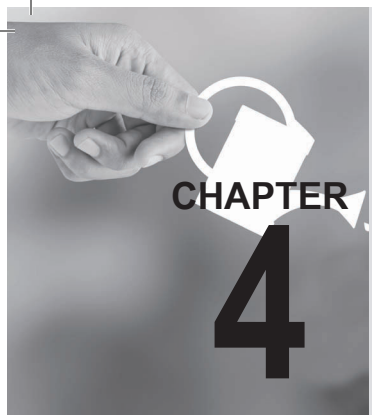


CHAPTER

4 Financial Statement Analysis

LEARNING OUTCOMES

After reading this chapter, you will be able to:

- Understand the utility and nature of financial statement analysis
- Comprehend and interpret horizontal and vertical analysis
- Assess profitability through computation and interpretation of ratios
- Use ratio analysis for assessing liquidity of a firm
- Use ratio analysis for assessing solvency
- Understand the computation and interpretation of DuPont ratio

OPENING EXHIBIT: EXCERPTS FROM ANNUAL REPORT (2014–2015) OF TITAN COMPANY LTD

Directors' Report

The economic outlook for the year 2014–2015 was promising while improvement in consumer demand was quite lukewarm. The company's jewellery business was also impacted due to regulatory changes and termination of the consumer-friendly Golden Harvest Scheme. The company's brands witnessed good growth during the first half while in the later half, they witnessed a decline due to the absence of the Golden Harvest Scheme, which used to contribute about 30% of the Jewellery Division's revenues. The company will however continue to invest in strategic initiatives taking into account its long-term and sustainable growth plans.

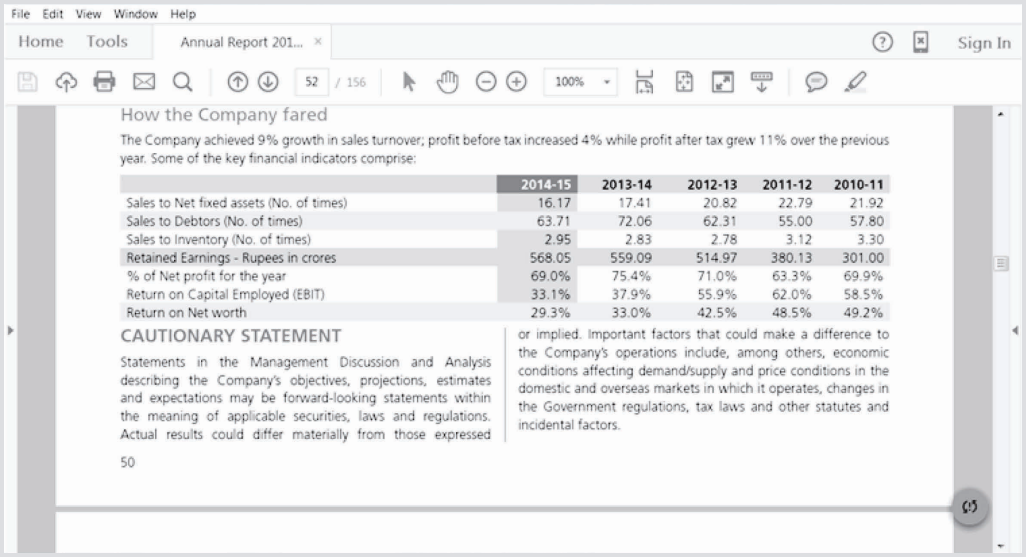
During the year under review, the company's sales income grew by 8.96% to INR 11,936.71 crore compared with INR 10,955.14 crore in the previous year. Profit before tax grew by 3.93% to INR 1,055.89 crore and the net profit grew by 11.05% to INR 823.07 crore. This performance came in the backdrop of an environment where the consumer sentiment did not pick up as expected. The strength of the company's brands contributed to sales growth across all retail formats of watches, jewellery, and eyewear.

The watches business of the company recorded an income of INR 1,921.04 crore, a growth of 7.27%, which was achieved through meticulous planning and execution of key initiatives. The income from the jewellery segment grew by 9.24%, touching INR 9,429.97 crore. The income from other segments comprising Precision Engineering, a B2B Business, the Eyewear Business, and accessories grew by 12.91% to INR 564.31 crore. The year witnessed aggressive expansion of the company's retail network with a net addition of 123 stores. As on 31 March 2015, the company had 1201 stores, with over 1.59 million sq. ft of retail space delivering a retail turnover of just under INR 12,000 crore.

International Operations

The watches exports registered a handsome growth of 12% to clock a turnover of INR 137.76 crore against a backdrop of several headwinds in international markets. The business sustained its targeted investments in retail and brand building in key, large markets. The presence of Titan in modern retail is adding to both image and business. Entry into in-flight sales through Singapore Airlines paves way for a new route to building the brand. Vietnam, UAE, and Malaysia lead the growth stories while Indonesia, Nigeria, Philippines, and SAARC markets hold promise for future.

The key financial ratios are given as follows: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How the Company fared

The Company achieved 9% growth in sales turnover; profit before tax increased 4% while profit after tax grew 11% over the previous year. Some of the key financial indicators comprise:

	2014-15	2013-14	2012-13	2011-12	2010-11
Sales to Net fixed assets (No. of times)	16.17	17.41	20.82	22.79	21.92
Sales to Debtors (No. of times)	63.71	72.06	62.31	55.00	57.80
Sales to Inventory (No. of times)	2.95	2.83	2.78	3.12	3.30
Retained Earnings - Rupees in crores	568.05	559.09	514.97	380.13	301.00
% of Net profit for the year	69.0%	75.4%	71.0%	63.3%	69.9%
Return on Capital Employed (EBIT)	33.1%	37.9%	55.9%	62.0%	58.5%
Return on Net worth	29.3%	33.0%	42.5%	48.5%	49.2%

CAUTIONARY STATEMENT

Statements in the Management Discussion and Analysis describing the Company's objectives, projections, estimates and expectations may be forward-looking statements within the meaning of applicable securities, laws and regulations. Actual results could differ materially from those expressed or implied. Important factors that could make a difference to the Company's operations include, among others, economic conditions affecting demand/supply and price conditions in the domestic and overseas markets in which it operates, changes in the Government regulations, tax laws and other statutes and incidental factors.

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Company-wide Outlook for FY 2015–2016

While the opportunities and risks faced by each business is highlighted above, overall, as Titan Company looks ahead with cautious optimism, in its consumer business, the company has over three decades endeavoured to transform unorganized sectors of industry, be it in watches, jewellery, or eyewear. However, non-compliance of the law of the land by other players in the industries and government's (central and state) inability to deal with such non-compliance swiftly and effectively has only made the playing field more uneven. In the present circumstance, therefore, the company can only pursue advocacy and continuous customer education to achieve higher-than-present rate of growth. In the Precision Engineering business, however, the company's competence has been sufficiently recognized by global customers and expects to enhance to grow aggressively in this business.

Source: Adapted from Annual Report of Titan Company Ltd (2014–1015).

If you want to reap financial blessings, you have to sow financially. – Joel Osteen

INTRODUCTION

Financial statements are like a window through which the stakeholders can peek into the affairs of a company. A balance sheet gives a snapshot of the sources and uses of funds as on a particular date. The profit and loss account tells us about the earnings and losses made by the company during an accounting period. However, a mere statement cannot tell the complete story. Analysis of financial statements is required for understanding the financial health of a company. The excerpts from the annual report of Titan Company Ltd given earlier provide a glimpse of the financial performance during the year 2014–2015 as well as the future outlook (for the year 2015–2016) of the company.

In this chapter, we will discuss the tools and techniques for analysing financial statements. For a better understanding, we include the examples of Asian Paints Ltd (APL) and Berger Paints Ltd (BPL). The opinions given in this chapter are that of the author and the purpose is only academic in nature. The ratios are computed by using the methods depicted in standard financial literature.

FINANCIAL STATEMENT ANALYSIS—A BRIEF REVIEW

As mentioned earlier, the study of financial statements of a company is done for assessing its financial health on a given day. Stakeholders of a company including the investors, creditors, and the government will be interested in knowing the state of the financial health of the company. Analysis of financial statements helps them to achieve this objective. The essential requirements for a financial analysis are as follows:

Financial facts and figures Financial data is available through financial statements such as balance sheet, profit and loss account, cash flow statement, and so on. It is obligatory for publicly traded firms to publish the audited financial statements annually as a report called the *Annual Report*. The content of an annual report is discussed in detail in Chapter 3. In addition to publication of annual report, a company also publishes quarterly as well as half-yearly results. A company also issues press releases highlighting its financial performance. All these published items of information along with company's internal reports, if available, are used for financial analysis. In this chapter, we will use the financial statements of APL and BPL for analysis.

Benchmarking Financial statements cannot present a complete view of financial health in a stand-alone manner; it has to be compared with some benchmarks. Benchmarking and comparison may be horizontal or vertical. *Horizontal analysis* is comparison of financial results of the same company across different periods. In *vertical analysis*, the financial results of a company are compared with competitors' performance as well as industry benchmarks. For example, we may compare the performance of Tata Steel by benchmarking it with the performance of other prominent players in the steel industry such as SAIL, JSW Steel, and so on. We will discuss more about vertical and horizontal analyses in the following sections.

Analytical tools Several analytical tools are available for financial studies and are used by analysts for analysing financial statements. Some of these are ratio analysis, common size statement analysis, trend analysis, and graphs and charts. As mentioned earlier, a stand-alone figure cannot speak much about the company's performance. In this chapter, we will discuss two major analytical tools: ratio analysis and common size statement analysis. To give a real-life flavour to this entire discussion, we will use the annual reports of APL and BPL.

RATIO ANALYSIS

Let us consider two companies, A and B. The profit earned by Company A is INR 10 lakh and the profit earned by Company B is INR 20 lakh. Which company is more profitable? At initial glance, the second company appears to be more profitable. However, if we are also provided with the revenue figures; for example, the sales revenue of A is INR 50 lakh and that of B is INR 150 lakh; the picture changes. Then the profitability in terms of percentage of sales can be as shown in Table 4.1.

Table 4.1 Comparative profitability chart

Company	Net profit (INR lakh)	Sales (INR lakh)	Net profit/Sales	Net profit (%)
A	10	50	10/50 = 0.20	20
B	20	150	20/150 = 0.13	13

As shown in Table 4.1, contrary to the earlier perception, Company A is, in fact, more profitable than Company B. The net profit (NP) ratio of Company A is 20%, whereas that for Company B is only 13%.

This example clearly shows that the stand-alone figures do not narrate the complete story. Ratio analysis is a simple but very powerful technique for financial analysis. In ratio analysis, the ratios are computed and compared to assess the financial health of a firm. We will calculate financial ratios of 2012 for APL and BPL using the figures from balance sheet and profit and loss account as shown in Figs 4.1 and 4.2, respectively.

asianpaints

Balance Sheet as at 31st March, 2012

(₹ in Crores)

	Notes	As at 31.03.2012	As at 31.03.2011
EQUITY AND LIABILITIES			
SHAREHOLDERS' FUNDS			
Share Capital	2	95.92	95.92
Reserves and Surplus	3	2,391.86	1,879.40
		2,487.78	1,975.32
NON-CURRENT LIABILITIES			
Long Term Borrowings	4	52.64	57.71
Deferred Tax Liability (Net)	5	80.75	75.50
Other Long Term Liabilities	6	3.62	4.96
Long Term Provisions	7	65.16	66.43
		202.17	204.60
CURRENT LIABILITIES			
Short Term Borrowings	8	110.51	3.98
Trade Payables	9	1,069.06	931.89
Other Current Liabilities	10	755.44	464.50
Short Term Provisions	7	355.07	274.75
		2,290.08	1,675.12
Total		4,980.03	3,855.04
ASSETS			
NON-CURRENT ASSETS			
Fixed Assets			
Tangible Assets	11 A	987.79	1,038.65
Intangible Assets	11 B	21.25	18.54
Capital work-in-progress		602.84	39.67
		1,611.88	1,096.86
Non-current Investments	12	279.22	206.83
Long Term Loans and Advances	13	311.34	97.78
CURRENT ASSETS			
Current Investments	14	263.00	341.00
Inventories	15	1,264.42	1,071.76
Trade Receivables	16	500.24	355.56
Cash and Bank balances	17	500.97	509.01
Short Term Loans and Advances	13	153.69	84.79
Other Current Assets	18	95.27	91.45
		2,777.59	2,453.57
Total		4,980.03	3,855.04

Statement of Profit and Loss for the year ended 31st March, 2012

(₹ in Crores)

	Notes	Year 2011-12	Year 2010-11
INCOME			
Revenue from Operations (Net of discounts)	19	8,747.76	6,957.72
Less: Excise duty		783.60	621.64
Revenue from Operations (Net of discounts and excise duty)		7,964.16	6,336.08
Other Income	20	141.49	74.90
TOTAL REVENUE		8,105.65	6,410.98
EXPENSES			
Cost of Materials Consumed	21A	4,722.74	3,681.92
Purchases of Stock-in-trade	21B	120.41	105.56
Changes in inventories of finished goods, work in progress and stock-in-trade	21C	(115.07)	(140.61)
Employee Benefits Expense	22	341.63	300.45
Other Expenses	23	1,542.70	1,231.50
TOTAL EXPENSES		6,612.41	5,178.82
EARNINGS BEFORE INTEREST, TAX, DEPRECIATION AND AMORTISATION (EBITDA)		1,493.24	1,232.16
Depreciation and Amortisation Expense	11	99.49	94.48
Finance Costs	24	30.82	15.35
PROFIT BEFORE TAX		1,362.93	1,122.33
Less: **Tax Expenses**			
Current Tax		402.76	324.99
Deferred Tax	5	4.16	26.41
(Excess) tax provision for earlier years		(2.38)	(4.22)
Total Tax Expenses		404.54	347.18
PROFIT AFTER TAX		958.39	775.15
Earnings per share (₹) Basic and diluted (Face value of ₹ 10 each)	46	99.92	80.81

Fig. 4.1 Balance sheet and profit and loss account of APL (2011–2012)
Source: Asian Paints Annual Report 2011–2012.

