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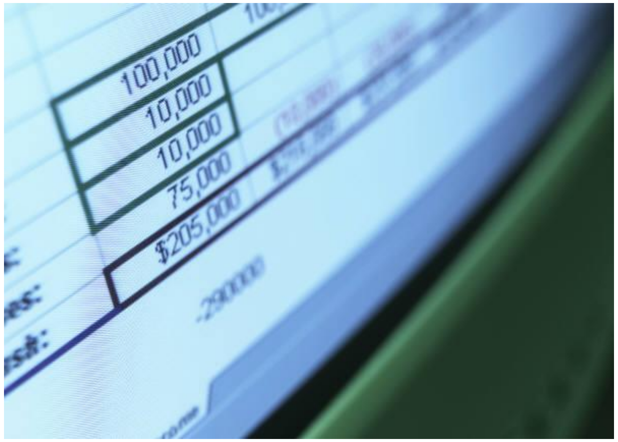
Chapter 1 Financial Analysis

Understanding financial statements

- In our study of financial management, limited companies are a more common form of business ownership.
- Hence, we will introduce the following for a limited company:

  1 income statement

  2 statement of financial position



Understanding financial statements

Income statement

- An **income statement** reports the _revenues_ and _expenses_ of a business over a period of time, usually a year.

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Sales			4,470,000
Less	*Cost of goods sold:*		
	Opening inventory	584,000	
	Add Purchases	2,788,000	
		3,372,000	
	Less Closing inventory	622,000	2,750,000
Gross profit			1,720,000
Less	*Operating expenses* (2):		
	Distribution expenses	586,100	
	Administrative expenses	735,400	
	Other operating expenses	65,500	1,387,000
Operating profit (1)			333,000
Less	Interest expenses (3)		25,000
Profit before tax			308,000
Less	Taxation		62,000
Profit after tax (4)			246,000

Understanding financial statements

Operating profit

- Operating profit is calculated by deducting all <u>operating expenses</u> (but not interest expenses and tax) from <u>gross profit</u>.
- It is also known as ***profit before interest and tax*** or ***earnings before interest and tax*** (EBIT).

Operating profit = Gross profit − Operating expenses

Understanding financial statements

Operating expenses

- **Operating expenses** refer to expenses that arise during the **operation** of a business.
- They include expenses incurred in the **management** of a business, the selling and **distribution** of goods or services, and other expenses related to the operation of the business.

Understanding financial statements

Interest expenses

- **Interest expenses** incurred from _**borrowing**_ funds are not included in operating expenses.

Understanding financial statements

Profit after tax

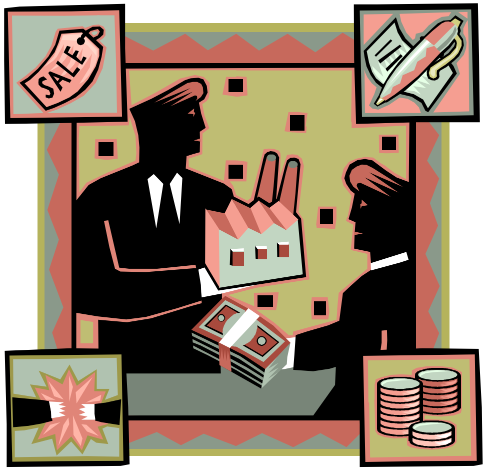
- Limited companies are required to disclose <u>**tax**</u> expenses in their income statements.
- Tax expenses are deducted from <u>**profit before tax**</u> to calculate the **profit after tax**.

Profit after tax = Profit before tax − Taxation

Understanding financial statements

Statement of financial position

- A **statement of financial position** shows the **assets**, **liabilities** and capital of a business as at a certain date, usually at the end of an accounting period.
- It is also called the ***balance sheet***.



Understanding financial statements

Statement of financial position

ACCT.com
Statement of Financial Position as at 31 December 2014

	$
ASSETS	
Non-current assets	
Furniture and fixtures	857,700
Machinery and equipment	1,849,200
	2,706,900
Current assets	
Inventory	622,000
Trade receivables[Note]	554,400
Cash	368,500
	1,544,900
Total assets	4,251,800

Understanding financial statements

Sta… …osition

Share capital are the capital that stockholders invest in the company.

…com

…ion as at 31 December 2014

	$
EQUITY AND L…	
Capital and reserves	
Share capital (100,000 ordinary shares …	1,000,000
Share premium	1,350,000
Retained profits	814,800
	3,164,800
Non-current liabilities	
Long-term debt	500,000
Current li…	
Trade pay…	273,500
Accrued expen…	251,500
Tax payable	62,000

When the company earns profits, some of the profits may be distributed as dividends to stockholders. The undistributed profits become the company's **retained profits**.

Stockholders' equity is the total of share capital, and retained profits.

Stockholders' equity = Share capital + + Retained profits

Assessing business performance using accounting ratios

- **Accounting ratios** express _**relationships**_ between different figures in the financial statements.
- They are also called ***financial ratios***.
- They can be used to measure a firm's:

Profitability	Liquidity	Solvency	Management efficiency

Accounting Ratios

Usage: to evaluate and compare the financial performance and position of different companies

Categories:

Profitability ratios

Liquidity ratios

Management Efficiency ratios

Assessing business performance using accounting ratios

i.e., the ability to make profits

Profitability

- **Profitability ratios** measure the __earning power__ of a firm.
- Major profitability ratios include:

Gross profit ratio	Net profit ratio	Return on capital employed

Assessing business performance using accounting ratios

Gross profit ratio

- **Gross profit ratio** measures the profitability of a firm __**after**__ deducting the cost of goods sold, but not expenses.
- It is also called ***gross profit margin*** or simply the ***margin***
- It shows the __**gross profit**__ for every dollar in sales.
- It is calculated as follows:

$$\textbf{Gross profit ratio} = \frac{\textbf{Gross profit}}{\textbf{Sales}} \times 100\%$$

Assessing business performance using accounting ratios

Gross profit ratio

- The higher the gross profit ratio, the more / less profitable the firm is.
- A firm can increase its gross profit ratio in the following ways:

  1 Increasing / Decreasing the selling price

  2 Reducing the **cost of goods sold**

Assessing business performance using accounting ratios

Net profit ratio

- The **net profit ratio** measures the profitability of a firm before / after deducting all costs and expenses.
- It is also known as ***net profit margin.***
- It shows the net profit for every dollar in **sales**.
- It is calculated as follows:

$$\text{Net profit ratio} = \frac{\text{Net profit before tax}}{\text{Sales}} \times 100\%$$

Assessing business performance using accounting ratios

Net profit ratio

- The higher the net profit ratio, the more / less profitable the firm is.
- A firm can increase its net profit ratio in the following ways:

  1 Increasing / Decreasing the gross profit ratio

  2 Increasing sales

  3 Reducing **operating expenses**

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Gross Profit Ratio $\frac{\text{Gross Profit}}{\text{Net Sales}}$		
Net profit Ratio $\frac{\text{Net Profit}}{\text{Net Sales}}$		

Group Work

Present your answers
Funny co vs Tricky co

Q1. Which company is more profitable?

