Calculation of working capital performance ratio:

	1997	1998	1999	2000	2001
Trade debtors	582.11	803.16	860.40	1054.80	1268.70
Trade creditors	1596.02	1787.36	2081.40	2164.30	2347.19
Working capital performance ratio	0.364	0.449	0.413	0.487	0.540

A working capital ratio of 2:1 is desirable. The ratio more than 2 indicates a better ability to meet ongoing and unexpected bill payments. The ratio less than 2 indicates that the company may have difficulties meeting its short-term commitments and that additional working capital support is required. In HLL's case, though this ratio is well below the desirable 2:1 ratio, it is increasing every year.

Debt Replacement Ratio:

This ratio shows how a company is replacing the debt that it has raised for expansion either through borrowed funds or through an equity issue. The debt is usually replaced through the retained earnings. Replacement from retained earnings increases the firm's networth as well as its ability to raise further debt.

Calculation of debt replacement ratio:

	1997	1998	1999	2000	2001
Retained earnings	194.27	274.90	363.10	385.50	482.00
Long term debt	183.20	173.74	66.30	56.00	59.03
Debt replacement ratio	1.062	1.582	5.476	6.883	8.165

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An upward trend in this ratio suggests that the firm has been using a larger proportion of its retained earnings to replace its debt, instead of paying dividends.

Plant Turnover Ratio

This ratio is an indication of the plant utilization capacity of a firm. An increasing trend in this ratio is a sign of timely replacement of equipment. A declining trend indicates a decrease in production levels due to falling demand for the product.

Calculation of plant turnover ratio:

	1997	1998	1999	2000	2001
Cost of production	5926.78	7029.11	7516.25	7416.59	7467.44
Depreciated plant and machinery	578.59	733.00	757.25	864.46	1005.97
Plant turnover ratio	10.24	9.58	9.92	8.57	7.42

DUPONT ANALYSIS

The overall profitability of a firm can be measured on the basis of two ratios: net profit margin and investment turnover. These two ratios when combined are known as 'earning power.'

The DuPont analysis is used to arrive at the overall performance of a firm and to identify the factors that contributed to it.

Earnings Power of HLL for the years 2000 and 2001

	2000	2001
Net sales	10588.18	10941.11
Net profits	1327.33	1640.30
Total assets	5797.03	6765.37
Profit margin ratio	12.5	14.99
Investment turnover	1.826	1.6172
ROI ratio	22.825	24.24

In 2000, a slight increase in the profit margin could have led to an increase in the profitability of the firm. Similarly, in 2001, a marginal improvement in its investment turnover, which is an indication of the efficient use of assets, might have increased its earning power.

COMMON SIZE INCOME STATEMENT OF HLL

	1997	1998	1999	2000	2001
Raw materials & Stores etc.	62.19	60.01	59.64	55.75	53.79
Wages & Salaries	5.36	5.14	5.32	5.36	4.98
Energy (Power & Fuel)	1.32	1.15	1.12	1.22	1.29
Indirect Taxes (Excise etc.)	7.49	8.14	7.85	7.59	7.76
Advertising & Marketing Expenses	5.86	6.59	6.79	6.18	7.04
Distribution Expenses	3.45	3.36	3.34	3.89	3.92
Others	5.67	5.30	5.43	6.22	6.42
Tax Provision	3.23	2.86	2.89	3.098	3.39
PAT	6.77	7.85	9.78	11.58	13.82
Gross Sales	**100**	**100**	**100**	**100**	**100**

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COMMON SIZE BALANCE SHEET OF HLL

	1997	1998	1999	2000	2001
Liabilities					
Equity Share Capital	5.62	5.00	4.27	3.79	3.25
Reserves & Surplus	30.00	34.00	36.66	39.13	41.73
Borrowings	5.26	6.02	3.45	1.92	1.23
Current liabilities & Provisions	59.00	55.00	55.61	55.00	52.24
Total Liabilities	100	100	100	100	100
Assets					
Fixed Assets	22.43	21.96	19.61	19.97	19.25
Investments	15.38	16.60	20.80	31.06	24.67
Inventories	29.51	26.09	25.50	20.40	18.33
Receivables	16.45	18.31	16.76	18.21	18.75
Cash & Bank Balances	16.23	15.02	15.78	9.00	13.51
Total assets	**100**	**100**	**100**	**100**	**100**

From the above common size income statement we can see that the expenditure on raw materials, wages and salaries, fuel and electricity is decreasing year after year, indicating improving operating efficiency at HLL. The increase in marketing and distribution expenses indicates that the company has increased its investment in its marketing efforts. The increase in HLL's overall profits indicates that the financial performance of the company has improved.

ADVANTAGES OF RATIO ANALYSIS

Financial ratios are essentially concerned with the identification of significant accounting data relationships, which give the decision-maker insights into the financial performance of a company. The advantages of ratio analysis can be summarized as follows:

- Ratios facilitate conducting trend analysis, which is important for decision making and forecasting.
- Ratio analysis helps in the assessment of the liquidity, operating efficiency, profitability and solvency of a firm.
- Ratio analysis provides a basis for both intra-firm as well as inter-firm comparisons.
- The comparison of actual ratios with base year ratios or standard ratios helps the management analyze the financial performance of the firm.

LIMITATIONS OF RATIO ANALYSIS

Ratio analysis has its limitations. These limitations are described below:

- A ratio in isolation is of little help. It should be compared with the base year ratio or standard ratio, the computation of which is difficult as it involves the selection of a base year and the determination of standards.
- Inter-firm comparison may not be useful unless the firms compared are of the same size and age, and employ similar production methods and accounting practices.
- Even within a company, comparisons can be distorted by changes in the price level.
- Ratios provide only quantitative information, not qualitative information.
- Ratios are calculated on the basis of past financial statements. They do not indicate future trends and they do not consider economic conditions.

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CONCLUSION

Ratio analysis has a major significance in analyzing the financial performance of a company over a period of time. Decisions affecting product prices, per unit costs, volume or efficiency have an impact on the profit margin or turnover ratios of a company. Similarly, decisions affecting the amount and ratio of debt or equity used have an affect on the financial structure and overall cost of capital of a company. Understanding the inter-relationships among the various ratios, such as turnover ratios and leverage and profitability ratios, helps managers invest in areas where the risk adjusted return is maximum. In spite of its limitations, ratio analysis can provide useful and reliable information if relevant data is used for analysis.

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