BALANCE SHEET
AS AT 31ST MARCH, 2012

	Note	31st March, 2012 ₹ Mn	31st March, 2011 ₹ Mn
EQUITY AND LIABILITIES			
Shareholders' Funds			
Share Capital	2	692	692
Reserves and surplus	3	7,763	6,538
		8,455	**7,230**
Non-Current Liabilities			
Deferred Tax liabilities (net)	4	125	90
Other Long term liabilities	5	94	71
		219	**161**
Current Liabilities			
Short-term borrowings	6	1,698	1,070
Trade payables	7	3,282	2,520
Other current liabilities	8	808	768
Short-term provisions	9	640	439
		6,428	**4,797**
TOTAL		**15,102**	**12,188**
ASSETS			
Non-Current Assets			
Fixed Assets			
Tangible assets	10	2,683	1,995
Intangible assets	10	37	47
Capital work-in-progress		659	768
		3,379	2,810
Non-current investments	11	766	655
Long-term loans and advances	12	455	155
Other non-current assets	13	1	1
		4,601	**3,621**
Current Assets			
Current investments	14	30	521
Inventories	15	5,139	4,039
Trade Receivables	16	3,050	2,383
Cash and bank balances	17	1,763	1,228
Short term loans and advances	18	454	363
Other current assets	19	65	33
		10,501	**8,567**
TOTAL		**15,102**	**12,188**

(*Contd*)

STATEMENT OF PROFIT AND LOSS
FOR THE YEAR ENDED 31ST MARCH, 2012

	Note	For the year ended 31st March, 2012 ₹ Mn	For the year ended 31st March, 2011 ₹ Mn
INCOME			
Revenue from operations	20	29,012	22,991
Less: Excise Duty		2,391	1,920
		26,621	21,071
Other Income	21	306	296
Total Revenue		**26,927**	**21,367**
EXPENDITURE			
Cost of materials consumed	22	16,143	12,769
Purchases of Stock-in-Trade	23	1,670	1,205
(Increase) / Decrease in inventories of finished goods, work-in-process and stock-in-trade	24	(732)	(585)
Employee benefits expense	25	1,223	1,067
Finance costs	26	224	122
Depreciation and amortization expense	27	376	300
Other expenses	28	5,541	4,378
Total Expenses		**24,445**	**19,256**
PROFIT BEFORE TAX		2,482	2,111
Tax expense			
Current Tax		673	628
Deferred Tax *	29	35	0
PROFIT AFTER TAX		**1,774**	**1,483**
Earnings per share (in ₹)	30		
Basic		5.13	4.29
Diluted		5.12	4.28

* Refer Note 47

Significant accounting policies 1

The accompanying notes form an integral part of the financial statements.

This is the Statement of Profit and Loss referred to in our report of even date.

Fig. 4.2 Balance sheet and profit and loss account of BPL (2011–2012)
Source: Berger Paints Annual Report 2011–2012.

Types of Ratios

The different types of ratios are mainly classified under the following two categories (refer to Table 4.2):

Table 4.2 Types of ratios

Balance sheet ratios	Liquidity ratio
	Solvency ratio or Financial leverage ratio
Income statement or Income statement/ Balance sheet ratios	Asset management ratio, Activity ratio, or Turnover ratio
	Profitability ratio
	Coverage ratio

Balance sheet ratios Balance sheet ratios are aptly named because both the numerator and the denominator are fetched from the balance sheet. These ratios primarily give an idea about the financial health of a company on the balance sheet date. Balance sheet ratios can be further sub-divided into two categories, namely liquidity ratios and financial leverage ratios.

Income statement or income statement/balance sheet ratios In such ratios, the numerator and the denominator are fetched either both from the income statement or one from the income statement and the other from the balance sheet. These ratios give an idea about the financial performance of the company over a period of time. Coverage ratios, activity ratios, and profitability ratios are the three main subcategories that belong to this class.

We will discuss each type of ratios in detail in the following section.

Liquidity ratios

An important question often faced by the stakeholders as well as the management is whether the company is capable of paying its short-term obligations. *Is the firm liquid enough*? Liquidity ratios are computed to assess the firm's liquidity, that is, the firm's capability to pay the liabilities in due time. Liquidity ratios are easy and quick to compute. We compute two important liquidity ratios for APL and BPL, as follows.

Current ratio Current ratio, also termed as *working capital ratio*, compares current assets with current liabilities. In other words, this ratio tells us how capable the company is to meet the current liabilities, that is, short-term obligations, out of current assets, that is, short-term assets. It compares the availability of current assets that may be turned into cash for meeting the current liabilities within the same year or the same operating cycle. Current ratio is calculated by dividing current assets by current liabilities.

Current ratio = Current assets/Current liabilities

From the balance sheet of APL (Fig. 4.1), the current ratio for the year ending 31 March 2012 can be calculated as

= Current assets/Current liabilities
= INR 2,777.69 crore/INR 2,290.08 crore
= 1.21

Similarly, from the balance sheet of BPL (Fig. 4.2), the current ratio for the year ending 31 March 2012 can be calculated as

= INR 1,050.1 crore/INR 642.8 crore
= 1.63

Table 4.3 Comparative study of current ratio

	Current ratio	
	2011–2012	2010–2011
APL	1.21	1.46
BPL	1.63	1.79

Table 4.3 shows the current ratios of the two companies.

As observed in Table 4.3, the current ratio of APL has declined from 1.46 in 2010–2011 to 1.21 in 2011–2012. However, in comparison with BPL, the current ratio is still lower. In 2011–2012, the current ratio of APL is 1.21 vis-à-vis 1.63 of BPL. We may say that BPL is more liquid than APL. However, high current ratio is not always a very desirable situation. It may imply high un-invested cash, non-moving stock, and slow-paying debtors.

It is difficult to mention any ideal current ratio that is universally applicable to all types of industries. However, the current ratio of any company should match with that of the industry to which it belongs. The current ratio of APL and BPL should not deviate much from the current ratio of the Indian paint industry as a whole.

Quick ratio Quick ratio or *liquid ratio* gives a more in-depth view of the liquidity position of a company. Quick ratio does not consider inventories and prepaid expenses as part of current assets. This is a logical exclusion as the company may not be able to convert inventory into cash easily. Inventories need to be sold first for converting into cash. Selling inventory is a time-consuming process. When and how the inventories will be sold is dependent on many factors such as economic conditions, consumer preferences, and so on. These factors are often not controllable by the company. Therefore, inventories are not really that *current* in real sense. Prepaid expenses are also excluded because they cannot be converted into cash. Thus, it is a more conservative measure of liquidity. The basic purpose of computing liquidity ratios is to assess the capability of repaying the current liabilities on demand.

Quick ratio may be computed as follows:

Quick ratio for APL = (Current assets – Inventories – Prepaid expenses)/Current liabilities
= (INR 2,777.59 crore – INR 1,264.42 crore)/INR 2,290.08 crore
= 0.66

Table 4.4 Comparative study of quick ratio

	Quick ratio	
	2011–2012	2010–2011
APL	0.66	0.82
BPL	0.83	0.94

Table 4.4 presents quick ratios for APL and BPL.

It may be observed from comparing Tables 4.3 and 4.4 that the quick ratios of APL and BPL are lower than their current ratios. The reason for the lower value of quick ratio is the exclusion of inventory from the current assets, In that sense, the quick ratio of BPL is on the higher side (higher than that of APL).

Cash ratio Cash ratio, also called *cash asset ratio*, is the ratio of a company's cash and cash equivalent assets to its total liabilities. Cash ratio is even more conservative compared to current ratio and liquid/quick ratio and indicates the extent to which readily available funds can pay off current liabilities. Potential creditors use this ratio as a measure of a company's liquidity and how easily it can service debt and cover short-term liabilities. Cash ratio can be calculated as follows:

= Cash and cash equivalents/Current liabilities

The cash ratio for APL for the year 2011–2012 is

= INR 500.97 crore/INR 2,290 crore
= 0.22

Similarly, the cash ratio for BPL for the year 2011–2012 is

= INR 1,763 crore/INR 6,428 crore
= 0.27

Table 4.5 Comparative study of cash ratio

	Cash ratio	
	2011–2012	2010–2011
APL	0.22	0.30
BPL	0.27	0.25

A very high cash ratio is not desirable as it may show the cash management skill of the management in poor light. On the contrary, a very low cash holding may challenge the liquidity position of the company.

Asset management ratios

Companies use funds for acquiring assets. Assets are acquired for generating income. The asset management ratios measure the effective use of assets of a company. The question is *How well are the assets used for meeting the objective of wealth maximization*? If the company overinvests in assets and fails to generate adequate return, the NP will decline, ultimately hurting the stock price. Therefore, optimum use of assets is important for survival and growth of a company. In the following sections, we discuss the different types of asset management ratios, e.g., (a) Inventory turnover ratio, (b) Accounts receivable turnover ratio, (c) Fixed asset turnover ratio, (d) Total asset turnover ratio, and (e) Working capital turnover ratio:

Inventory turnover ratio The inventory turnover ratio tells us how many times during a given period the company is selling out its inventory balance. Obviously, companies prefer higher inventory turnover ratio. Higher inventory turnover ratio implies faster selling of inventory holding and lesser investment in inventory stock, leading to a higher profit. The inventory turnover ratio is defined as follows:

Inventory turnover ratio = Sales/Average inventory

where Average inventory = (Opening inventory + Closing inventory)/2

For APL, inventory turnover ratio (2011–2012)

= INR 7964.16 crore/[(INR 1264.42 crore + INR 1071.76 crore)/2]
= 6.81

Table 4.6 Comparative study of inventory turnover ratio

	Inventory turnover ratio	
	2011–2012	2010–2011
APL	6.81	6.90
BPL	5.80	5.99

This implies that the inventory of APL is sold out 6.81 times in the year 2011–2012. In other words, APL made a sale of INR 6.81 for every INR 1.00 of average inventory holding during the year 2011–2012. If we make a comparative study of inventory turnover ratios of APL and BPL, it will appear as shown in Table 4.6.

It seems that the turnover of inventory (sale) is a little higher in APL as compared to BPL. However, it may be noticeable that, for both the companies, the inventory turnover ratio is in marginally declining mode. For both APL and BPL the ratio has come down.

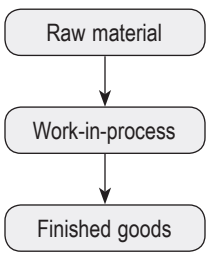


Fig. 4.3 Stages of inventory movement

Components of inventory In manufacturing firms, the inventory goes through the production process before it is turned into finished goods. The process is explained in Fig. 4.3.

The turnover ratio for raw material and work-in-process (WIP) may be computed as follows:

(i) Raw material inventory turnover ratio = Material consumed/Average raw material inventory

where,

Material consumed = Opening stock of raw material + Purchase of raw material – Closing stock of raw material

and

Average raw material inventory = (Operating inventory + Closing inventory)/2

(ii) Work-in-process inventory turnover = Cost of production/Average WIP inventory

where,

Cost of production = Raw material consumed + Manufacturing expenses + (Opening balance of WIP – Closing balance of WIP)

Average WIP inventory = (Opening WIP inventory + Closing WIP inventory)/2

Interpretation of inventory turnover ratio The inventory turnover ratio depicts the frequency of converting inventories into receivables. In general, a higher inventory turnover ratio indicates a better management of inventories. In a sense, a high inventory turnover ratio also implies better sales management. On the other hand, a low inventory turnover ratio may be indicative of slower inventory movement. Slow inventory movement may lead to build-up of obsolete inventories leading to fund blockage. As the funds are usually borrowed from banks, this may result into increasing the finance cost.

However, a very high inventory turnover ratio needs a detailed investigation. It requires looking into whether this is due to maintenance of lower level of inventory vis-a-vis the optimum requirement. Maintenance of lower inventory is risky because it may result into stock-out, adversely impacting the production schedule.

Accounts receivable turnover ratio/Debtors turnover ratio Accounts receivable is the amount to be collected from credit sales. Accounts receivable turnover ratio measures the company's ability to collect cash from debtors. It compares the credit sales made by the company with its ability to collect dues from debtors. Obviously, a higher turnover ratio means the company is more efficient in collecting from debtors.

Ideally, only credit sales should be used for calculating the accounts receivable turnover ratio, but the profit and loss account does not reveal the value of cash sales and credit sales separately. So, net sales are usually considered for computing the ratio. We now compute the ratio by using the figures from APL's balance sheet.

Accounts receivable turnover ratio = Net sales/Average accounts receivable

where,

Average accounts receivable = (Opening accounts receivable + Closing accounts receivable)/2

For APL (2011–2012),

= INR 7964.16 crore/[(INR 500.24 crore + INR 355.56 crore)/2]

= 18.61

Table 4.7 Comparative study of accounts receivable turnover ratio

	Accounts receivable turnover ratio	
	2011–2012	2010–2011
APL	18.61	18.11
BPL	9.80	9.42

A comparative chart between APL and BPL is as shown in Table 4.7.

As can be seen, the accounts receivable turnover ratio for APL is far higher than for BPL. This is a matter of concern for the management. BPL seems to be slow in recovering dues from the debtors.

Receivable collection period In the given example, the accounts receivable turnover ratio of BPL (2011–2012) is 9.80. We may also express it in terms of the number of days required for collection.

Average collection period (ACP) = 360/Accounts receivable turnover ratio

For BPL,

ACP in 2011 = 360/9.42 = 39 days

and,

ACP in 2012 = 360/9.80 = 37 days

One underlying assumption is that the sales are happening uniformly over the year. In reality, however, the sales may be seasonal in nature. In such a case, the accounts receivable turnover ratio may vary across different seasons.

Interpretation of receivables turnover ratio Receivables turnover ratio measures the speed of collection of dues from debtors. It also indicates the quality of debtors. A short accounts receivable turnover ratio may imply efficient collection system from debtors resulting in less fund requirement for managing the working capital. This reduces the cost of working capital financing.

On the other hand, a very long accounts receivable turnover ratio may indicate inefficient debtor management system. This may also increase the chances of bad debt and high cost of working capital finance. A very low accounts receivable turnover ratio may not be always favourable for a company. It may imply tighter collection schedule, which may in turn curtail the sales.

Ideally, the collection policy of a firm should match the industry practices to which the firm belongs. Any major deviation from the industry benchmark should be explored in detail.

