Users and Uses of Ratios

It is necessary to analyze and interpret the final accounts of a business in order to assess its performance and progress. Analysis consists of a detailed examination of the Information in a set of final accounts of a business. Interpretation can include comparing the results with other similar businesses or comparing the results with previous years or with the targets and budgets.

Book-Keeping vs accounting

Book-keeping is concerned with recording transactions in the books of accounts. It is a lower level task carried out by book-keeper / clerks on daily basis. Accounting refers to processing that data into meaningful information such as financial statements; Accounting is also concerned with analysis and interpretation of information to help management in planning, controlling and decision making of the business. Accounting is carried out by higher level personnel such as accountants on periodic basis.

Objectives of accounting

- if they are making a profit or a loss
- what their business is worth
- what a transaction was worth to them
- how much cash they have
- how wealthy they are
- how much they are owed
- how much they owe to someone else
- enough information so that they can keep a financial check on the things they do

Users of accounting information

Managers. These are the day-to-day decision-makers. They need to know how well things are progressing financially and about the financial status of the business.

Owner(s) of the business. They want to be able to see whether or not the business is profitable. In addition they want to know what the financial resources of the business are.

A prospective buyer. When the owner wants to sell a business the buyer will want to see such information.

The bank. If the owner wants to borrow money for use in the business, then the bank will need such information.

Tax inspectors. They need it to be able to calculate the taxes payable.

A prospective partner. If the owner wants to share ownership with someone else, then the would-be partner will want such information.

Investors, either existing ones or potential ones. They want to know whether or not to invest their money in the business.

Profit Markup vs. Profit Margin

Markup – Cost
Margin – Sales

$$\frac{\text{Markup}}{100 + \text{Markup}} \qquad\qquad \frac{\text{Margin}}{100 - \text{Margin}}$$

Note: Profit Markup will be always greater that Profit Margin because Markup is applied on cost which is lower than sales figure. We have to apply greater percentage on lower figure.

1). Profitability Ratios

(i) Gross Profit Margin (Gross profit to revenue) $= \frac{\text{Gross Profit}}{\text{Revenue}} \times 100$

(ii) Gross Profit Mark up $= \frac{\text{Gross Profit}}{\text{Cost of Sales}} \times 100$

(iii) Percentage of profit to revenue (Net Profit margin) $= \frac{\text{Net Profit}}{\text{Revenue}} \times 100$

(iv) Return on Capital Employed (ROCE) $= \frac{\text{PBIT}}{\text{Capital Employed}} \times 100$

[Capital Employed = Issued Share + Reserves + Non-Current liabilities]

or

[Total Assets – Current Liabilities]

(v) Return on Equity $= \frac{\text{Profit for the year (after Preference dividends)}}{\text{Equity}} \times 100$

(vi) Return on total Assets $= \frac{\text{PBIT}}{\text{Total Assets}} \times 100$

(vii) Non Current Asset Turnover $= \frac{\text{Net Sales}}{\text{Total NBV of NCA}} \times 100$

(viii) Expenses To Sales Ratio $= \frac{\text{Expenses}}{\text{Net sales}} \times 100$

2) Liquidity Ratios

(i) Current ratio (Working Capital Ratio) $= \dfrac{\text{Current Assets}}{\text{Current Liabilities}}$

(ii) Quick Ratio (Acid Test / Liquid Ratio) $= \dfrac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$

(iii) Rate of Inventory Turnover (times) $= \dfrac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$ (in times)

OR

Inventory turnover (In Days) $= \dfrac{\text{Average Inventory}}{\text{Cost of Sales}} \times 365$

(iv) Trade Receivable Turnover (Avg Collection Period) $= \dfrac{\text{Trade Receivables}}{\text{Credit Sales}} \times 365$

(v) Trade Payables Turnover (Avg Payment Period) $= \dfrac{\text{Trade Payables}}{\text{Credit Purchases}} \times 365$

TURNOVER/ Net Sales = Sales - Sales return OR Cost of sales + Gross profit Gross Profit = Net Sales – Cost of sales OR Net Profit + Expenses	Cost of Sales = Net sales – Gross profit OR Inventory turnover x Average stock OR Opening Inventory + Purchases – Closing Inventory Net Profit = Gross Profit – Expenses Expenses= Gross Profit – Net Profit

Solvency / Liquidity Ratios

In order to find the Information that indicates whether or not the business will be able to pay its Trade Payables, expenses, loans falling due at correct time are known as liquidity ratios or solvency ratios.