Q2. Which company control the costs better?

Q3. Which company control the expenses better?

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Gross Profit Ratio Gross Profit Net Sales	319,500/700,000 = **0.46**	7,500/11,000 = **0.68**
Net profit Ratio Net Profit Net Sales	184,500/700,000 = **0.26**	5,600/11,000 = **0.51**

Which company has higher ability to gain profit from its sales revenue?

Assessing business performance using accounting ratios

Net profit ratio

- In measuring the profitability of a firm,

  1 the gross profit ratio / net profit ratio only considers the cost of goods sold

  2 the gross profit ratio / net profit ratio also takes into account the firm's other expenses

- The gross profit ratio / net profit ratio is a better measure of profitability than the gross profit ratio / net profit ratio.

Assessing business performance using accounting ratios

Return on capital employed

- The **return on capital employed** (ROCE) measures the ability of a firm to generate profits on its __**capital**__.
- It shows the net profit before interest and tax earned for every dollar invested.
- It is calculated as follows:

$$\text{Return on capital employed} = \frac{\text{Net profit before interest and tax}}{\text{Average capital employed}} \times 100\%$$

Assessing business performance using accounting ratios

Return on capital employed

- For limited companies, ‘capital employed’ is defined as the sum of **non-current liabilities** and the shareholders’ fund.

i.e., stockholders’ equity

- A higher ratio means that:

1 the firm has a greater / lower ability to generate profits from its long-term funds; and

2 investors can gain a higher **return** from their investments.

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Return on Capital Employed $\frac{\text{Net Profit}}{\text{Capital Employed}}$		
Return on Total Assets $\frac{\text{Net Profit}}{\text{Total Assets}}$		

Group Work

Present your answers

Funny co vs Tricky co

Q1. Which company can generate more **profit** on its **capital or long term funds**?

Q2. Which company allow its **investors** to gain a higher **returns** from their **investments?**

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Return on Capital Employed Net Profit Capital Employed	184,500/1,105,000 = **0.17**	5,600/307,000 = **0.02**
Return on Total Assets Net Profit _ Total Assets	184,500/1,290,000 = **0.14**	5,600/309,000 = **0.02**

Which company can generate more ***profit*** *on its* ***capital or long term funds****?*

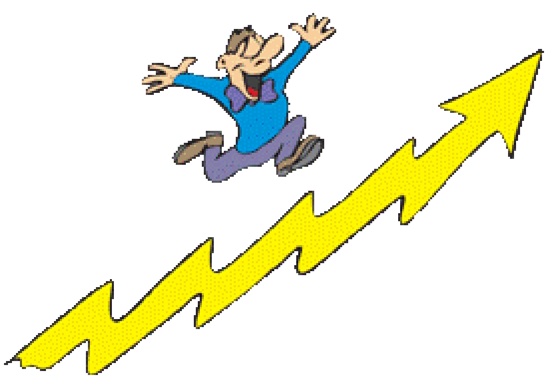
Ratio Analysis for Business

Profitability Ratio

(i.e. Gross Profit Ratio, Net Profit Ratio, Return on Capital Employed & Return On Total Asset)

Higher profitability ratio means higher return for every dollar of sales revenues made (or total asset used).

Hence, the higher the better!



Accounting Ratios

Usage: to evaluate and compare the financial performance and position of different companies

Categories:

Profitability ratios

Liquidity ratios

Management Efficiency ratios

Assessing business performance using accounting ratios

Liquidity

- **Liquidity** refers to a firm's ability to repay its short-term **liabilities** when due.
- The five common measures of liquidity include:

Current ratio

Quick ratio

Inventory turnover

Trade receivables turnover

Trade payables turnover

We will discuss inventory turnover, trade receivables turnover and trade payables turnover later.

Assessing business performance using accounting ratios

Current ratio

- The **current ratio** measures the short-term debt **repayment** ability of a firm.
- It is also called ***working capital ratio.***
- It shows the number of times that the current liabilities of a business are covered by its current **assets**.

Assessing business performance using accounting ratios

Current ratio

- The higher the ratio, the higher / lower the liquidity of the firm.
- It is calculated as follows:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} : 1$$

- In order to have sufficient current assets to cover current liabilities, a firm should maintain a current ratio of smaller / greater than one.

Assessing business performance using accounting ratios

Quick ratio

- The **quick ratio** measures the short-term debt repayment ability of a firm without considering __inventory__.
- It is also called the ***acid-test ratio*** or ***liquid ratio***
- It shows the number of times that the current liabilities of a business are covered by its __liquid assets__.

It is also called quick assets

Assessing business performance using accounting ratios

Quick ratio

- The higher the ratio, the lower / higher the liquidity of the firm.
- It is calculated as follows:

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} : 1$$

Assessing business performance using accounting ratios

Quick ratio

- It is a better indicator of the short-term debt repayment ability of a firm.
- It indicates the extent to which a firm can repay its current liabilities without having to wait for the sale of __**inventory**__.
- A quick ratio of smaller / greater than one provides evidence that the firm has sufficient quick assets to meet its short-term obligations.

Assessing business performance using accounting ratios

Quick ratio

- If the current ratio or quick ratio is too high, this may signal that:

  1 the firm has too many current assets lying **idle**, and

  2 the firm has not used its current assets to generate profits **efficiently**.

i.e., less than 1

- If the two ratios are too low, the firm may have difficulty repaying short-term debts with its current assets even if it has valuable **fixed assets**.

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	**Tricky Company Limited**
Current Ratio $\frac{\text{Current Assets}}{\text{Current Liabilities}}$		
Quick Ratio $\frac{\text{Current Assets – Stock}}{\text{Current Liabilities}}$		

Group Work

Present your answers
Funny co vs Tricky co

Q1. Which company has a better **short term debts** repayment ability?