Fixed asset turnover ratio The fixed asset turnover ratio (FATR) measures the effectiveness of using the fixed assets by the company. The ratio can be measured as

FATR = Sales/Net fixed asset

For APL, the FATR (2011–2012) is

= INR 7964.16 crore/INR 987.79 crore
= 8.06

Table 4.8 Comparative study of FATR

	FATR	
	2011–2012	**2010–2011**
APL	8.06	6.11
BPL	10.81	11.54

As done earlier, we may compare the FATR of APL and BPL in a table (see Table 4.8).

As can be seen from Table 4.8, the FATR of BPL is better than that of APL in both the years 2010–2011 and 2011–2012. However, APL's FATR improved over the year.

Interpretation of FATR The FATR explains the efficient utilization of fixed assets in generating sales revenue of a firm. A higher FATR indicates that the firm is more capable of utilizing its fixed assets in generating revenue.

Total asset turnover ratio Total asset turnover ratio (TATR) measures the turnover on the firm's total asset. Total assets include both fixed assets and current assets. TATR can be measured as

TATR = Sales/Total assets

For APL (2011–2012)

= INR 7964.18 crore/INR 4980.03 crore
= 1.59

Table 4.9 Comparative study of TATR

	TATR	
	2011–2012	**2010–2011**
APL	1.59	1.64
BPL	1.76	1.72

A comparative study of TATR between APL and BPL is shown in Table 4.9.

Interpretation of TATR The TATR of BPL is slightly better than that of APL, which means that there is scope for improvement for APL. Disposal of

unused assets and increased use of underutilized assets may be some of the steps that may be taken by APL to reverse the above effect.

As a rule, the ratios should be compared with the industry benchmark. There is no ideal ratio but a higher TATR is always preferable.

Current asset turnover ratio Current asset turnover ratio (CATR) measures the utilization of current assets in generating sales revenue.

CATR = Sales/Current assets

For APL (2011–2012)

= INR 7964.15 crore/INR 2777.59 crore
= 2.87 times

Table 4.10 Comparative study of CATR

	CATR	
	2011–2012	2010–2011
APL	2.87	2.58
BPL	2.56	2.49

A comparative study of CATR between APL and BPL is shown in Table 4.10.

Interpretation of CATR The CATR of APL is slightly better than that of BPL. Therefore, there is scope for improvement for BPL. The company, to improve its performance, needs to look critically at its management of current assets, which primarily includes inventory and debtors.

Working capital turnover ratio Working capital turnover ratio (WCTR) relates the use of working capital with sales revenue earned.

WCTR = Sales/Net working capital

where,

Net working capital = Current assets – Current liabilities

Table 4.11 Comparative study of WCTR

	WCTR	
	2011–2012	2010–2011
APL	16.33	8.13
BPL	6.53	5.59

For APL (2011–2012),

= 7964.15/(2777.59 – 2290.08)
= 16.33 times

A comparative study of WCTR between APL and BPL is shown in Table 4.11.

The WCTR of APL is much better than that of BPL. So, BPL can improve its performance by the management of current assets and current liabilities.

Solvency ratios

Solvency refers to the firm's ability to repay its debt obligations. A financially healthy firm should be able to satisfy its debt obligations at any point of time. Inability to pay the debt obligations on time by a firm may lead to insolvency. Therefore, the solvency ratios are important especially for creditors, investors, and other stakeholders.

Solvency of a firm is linked to its financial leverage. Financial leverage refers to the proportion of debt in the capital structure of the firm. For a highly leveraged firm, that is, a firm with high debt component in the capital structure, the risk of insolvency is higher. However, on the other hand, for a profitable company, high financial leverage also indicates higher return for equity holders without making any additional investment. This happens if the return generated on borrowed fund is higher than the interest payable on debt. This phenomenon of increased earning by equity shareholders by using cheaper debt fund is often referred to as *trading on equity*.

In reality, it is almost impossible to predict whether a firm can fail to meet obligations. However, a look at the key solvency ratios may give a fair indication of the financial health of a company. In the following section, we compute the solvency ratios of APL and BPL.

Debt to assets ratio The debt to assets ratio or the *debt ratio* compares the total liabilities with total assets of the company. This ratio provides a measure of a company's capital structure, that is, it refers to the manner in which a company raised its finances. The ratio can be measured as

Debt to assets ratio = Total liabilities/Total assets

Obviously, a higher debt ratio indicates riskier capital structure, resulting in a higher financial leverage indicating higher financial risk.

The debt ratio of APL for the year 2011–2012

= INR 2492.25 crore/INR 4980.03 crore
= 0.50

Table 4.12 Comparative study of debt to assets ratio

	Debt to assets ratio	
	2011–2012	2010–2011
APL	0.50	0.48
BPL	0.44	0.40

The comparison between APL and BPL is shown in Table 4.12.

As may be seen from Table 4.12, the debt to assets ratio for APL is marginally better than that of BPL.

For both the companies, the ratio is favourable, that is, the amount of total liability is less than the total asset. If at any point of time the total liability exceeds total asset, that is, the ratio becomes higher than 1, it is alarming. In cases where the total amount of debt exceeds the total assets owned, it implies that in case of bankruptcy the company will not be able to pay back creditors even by selling all its assets. This makes the company's position highly vulnerable.

Debt to equity ratio Debt to equity ratio (D/E ratio) compares a firm's total liabilities to total equity. A high D/E ratio indicates highly leveraged and riskier capital structure.

D/E ratio = Total liabilities/Total equity

For APL, the D/E ratio for the year 2011–2012 is

INR 2492.25 crore/INR 2487.48 crore = 1.002

Table 4.13 Comparative study of D/E ratio

	D/E ratio	
	2011–2012	2010–2011
APL	1.00	0.95
BPL	0.79	0.69

The D/E ratio of APL is very balanced. Every rupee of debt is backed by a rupee of equity. The comparison of D/E ratios of APL and BPL is as in Table 4.13,

Over the last one year, the D/E ratio has increased marginally for both the companies. This shows increasing dependence on liabilities.

The D/E ratio implies the proportion of debt in the capital structure of the firm. It shows the extent of debt financing used in business. Increase in debt financing comes with enhanced risk. Debt financing creates an obligation to repay the principal and interest on time. In difficult times, the debt repayment obligations may create a problem for the firm.

However, in good times, the existence of debt in capital structure may help the equity holders to earn extra returns. This phenomenon is termed as *leverage*, which is discussed in detail in Chapter 17.

Profitability ratios

One of the fundamental reasons (and not the only one) behind the existence of a firm is 'earning profit'. Stakeholders are primarily interested in knowing if the firm is earning profit or not.

Profitability ratios are handy tools for assessing the earning performance of a firm. These ratios demonstrate the return earned by the company relative to other parameters; for example, sales, assets, and so on. These ratios provide an important insight into the operations, liquidity, and asset management performance of the company.

Profit margin ratio Profit margin ratio (PMR) or NP ratio compares the net income to the net sales of the company. A higher ratio implies higher capacity of generating profit.

PMR = Net income/Net sales

For APL, the PMR for 2011–2012 is

= INR 958.39 crore/INR 7964.16 crore = 0.12

Table 4.14 Comparative study of PMR

	PMR	
	2011–2012	2010–2011
APL	0.12	0.12
BPL	0.07	0.07

If we compare the PMRs of APL and BPL, it will be as shown in Table 4.14.

The comparative study of PMRs of APL and BPL shows that the PMR of BPL is a bit lower than that of APL. Remember, this profit is after tax.

Return on total assets The return on total assets (ROTA) shows the level of utilization of assets in generating earnings after interest and taxes.

ROTA = Net income/Total assets
= 958.39/4980.03
= 19%

Table 4.15 Comparative study of ROTA

	ROTA, %	
	2011–2012	2010–2011
APL	19	20
BPL	11.74	12.16

A comparison between the ROTAs of APL and BPL is shown in Table 4.15.

The ROTA for APL is much higher than that of BPL. There is ample scope for BPL for better utilization of assets.

Return on equity As discussed in Chapter 1, the primary goal of a company is to maximize the return to shareholders. The return on equity (ROE) measures the ratio of net income to equity share capital. It is an important measure to indicate how much the shareholders are getting back on their investments. In other words, it demonstrates the efficiency of managers in generating returns on the shareholders' money.

ROE = Net income/Equity capital
= INR 958.39 crore/INR 2487.78 crore
= 38.52%

Table 4.16 Comparative study of ROE

	ROE, %	
	2011–2012	2010–2011
APL	38.52	39.24
BPL	20.98	20.51

Comparison between ROEs of APL and BPL is shown in Table 4.16.

In 2011–2012, the ROE of APL is almost double than that of BPL. One of the reasons could be higher proportion of debt in the capital structure of APL. As computed earlier, the D/E ratio is higher in case of APL, leading to trading on equity and, hence, enhanced ROE. However, there could be other reasons also; for example, lower profitability and under-utilization of assets. Also take note of the PMRs and ROTAs computed earlier.

Earnings per share Earnings per share (EPS) gives an idea about the firm's capacity of revenue generation for shareholders.

EPS = Net income/No. of equity shares

For APL (2011–2012),

EPS = INR 958.39 crore/95919779
= INR 99.91

This is one of the most readily available information about a company that gives a fair idea about how a company fares in delivering value to the shareholders.

Return on investment Return on investment (ROI) is a popular and important ratio to assess the profitability of a firm. As the name suggests, it computes the return generated as a percentage of investments made.

Before computing ROI, we must be clear about *investment.* Investment denotes the total amount of funds that are being pooled by the firm and invested in assets. Either the total assets or the net assets may be considered as investments made in the firm. Net assets are also called *capital employed*.

Net asset = Net fixed asset + Current asset – Current liabilities (excluding bank loan)
ROI = ROTA = EBIT/Total assets
ROI = Return on net assets (RONA) = EBIT/Net assets

It is prudent to consider EBIT as a measure of return because the tax benefits enjoyed by companies may differ. Also, the structure of capital financing also differs among the companies.

The after-tax ROTA for APL (2011–2012) is

= (1362.93 + 30.82)/4980.03
= 27.98%

(APL 2010–2011) = (1122.33 + 16.35)/3855.04
= 29.53%

RONA (APL 2011–2012) = (1362.93 + 30.82)/487.51
= 34.97%

where, Net assets = Current assets – Current liabilities

As the depreciation policies also differ among companies, sometimes EBITDA is also used for computing ROTA and RONA.

Dividend payout ratio The dividend payout ratio indicates the proportion of profit after tax (PAT) paid out to the shareholders as cash dividend.

Dividend payout ratio = Equity dividend/PAT
= Dividend per share/EPS

High dividend payout ratio implies low retention of profit by the company and vice versa.

Dividend yield Dividend yield is the rate of return earned by shareholders relative to the market price of the shares of the company.

Dividend yield = Dividend per share (DPS)/Market value per share

In a similar fashion, earnings yield may also be computed as

Earnings yield = EPS/Market value per share

Market value ratios

All public-listed companies are traded in the stock market; therefore, the share price gives a fair idea about the investors' perception about the companies' past performance and future expectations.

In an organized, regulated, and deeply liquid stock market, share price is one of the most efficient indicators of the stockholder's value. Market value ratios compare the stock price with earnings, cash flow, and book value per share.

Price–earnings ratio The price–earnings ratio (P/E ratio) compares the stock price with the EPS. This ratio indicates the amount the shareholders are willing to pay at a given EPS. It may be calculated by using the following formula.

P/E ratio = Price per share/EPS

On 1 April 2013, the stock price of APL on NSE was INR 4954.95. The P/E ratio would be

= INR 4954.95/INR 99.91 = 49.59

It is one of the most readily available information about a company, regularly published in business newspapers, periodicals, and the Internet. The ratio indicates the investors' perception about the growth prospect of the company. If the investors are bullish, P/E ratio would be on the higher side and vice versa. As computed earlier, the investors in APL are willing to pay INR 49.59 for every rupee of earning as of 1 April 2013.

Price/cash flow ratio The EPS is calculated on the basis of accounting profit. Accounting profit is estimated on accrual basis. The investors may be interested more in cash flow rather than the accounting book profit. Price/cash flow ratio measures the closeness of stock price with the cash flow of the company. Cash flow may be defined as net income plus depreciation and amortization.

Price/cash flow ratio = Price per share/Cash flow per share
= 4954.95/110.28 = 44.93 times

Note that the P/E ratio of APL is INR 49.59 whereas the P/CF ratio is 44.93 times. This indicates that the price–cash flow ratio is a more conservative measure than P/E ratio. A large gap between the two indicates the need for better cash flow management.

INTERLINKING THE RATIOS—DUPONT ANALYSIS

In ratio analysis, the performance of a company is measured under different parameters; for example, profitability, use of financial leverage, use of assets, and so on. However, to get a holistic view about the performance of a company, these parameters must be interlinked. DuPont analysis ties up these parameters together and projects a holistic view about the performance of the company.

Using DuPont analysis, the ROTA is measured as

$$\text{ROTA} = \text{PMR} \times \text{TATR}$$
$$= (\text{Net income/Sales}) \times (\text{Sales/Total assets}) \quad (4.1)$$

For APL, the ROTA in the year 2011–2012 is

= 12% × 1.59 = 19.08%

The ROE can be measured by using the following equation:

ROE = ROTA × Equity multiplier

where,

Equity multiplier (EM) = Total assets/Equity (4.2)

High EM indicates highly leveraged capital structure, as higher leverage means low equity. If a company raises INR 20 through equity and INR 80 through debt to finance, the value of the total assets is INR 100.

Then EM will be

INR 100/INR 20 = 5

However, if the funding is INR 80 through equity and INR 20 through debt, the scenario will change. The EM will now be

INR 100/INR 80 = 1.25

Therefore, the ROE of a company is dependent upon ROTA and EM.

$$\text{ROE} = \text{ROTA} \times \text{EM}$$
$$= (\text{Net income/Total assets}) \times (\text{Total assets/Equity}) \quad (4.3)$$

ROE of APL (2011–2012) is

$$= (958.36/4980.03) \times (4980.03/2487.78)$$
$$= 38.52\%$$

Now, an extended form of DuPont equation may be formed by combining Eqns 4.1 and 4.3.

$$\text{ROE} = \text{PMR} \times \text{TATR} \times \text{EM}$$
$$= (\text{Net income/Sales}) \times (\text{Sales/Total assets}) \times (\text{Total assets/Equity}) \quad (4.4)$$

If we calculate the ROE of APL (2011–2012) again, by using Eq. (4.4),

$$= 12\% \times 1.59 \times 2.00 = 38.52\%$$

The significance of DuPont equation is that it provides a unique insight into the relationship among the profitability, usage of assets, and financial leverage. DuPont equation can be used for important decision-making processes regarding the enhancement of ROE. For example, APL may change the leverage in capital structure to manage the ROE.