Working Capital = Current assets – Current liabilities

It calculates the capital available to meet the day-to-day expenses

Reasons for decrease in <u>Current Ratio</u> (standard / satisfactory 2:1)

- Current asset decreases, without a corresponding decrease in a current liability
- Current liability increases without a corresponding increase in a current asset
- Inventory levels are low
- High levels of trade payables
- Using up of a prepaid expense (debit to expense, credit to prepaid exp)
- Recording an expense, such as payroll, or taxes, with an increase with the credit side of the entry recorded to a current liability.

Reasons for decrease in <u>Quick (Acid Test) Ratio</u> (standard / satisfactory 1:1)

- Inventory levels are high resulting in high trade payables
- The business has no cash available to meet trade payables
- High levels of trade payables
- Cash or accounts receivable decrease, without a corresponding decrease in current liabilities
- increase in a current liability without a corresponding increase in cash or accounts receivables
- Cash spent to acquire fixed assets
- Cash spent to pay off a long term debt or to pay dividends

Why <u>Quick ratio is better than Current ratio?</u>

- The inventory may be difficult or take a long time to sell.
- Inventory may deteriorate or become obsolete.
- Inventory is two stages away from cash.
- Debtors are one stage away from cash.
- Only liquid assets are included in acid test ratio

Reasons for decrease in <u>Liquidity</u>

- Purchase of Non Current Assets
- Cash drawings
- Loss from business operations
- Bank overdraft funds used to help finance purchase of non-current asset
- Non/late payments by trade receivables

- Fall in cash sales
- Loan may have been paid off
- Rate of inventory turnover may have decreased
- Early payment to trade payables to avail cash discounts
- Increase in inventory
- Increase in expenses eg rent, wages etc

How liquidity / Bank balance could be improved

- Bring in more personal capital / Issue of Shares
- Consider raising funds through bank loans
- Reduce personal drawings
- Carry out review of non-current assets with a view to selling off surplus to requirements
- Chase late payers or offer settlement discounts
- Delay payments to trade payables
- Sales on cash basis
- Adopt policies to make business profitable
- Sell inventory faster

Reasons for decrease in stock turnover

- Increased mark up / selling price on goods
- No advertising and market awareness
- Reduced quality of the goods purchased
- Reduced variety and range of goods for sale
- Stock increased during the year because sale is slow
- Some stock may be obsolete and remains in stores.
- Sales activity may be slower because of competition.
- Changed circumstances may mean closing stock figures are higher in current year affecting ratio
- Falling demand due change in fashion / taste / better products available
- Stocks may be piling up and not being sold or keeping stock which is more than required

How can stock turnover be improved?

- Reduce inventory levels
- Reduce mark-up / Prices to be more competitive
- Promotions / advertisements / bargain offers
- Offer cash discounts to encourage sales
- Only replace stock when needed
- Dispose of obsolete stock

Drawbacks of holding too much inventory

- Deterioration / Damage of inventory
- Obsolescence
- Space required for storage
- Cost of storage (holding costs)
- Risk of theft
- Opportunity cost of money tied up
- Liquidity problems

Reasons for decrease in Gross Profit Margin

- Reduction in Selling price due to competition, low demand or to win sales orders
- Increase in Cost of sales / purchases due to less supply, new supplier, increase in demand, different quality of material
- An increase in profit in absolute terms does not imply a rise in profitability of sales
- A decrease in selling price with no decrease in cost of goods sold
- A decrease in selling price with a less than proportionate decrease in cost of goods sold
- An increase in cost of goods sold with no increase in selling price
- An increase in cost of goods sold with a less than proportionate increase in selling price
- Over valuation of opening inventory
- Under valuation of closing inventory
- Poor stock control / damage / stolen / obsolete
- Change in sales mix means low sales of high margin products or vice versa

Reasons for decrease in Net Profit Margin

- Expenses have increased at a faster rate than sales
- Reduction in gross profit margin
- Increase in gross profit margin but more than proportionate increase in expenses

What does GP Margin tell us? How can it be used!

- Enables business to see how well it has performed
- How profitable sales for the year are
- Results can be compared with previous years, competitors, similar business, industry average, targets
- It may act as a warning sign since a fall in the ratio may indicate a fall in profitability of sales
- It shows the percentage gross profit on sales earned

Reasons for decrease in Net Profit ($)

- Reduction in revenue
- Increase in cost of sales

- Reduction in GP Margin
- Increase in expenses

Reasons for decrease in <u>ROCE (Return on Capital Employed)</u>

- Reduction in net profit due to decrease in SP / increase in COS / Expenses
- Increase in capital employed due to more equity / debt capital invested
- A lower net profit has been earned in relation to capital invested
- Inefficient / lack of control over expenses / costs

The ratio does not prove anything by itself, it merely prompts inquiries as to why it should be changing Stock turnover measures how efficient a business is at maintaining an appropriate level of stock. When it is not being as efficient as it used to be, or is being less efficient than its competitors, this may indicate that control over stock levels is being undermined. A reduction in stock turnover can mean that the business is slowing down. This could lead to a liquidity crisis, as money may be being taken out of the bank simply to increase stocks which are not then sold quickly enough.