Q2. Which company has a higher liquidity?

Activity: Finding ratios from financial statements

Ratio	Formula	Funny Company Limited	Tricky Company Limited
Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	190,000/185,000 = **1.03**	9,000/2,000 = **4.5**
Quick Ratio	$\frac{\text{Current Assets – Stock}}{\text{Current Liabilities}}$	180,000/185,000 = **0.97**	8,000/2,000 = **4**

Problems ?

Which company has higher ability to repay debts?

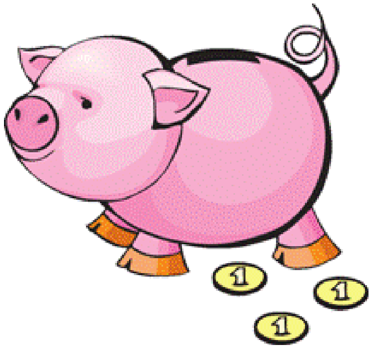
Ratio Analysis for Business

Liquidity Ratios

(i.e. Current Ratio & Quick Ratio)

For the safety or stability of a business, current ratio should be ≥ 2:1 and quick ratio should be ≥ 1:1

BUT, a very high liquidity ratio may indicate idle cash or lack of investment opportunities.



Assessing business performance using accounting ratios

Solvency

- **Solvency** refers to the ability of a firm to repay its **liabilities** when due.
- These liabilities include short-term liabilities and long-term liabilities.
- Solvency ratios measure the **overall** debt repayment ability of a firm.

i.e., cannot repay debts on time

- If a firm is **insolvent** it is likely to go into **liquidation**.
- A firm will **terminate** operations when it is liquidated.

Assessing business performance using accounting ratios

Gearing ratio

- The gearing ratio measures the long-term financial _**health**_ of a firm.
- It shows the proportion of long-term _**debt**_ relative to total long-term capital.

$$\text{Gearing ratio} = \frac{\text{Long-term debt}}{\text{Total long-term capital}}$$

- In other words, it can be calculated as follows:

$$\frac{\text{Non-current liabilities + Preference share capital}}{\text{Non-current liabilities + Shareholders' fund}} \times 100\%$$

Assessing business performance using accounting ratios

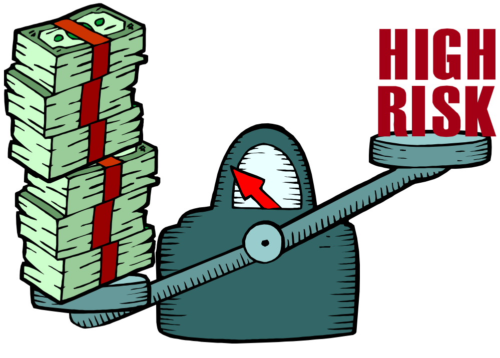
Gearing ratio

- It tells us how much **long-term debt** are being used by a firm.
- A higher gearing ratio means that:

  1 the firm uses **more** long-term debt to finance its operations;

  2 it faces a higher financial **risk**.

- Because a firm needs to pay **interest** and preference share dividends, as well as repay the loan principal whether it makes a profit or not.



Assessing business performance using accounting ratios

Gearing ratio

- The risk of being unable to repay its debts is lower / higher when the firm relies more on long-term debt.
- Therefore, the gearing ratio can also measure a firm's ability to meet its **long-term liabilities**.
- If this ratio is smaller / greater than 50%, the firm is said to be highly geared.
- However, we should note that whether a firm's gearing ratio is high or low depends on its industry and **firm size**.

Accounting Ratios

Usage: to evaluate and compare the financial performance and position of different companies

Categories:

Profitability ratios

Liquidity ratios

Management Efficiency ratios

Assessing business performance using accounting ratios

Management efficiency

- **Management efficiency ratios** measure how **efficiently** a firm utilises its assets.
- They are also called ***activity ratios.***
- A firm is more efficient if it can generate more **sales** or convert assets into **cash** more quickly.
- Four common management efficiency ratios are:

Inventory turnover

Trade receivables turnover

Trade payables turnover

Total assets turnover

Assessing business performance using accounting ratios

Inventory turnover

- **Inventory turnover** measures how efficiently a firm uses its **inventory**.
- It shows the size of inventory relative to the **cost of goods sold**.
- It is calculated as follows:

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Assessing business performance using accounting ratios

Inventory turnover

- A higher inventory turnover means that:
  1. the firm is able to sell its inventory more **quickly**
  2. it can use its inventory more **efficiently**.
- A firm with a higher inventory turnover only needs to maintain a bigger / smaller inventory to generate the same level of sales.
- The inventory turnover can also be used to measure **liquidity**.
- A firm has a higher liquidity when it has a higher / lower inventory turnover.

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Stock Turnover Ratio $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}}$		
Stock Turnover Period $\frac{\text{Average Stock x 365}}{\text{Cost of Goods Sold}}$		

Group Work

Present your answers
Funny co vs Tricky co

Q1. Which company is able to sell its **inventory** quicker?

Q2. Which company has a higher liquidity?

Activity: Finding ratios from financial statements

Ratio	Formula	Funny Company Limited	Tricky Company Limited
Stock Turnover Ratio Q1	$\frac{\text{Cost of Goods Sold}}{\text{Average Stock}}$	380,500/[(30,500+10,000)/2] = **18.79**	3,500/[(1,500+1,000)/2] = **2.8**
Stock Turnover Period Q2	$\frac{\text{Average Stock x 365}}{\text{Cost of Goods Sold}}$	[(30,500+10,000)/2]x365/380,500 = **19.43 days**	[(1,500+1,000)/2]x365/3,500 = **130.36 days**

Q. Which company has higher efficiency in controlling stock?

Assessing business performance using accounting ratios

Trade receivables turnover

- **Trade receivables turnover** measures how efficiently a firm collects its **trade receivables**.
- It shows the size of trade receivables relative to **credit sales**.
- It is calculated as follows:

$$\text{Trade receivables turnover} = \frac{\text{Credit sales}}{\text{Average trade receivables}}$$

Assessing business performance using accounting ratios

Trade receivables turnover

- A higher trade receivables turnover means that the firm is able to collect its trade receivables more / less quickly, and therefore is more **efficient** in collecting trade receivables.
- To see whether this ratio is high or low, you should compare the figure with the following:

  1 the trade receivables turnover in previous years; and

  2 the trade receivables turnover of **other firms** in the same industry.
- The trade receivables turnover can also be used to measure liquidity.
- A firm has a higher liquidity when it has a higher / lower trade receivables turnover.