TREND ANALYSIS

Until now, our focus was on understanding and computing financial ratios. However, along with computation of ratios, the trend followed by them should also be understood. Trend analysis gives us a snapshot about the way ratios are trending and changing over time. This is particularly useful for horizontal analysis of a firm, where we want to understand how a particular firm has developed or declined over time. Figure 4.4 demonstrates the trend of return on net worth (RONW) of Titan Company over the years from 2007–2008 to 2010–2011.

The trend can be easily demonstrated using a graph. The trend of RONW of Titan Company Ltd is shown in Table 4.17.

Table 4.17 RONW trend of Titan Company Ltd

Year	2014–2015	2013–2014	2012–2013	2011–2012	2010–2011	2009–2010	2008–2009	2007–2008
RONW	29.3%	33%	42.5%	48.5%	46.1%	39.2%	32.2%	39.4%

Graphically putting, the figures will be as shown in Fig. 4.4.

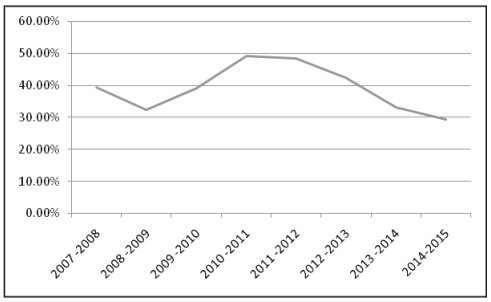


Fig. 4.4 Trend analysis showing RONW of Titan Company Ltd in percentage

COMPARATIVE RATIOS AND BENCHMARKING

To understand the financial health of a company, it is compared with the performance of competitors and the industry peer group. This involves comparison with other firms in the same industry, that is, the industry average, as well as with the smaller set of market leaders in the same industry. This is called *benchmarking* and the companies under consideration for benchmarking are called *benchmark companies*. Berger Paints Ltd may benchmark their performance against that of Asian Paints Ltd, Kansai Nerolac Paints Ltd (KNPL), Shalimar Paints Ltd (SPL), and so on.

A comparison of standalone NP ratio is given in Table 4.18.

Table 4.18 Comparison of NP ratios of Indian paint companies

Company	NP ratio for 2012–2013
BPL	6.90%
APL	11.54%
KNPL	9.67%
SPL	2.03%

With benchmarking, the management understands where the company really stands in relation to the competitors. In Table 4.5, it is clearly visible that BPL is in close proximity with its peer group and there is scope for improvement. If you have a closer look at Table 4.18, you might notice that the NP ratio of the leading Indian paint companies ranges between 2.03% and 11.54%. In general, higher the NP ratio, the better it is. In that sense, APL performed much better compared to its peer group. However, the complete picture will be visible only after comparisons of other ratios are made.

BERGER PAINTS LIMITED—RATIO ANALYSIS USING MS EXCEL

As discussed earlier, MS Excel can be an excellent tool for financial computations. Now, we will take up the ratio analysis of BPL using MS Excel.

1. Open the spreadsheet that you created for modelling financial statements in Chapter 3, that is, Ch3_FS.xlsx, and save it under a new name Ch4_FS.xlsx using 'File | save as' command. Name the sheet 6 as 'Ratio'.
2. **Liquidity and Solvency Ratios:**
   - Current ratio = Current assets/Current liabilities.
     Enter = 'Balance sheet'!D38/'Balance sheet'!D18 in cell B3. Copy it to C3.
   - Acid-test (quick) ratio = (Current assets – Inventory)/Current liabilities.
     Enter = ('Balance sheet'!D38-'Balance sheet'!D33)/'Balance sheet'!D18 in cell B4. Copy it to C4.

- Debt to assets ratio = debt/assets.
  Enter = (‘Balance sheet’!D18+‘Balance sheet’!D12)/‘Balance sheet’!D39 in cell B5. Copy it to C5.
- Debt equity ratio = Total debt/Total equity
  Enter = (‘Balance sheet’!D18+‘Balance sheet’!D12)/‘Balance sheet’!D8 in cell B6. Copy it to C6.

3. Profitability Ratios:

- Profit margin ratio = Net profit/Sales
  Enter =‘P&L’!C23/‘P&L’!C6 in cell B9. Copy it to C9.
- Earnings per share (EPS) = Net income /Number of outstanding shares
- Enter =(‘P&L’!C23*1000000)/‘P&L’!C27 in cell B10. Copy it to C10.
  Return on total assets = Net income/Total assets
- Enter =‘P&L’!C23/‘Balance Sheet’!D39 in cell B11. Copy it to C11.
  Return on equity = Net income/Shareholders’ funds.
- Enter =‘P&L’!C23/‘Balance sheet’!D8 in cell B12. Copy it to C12.
  Return on capital employed = Net income/Capital employed
- Enter =(‘P&L’!C23+‘P&L’!C14*(1-B13))/‘Balance sheet’!D8 in cell B14. Copy it to C14. The assumed corporate tax rate is 35% as mentioned in B13.

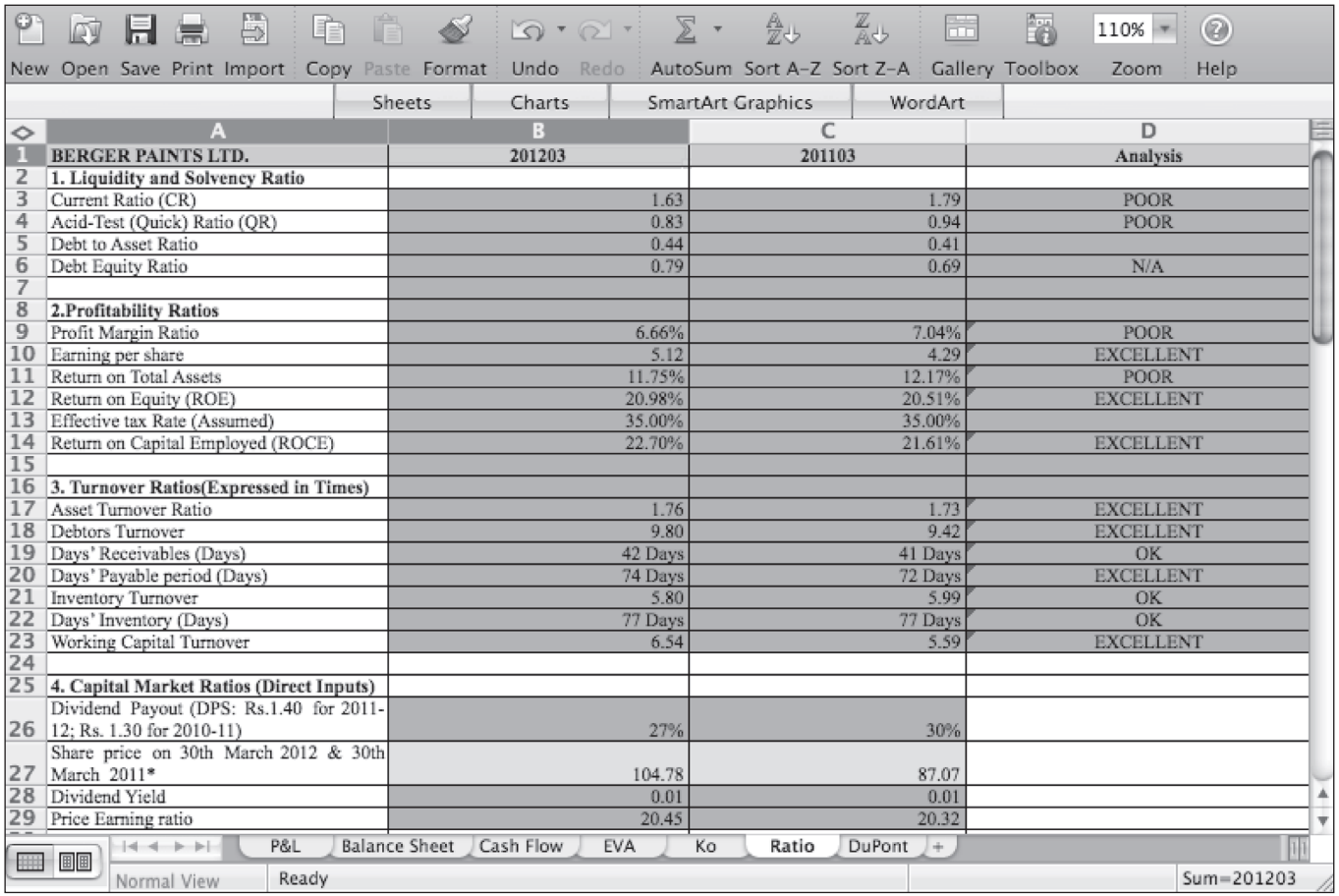
4. Turnover Ratios (expressed in times):

- Asset turnover ratio = Sales/Total assets.
  Enter =‘P&L’!C6/‘Balance Sheet’!D39 in cell B17. Copy it to C17.
- Debtors turnover ratio = Sales/Average debtors
  Enter =ROUND((‘P&L’!C6)/((‘Balance sheet’!D34+‘Balance sheet’!F34)/2),2) in cell B18. Copy it to C18.
- Days receivable, in days = [Sundry debtors /(Sales/365)].
  Enter =ROUND(‘Balance sheet’!D34/**(‘P**&L’!C6/365),0)&” “&”Days” in cell B19. Copy it to C19.
- Days payable period, in days = [Sundry creditors/(Purchase/365)]
  Enter =ROUND(‘Balance Sheet’!D15/**(**‘P&L’!C10/365),0)&” “&”**D**ays” in cell B20. Copy it to C20.
- Inventory turnover ratio = Sales/Average inventory
  Enter =ROUND((‘P&L’!C6)/((‘Balance sheet’!D33+**’B**alance sheet’!F33)/2),2) in cell B21. Copy it to cell C21.
- Days inventory = [Inventory/(Total expenses/365)]
  Enter =ROUND(‘Balance sheet’!D33/(‘P&L’!C17/365),0)&” “&”days” in cell B22. Copy it to cell C22.
- Working capital turnover ratio = Sales/(Current assets – Current liabilities)
  Enter =‘P&L’!C6/(‘Balance sheet’!D38-‘Balance sheet’!D18) in cell B23. Copy it in cell C23.

5. Capital Market Ratios:

- Dividend payout ratio = Dividend per share (DPS)/Earning per share (EPS)
  Enter =1.40/B10 in cell B26. Copy it to C26. INR 1.40 is the DPS for the year 2011–2012, as extracted from the annual report.
- Dividend yield = DPS/Market price per share
  Enter =1.4/B27 in cell B28. Copy it to C28.
- Price-earning (P/E) ratio = Market price per share/EPS
  Enter =B27/B10 in cell B29. Copy it to C29.

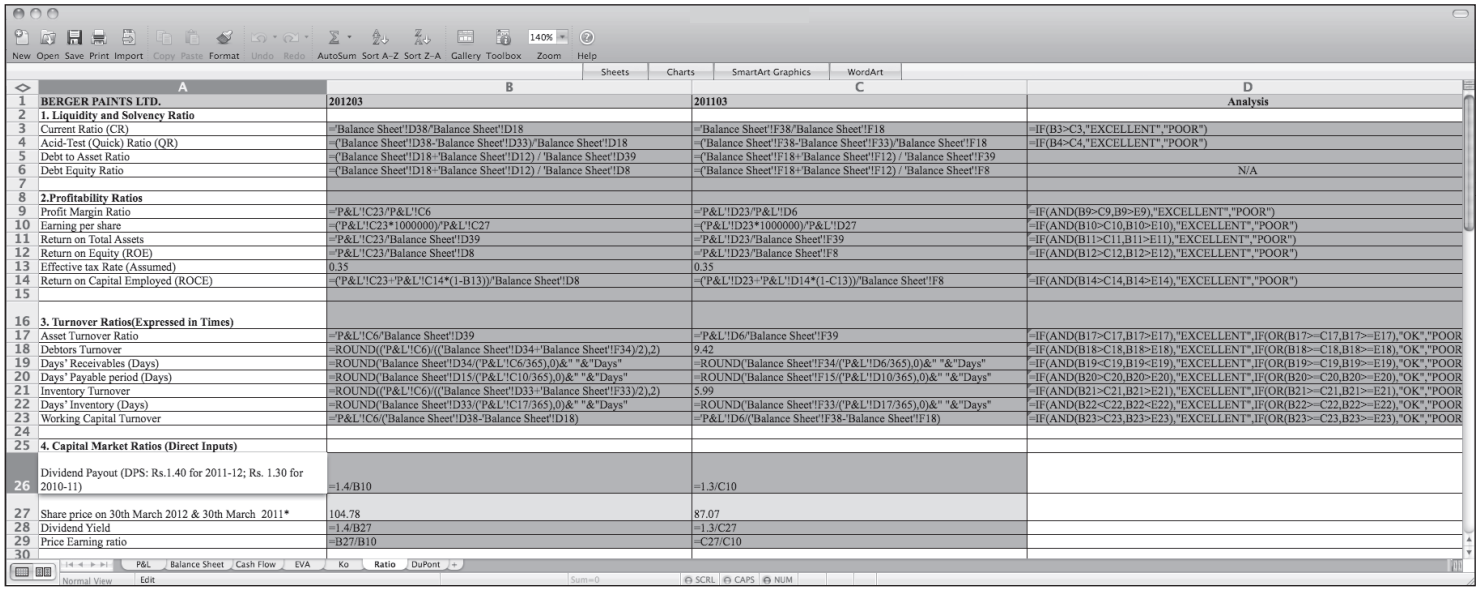
As stated in Chapter 3, you may view the formula in each cell by pressing ‘Ctrl+’’. Refer to Figs 4.5 and 4.6.



