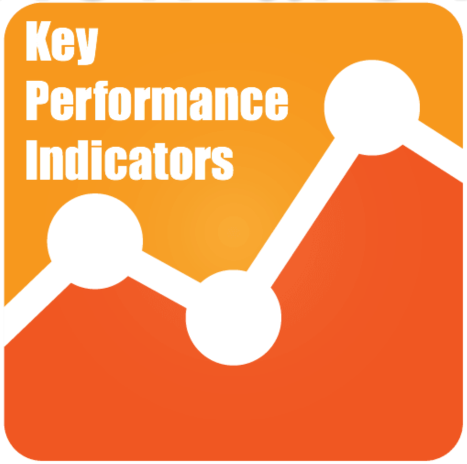
MGT388
Finance for Engineers

Appraisal of Annual Reports Using Ratio Analysis

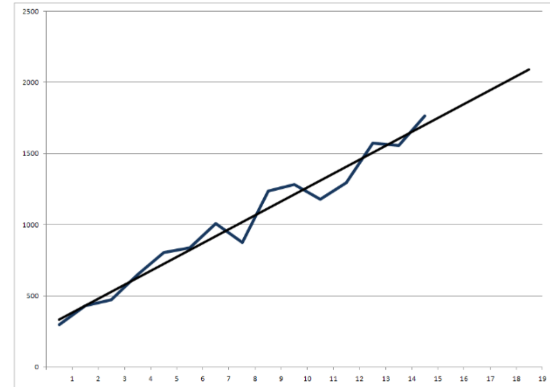
Lecture Outline

- Introduction to ratio analysis
- Profitability ratios
- Liquidity ratios
- Gearing/Solvency ratios

How are ratios used



Operating profit margin
Customer satisfaction
Carbon emissions



Can depict easily in charts/graphs

Can help compare results over time

Allows comparison of organisations of different size, location and type.

Introduction To Ratio Analysis

The calculation of a ratio is a start but it is the interpretation that is important.

A successful understanding of a company's performance only comes from looking at the reasons for changes or differences in the ratios.

Gross profit margin up 20%

Market share?
Unsold stock?

Smoothie company

Example

VEG is an entity that started trading in January 2016 manufacturing and selling vegetable "smoothie" drinks. The entity uses innovative technology that pasteurises fresh drinks and gives them a shelf life of 8 weeks. VEG currently operates solely in Country X and is the only producer to use this technology to date.

The 2 directors of VEG initially invested £50,000 of share capital to start the business. The long-term borrowings were secured in January 2016 under a business start-up initiative, and will be repaid over 4 years commencing January 2017. The directors also negotiated a short term bank overdraft facility of £75,000 which is intended to cover payments to suppliers. The overdraft is due to be reviewed 1 April 2018.

Example

VEG has performed well in its first year of trading, selling to 3 large supermarkets and securing a contract with another supermarket to produce an own-brand product. This contract was signed in October 2016. The directors believe that VEG could exploit similar opportunities in both domestic and overseas markets if they expanded further. However any further expansion would require significant investment in property, plant and equipment.

You are looking to buy shares in VEG as you have been told about the potential of the company and the directors are interested in your investment as it would potentially allow them to undertake the investment required to expand.

The administrative expenses for the year ended 31 December 2016 includes professional fees of £30,000 incurred in the business set up, £40,000 in marketing and £20,000 for the cost of training staff in the production process.

Lecture Example

Adapted from CIMA F2 paper May 2014

Income Statement	2017 Forecast £'000	2016 Actual £'000
Revenue	1,020	800
Cost of sales	(620)	(520)
Gross profit	400	280
Operating expenses	(190)	(210)
Operating profit	210	70
Finance costs	(25)	(20)
Profit before tax	185	50
Taxation	(30)	(20)
Profit for the year	155	30

Lecture Example

Adapted from CIMA F2 paper May 2014

Statement of Financial Position as at 31 December 2016

	£'000
Non-current assets	
Property, plant and equipment	350
Intangible assets	52
	402
Current assets	
Inventories	40
Receivables	140
	180
Total assets	582

	£'000
Equity and Liabilities	
Ordinary shares	100
Retained earnings	30
	130
Non-current liabilities	
Long term debt	350
Current Liabilities	
Trade payable	50
Corporation tax	12
Overdraft	40
	102
Total equity &liabilities	582

Analysis of Management Performance Profitability Ratios

Return on capital employed (ROCE)

Gross profit margin

Operating profit margin

Net asset turnover

Return on Capital Employed (ROCE)

$$\text{ROCE} = \frac{\text{Operating profit}}{\text{Equity funds + Non Current liabilities}}$$

Money from shareholders

Money from banks

Can the business turn the money into profits?

Return on Capital Employed (ROCE)

The ROCE indicates how successfully the management are using the funds provided to them from shareholders and debentures holders.

It can help shareholders and providers of finance decide whether to invest in the company, by indicating how well funds provided in the past have been used (in terms of generating profits).

Return on Capital Employed (ROCE)

2016 ROCE

$$\text{ROCE} = \frac{\text{Operating profit}}{\text{Equity + Non Current Liabilities}}$$

$$\text{ROCE} = \frac{70}{130 + 350}$$

ROCE = 14.6%

Return on Capital Employed (ROCE)

ROCE = 14.6%

For every £1 that has been invested in the business the management have achieved a 14.6p return.