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Trade Receivable Turnover **Debtors Turnover Ratio** Credit Sales Debtors (Average A/R)		
Debtors Repayment Period Debtors x 365 Credit Sales		

Group Work

Present your answers
Funny co vs Tricky co

Q1. Which company is able to collect it's **Trade receivables** quicker?

Q2. Which company has a higher liquidity?

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Trade Receivable Turnover Debtors Turnover Ratio Credit Sales / Debtors (Average A/R)	700,000/150,000 = **4.67**	11,000/5,000 = **2.2**
Debtors Repayment Period Debtors x 365 / Credit Sales	150,000x365/700,000 = **78.21 days**	5,000x365/11,000 = **165.91 days**

*Which company is able to collect it's **Trade receivables** quicker?*

Assessing business performance using accounting ratios

Trade payables turnover

- Trade payables turnover measures how efficiently a firm pays its <u>trade payables</u>.
- It shows the size of trade payables relative to <u>credit purchases</u>.
- It is calculated as follows:

$$\text{Trade payables turnover} = \frac{\text{Credit purchases}}{\text{Average trade payables}}$$

Assessing business performance using accounting ratios

Trade payables turnover

- A higher trade payables turnover means that the firm is able to pay its trade payables more / less quickly, and therefore is more **efficient** in paying trade payables.
- To see whether this ratio is high or low, you should compare the figure with the following:

  1 the trade payables turnover in previous years; and

  2 the trade payables turnover of other firms in the same industry.
- The trade payables turnover can also be used to measure liquidity.
- A firm has a higher liquidity when it has a higher / lower trade payables turnover.

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Trade Payable Turnover Creditors Turnover Ratio $\frac{\text{Credit Purchases}}{\text{Creditors}}$		
Creditors Repayment Period $\frac{\text{Creditors x 365}}{\text{Credit Purchases}}$		

Group Work

Present your answers

Funny co vs Tricky co

Q1. Which company is able to pay it's **Trade payable** quicker?

Q2. Which company has a higher liquidity?

Activity: Finding ratios from financial statements

Based on the financial statements provided, fill in the following table:

	Funny Company Limited	Tricky Company Limited
Trade Payable Turnover Creditors Turnover Ratio Credit Purchases / Creditors	360,000/180,000 = **2**	3,000/2,000 = **1.5**
Creditors Repayment Period Creditors x 365 / Credit Purchases	180,000x365/360,000 = **182.50 days**	2,000x365/3,000 = **243.33 days**

Which company is able to pay it's **Trade payable** quicker?

Assessing business performance using accounting ratios

Total assets turnover

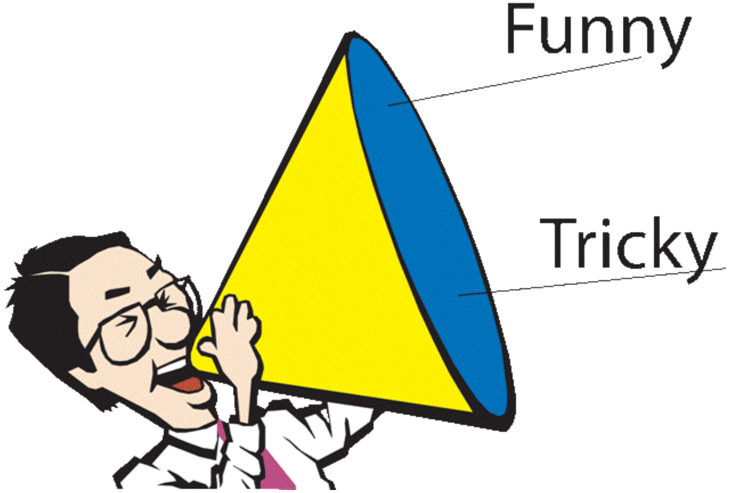
- **Total assets turnover** measures how efficiently **assets** are being used to generate sales.
- It is also called ***asset turnover.***
- It is calculated as follows:

$$\textbf{Total assets turnover} = \frac{\textbf{Sales}}{\textbf{Total assets}}$$

- A lower / higher total assets turnover means that the firm can use fewer assets to generate a given level of sales revenue.
- The higher the total assets turnover, the more / less efficiently the firm uses its assets to generate sales.

Extended Learning Activity

Can you give brief comments on the financial performance of Funny and Tricky?



Q1. Which company has higher ability to gain profit from its sales revenue?

Ans. Tricky Company Limited.

Q2. Which company has higher ability to repay debts?

Ans. Tricky Company Limited.

Q3. Which company has higher efficiency in controlling stock?

Ans. Funny Company Limited.

Summary

Profitability Ratios

Liquidity Ratios

Management Efficiency Ratios

Usage : to evaluate and compare the financial performance and position of different companies

Ability to gain profit	*Ability to repay debts*	*Efficiency in controlling Stock, debtor, creditor*
Gross Profit Ratio Net Profit Ratio Return on Capital Employed Return on Total Asset	Current Ratio Quick Ratio	Stock Turnover Ratio Stock Turnover Period Debtors Turnover Ratio Debtors Collection Period Creditors Turnover Ratio Creditors Repayment Period

Management Efficiency Ratios

Caution!

High stock turnover (low turnover period) may indicate insufficient raw material supply

High repayment period (low stock turnover) may indicate inability to pay debts.

Activity 3:
Which company performed better?