	A	B	C	D
1	**BERGER PAINTS LTD.**	**201203**	**201103**	**Analysis**
2	**1. Liquidity and Solvency Ratio**			
3	Current Ratio (CR)	1.63	1.79	POOR
4	Acid-Test (Quick) Ratio (QR)	0.83	0.94	POOR
5	Debt to Asset Ratio	0.44	0.41	
6	Debt Equity Ratio	0.79	0.69	N/A
7				
8	**2.Profitability Ratios**			
9	Profit Margin Ratio	6.66%	7.04%	POOR
10	Earning per share	5.12	4.29	EXCELLENT
11	Return on Total Assets	11.75%	12.17%	POOR
12	Return on Equity (ROE)	20.98%	20.51%	EXCELLENT
13	Effective tax Rate (Assumed)	35.00%	35.00%	
14	Return on Capital Employed (ROCE)	22.70%	21.61%	EXCELLENT
15				
16	**3. Turnover Ratios(Expressed in Times)**			
17	Asset Turnover Ratio	1.76	1.73	EXCELLENT
18	Debtors Turnover	9.80	9.42	EXCELLENT
19	Days' Receivables (Days)	42 Days	41 Days	OK
20	Days' Payable period (Days)	74 Days	72 Days	EXCELLENT
21	Inventory Turnover	5.80	5.99	OK
22	Days' Inventory (Days)	77 Days	77 Days	OK
23	Working Capital Turnover	6.54	5.59	EXCELLENT
24				
25	**4. Capital Market Ratios (Direct Inputs)**			
26	Dividend Payout (DPS: Rs.1.40 for 2011-12; Rs. 1.30 for 2010-11)	27%	30%	
27	Share price on 30th March 2012 & 30th March 2011*	104.78	87.07	
28	Dividend Yield	0.01	0.01	
29	Price Earning ratio	20.45	20.32	

Fig. 4.5 Ratio analysis of BPL using MS Excel

Source: Data from Berger Paints Annual Report.



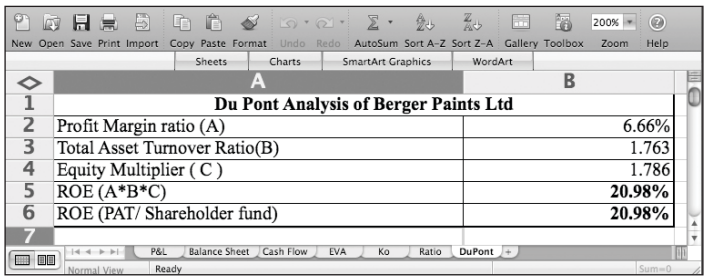
	A	B	C	D
1	**BERGER PAINTS LTD.**	**201203**	**201103**	**Analysis**
2	**1. Liquidity and Solvency Ratio**			
3	Current Ratio (CR)	='Balance Sheet'!D38/'Balance Sheet'!D18	='Balance Sheet'!F38/'Balance Sheet'!F18	=IF(B3>C3,"EXCELLENT","POOR")
4	Acid-Test (Quick) Ratio (QR)	=('Balance Sheet'!D38-'Balance Sheet'!D33)/'Balance Sheet'!D18	=('Balance Sheet'!F38-'Balance Sheet'!F33)/'Balance Sheet'!F18	=IF(B4>C4,"EXCELLENT","POOR")
5	Debt to Asset Ratio	=('Balance Sheet'!D18+'Balance Sheet'!D12) / 'Balance Sheet'!D39	=('Balance Sheet'!F18+'Balance Sheet'!F12) / 'Balance Sheet'!F39	
6	Debt Equity Ratio	=('Balance Sheet'!D18+'Balance Sheet'!D12) / 'Balance Sheet'!D8	=('Balance Sheet'!F18+'Balance Sheet'!F12) / 'Balance Sheet'!F8	N/A
7				
8	**2.Profitability Ratios**			
9	Profit Margin Ratio	='P&L'!C23/'P&L'!C6	='P&L'!D23/'P&L'!D6	=IF(AND(B9>C9,B9>E9),"EXCELLENT","POOR")
10	Earning per share	=('P&L'!C23*1000000)/'P&L'!C27	=('P&L'!D23*1000000)/'P&L'!D27	=IF(AND(B10>C10,B10>E10),"EXCELLENT","POOR")
11	Return on Total Assets	='P&L'!C23/'Balance Sheet'!D39	='P&L'!D23/'Balance Sheet'!F39	=IF(AND(B11>C11,B11>E11),"EXCELLENT","POOR")
12	Return on Equity (ROE)	='P&L'!C23/'Balance Sheet'!D8	='P&L'!D23/'Balance Sheet'!F8	=IF(AND(B12>C12,B12>E12),"EXCELLENT","POOR")
13	Effective tax Rate (Assumed)	0.35	0.35	
14	Return on Capital Employed (ROCE)	=('P&L'!C23+'P&L'!C14*(1-B13))/'Balance Sheet'!D8	=('P&L'!D23+'P&L'!D14*(1-C13))/'Balance Sheet'!F8	=IF(AND(B14>C14,B14>E14),"EXCELLENT","POOR")
15				
16	**3. Turnover Ratios(Expressed in Times)**			
17	Asset Turnover Ratio	='P&L'!C6/'Balance Sheet'!D39	='P&L'!D6/'Balance Sheet'!F39	=IF(AND(B17>C17,B17>E17),"EXCELLENT",IF(OR(B17>=C17,B17>=E17),"OK","POOR
18	Debtors Turnover	=ROUND(('P&L'!C6)/(('Balance Sheet'!D34+'Balance Sheet'!F34)/2),2)	9.42	=IF(AND(B18>C18,B18>E18),"EXCELLENT",IF(OR(B18>=C18,B18>=E18),"OK","POOR
19	Days' Receivables (Days)	=ROUND('Balance Sheet'!D34/('P&L'!C6/365),0)&" "&"Days"	=ROUND('Balance Sheet'!F34/('P&L'!D6/365),0)&" "&"Days"	=IF(AND(B19<C19,B19<E19),"EXCELLENT",IF(OR(B19>=C19,B19>=E19),"OK","POOR
20	Days' Payable period (Days)	=ROUND('Balance Sheet'!D15/('P&L'!C10/365),0)&" "&"Days"	=ROUND('Balance Sheet'!F15/('P&L'!D10/365),0)&" "&"Days"	=IF(AND(B20>C20,B20>E20),"EXCELLENT",IF(OR(B20>=C20,B20>=E20),"OK","POOR
21	Inventory Turnover	=ROUND(('P&L'!C6)/(('Balance Sheet'!D33+'Balance Sheet'!F33)/2),2)	5.99	=IF(AND(B21>C21,B21>E21),"EXCELLENT",IF(OR(B21>=C21,B21>=E21),"OK","POOR
22	Days' Inventory (Days)	=ROUND('Balance Sheet'!D33/('P&L'!C17/365),0)&" "&"Days"	=ROUND('Balance Sheet'!F33/('P&L'!D17/365),0)&" "&"Days"	=IF(AND(B22<C22,B22<E22),"EXCELLENT",IF(OR(B22>=C22,B22>=E22),"OK","POOR
23	Working Capital Turnover	='P&L'!C6/('Balance Sheet'!D38-'Balance Sheet'!D18)	='P&L'!D6/('Balance Sheet'!F38-'Balance Sheet'!F18)	=IF(AND(B23>C23,B23>E23),"EXCELLENT",IF(OR(B23>=C23,B23>=E23),"OK","POOR
24				
25	**4. Capital Market Ratios (Direct Inputs)**			
26	Dividend Payout (DPS: Rs.1.40 for 2011-12; Rs. 1.30 for 2010-11)	=1.4/B10	=1.3/C10	
27	Share price on 30th March 2012 & 30th March 2011*	104.78	87.07	
28	Dividend Yield	=1.4/B27	=1.3/C27	
29	Price Earning ratio	=B27/B10	=C27/C10	
30				

Fig. 4.6 Display of formula for computing ratio analysis of BPL

Source: Data from Berger Paints Annual Report.

6. DuPont Analysis

- Name the sheet 7 of Ch4_FS.xlsx as DuPont.
- Profit margin ratio = PAT/Sales
  Enter =('P&L'!C23)/'P&L'!C6 in cell B2.
- Total asset turnover ratio = Sales/Total assets
  Enter ='P&L'!C6/'balance sheet'!D39 in cell B3.
- Equity multiplier = Total assets/Equity
  Enter ='balance sheet'!D39/'balance sheet'!D8 in cell B4.
- DuPont Ratio:
  Return on equity (ROE) = (PAT/Sales) × (Sales/Total assets) × (Total assets/Equity)
- Enter =B2*B3*B4 in cell B5. Refer to Fig. 4.7.
  ROE may be calculated directly by entering ='P&L'!C23/'balance sheet'!D8 in cell B6. Note that the result in cell B5 and cell B6 is the same, i.e., 20.98%.



	A	B
1	**Du Pont Analysis of Berger Paints Ltd**	
2	Profit Margin ratio (A)	6.66%
3	Total Asset Turnover Ratio(B)	1.763
4	Equity Multiplier (C)	1.786
5	ROE (A*B*C)	**20.98%**
6	ROE (PAT/ Shareholder fund)	**20.98%**
7		

Fig. 4.7 DuPont analysis of BPL
Source: Data from Berger Paints Annual Report.

USE AND LIMITATIONS OF RATIO ANALYSIS

The users of ratio analysis are mainly the following:
(i) Stock analysts and investors looking for a good investment opportunity, (ii) the credit analysts, seeking a view on credit worthiness of the firm, and (iii) the managers of the firm, who try to assess and improve the performance.

Although ratio analysis is one of the most popular and effective methods for company analysis, it is not free from limitations. Some of the limitations are explained as follows:

(i) Comparison with peer group ratios may not be possible for large diversified companies. For a large diversified, multi-divisional company, developing a meaningful industry standard is difficult due to the diverse nature of business. For example, ITC Ltd is a large conglomerate that deals in numerous business ventures starting from tobacco to hotels and stationery. Each business division of the company belongs to a different industry. Hence, developing a benchmark encompassing all the industry segments is difficult to implement.

(ii) Ratio analysis uses the historical financial data for computation and analysis. The real value of the financial data changes due to inflation. When the ratio analysis is done over the years, due to inflation it may give a distorted figure. For example, if we compute the NP ratio of BPL for the year 2007 and 2012, using the nominal figures, it may not present a real picture as the money values might have changed from 2007 to 2012 due to inflation.

(iii) The results of ratio analysis may get distorted due to seasonal factors. The inventory turnover ratio of a tea producing company may vary if calculated in summer and winter separately. This problem can be reduced by using proper averages while calculating the turnover ratios.

(iv) Ratio analysis is done by using data from published financial statements, for example, balance sheet, profit and loss account, cash flow statement, and so on. Sometimes, firms may adopt 'window dressing' techniques for showing the financial statements in a better light than it should be. 'Window dressing' techniques imply an effort to show the financials in a better light than in reality. A remedy to this could be to employ stricter auditing norms.

(v) If the companies under consideration belong to different countries and geographical regions, they may follow different accounting practices. For example in India, a company may prepare the financial statements by using Indian accounting standards (Indian AS), whereas a company in the USA may prepare the same under US GAAP (Generally Accepted Accounting Principles). This makes the comparison between two companies difficult. This issue can be addressed by preparing financial statements following international accounting standards. Infosys Ltd prepares two sets of financial statements, one by following Indian AS and the other by using international financial standards.

(vi) When we compare the ratios together with the industry average, some ratios may look good, others may look moderate, and still others may look bad. In such a scenario, it becomes difficult to take a holistic view on the overall performance of the company. This issue however may be addressed by using statistical methods like *discriminant analysis*.

(vii) It is often difficult to judge whether a particular ratio is up to the mark. A high quick ratio may indicate a strong liquidity position on one hand and bad cash management on the other.

Despite these issues, ratio analysis is an immensely useful tool for analysing the performance of a company if used intelligently. The correct interpretation of ratios is dependent upon the judicious judgement of the analyst.

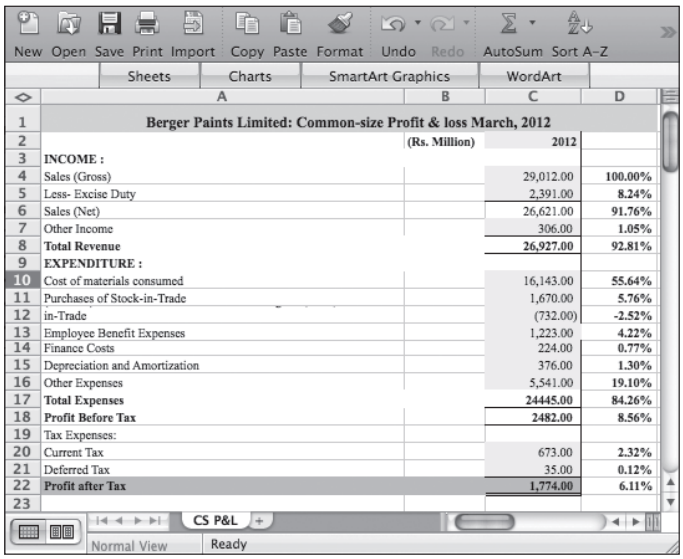
COMMON SIZE STATEMENT ANALYSIS

Another way of analysing financial statements is by using common size statement. In common size analysis, all items in the income statement are divided by sales, and in the balance sheet, all items are divided by total assets. In this way, the common size income statement shows all items as percentage of sales and all items in the balance sheet as percentage of total assets. Under common size statement, sales are considered as 100 per cent, and then all other items in the balance sheet and profit and loss account are expressed as a percentage of sales. For example, in Fig. 4.8, the sales for BPL are being considered as 100 per cent first, and then the other items in profit and loss account are being computed in percentage terms relative to the sales.

Common size statement can be easily generated by using Excel spreadsheets. We will prepare the common size statement of BPL by using MS Excel.