<u>Ratios can be expressed as:</u>

i) Percentage: eg 25% GP Margin

ii) Proportion: eg 2.5 : 1 Current Ratio

iii) Fraction: eg Net Profit is 1/8 of Sales

iv) Times: eg Inventory Turnover 5 times

<u>Uses of Ratio Analysis</u>

- Help in analyzing the performance trends over a long period of time
- Help the business to compare the financial results with those of competitors
- Assist the management in decision making
- Ratios highlight weak as well as strength areas
- Help to develop relationships between different financial statements
- Help us to compare business with different size and structure.

<u>Limitations of Ratio Analysis</u>

- Ratios are of no use unless they are compared to prior years or other businesses or budgets / forecasts

- Use of different policies and methods by companies may distort comparison

- If Based on historical figures and not adjusted for inflation may lead to misleading and unrealistic conclusions

- Generally based on past and history may not repeat itself

- External influences may affect different businesses differently e.g. recession may affect luxury goods more than necessities

- Accuracy and reliability of ratios depends upon the quality of information recorded in financial statements which is again limited to monetary information only

- Ratios are only indicators of performance they do not necessarily indicate reasons for good or bad performance.

- Ratios need appropriate interpretation because different people may interpret them differently. It depends upon the personal skills, experience, and judgment of the analyst.

- Every industry has some specific ratios or benchmarks of ratios that need to be taken into account while comparison

- Financial ratios only reveal one side of the picture. Other non financial factors must need to be considered which drawing final conclusions.

Past Paper Questions

Q1. S Turner owns a food wholesale business. The following amounts were extracted from books of account at 31 December 2010.

	$
Inventory – 1 January	45 000
Inventory – 31 December	65 000
Cost of sales	880 000
Business expenses	130 000
Trade payables	100 000
Trade receivables	150 000
Bank overdraft	50 000
Capital – 31 December 2010	1 125 000

The mark up on goods is 25%.

REQUIRED

(a) Calculate the profit for the year (net profit) ended 31 December 2010.

(b) Calculate the following ratios, giving your answer to **one** decimal place.

(i) Return on capital employed

(ii) Inventory turnover (as a number of times)

(iii) Liquid (acid test) ratio.

S Turner is considering expanding her business by purchasing another food wholesale business.

She has obtained the following information on two possible business purchases.

	Paradis Foods	Jones Wholesalers
Return on capital employed	15%	6%
Current ratio	3.4:1	1.8:1
Liquid (acid test) ratio	0.5:1	1.4:1

REQUIRED

(c) Advise which business, if any, she should purchase on the basis of all of the information provided. Justify your answer.

Q2. Robbie and Liza are in partnership with capitals of $90 000 and $60 000 respectively.

The following information is available for the year ended 30 April 2011.

Revenue	$240 000
Inventory (30 April 2011)	$9 000
Gross profit as a percentage of turnover	35%
Inventory turnover	12 times
Expenses ratio	15%

All purchases and sales of inventory are on credit.

REQUIRED

(a) Prepare a detailed income statement (profit and loss account) showing gross profit and profit for the year (net profit) for the year ended 30 April 2011.

Q3. The following balances occur in Delboi's books of account at 30 September 2006.

	$000
Purchases	154
Sales	240
Stock at 1 October 2005	24
Fixed assets	77
Debtors	31
Creditors	33
Bank	15 (dr)
Long-term loan from bank at 10% per annum	20
Loan interest paid	1
Operating costs	62
Drawings	20
Capital	?

Additional information:

Stock at 30 September 2006 was valued at $12 000.

From the above information the following trading and profit and loss account has been prepared.

Trading and Profit and Loss Account for year ended 30 September 2006

	$000	$000
Sales		240
Less cost of sales		
Opening stock	24	
Purchases	154	
	178	
Closing stock	12	166
Gross profit		74
Operating costs	62	
Loan interest	2	64
Net Profit		10

REQUIRED

(a) Prepare Delboi's Balance Sheet at 30 September 2006, showing his net current assets.

(b) Calculate the following to **two** decimal places.