Ratios	Ratio Values		Which is better 1 or 2?	Reasons
	Company 1	Company 2		
Gross Profit Ratio	0.31	0.25		
Net profit Ratio	0.12	0.15		
Return on Capital Employed	0.21	0.24		
Return on Total Assets	0.11	0.19		
Current Ratio	2.54 : 1	1.47 : 1		
Quick Ratio	1.12 : 1	1.30 : 1		
Stock Turnover Ratio	4.5 times	3.8 times		
Stock Turnover Period	81.11 days	96.05 days		
Debtors Turnover Ratio	4.66	3.98		
Debtors Collection Period	78.33 days	91.71 days		
Creditors Turnover Ratio	3.78	2.56		
Creditors Repayment Period	96.56 days	142.58 days		

Activity 3:
Which company performed better? (Answers)

Ratios	Ratio Values		Which is better 1 or 2?	Reasons
	Company 1	Company 2		
Gross Profit Margin	0.31	0.25	1	Higher gross profit gained per unit sales
Net profit Margin	0.12	0.15	2	Higher net profit gained per unit sales

Activity 3: Which company performed better? (Answers)

Ratios	Ratio Values		Which is better 1 or 2?	Reasons
	Company 1	Company 2		
Return on Capital Employed	0.21	0.24	2	Higher net profit gained per unit capital used
Return on Total Assets	0.11	0.19	2	Higher net profit gained per unit asset used

Activity 3:
Which company performed better? (Answers)

Ratios	Ratio Values		Which is better 1 or 2?	Reasons
	Company 1	Company 2		
Current Ratio	2.54 : 1	1.47 : 1	1	More capacity to repay short-term debts
Quick Ratio	1.12 : 1	1.30 : 1	2	More capacity to repay immediate debts

Activity 3: Which company performed better? (Answers)

Ratios	Ratio Values		Which is better 1 or 2?	Reasons
	Company 1	Company 2		
*Stock Turnover Ratio	4.5 times	3.8 times	1	More stocks are sold in the period/lower stock level
Stock Turnover Period	81.11 days	96.05 days	1	Stocks required lesser time to be sold/lower stock level

Activity 3:
Which company performed better?
(Answers)

Ratios	Ratio Values		Which is better 1 or 2?	Reasons
	Company 1	Company 2		
Debtors Turnover Ratio	4.66	3.98	1	Higher ability in collecting debts & more cash in hand
Debtors Collection Period	78.33 days	91.71 days	1	Debts are collected in a shorter period & more cash in hand

Activity 3:
Which company performed better? (Answers)

Ratios	Ratio Values		Which is better 1 or 2?	Reasons
	Company 1	Company 2		
Creditors Turnover Ratio	3.78	2.56	2	Enjoyed longer credit term & more cash in hand
Creditors Repayment Period	96.56 days	142.58 days	2	Debts are repaid in a longer period & more cash in hand

Activity 4: Which company are they talking about?

Statement X belongs to Company _______?
Statement Y belongs to Company _______?
Statement Z belongs to Company _______?

	X	Y	Z
Gross Profit Ratio			
Net Profit Ratio			
Return on Capital Employed			
Return on Total Assets			
Current Ratio			
Quick Ratio			
Stock Turnover Ratio			
Stock Turnover Period			
Debtors Turnover Ratio			
Debtors Collection Period			
Creditors Turnover Ratio			
Creditors Repayment Period			

Activity 4: Which company are they talking about? (Answers)

	X	Y	Z
Gross Profit Ratio **(2)**	352000/700000=**0.50**	172500/795,000=**0.22**	20000/80000=**0.25**
Net Profit Ratio **(3)**	65000/700000=**0.09**	30000/795,000=**0.04**	12000/80000=**0.15**
Return on Capital Employed **(6), (7)**	65000/[(109840+141840)/2] **=0.52**	30000/(500000+300000+128500+ 19500+225000)=**0.03**	12000/[(36000+42000)/2] =**0.31**
Return on Total Assets	65000/(148340+186000)=**0.19**	30000/1278000=**0.02**	12000/(2000+46000)=**0.25**

Activity 4: Which company are they talking about? (Answers)

	X	Y	Z
Current Ratio (4)	186000/132500 =**1.40**	(230000+175500+157500)/(75000 +30000)= **5.36**	46000/6000 =**7.67**
Quick Ratio (5)	(145500+1000+3000)/(132500) **=1.13**	(175500+157500)/(75000+30000) =**3.17**	(25000+6000)/6000 =**5.17**

Activity 4: Which company are they talking about? (Answers)

	X	Y	Z
Inventory Turnover Ratio **(8)**	348000/[(30500+36500)/2] **=10.39**	622500/[(200000+230000)/2] =**2.90**	60000/[(25000+15000)/2] =**3.00**
Inventory Turnover Period **(8)**	[(30500+36500)/2]x365/348000 **=35.14 days**	[(200000+230000)/2]x365/622500 =**126.06 days**	[(25000+15000)/2]x365/60000 **121.67**
Debtors Turnover Ratio	700000/150000=**4.67**	795000/175500=**4.53**	67000/25000=**2.68**
Debtors Collection Period	150000x365/700000=**78.21 days**	175500x365/795000=**80.58 days**	25000x365/67000=**136.19 days**
Creditors Turnover Ratio	(360000-10000+4000)/120000 **=2.95**	602500/75000 =**8.03**	50000/5000 =**10.00**
Creditors Repayment Period **(1)**	120000x365/(360000-10000+4000)**=123.73 days**	75000x365/602500 =**45.44 days**	5000x365/50000 =**36.5**

Activity 4: Which company are they talking about? (Answers)

	X	Y	Z
Gross Profit Ratio (2)	352000/700000=**0.50**	172500/795,000=**0.22**	20000/80000=**0.25**
Net Profit Ratio (3)	65000/700000=**0.09**	30000/795,000=**0.04**	12000/80000=**0.15**
Return on Capital Employed (6), (7)	65000/[(109840+141840)/2] =**0.52**	30000/(500000+300000+128500+ 19500+225000)=**0.03**	12000/[(36000+42000)/2] =**0.31**
Return on Total Assets	65000/(148340+186000)=**0.19**	30000/1278000=**0.02**	12000/(2000+46000)=**0.25**
Current Ratio (4)	186000/132500 =**1.40**	(230000+175500+157500)/(75000 +30000)= **5.36**	46000/6000 =**7.67**
Quick Ratio (5)	(145500+1000+3000)/(132500) =**1.13**	(175500+157500)/(75000+30000) =**3.17**	(25000+6000)/6000 =**5.17**
Inventory Turnover Ratio (8)	348000/[(30500+36500)/2] =**10.39**	622500/[(200000+230000)/2] =**2.90**	60000/[(25000+15000)/2] =**3.00**
Inventory Turnover Period (8)	[(30500+36500)/2]x365/348000 =**35.14 days**	[(200000+230000)/2]x365/622500 =**126.06 days**	[(25000+15000)/2]x365/60000 **121.67**
Debtors Turnover Ratio	700000/150000=**4.67**	795000/175500=**4.53**	67000/25000=**2.68**
Debtors Collection Period	150000x365/700000=**78.21 days**	175500x365/795000=**80.58 days**	25000x365/67000=**136.19 days**
Creditors Turnover Ratio	(360000-10000+4000)/120000 =**2.95**	602500/75000 =**8.03**	50000/5000 =**10.00**
Creditors Repayment Period (1)	120000x365/(360000- 10000+4000)=**123.73 days**	75000x365/602500 =**45.44 days**	5000x365/50000 =**36.5**

Activity 4: Which company are they talking about? (Answers)

Statement X belongs to Company ___C___.