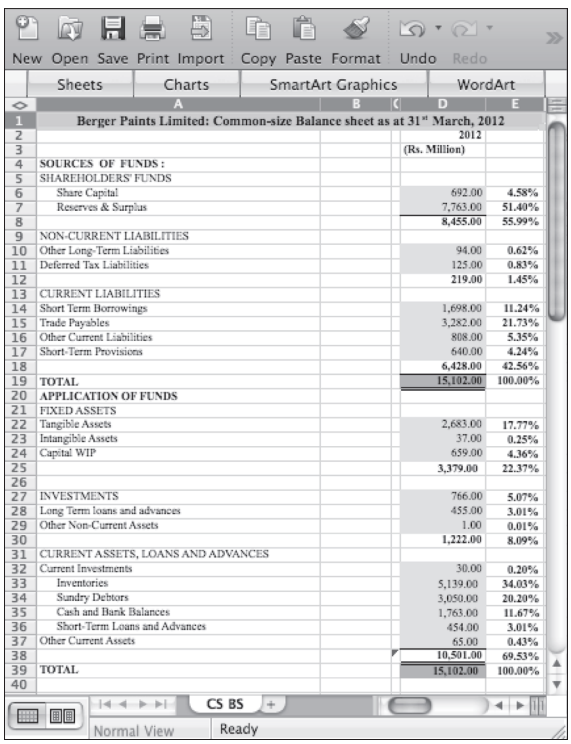
1. Preparation of common size profit and loss account using MS Excel (refer to Fig. 4.8)
   - Name the sheet 8 of Ch4_FS.xlsx as CS P&L.
   - Copy the profit and loss account of Berger Paints from the 'P&L' worksheet in 'CS P&L'.
   - Enter '100%' in cell D4.
   - Enter =C5/$C$4 in cell D5.
   - Copy cell D5 through D6 : D22.

   The common size balance sheet can also be computed using MS Excel spreadsheet. (refer to Fig. 4.9).
   - Name the sheet 9 of Ch4_FS.xlsx as CS BS.
   - Copy the balance sheet of Berger Paints from the 'balance sheet' worksheet in worksheet 'CS BS' through A4:E39.
   - Enter '100%' in cell E19.
   - Enter =D6/$D$19 in cell E6.
   - Copy E6 through E7:E18.



	A	B	C	D
1	**Berger Paints Limited: Common-size Profit & loss March, 2012**			
2		**(Rs. Million)**	**2012**	
3	**INCOME :**			
4	Sales (Gross)		29,012.00	**100.00%**
5	Less- Excise Duty		2,391.00	**8.24%**
6	Sales (Net)		26,621.00	**91.76%**
7	Other Income		306.00	**1.05%**
8	**Total Revenue**		**26,927.00**	**92.81%**
9	**EXPENDITURE :**			
10	Cost of materials consumed		16,143.00	**55.64%**
11	Purchases of Stock-in-Trade		1,670.00	**5.76%**
12	in-Trade		(732.00)	**-2.52%**
13	Employee Benefit Expenses		1,223.00	**4.22%**
14	Finance Costs		224.00	**0.77%**
15	Depreciation and Amortization		376.00	**1.30%**
16	Other Expenses		5,541.00	**19.10%**
17	**Total Expenses**		**24445.00**	**84.26%**
18	**Profit Before Tax**		**2482.00**	**8.56%**
19	Tax Expenses:			
20	Current Tax		673.00	**2.32%**
21	Deferred Tax		35.00	**0.12%**
22	**Profit after Tax**		**1,774.00**	**6.11%**
23				

Fig. 4.8 Common size profit and loss account analysis using MS Excel
Source: Data from Berger Paints Annual Report.

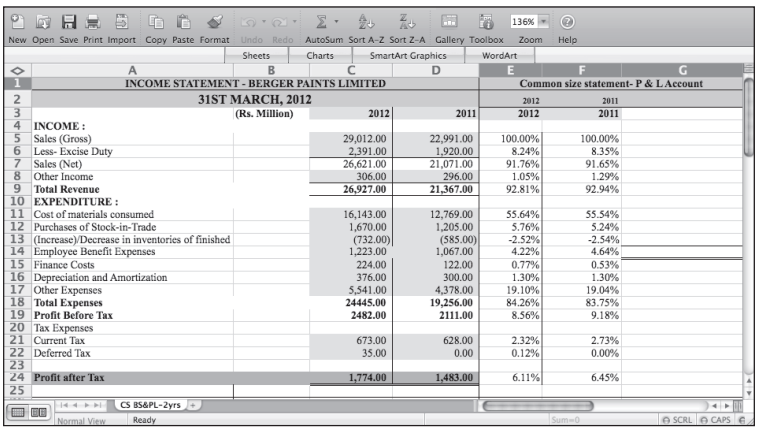


	A	B	C	D	E
1	**Berger Paints Limited: Common-size Balance sheet as at 31st March, 2012**				
2				2012	
3				(Rs. Million)	
4	**SOURCES OF FUNDS :**				
5	SHAREHOLDERS' FUNDS				
6	Share Capital			692.00	**4.58%**
7	Reserves & Surplus			7,763.00	**51.40%**
8				**8,455.00**	**55.99%**
9	NON-CURRENT LIABILITIES				
10	Other Long-Term Liabilities			94.00	**0.62%**
11	Deferred Tax Liabilities			125.00	**0.83%**
12				**219.00**	**1.45%**
13	CURRENT LIABILITIES				
14	Short Term Borrowings			1,698.00	**11.24%**
15	Trade Payables			3,282.00	**21.73%**
16	Other Current Liabilities			808.00	**5.35%**
17	Short-Term Provisions			640.00	**4.24%**
18				**6,428.00**	**42.56%**
19	**TOTAL**			**15,102.00**	**100.00%**
20	**APPLICATION OF FUNDS**				
21	FIXED ASSETS				
22	Tangible Assets			2,683.00	**17.77%**
23	Intangible Assets			37.00	**0.25%**
24	Capital WIP			659.00	**4.36%**
25				**3,379.00**	**22.37%**
26					
27	INVESTMENTS			766.00	**5.07%**
28	Long Term loans and advances			455.00	**3.01%**
29	Other Non-Current Assets			1.00	**0.01%**
30				**1,222.00**	**8.09%**
31	CURRENT ASSETS, LOANS AND ADVANCES				
32	Current Investments			30.00	**0.20%**
33	Inventories			5,139.00	**34.03%**
34	Sundry Debtors			3,050.00	**20.20%**
35	Cash and Bank Balances			1,763.00	**11.67%**
36	Short-Term Loans and Advances			454.00	**3.01%**
37	Other Current Assets			65.00	**0.43%**
38				**10,501.00**	**69.53%**
39	**TOTAL**			**15,102.00**	**100.00%**
40					

Fig. 4.9 Common size balance sheet analysis of BPL using MS Excel
Source: Data from Berger Paints Annual Report.

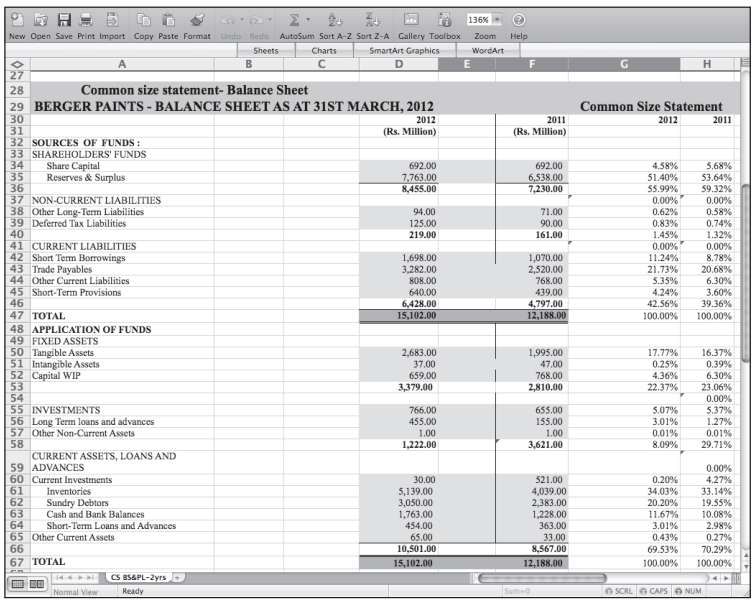
- Enter '100%' in cell E39.
- Enter =D22/$D$39 in cell E22.
- Copy E22 through E23:E38.
- To view the formulae in cells, press 'Ctrl+``'

Common size statement analysis is useful for making a comparative study of the financial statements of two different time periods. Please refer to the worksheet '*CS BS&Pl-2yrs' of Ch4_FS.xlsx*. The common size statement of BPL for the year 2012 and 2011 is shown. Figure 4.10 shows the comparative common size P&L account and Fig. 4.11 shows the common size balance sheet. The comparative common size statement makes the comparison easier to understand and may give some rare insights.



	A	B	C	D	E	F	G
1	**INCOME STATEMENT - BERGER PAINTS LIMITED**				**Common size statement- P & L Account**		
2	**31ST MARCH, 2012**				2012	2011	
3			**(Rs. Million)**	**2012**	**2011**	**2012**	**2011**
4	**INCOME :**						
5	Sales (Gross)			29,012.00	22,991.00	100.00%	100.00%
6	Less- Excise Duty			2,391.00	1,920.00	8.24%	8.35%
7	Sales (Net)			26,621.00	21,071.00	91.76%	91.65%
8	Other Income			306.00	296.00	1.05%	1.29%
9	**Total Revenue**			**26,927.00**	**21,367.00**	92.81%	92.94%
10	**EXPENDITURE :**						
11	Cost of materials consumed			16,143.00	12,769.00	55.64%	55.54%
12	Purchases of Stock-in-Trade			1,670.00	1,205.00	5.76%	5.24%
13	(Increase)/Decrease in inventories of finished			(732.00)	(585.00)	-2.52%	-2.54%
14	Employee Benefit Expenses			1,223.00	1,067.00	4.22%	4.64%
15	Finance Costs			224.00	122.00	0.77%	0.53%
16	Depreciation and Amortization			376.00	300.00	1.30%	1.30%
17	Other Expenses			5,541.00	4,378.00	19.10%	19.04%
18	**Total Expenses**			**24445.00**	**19,256.00**	84.26%	83.75%
19	**Profit Before Tax**			**2482.00**	**2111.00**	8.56%	9.18%
20	Tax Expenses						
21	Current Tax			673.00	628.00	2.32%	2.73%
22	Deferred Tax			35.00	0.00	0.12%	0.00%
23							
24	**Profit after Tax**			**1,774.00**	**1,483.00**	6.11%	6.45%
25							

Fig. 4.10 BPL: Comparison of P&L account using common size statement
Source: Data from Berger Paints Annual Report.



	A	B	C	D	E	F	G	H
27								
28	**Common size statement- Balance Sheet**							
29	**BERGER PAINTS - BALANCE SHEET AS AT 31ST MARCH, 2012**						**Common Size Statement**	
30				**2012**		**2011**	**2012**	**2011**
31				**(Rs. Million)**		**(Rs. Million)**		
32	**SOURCES OF FUNDS :**							
33	SHAREHOLDERS' FUNDS							
34	Share Capital			692.00		692.00	4.58%	5.68%
35	Reserves & Surplus			7,763.00		6,538.00	51.40%	53.64%
36				**8,455.00**		**7,230.00**	55.99%	59.32%
37	NON-CURRENT LIABILITIES						0.00%	0.00%
38	Other Long-Term Liabilities			94.00		71.00	0.62%	0.58%
39	Deferred Tax Liabilities			125.00		90.00	0.83%	0.74%
40				**219.00**		**161.00**	1.45%	1.32%
41	CURRENT LIABILITIES						0.00%	0.00%
42	Short Term Borrowings			1,698.00		1,070.00	11.24%	8.78%
43	Trade Payables			3,282.00		2,520.00	21.73%	20.68%
44	Other Current Liabilities			808.00		768.00	5.35%	6.30%
45	Short-Term Provisions			640.00		439.00	4.24%	3.60%
46				**6,428.00**		**4,797.00**	42.56%	39.36%
47	**TOTAL**			**15,102.00**		**12,188.00**	100.00%	100.00%
48	**APPLICATION OF FUNDS**							
49	FIXED ASSETS							
50	Tangible Assets			2,683.00		1,995.00	17.77%	16.37%
51	Intangible Assets			37.00		47.00	0.25%	0.39%
52	Capital WIP			659.00		768.00	4.36%	6.30%
53				**3,379.00**		**2,810.00**	22.37%	23.06%
54								0.00%
55	INVESTMENTS			766.00		655.00	5.07%	5.37%
56	Long Term loans and advances			455.00		155.00	3.01%	1.27%
57	Other Non-Current Assets			1.00		1.00	0.01%	0.01%
58				**1,222.00**		**3,621.00**	8.09%	29.71%
59	CURRENT ASSETS, LOANS AND ADVANCES							0.00%
60	Current Investments			30.00		521.00	0.20%	4.27%
61	Inventories			5,139.00		4,039.00	34.03%	33.14%
62	Sundry Debtors			3,050.00		2,383.00	20.20%	19.55%
63	Cash and Bank Balances			1,763.00		1,228.00	11.67%	10.08%
64	Short-Term Loans and Advances			454.00		363.00	3.01%	2.98%
65	Other Current Assets			65.00		33.00	0.43%	0.27%
66				**10,501.00**		**8,567.00**	69.53%	70.29%
67	**TOTAL**			**15,102.00**		**12,188.00**	100.00%	100.00%

Fig. 4.11 BPL: Comparison of balance sheet using common size statement
Source: Data from Berger Paints Annual Report.

Solved illustrations

Illustration 1 ABC Ltd has made the following estimations for the next year:

Total assets employed = INR 10,00,000

Borrowed capital = INR 4,00,000

Interest rate on borrowed capital = 10% p.a.