(i) Net profit ratio

(ii) Current ratio

(iii) Acid test (quick) ratio

(iv) Rate of Stockturn

(v) Return on owner's capital employed

(vi) Return on total capital employed

(vii) Debtors' collection period in days

(viii) Creditors' payment period in days

Delboi's gross profit ratio for the year ended 30 September 2006 is 30.83 %, but has in previous years been constant at 35 %. He discovers that his new assistant, Rodders, is stealing goods.

REQUIRED

(c) Calculate, at cost price, the value of goods that Rodders is stealing.

(d) State and explain **one** advantage and **one** disadvantage of using ratio analysis as a means of evaluating performance.

Q4 Bradley, a sole trader, provided the following information for the year ended 31 March 2014.

	$
Revenue	420 000
Opening inventory	40 000

The rate of mark up is 40%.

The rate of inventory turnover is 5 times per annum.

REQUIRED

(a) Explain what is meant by mark up.

(b) Prepare the trading section of the income statement for the year ended 31 March 2014.

(c) State the formula for calculating margin.

Additional information

At 31 March 2014, the net book value of the non-current assets was $550 000.

REQUIRED

(d) (i) Explain what the non-current asset turnover measures.

(ii) State the formula to calculate the non-current asset turnover ratio. Calculate the non-current asset turnover ratio correct to **two** decimal places.

Q5 Luing Limited's financial information for the year ended 31 December 2012 revealed the following:

Gross profit ratio	35%
Net profit ratio	14%
Rate of inventory turnover	10 times
Trade payables turnover	42 days
Trade receivables turnover	58 days
Current ratio	3:1
Inventory at 1 January 2012	$7 800 000
Total revenue (all on credit) for 2012	$85 000 000

All purchases were on credit.

(a) For the year ended 31 December 2012, calculate

(i) Gross profit

(ii) Cost of sales

(iii) Closing inventory

(iv) Ordinary goods purchased

(v) Profit for the year

(vi) Expenses

(vii) Trade payables

(viii) Trade receivables

(b) Identify **three** possible users of accounting ratios other than the directors of the company. State what information the users would obtain from the ratios.

Q6 The following information relates to two businesses, one of which manufactures computers whilst the other is a food wholesaler. All sales and purchases are on credit.

	Business X	Business Y
Gross profit ratio	54%	30%
Net profit ratio	18%	6%
Current ratio	1.6:1	0.5:1
Trade receivables turnover	40 days	3 days
Return on capital employed	5.4%	12%
Cost of sales	$248 400	$1 050 000
Closing inventory	$38 000	$48 000
Cash and cash equivalents	$30 000	$14 000
Long-term loan	$1 000 000	$50 000

For calculations, assume a 360-day year.

REQUIRED

(a) State and explain which business is the computer manufacturer and which is the food wholesaler.

(b) Prepare, as fully as the given information allows, income statements for **both** businesses.

Income Statements

	Business X $	Business Y $
Revenue		
Less Cost of sales		
Gross profit		
Expenses		
Profit for the year		

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(c) Prepare, as fully as the given information allows, statements of financial position for **both** businesses.

Statements of Financial Position

	Business X $	Business X $	Business Y $	Business Y $
Non-current assets				
Current assets				
Inventory				
Trade receivables				
Cash and cash equivalents				
Total assets				
Current liabilities				
Trade payables				
Net assets				

Capital		
Non-current liabilities		
Loan	________	________
Capital employed	________	________

(d) (i) Define the term **liquidity.**

(ii) State which business is more likely to have liquidity problems.

(iii) State which ratio gives most concern and why it does so.

Q7 Ali operates a small trading business.

For the year ended 31 December 2014 he provides the following information:

Gross profit margin	54%
Profit margin	18%
Current ratio	1.6 : 1
Trade receivables turnover	40 days
Return on capital employed	5.4%
Cost of sales	$248 400
Closing inventory	$38 000
Cash and cash equivalents	$30 308
Long-term loan	$1 000 000

REQUIRED

(a) Prepare for Ali's business in as much detail as possible:

(i) the income statement for the year ended 31 December 2014

(ii) the statement of financial position at 31 December 2014.

Note: Calculations should be to the nearest $ where appropriate.

(b) State **two** advantages and **two** disadvantages of ratio analysis.

Additional information

For the year ended 31 December 2013 Ali has calculated the following ratios:

Current ratio	1.3 : 1
Trade receivables turnover	30 days
Gross profit margin	48%
Profit margin	12%

REQUIRED

(c) Assess the performance of the business in respect of liquidity and profitability.

Q8 Fred owns a general trading business. The following balances were extracted from his books at 30 April 2010.