Statement Y belongs to Company ___A___.

Statement Z belongs to Company ___B___.

Conclusion

- **Accounting ratios could be used for comparing companies in terms of their profitability, liquidity and management efficiency.**

- **Higher the ratios do not *always* mean better situation**

- **Looking at a single ratio could be misleading. Ratios should be studied as a whole to see the big picture.**

Ratio analysis and its limitations

- To assess a firm's business performance, we need to look at different types of **accounting ratios** together.
- This is called ***ratio analysis***, ***financial statement analysis***, or simply ***financial analysis***.
- To assess the performance of a firm, we should **compare** its accounting ratios with various benchmarks.
- There are two ways to conduct a comparison. They are:

Cross-sectional analysis

Time-series analysis

Management Efficiency Ratios

Generally, the higher the better?

No, it depends!

Higher is better for:	**Lower** is better for:
Stock Turnover Ratio	Stock Turnover Period
Debtors Turnover Ratio	Debtors Collection Period
Creditors Repayment Period	Creditors Turnover Ratio

Management Efficiency Ratios

Caution!

High stock turnover (low turnover period) may indicate insufficient raw material supply

High repayment period (low stock turnover) may indicate inability to pay debts.

Ratio analysis and its limitations

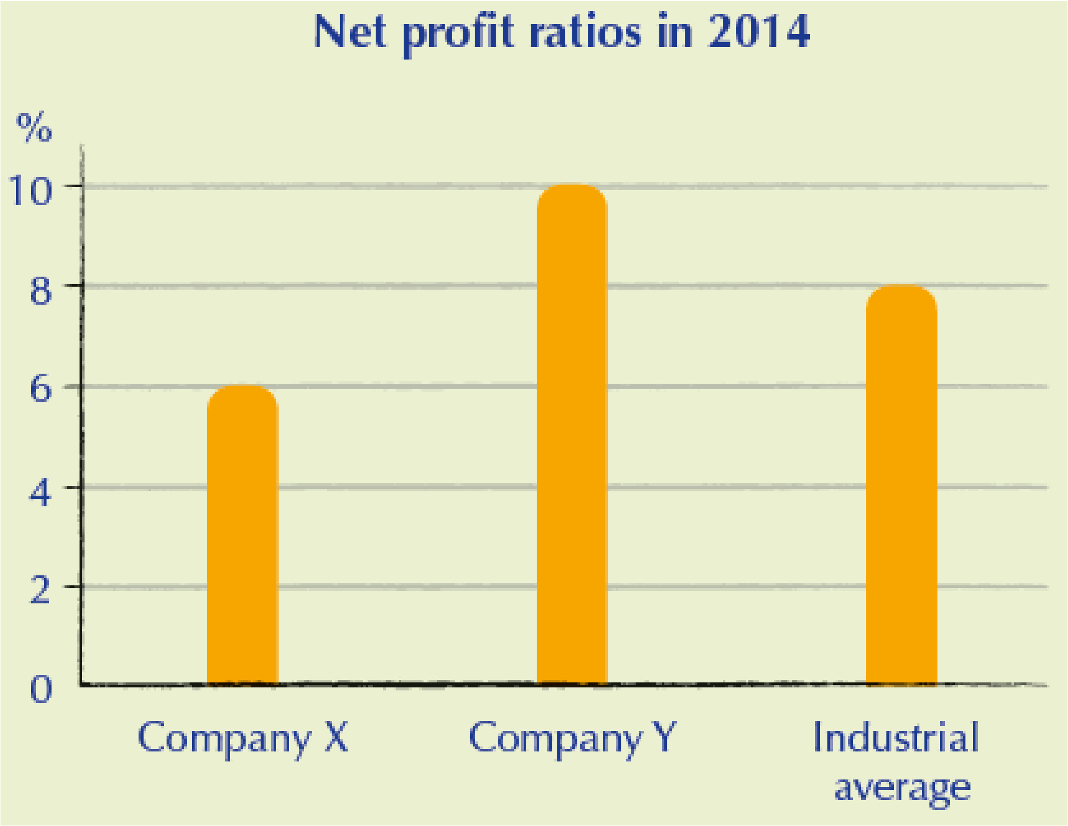
Cross-sectional analysis

- **Cross-sectional analysis** refers to the use of certain benchmarks to assess the performance of a firm in a given period.
- These benchmarks are normally the _**average**_ accounting ratios for firms of similar sizes.