Gross profit ratio = 25% on sales

Direct cost = INR 1,00,000

Other operating expenses = INR 50,000

Sales revenue = 350% on direct cost

Tax rate = 30%

Compute:

(i) Net profit margin
(ii) Return on assets
(iii) Asset turnover ratio
(iv) ROE

***Solution*:**

Table 1 Statement of profit

Particulars	INR	INR
Sales (350% on direct cost)		3,50,000
Less: Direct cost		1,00,000
Gross profit		2,50,000
Less: Operating expenses	60,000	
Profit/Earnings before interest and taxes (PBIT/EBIT)		1,90,000
Less: Interest (10% on INR 4,00,000)	40,000	1,50,000
Profit/Earning before taxes (PBT/EBT)		1,00,000
Less: Tax @ 40%		40,000
Profit/Earnings after tax (PAT/EAT)		60,000

(i) Net profit margin = PAT/Sales = INR 60,000/ INR 3,50,000 = 0.1714 or 17.19%
(ii) Return on assets == [EBIT (1 – T)]/Sales = [INR 1,90,000 (1 – 0.40)]/INR 3,50,000 = 0.3257 or 32.57%
(iii) Asset turnover ratio = Sales/Assets = INR 3,50,000/INR 10,00,000 = 0.35 or 35%
(iv) ROE = PAT/Owners' equity = INR 60,000/INR 6,00,000 = 0.10 or 10%
(vi) Owner's equity = Total assets – Borrowed fund = INR 10,00,000 – INR 4,00,000 = INR 6,00,000

Illustration 2 The significant ratios of ABC Ltd are given below:

Inventory turnover ratio	6 times
Total asset turnover ratio	2.5 times
Current debt to total debt	0.60
Fixed assets to owners' equity	0.50
Total debt to owners' equity	0.30

The owners' equity is INR 2,00,000. With the help of the above-mentioned information, fill up the blank spaces in the following balance sheet:

Capital and liabilities	INR	Assets	INR
Owners' equity	?	Fixed assets	?
Long-term debt	?	Inventory	?
Current debt	?	Cash	?
Total	?	Total	?

***Solution*:**

(i) Total debt = 0.30 × INR 2,00,000 = INR 60,000
(ii) Current debt = 0.60 × Total debt = 0.60 × INR 60,000 = INR 36,000
(iii) Long term debt = Total debt – Current debt = INR 60,000-INR 36,000 = INR 24,000
(iv) Fixed asset = 0.50 × Owners' equity = 0.50 × INR 2,00,000 = INR 1,00,000
(v) Owners' equity + Total debt = INR 2,00,000 + INR 60,000 = INR 2,60,000; therefore, Total asset = INR 2,60,000
(vi) Asset turnover ratio = Sales/Assets = 2.5
Or, Sales = 2.5 × Assets = 2.5 × INR 2,60,000 = INR 6,50,000
(vii) Inventory turnover ratio = Sales/Inventory = 6
Or, Inventory = INR 6,50,000/6 = INR 1,08,333
(viii) Cash = Total assets – Fixed assets – Inventory = INR 2,60,000 – INR 1,00,000 – INR 1,08,333 = INR 51,667

After incorporating this information, the balance sheet appears as follows:

Capital and liabilities	INR	Assets	INR
Owners' equity	2,00,000	Fixed assets	1,00,000
Long-term debt	24,000	Inventory	1,08,333

Capital and liabilities	INR	Assets	INR
Current debt	36,000	Cash	51,667
Total debt and capital	2,60,000	Total assets	2,60,000

Illustration 3 A company X Ltd has a current ratio of 3.5 : 1 and a quick ratio of 2 : 1. If an excess of current assets over quick assets represented by inventories is INR 24,000, calculate the current assets and the current liabilities.

***Solution*:**

Current ratio = 3.5 : 1

Quick ratio = 2 : 1

Let current liabilities = x

Current assets = $3.5x$

Quick assets = $2x$

Inventories = Current assets – Quick assets

$24{,}000 = 3.5x - 2x$

$24{,}000 = 1.5x$; x = INR 16,000

Current liabilities = INR 16,000

Current assets = $3.5x$ = 3.5 × INR 16,000
= INR 56,000

Verification:

Current ratio = Current assets : Current liabilities
= INR 56,000 : INR 16,000 = 3.5 : 1

Quick ratio = Quick assets : Current liabilities
= INR 32,000 : INR 16,000 = 2 : 1

Illustration 4 The current ratio is 2 : 1. State giving reasons which of the following transactions would improve, reduce, and not change the current ratio:

(a) Payment of current liability
(b) Purchased goods on credit
(c) Sale of a computer (book value: INR 4,000) for INR 3,000 only
(d) Sale of merchandise (goods) costing INR 10,000 for INR 11,000
(e) Payment of dividend

***Solution*:**

The given current ratio is 2 : 1. Let us assume that current assets are INR 50,000 and current liabilities are INR 25,000; thus, the current ratio is 2 : 1. Now we will analyse the effect of the given transactions on current ratio.

(a) Assume that the creditors are paid INR 10,000 by cheque. This will reduce the current assets to INR 40,000 and current liabilities to INR 15,000. The new ratio will be 2.67 : 1 (INR 40,000/INR 15,000). Hence, it has improved.
(b) Assume that goods worth INR 10,000 are purchased on credit. This will increase the current assets to INR 60,000 and current liabilities to INR 35,000. The new ratio will be 1.7 : 1 (INR 60,000/INR 35,000). Hence, it has reduced.
(c) Due to the sale of a computer (a fixed asset) the current assets will increase to INR 53,000 without any change in the current liabilities. The new ratio will be 2.12 : 1 (INR 53,000/INR 25,000). Hence, it has improved.
(d) This transaction will decrease the inventories by INR 10,000 and increase the cash by INR 11,000, thereby increasing the current assets by INR 1,000 without any change in the current liabilities. The new ratio will be 2.04 : 1 (INR 51,000/INR 25,000). Hence, it has improved.
(e) Assume that INR 5,000 is given by way of dividend. It will reduce the current assets to INR 45,000 without any change in the current liabilities. The new ratio will be 1.8 : 1 (INR 45,000/INR 25,000). Hence, it has reduced.

Illustration 5 The debt–equity ratio of company X Ltd is 0.5 : 1. Which of the following would increase, decrease, or not change the debt–equity ratio?

(i) Further issue of equity shares
(ii) Cash received from debtors
(iii) Sale of goods on cash basis
(iv) Redemption of debentures
(v) Purchase of goods on credit

***Solution*:**

The change in the ratio depends upon the original ratio. Let us assume that external funds are INR 5,00,000 and internal funds are INR 10,00,000.

Now we will analyse the effect of given transactions on debt–equity ratio.

(i) Assume that INR 1,00,000 worth of equity shares are issued. This will increase the internal funds to INR 11,00,000. The new ratio will be 0.45 : 1 (INR 5,00,000/INR 11,00,000). Thus, it is clear that further issue of equity shares decreases the debt–equity ratio.

(ii) Cash received from debtors will leave the internal and external funds unchanged as this will only affect the composition of current assets. Hence, the debt–equity ratio will remain unchanged.

(iii) This will also leave the ratio unchanged as sale of goods on cash basis affects neither debt nor equity.

(iv) Assume that INR 1,00,000 debentures are redeemed. This will decrease the long-term debt to INR 4,00,000. The new ratio will be 0.4 : 1 (INR 4,00,000/INR 10,00,000). Redemption of debentures will decrease the debit–equity ratio.

(v) This will also leave the ratio unchanged as purchase of goods on credit affects neither debt nor equity.

Illustration 6 From the following details, calculate interest coverage ratio:
Net profit after tax = INR 60,000
15% Long-term debt = 10, 00,000
Tax rate = 40%

***Solution*:**

Net profit before tax = Net profit after tax × 100/(100 – Tax rate)

= INR 60,000 × 100/(100 – 40)

= INR 1,00,000

Interest on long-term debt = 15% of INR 10,00,000

= INR 1,50,000

Net profit before interest and taxes = Net profit before taxes + Interest

= INR 1,00,000 + INR 1,50,000 = INR 2,50,000

Interest coverage ratio = Net profit before interest and taxes/Interest on long-term debt

= INR 2,50,000/INR 1,50,000 = 1.67 times

Illustration 7 From the following information, calculate inventory turnover ratio:

Inventory in the beginning = INR 18,000

Inventory at the end = INR 22,000

Net purchases = INR 46,000

Wages = INR 14,000

Revenue from operations = INR 80,000

Carriage inwards = INR 4,000

***Solution*:**

Inventory turnover ratio = Cost of revenue from operations/Average inventory

Cost of revenue from operations = Inventory in the beginning + Net purchases + Wages + Carriage inwards – Inventory at the end

= INR 18,000 + INR 46,000 + INR 14,000 + INR 4,000 – INR 22,000 = INR 60,000

Average inventory = (Inventory in the beginning + Inventory at the end)/2

= (INR 18,000 + INR 22,000)/2 = INR 20,000

Therefore, Inventory turnover ratio = INR 60,000/INR 20,000 = 3 times

Illustration 8 Calculate inventory turnover ratio from the following information:
Revenue from operations = INR 4,00,000
Average inventory = INR 55,000
Gross profit ratio = 10%

Solution:

Revenue from operations = INR 4,00,000

Gross profit = 10% of INR 4,00,000 = INR 40,000

Cost of revenue from operations = Revenue from operations – Gross profit

= INR 4,00,000 – INR 40,000 = INR 3,60,000

Inventory turnover ratio = Cost of revenue from operations/Average inventory

= INR 3,60,000/INR 55,000 = 6.55 times

Illustration 9 A trader carries an average inventory of INR 40,000. His inventory turnover ratio is 8 times. If he sells goods at a profit of 20% on revenue from operations, calculate the gross profit.

***Solution*:**

Inventory turnover ratio = Cost of revenue from operations/Average inventory

8 = Cost of revenue from operations/INR 40,000

∴ Cost of revenue from operations = 8 × INR 40,000 = INR 3,20,000

Revenue from operations = Cost of revenue from operations × (100 /80)

= INR 3,20,000 × (100/80) = INR 4,00,000

Gross profit = Revenue from operations – Cost of revenue from operations

= INR 4,00,000 – INR 3,20,000 = INR 80,000

Illustration 10 Calculate the trade receivables turnover ratio from the following information:
Total revenue from operations = INR 4,00,000
Cash revenue from operations = 20% of total revenue from operations
Trade receivables as on 1 April 2014 = INR 40,000
Trade receivables as on 31 March 2015 = INR 1,20,000

***Solution*:**

Trade receivables turnover ratio = Net credit revenue from operations/Average trade receivables credit revenue from operations = Total revenue from operations – Cash revenue from operations

Cash revenue from operations = 20% of INR 4,00,000 = INR 4,00,000 × (20/ 100) = INR 80,000

Credit revenue from operations = INR 4,00,000 – INR 80,000 = INR 3,20,000

Average trade receivables = (Opening trade receivables + Closing trade receivables)/2 = (INR 40,000 + INR 1,20,000)/2 = INR 80,000

Trade receivables turnover ratio = Net credit revenue from operations/Average trade receivables = INR 3,20,000/INR 80,000 = 4 times

SUMMARY

For any stakeholder of a company, the assessment of the company's performance is important. In this chapter, we have discussed the tools for financial statement analysis. Ratio analysis is a significant and popular tool for assessing the financial health of a company. We have also discussed about other important tools such as trend analysis and common size statement. The following are the important takeaways from the chapter:

- Financial statement analysis helps the stakeholders of a company to have a glimpse of the financial health of a company.
- Analysis of financial statements generally begins with ratio analysis. Financial ratios are important in the sense that it gives a comparative view of various performance parameters of the company.
- Liquidity ratios show the company's ability to meet the current liabilities by using current assets. The major liquidity ratios are current ratio and quick ratio.
- Asset management ratios measure the effective use of assets of a company. Important asset management ratios are inventory turnover ratio, fixed asset turnover ratio, and total asset turnover ratio.
- Solvency refers to the firm's ability to repay its debt obligations. A financially healthy firm should be able to satisfy its debt obligations at any point of time.
- Market value ratios compare the stock price with earnings, cash flow, and book value per share.
- In ratio analysis, the performance of a company is measured under different parameters, e.g., profitability, use of financial leverage, and use of assets. However, to get a holistic view about the performance of a company, these parameters must be interlinked. DuPont analysis ties up these parameters together and projects a holistic view about the performance of the company.
- Trend analysis gives us a snapshot about the way ratios are trending.
- Common size income statement shows all items as percentage of sales and all items in a balance sheet as percentage of total assets.

KEY CONCEPTS

Asset management ratios These ratios assess the returns generated by assets. The important asset management ratios are inventory turnover ratio, debtors turnover ratio, fixed asset turnover ratio, and total asset turnover ratio.

Debt management ratios Companies borrow funds to meet capital requirements. The important debt management ratios are debt-equity ratio and time-interest earned ratio.

Liquidity ratio These ratios are used to measure the liquidity position of a company. The important liquidity ratios are current ratio and quick ratio.

Market value ratios Stock prices reflect the performance of a company. Market value ratios demonstrate the relationship between the market price and financial performance of the company. P/E ratio and price–cash flow ratio are the two important market value ratios.

Profitability ratios These ratios measure the extent of profitability generated by operations. NP ratio, ROTA, and ROE are the examples of profitability ratios.

Ratio analysis It is a simple yet a very useful tool for analysing the financial performance of a company. In ratio analysis, the financial parameters are compared with each other to understand the financial performance of a company.

EXERCISES

Multiple Choice Questions

1. The liquidity position of a firm may be assessed through
   (i) Current ratio (ii) Return on net worth
   (iii) Debt–Equity ratio (iv) Stock turnover ratio

2. A change in management of stock may be anticipated through
   (i) Current ratio (ii) Return on net worth
   (iii) Debt–Equity ratio (iv) Stock/Inventory turnover ratio

3. A change in profitability of a company may be anticipated through
   (i) Current ratio (ii) NP ratio
   (iii) Debt–Equity ratio (iv) Stock/Inventory turnover ratio

4. Which of the following statements is most appropriate?
   (i) Determining whether a firm's financial position is improving or deteriorating requires analysis of more than one set of financial statements. Trend analysis is one method of measuring a firm's performance over time.
   (ii) DuPont analysis is another method of measuring financial performance.
   (iii) Both (i) and (ii) are correct.
   (iv) Both (i) and (ii) are wrong.