You will want to compare the return with similar firms, the past and other investment opportunities.(Bank– savings a/c)

The level of return is also linked to the level of risk.

VEG: is a new venture
has a fashionable product
has a reliance on a few large supermarkets for sales and
uses innovative technology which may be copied or improved upon

A higher return may be required due to the higher level of risk

Return on Capital Employed (ROCE)

The ROCE figure achieved by a business may be as a result of:

- Profitability – Gross profit and operating profit margins

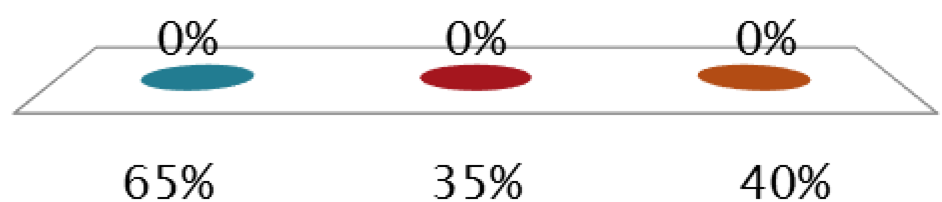
AND/OR

- Efficient utilisation of assets – Net asset turnover

Gross profit margin: $\frac{\text{Gross profit}}{\text{Turnover}} \times 100\%$

What is the gross profit margin for VEG for 2016?

A. 65%
B. 35%
C. 40%



Profitability

Gross profit margin

$$\frac{\text{Gross profit}}{\text{Turnover}} \quad \frac{280}{800} = \quad \mathbf{35\%}$$

Indicates how profitable the core business is. The only expense category in gross profit is cost of sales.
Every £1 of revenue converts to 35p gross profit.

Forecast gross profit margin $\frac{400}{1,020} =$ **39.2%**

Profitability

A business and investors would like to see a constant gross margin.

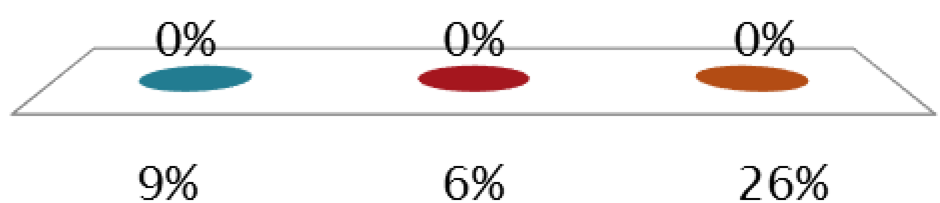
However for VEG

- It relies on raw materials, in this case vegetables – this means prices are more volatile and margins are not constant.
- A policy of increasing market share may mean a reduction in sales price and a reduced margin.
- If new entrants joined the market, the increased competition may force down the price and reduce gross profit margin.

Operating profit margin: $\frac{\text{Operating profit}}{\text{Turnover}} \times 100\%$

What is the operating profit margin for VEG for 2016?

A. 9%
B. 6%
C. 26%



Profitability

Operating profit margin = $\frac{\text{Operating profit}}{\text{Turnover}}$ $\frac{70}{800}$ **8.8%**

Operating profit includes cost of sales, administration and distribution costs.

Every £1 of turnover is being converted into 8.8p profit.

Forecast operating profit margin 210/1,020 **20.6%**

If there is a change in operating profit margin need to highlight which expense has increased/decreased and explain. Look at cost control by management.

Analysis of the Profitability of VEG

VEG has managed to achieve a gross profit margin of 35% and the directors are anticipating an increase in the gross profit to 39.2%.

This could be due to better margins having been negotiated in the contract with the supermarket for the own-brand product, meaning that the own-brand smoothies should be pursued with other supermarkets as this is clearly a lucrative deal.

Alternatively the improved gross margin could be the result of greater economies of scale in purchasing or indeed greater efficiency in the production process now that staff are fully trained and presumably working at full efficiency.

The operating profit margin was 8.8% in 2016, however this was after charging professional fees and training costs, which would not be expected to recur in such significant amounts. It is likely that further marketing may be undertaken (finance permitting), however directors are still anticipating that the operating profit margin will increase to 20.6% in 2017.

Efficiency

Net asset turnover

$$\frac{\text{Turnover}}{\text{Equity + non-current liabilities}} \qquad \frac{800}{350+130}$$

Net asset turnover = 1.67 times

For every £1 worth of investment available £1.67 of turnover is generated.

Efficiency

The net asset turnover figure can be compared over time and against companies in the same industry to assess if management are utilising the resources at there disposal to generate revenue.

But a large component of assets are non-current assets which are subject to depreciation and therefore a company with old assets will have a low figure for assets. But when those assets are initially replaced or in an expansion the asset figure will be high.

Investment in assets may not translate to increased revenue immediately turnover. There may be a time lag between an investment and an improved net asset turnover ratio.

If the business is labour intensive rather than requiring physical assets then turnover to staff costs/ no of employees may be useful to show the amount of revenue per employee.

Management Performance

ROCE

Is the key ratio to how a company is performing this can be explained in isolation but is a product of a company's profitability and efficiency

ROCE = Operating profit margin X net asset turnover

$$\frac{\text{Operating profit}}{\text{Equity + Non-current liabilities}} = \frac{\text{Operating profit}}{\text{Turnover}} \times \frac{\text{Turnover}}{\text{Equity + Non-current liabilities}}$$

14.6%= 8.8% X 1.67