i.e., industrial norms

Ratio analysis and its limitations

- Example of cross-sectional analysis



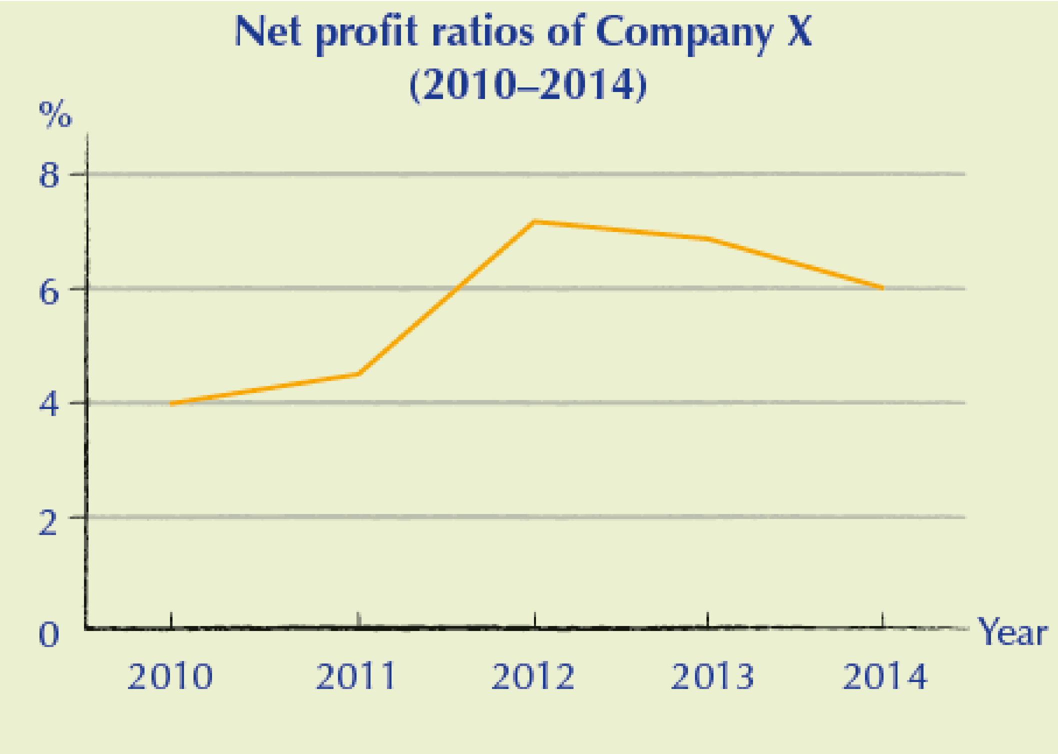
Ratio analysis and its limitations

Time-series analysis

- **Time-series analysis** refers to the use of **trends** in accounting ratios over time to assess the performance of a firm.
- It is also called ***trend analysis***.
- The benchmark used for comparison is the firm's own accounting ratios in **past years**.

Ratio analysis and its limitations

- Example of time-series analysis



An example of cross-sectional analysis

Exhibit 1.3

We will use ACCT.com's financial statements to assess its business performance.

<u>Step 1: Calculation of ratios</u>

- Calculate the accounting ratios

<u>Step 2: Interpretation of ratios</u>

- Compare the accounting ratios calculated in Step 1 with the average ratios of other firms in the same industry.

An example of cross-sectional analysis

Exhibit 1.3

Profitability Ratio: Gross Profit Ratio

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Sales			4,470,000
Less	*Cost of goods sold:*		
	Opening inventory	584,000	
	Add Purchases	2,788,000	
		3,372,000	
	Less Closing inventory	622,000	2,750,000
Gross profit			1,720,000
Less	*Operating expenses* (2):		
	Distribution expenses	586,100	
	Administrative expenses	735,400	
	Other operating expenses	65,500	1,387,000
Operating profit (1)			333,000
Less	Interest expenses (3)		25,000
Profit before tax			308,000
Less	Taxation		62,000
Profit after tax (4)			246,000

Gross profit ÷ Sales x 100%

$1,720,000 ÷ $4,470,000 x 100%

= 38.48%

An example of cross-sectional analysis

Exhibit 1.3

Profitability Ratio: Net Profit Ratio

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Sales			4,470,000
Less	*Cost of goods sold:*		
	Opening inventory		
	Add Purchases		
	Less Closing inventory		2,750,000
Gross profit			1,720,000
Less	*Operating expenses* (2):		
	Distribution expenses		
	Administrative expenses	735,400	
	Other operating expenses	65,500	1,387,000
Operating profit (1)			333,000
Less	Interest expenses (3)		25,000
Profit before tax			308,000
Less	Taxation		62,000
Profit after tax (4)			246,000

Net profit before tax ÷ Sales x 100%

$308,000 ÷ $4,470,000 x 100%

= 6.89%

An example of cross-sectional analysis

Exhibit 1.3

Profitability Ratio: Return On Capital Employed

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Less	*Operating expenses* (2):		
	Distribution expenses	586,100	
	Administrative expenses	735,400	
	Other operating expenses	65,500	1,387,000
Operating profit (1)			333,000
Less	Interest expenses (3)		25,000
Pr...			308,000

Net profit before interest and tax ÷ Average capital employed x 100%

$333,000 ÷ ($3,164,800 + $500,000) x 100%
= 9.09%

	$
	1,000,000
	1,350,000
Retained profits	814,800
	3,164,800
Non-current liabilities	
Long-term debt	500,000

An example of cross-sectional analysis

Exhibit 1.3

Liquidity Ratio: Current Ratio

ACCT.com
Statement of Financial Position as at 31 December 2014

	$
ASSETS	
Non-current assets	
Furniture and fixtures	857,700
Machinery and equipment	1,849,200
	2,706,900
Current assets	
Inventory	622,000
Trade receivables[Note]	554,400
Cash	368,500
	1,544,900
	4,251,800
	1,000,000
	1,350,000
	814,800
	3,164,800
Non-current liabilities	
Long-term debt	500,000
Current liabilities	
Trade payables[Note]	273,500
Accrued expenses	251,500
Tax payable	62,000
	587,000

Current assets ÷ Current liabilities : 1

$1,544,900 ÷ $587,000 : 1

= 2.63 : 1

An example of cross-sectional analysis

Exhibit 1.3

Liquidity Ratio: Quick Ratio

ACCT.com
Statement of Financial Position as at 31 December 2014

	$
ASSETS	
Non-current assets	
Furniture and fixtures	857,700
Machinery and equipment	1,849,200
	2,706,900
Current assets	
Inventory	622,000
Trade receivables[Note]	554,400
Cash	368,500
	1,544,900
Total assets	4,251,800

(Current assets – Inventory) ÷ Current liabilities : 1

($1,544,900 – $622,000) ÷ $587,000 : 1

= 1.57 : 1

Current liabilities	
Trade payables[Note]	273,500
Accrued expenses	251,500
Tax payable	62,000
	587,000

An example of cross-sectional analysis

Exhibit 1.3

Solvency Ratio: Gearing Ratio

ACCT.com
Statement of Financial Position as at 31 December 2014

	$
EQUITY AND LIABILITIES	
Capital and reserves	
Share capital (100,000 ordinary shares issued at $10 par value)	1,000,000
Share premium	1,350,000
Retained profits	814,800
	3,164,800
Non-current liabilities	
Long-term debt	500,000
Current liabilities	
Trade payables[Note]	273,500
Accrued expenses	251,500
Tax payable	62,000
	587,000

(Non-current liabilities + Preference share capital) ÷ (Non-current liabilities + Shareholders' fund) x 100%

($500,000 + $0) ÷ ($500,000 + $3,164,800) x 100%

= 13.64%

An example of cross-sectional analysis

Exhibit 1.3

Management Efficiency Ratio: Inventory Turnover

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Sales			4,470,000
Less	*Cost of goods sold:*		
	Opening inventory	584,000	
	Add Purchases	2,788,000	
		3,372,000	
	Less Closing inventory	622,000	2,750,000
Gross profit			1,720,000
Less	*Operating expenses* (2):		
	Distribution expenses	586,100	
	Administrative expenses	735,400	
		65,500	1,387,000
Opera			333,000
Less			25,000
Profit			308,000
Less			62,000
Profit			246,000