5. The return to the equity holders may be measured comprehensively by using the following ratio:
   (i) DuPont ratio (ii) NP ratio
   (iii) Debt–Equity ratio (iv) Stock/Inventory turnover ratio

Ans: 1. (i), 2. (iv), 3. (ii), 4. (iii), 5. (i)

Concept Review Questions

1. Define each of the following terms:
   (a) Liquidity ratios: Current ratio and quick ratio
   (b) Financial leverage ratios: Debt–Equity ratio and interest coverage ratio
   (c) Profitability ratios: EPS and ROTA
   (d) DuPont equation

2. Discuss the importance of analysis of trends in financial ratios.

3. 'Sunetra Ltd has a healthy asset turnover ratio in the year 2011–2012 but not a good liquidity ratio'. When can this happen?

4. What is common size statement? Discuss the importance of common size statement.

5. Why is financial statement analysis important from the point of view of the stakeholders?

6. What does the term 'liquidity' imply for a firm?

7. Do you think having a high current ratio guarantees good liquidity position?

8. Define the leverage ratios.

9. How is the debt–equity ratio effective in assessing the solvency of a firm?

10. Discuss the significance of activity ratios.

11. Discuss the different ways to compute the rate of return of a company.

12. What is DuPont analysis?

13. Discuss the limitations of ratio analysis.

14. How are common size statements useful in assessing a firm's performance?

15. Discuss the important market value ratios for assessment of a firm's performance.

16. How do market value ratios reflect the investors' perception about a company?

17. What is benchmarking? How is appropriate benchmarking important for ratio analysis?

18. Discuss the importance of MS Excel as a technological tool for ratio analysis.
19. Discuss the significance of asset management ratios.
20. Discuss the importance of trend analysis in assessing the performance of a company.

Critical Thinking Questions

1. 'Stakeholders of a company, e.g., shareholders, creditors, employees, and government are interested in the financial analysis of a company. However, the viewpoint of each of them may be different.' Explain.
2. 'In ratio analysis, no two companies are exactly comparable.' Do you agree with this statement? Explain your view.
3. 'A company may make good profit but still may be unable to pay the dues on time.' Discuss.
4. 'Window dressing of financial statements may give misleading results to analysts.' Discuss.

Numerical Problems

1. Sumedha Ltd has an average daily sale of INR 2,00,000 and debtor turnover ratio of 8. Compute the level of its accounts receivable. Assume 360 days in a year.
2. Jayashree Ltd has an equity multiplier of 3.5. The capital structure of the company consists of equity and debt. Compute the debt ratio.
3. Surya Ltd has a profit margin of 5% and an equity multiplier of 3.0. The total sales of Surya is INR 1,500 lakh and total assets of INR 750 lakh. Compute the ROE.
4. Sulekha Ltd has a profit margin of 3%, ROTA of 11%, and an ROE of 14%. Compute the company's TATR and equity multiplier ratio.
5. Sunetra Ltd has current assets of INR 50 lakh. The current ratio of the company is 1.5 and quick ratio is 1.0. Compute the current liability of Sunetra.
6. Compute the profit margin and debt ratio of Sundaram Ltd from the following information:

   ROTA = 4%
   ROE = 5%

   Sales/Total assets = 2.0
7. Alex Ltd has annual sales of INR 200 lakh, and the NP margin is 5%. Alex's current debt outstanding is INR 500 lakh and the average tax rate is 35%. Compute the interest coverage ratio of Alex Ltd.
8. The following information relates to two companies, Jack Ltd and Jill Ltd:

	Jack Ltd	Jill Ltd
Earning after tax	INR 3,00,000	INR 6,00,000
P/E ratio	17	20

   Jill Ltd's management wishes to acquire Jack Ltd Jill's estimate is that after acquisition they could save INR 1,00,000 annually after tax on administrative fixed costs in running the new joint company. Additionally, they estimate that the P/E ratio of the new company would be 19.

   Based on these estimates, what is the maximum that the shareholders of Jill Ltd should pay for the entire share capital of Jack Ltd?
9. Calculate the trade receivables turnover ratio from the following information:

   Total revenue from operations = INR 5,00,000

   Cash revenue from operations = 10% of total revenue from operations

   Trade receivables as on 1 April 2014 = INR 50,000

   Trade receivables as on 31 March 2015 = INR 80,000
10. A trader carries an average inventory of INR 50,000. His inventory turnover ratio is 10 times. If he sells goods at a profit of 30% on revenue from operations, find out the gross profit.
11. From the following information, calculate inventory turnover ratio:
    Revenue from operations = INR 5,00,000
    Average inventory = INR 65,000
    Gross profit ratio = 15%
12. From the following information, calculate inventory turnover ratio:
    Inventory in the beginning = INR 28,000
    Inventory at the end = INR 21,000
    Net purchases = INR 48,000
    Wages = INR 15,000
    Revenue from operations = INR 90,000
    Carriage inwards = INR 5,000

13. From the following details, calculate interest coverage ratio:
Net profit after tax = INR 70,000
15% long-term debt = INR 20,00,000
Tax rate = 30%

14. The debt–equity ratio of X Ltd is 1 : 1. Which of the following would increase, decrease, or not change the debt–equity ratio?

(i) Further issue of equity shares
(ii) Cash received from debtors
(iii) Sale of goods on cash basis
(iv) Redemption of debentures
(v) Purchase of goods on credit

Spreadsheet Problems

1. Refer to *FMAB_Ch4_xlsx*. This contains the financial statement of Akzo Nobel India Ltd (ANIL). Compute the important ratios using the data available and answer the following questions:

(i) How well did the management of ANIL use the assets for generating the income?
(ii) Comment upon the change in liquidity position of ANIL over the year.
(iii) Explore the reasons behind the change in profitability position of ANIL over the year.
(iv) Make a holistic view on the performance of ANIL using DuPont analysis.

2. Refer *FMAB_Ch4_xlsx* in the ORC. This contains the financial statement of Rallis India Ltd (RIL). Compute the important ratios using the data available and answer the following questions:

(i) How well did the management of RIL use the assets for generating income?
(ii) Comment upon the change in liquidity position of RIL over the year.
(iii) Explore the reasons behind change in profitability position of RIL over the year.
(iv) Make a holistic view on the performance of RIL using DuPont analysis.

Assignment

Identify three companies belonging to the cement industry and part of NIFTY 100 (refer to www.nseindia.com). Download the financial information, e.g., annual report, stock prices, etc., for the last three years. Perform a financial performance analysis of the three companies using ratio analysis and common size statement analysis. Also, make a comparative study of the companies.

CASE STUDIES

1. The financial statements of RIL pertaining to the year 2011–2012 are given as follows:

RALLIS

Sixty-fourth annual report 2011-2012

Rallis India Limited

BALANCE SHEET AS AT 31ST MARCH, 2012

₹ lacs

	Note No.	As at 31st March, 2012	*As at 31st March, 2011*
EQUITY AND LIABILITIES			
Shareholders' funds			
Share capital	**2**	**1,944.71**	*1,944.71*
Reserves and surplus	**3**	**53,420.33**	*48,390.80*
		55,365.04	*50,335.51*
Non-current liabilities			
Long-term borrowings	**4**	**8,213.16**	*8,103.42*
Deferred tax liabilities (Net)	**30**	**1,308.46**	*322.98*
Long-term provisions	**5**	**1,682.05**	*1,790.76*
		11,203.67	*10,217.16*
Current liabilities			
Short-term borrowings	**6**	**3,122.04**	*971.52*
Trade payables	**44**	**23,866.32**	*25,770.54*
Other current liabilities	**7**	**4,993.85**	*4,865.53*
Short-term provisions	**8**	**4,353.42**	*3,931.35*
		36,335.63	*35,538.94*
Total		**102,904.34**	*96,091.61*
ASSETS			
Non-current assets			
Fixed assets			
Tangible assets	**9 a**	**35,159.01**	*21,468.63*
Intangible assets	**9 b**	**46.75**	*98.75*
Capital work-in-progress		**3,492.11**	*14,025.73*
Intangible assets under development	**29**	**1,545.54**	*1,167.84*
Non-current investments	**10**	**17,797.96**	*14,902.62*
Long-term loans and advances	**11**	**8,888.51**	*10,186.58*
Other non-current assets	**12**	**20.90**	*74.39*
		66,950.78	*61,924.54*
Current assets			
Current investments	**13**	**296.14**	*290.40*
Inventories	**14**	**22,416.15**	*20,703.11*
Trade receivables	**15**	**8,209.28**	*9,155.50*
Cash and cash equivalents	**16**	**1,054.88**	*1,126.74*
Short-term loans and advances	**17**	**3,917.52**	*2,837.31*
Other current assets	**18**	**59.59**	*54.01*
		35,953.56	*34,167.07*
Total		**102,904.34**	*96,091.61*
Summary of significant accounting policies	**1**		

STATEMENT OF PROFIT AND LOSS FOR THE YEAR ENDED 31ST MARCH, 2012

₹ lacs

	Note No.	For the year ended 31st March, 2012	*For the year ended 31st March, 2011*
Revenue from operations	**19**	**126,007.19**	*114,817.46*
Less : Excise Duty		**7,882.19**	*8,091.47*
Net Revenue from Operations		**118,125.00**	*106,725.99*
Other income	**20**	**749.85**	*1,355.31*
Total Revenue (I)		**118,874.85**	*108,081.30*
Expenses:			
Cost of materials consumed	**21**	**62,063.21**	*57,804.96*
Purchases of Traded Goods	**35(b)**	**9,212.73**	*8,969.50*
Changes in inventories of finished goods work-in-progress and Stock-in-Trade	**22**	**(382.70)**	*(3,950.38)*
Employee benefits expense	**23**	**7,811.26**	*6,958.31*
Other expenses	**24**	**19,694.27**	*17,919.89*
Total expenses (II)		**98,398.77**	*87,702.28*
Earnings before interest, depreciation, tax and amortization (I-II)		**20,476.08**	*20,379.02*
Finance costs	**25**	**1,037.15**	*305.51*
Depreciation and amortization expense		**2,711.08**	*1,716.07*
Profit before exceptional items		**16,727.85**	*18,357.44*
Exceptional items			
Cessation Cost		**1,719.11**	-
Profit before tax		**15,008.74**	*18,357.44*
Tax expense:			
a. Current tax		**3,818.47**	*5,070.23*
b. for Prior Periods		-	*(211.91)*
c. Deferred tax - Charge (net)		**1,051.31**	*877.85*
Profit for the year		**10,138.96**	*12,621.27*
Earnings per equity share (₹):	**40**		
(1) Basic		**5.21**	*6.49*
(2) Diluted		**5.21**	*6.49*

Source: Data from Rallis India Ltd, Annual Report 2011–2012.

(i) 'The effectiveness in using the assets in raising the profitability of RIL has substantially improved over the years'. Do you agree with this statement? Give adequate reasoning in favour of your opinion.

(ii) How effectively has RIL managed the liquidity position? Give your opinion.

(iii) Critically evaluate the profitability ratios of RIL.

2. Titan Company Ltd is the fifth largest watch maker in the world and the largest jewellery and eyewear retailer in India. The company was established in 1987 and, over three decades, the company has emerged as a leading player in the lifestyle segment. The financial statements of Titan Company for the years 2013–2014 and 2014–2015 are given as follows:

TITAN COMPANY LIMITED
31st Annual Report 2014-15

Balance Sheet as at 31 March 2015

₹ lakhs

Particulars	Note No	As at 31-03-2015	As at 31-03-2014
I. EQUITY AND LIABILITIES			
(1) Shareholders' funds			
Share capital	2.1	8,878	8,878
Reserves and surplus	2.2	300,323	243,517
		309,201	252,395
(2) Non-current liabilities			
Long-term provisions	3	8,745	7,176
		8,745	7,176
(3) Current liabilities			
Short-term borrowings	4	9,979	80,627
Trade payables	5	193,931	85,771
Other current liabilities	6	30,895	154,802
Short-term provisions	7 a)	34,473	29,923
		269,278	351,123
Total		**587,224**	610,694
II. ASSETS			
(1) Non-current assets			
Fixed assets			
Tangible assets	8 a)	67,986	59,035
Intangible assets	8 b)	337	589
Capital work-in-progress		5,493	3,287
		73,816	62,911
Non-current investments	9	3,263	2,657
Deferred tax asset (net)	10	1,967	935
Long-term loans and advances			
Capital advances (Unsecured and considered good)		1,423	1,705
Other advances	11	22,860	20,079
		24,283	21,784
		103,329	88,287
(2) Current assets			
Inventories	12 a)	404,743	386,720
Trade receivables	13	18,735	15,202
Cash and cash equivalents	14	21,020	88,892
Short-term loans and advances	15	38,961	29,922
Other current assets	16	436	1,671
		483,895	522,407
Total		**587,224**	610,694

Source: Data from Titan Company Ltd, Annual Report 2014–2015.

Statement of Consolidated Profit and Loss for the year ended 31 March 2015

₹ lakhs

Particulars		Note No.	Current year	Previous year
I.	Revenue from operations (gross)	19	1,194,933	1,096,900
	Less: Excise duty	19	3,592	4,161
	Revenue from operations (net)		**1,191,341**	1,092,739
II.	Other Income	20	7,075	12,022
Total Revenue (I +II)			**1,198,416**	1,104,761
III.	Expenses:			
	Cost of materials and components consumed		783,192	656,003
	Purchase of stock-in-trade		112,394	159,125
	Changes in inventories of finished goods, work-in-progress and stock-in-trade	21	(20,437)	(9,941)
	Employee benefits expense	22	63,246	54,043
	Finance costs	31	8,069	8,713
	Depreciation and amortization expense		8,957	6,755
	Other expenses	23	138,106	129,076
Total Expenses			**1,093,527**	1,003,774
IV.	Profit before tax (III-IV)		**104,889**	100,987
V.	Tax expense:			
	Current tax		24,100	26,300
	Deferred tax		(836)	(98)
	Taxes of earlier years		-	1,310
Total Tax			**23,264**	27,512
VI.	Profit before share of profit of associate (IV-V)		81,625	73,475
VII.	Share of profit of associate	38	1	19
VIII.	Profit for the year (VI+VII)		**81,626**	73,494
IX.	Earnings per equity share of ₹ 1:	35		
	Basic		9.19	8.28
	Diluted		9.19	8.28

'DuPont analysis is a useful tool to assess the overall performance of a company.' Critically evaluate the performance of Titan Company for the years 2013–2014 and 2014–2015 using DuPont analysis.