	$
Revenue (sales)	300 000
Opening inventory (stock)	18 000
General expenses	36 000
Trade payables (creditors)	64 000
Trade receivables (debtors)	60 000
Cash and cash equivalents (bank)	3 000
Closing capital	500 000

Additional information

1 The gross profit margin is 20%

2 There were no other current assets and current liabilities at the year end.

3 Closing inventory (stock) was valued at $22 000.

REQUIRED

(a) Calculate the following ratios for Fred. Give your answer to **two** decimal places.

Show **all** workings.

(i) Inventory (stock) turnover

(ii) Return on capital employed

(iii) Liquid ratio (acid test)

Q9 B M Reid's books of account showed the following figures for the year ended 31 December 2012:

	$
Revenue	200 000
Ordinary goods purchased	145 000
Profit from operations	22 500
Reid's balances at 31 December 2012 were:	
Inventory	12 500
Trade receivables	40 000
Cash and cash equivalents	10 000
Trade payables	25 000
Finance costs (interest owing)	12 500
Non-current assets at net book value	60 000

Additional information:

1 80% of revenue was on credit
2 Inventory at 1 January 2012 was $17 500
3 Trade payables and trade receivables balances were unchanged since 1 January 2012.

REQUIRED

(a) Calculate the following ratios, correct to **two** decimal places, in **each** case stating the formula used.

(i) Mark-up

(ii) Inventory turnover

(iii) Trade receivables turnover

(iv) Operating expenses to revenue ratio

(v) Current ratio

(vi) Acid test/liquid ratio

(vii) Non-current asset turnover.

For the year ended 31 December 2011 the following ratios were:

Inventory turnover	13 times
Trade receivables turnover	70 days

REQUIRED

(b) Use the above ratios to compare B M Reid's performance with the year ended 31 December 2012. State possible reasons for the changes.

(c) State **two** limitations of the uses of ratios.

Q10 Lance, a trader, has provided the following balances at 30 November 2014 after the preparation of the income statement for the year.

	$000
Profit for the year	30
Non-current assets – at cost	500
–accumulated depreciation	200
Accrued expenses	20
Cash in hand	10
Bank overdraft	25
Inventory	80
Trade payables	35
Trade receivables	50
Bank loan (2020)	40
Opening capital	310
Drawings	20

REQUIRED

(a) Prepare the statement of financial position at 30 November 2014.

(b) Calculate, stating the formula used, the following ratios correct to **two** decimal places.

Ratio	Formula	Calculation
Current		
Liquid (acid test)		

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Additional information

Ratio	2012	2013
Current	2.0:1	2.30:1
Liquid (acid test)	1.40:1	1.0:1

REQUIRED

(c) Evaluate the change in Lance's liquidity position over the three years.

Additional information

Lance has provided the following forecast for December 2014:

1 Sales are expected to be $75 000 of which 30% will be on a cash basis and the remainder payable the month after sale. All trade receivables outstanding at 30 November 2014 were expected to pay in full during December 2014.

2 Purchases are expected to be $45 000 of which 40% will be cash and the remainder payable the month after purchase. All trade payables at 30 November 2014 were expected to be paid in full during December 2014.

3 Business expenses of $12 500 will be paid in the month incurred.

4 Depreciation on non-current assets will be $9500 per month.

5 A loan of $25 000 will be negotiated with the bank and interest at 6% per annum will be paid on a monthly basis from December 2014 onwards.

REQUIRED

(d) Complete the following cash budget for December 2014.

Q11 Alberto is a retailer and has provided the following statement of financial position at 31 August 2014.

	$
Assets	
Non-current assets	350 000
Current assets	
Inventory	65 000
Trade receivables	45 000
	110 000
Total assets	460 000
Capital and liabilities	
Owner's capital	420 000
Current liabilities	
Bank overdraft	18 000
Trade payables	22 000
	40 000
Total capital and liabilities	460 000

The following additional information is also available for the year ended 31 August 2014.

	$
Inventory at 1 September 2013	50 000
Purchases (all on credit)	280 000
Revenue (all on credit)	425 000

REQUIRED

(a) Complete the following table.

Ratio	Formula	Calculation
Inventory turnover (in days)		
Trade receivables turnover (in days)		
Trade payables turnover (in days)		
Non-current asset turnover		
Current ratio		

Additional information

Credit terms negotiated with both customers and suppliers are 30 days net. Last year Alberto's inventory turnover was 60 days.

REQUIRED

(b) Evaluate Alberto's performance in respect of the following ratios.

(i) Inventory turnover

(ii) Trade receivables turnover

(iii) Trade payables turnover

Additional information

Alberto is considering expanding his business by forming either a partnership or a private limited company.

REQUIRED

(c) State **two** advantages and **two** disadvantages of **each** option.