Cost of goods sold ÷ Average inventory

$2,750,000 ÷ [($584,000 + $622,000) ÷ 2]
= 4.56 times

An example of cross-sectional analysis

Exhibit 1.3

Management Efficiency Ratio: Trade Receivables Turnover

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Sales			4,470,000
Less	*Cost of goods sold:*		
	Opening inventory	584,000	
	Add Purchases	2,788,000	
		3,372,000	
	Less Closing inventory	622,000	2,750,000
Gross profit			1,720,000

ACCT.com
Statement of Financial Position as at 31 December 2014

	$
Current assets	
Inventory	622,000
Trade receivables[Note]	554,400
Cash	368,500
	1,544,900

Credit sales ÷ Average trade receivables

$4,470,000 ÷ $554,400
= 8.06 times

An example of cross-sectional analysis

Exhibit 1.3

Management Efficiency Ratio: Trade Payables Turnover

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Sales			4,470,000
Less	*Cost of goods sold:*		
	Opening inventory	584,000	
	Add Purchases	2,788,000	
		3,372,000	
	Less Closing inventory	622,000	2,750,000
Gross profit			1,720,000

ACCT.com
Statement of Financial Position as at 31 December 2014

	$
Current liabilities	
Trade payables[Note]	273,500
Accrued expenses	251,500
Tax payable	62,000
	587,000

Credit purchases ÷ Average trade payables

$2,788,000 ÷ $273,500
= 10.19 times

An example of cross-sectional analysis

Exhibit 1.3

Management Efficiency Ratio: Total Assets Turnover

ACCT.com
Income Statement for the year ended 31 December 2014

		$	$
Sales			4,470,000
Less *Cost of goods sold:*			
	Opening inventory	584,000	
	Add Purchases	2,788,000	
		3,372,000	
	Less Closing inventory	622,000	2,750,000
Gross profit			1,720,000

Sales ÷ Total assets

$4,470,000 ÷ $4,251,800
= 1.05 times

	$
Current assets	
Inventory	622,000
Trade receivables[Note]	554,400
Cash	368,500
	1,544,900
Total assets	4,251,800

An example of cross-sectional analysis

Exhibit 1.3

Comparing the ratios of ACCT.com with the industrial averages, we can make the comments regarding:

1 Profitability

2 Liquidity

3 Solvency

4 Management efficiency

An example of cross-sectional analysis

Exhibit 1.3

Profitability

Profitability ratios	*ACCT.com*	*Industrial average*
Gross profit ratio	38.48%	42.77%
Net profit ratio	6.89%	5%
Return on capital employed	9.09%	8%

- ACCT.com was more / less profitable than its competitors in the same industry.
- This was reflected by its higher net profit ratio and return on capital employed than the industrial averages.

An example of cross-sectional analysis

Exhibit 1.3

Profitability

Profitability ratios	*ACCT.com*	*Industrial average*
Gross profit ratio	38.48%	42.77%
Net profit ratio	6.89%	5%
Return on capital employed	9.09%	8%

- However, the gross profit ratio of ACCT.com was lower than the industrial average.
- This might indicate that ACCT.com _**cut**_ prices to boost sales.

An example of cross-sectional analysis

Exhibit 1.3

Liquidity

Liquidity ratios	*ACCT.com*	*Industrial average*
Current ratio	2.63 : 1	1.95 : 1
Quick ratio	1.57 : 1	1.10 : 1

- ACCT.com had lower / higher liquidity than its competitors in the same industry. This was reflected by its higher current ratio and quick ratio than the industrial averages.
- However, the higher than average current ratio and quick ratio might indicate that ACCT.com has not used its current assets **efficiently**.

An example of cross-sectional analysis

Exhibit 1.3

Solvency

Solvency ratio	*ACCT.com*	*Industrial average*
Gearing ratio	13.64%	12%

- ACCT.com had higher / lower solvency than its competitors in the same industry.
- The gearing ratio of ACCT.com was higher than the industrial average.
- This means that ACCT.com had a lower ability to meet its **long-term debts**.
- However, the magnitude of the ratio was quite small. This means that ACCT.com was still **strong** in terms of solvency.

An example of cross-sectional analysis

Exhibit 1.3

Management efficiency

Management efficiency ratios	*ACCT.com*	*Industrial average*
Inventory turnover	4.56 times	5.45 times
Trade receivables turnover	8.06 times	9.54 times
Trade payables turnover	10.19 times	10.12 times
Total assets turnover	1.05 times	1.02 times

- The management efficiency of ACCT.com was generally higher / lower than its competitors in the same industry.
- This is reflected by its lower inventory turnover and trade receivables turnover than the industrial averages.

An example of cross-sectional analysis

Exhibit 1.3

Management efficiency

Management efficiency ratios	*ACCT.com*	*Industrial average*
Inventory turnover	4.56 times	5.45 times
Trade receivables turnover	8.06 times	9.54 times
Trade payables turnover	10.19 times	10.12 times
Total assets turnover	1.05 times	1.02 times

- Although ACCT.com paid its trade payables slightly faster than its competitors and used its assets to generate sales slightly more efficiently than its competitors, the __**differences**__ were very small.

An example of cross-sectional analysis

Exhibit 1.3

Conclusion

- The profitability of ACCT.com was higher than its competitors. This may be due to its __**low-price**__ policy and effective control of expenses.
- ACCT.com also had higher __**liquidity**__ than its competitors.
- Although ACCT.com relied more on long-term debt financing than its competitors, its gearing ratio showed that it was still strong in terms of __**solvency**__.
- However, the management efficiency of ACCT.com, especially in terms of using inventory and collecting trade receivables, was generally lower / higher than its competitors.
- ACCT.com might have kept too much __**inventory**__ and had a problem in collecting trade receivables.

Ratio analysis and its limitations

Limitations of ratio analysis

- Ratios cannot capture certain **qualitative** information about a firm
- **Past data** may not reflect a firm's future financial condition
- Various accounting practices make **comparison** of ratios from different firms difficult
- Difficult to identify industrial norms for firms with a **unique** mix of businesses
- Ratio analysis only helps **reveal** the source of a potential problem/success on the surface