

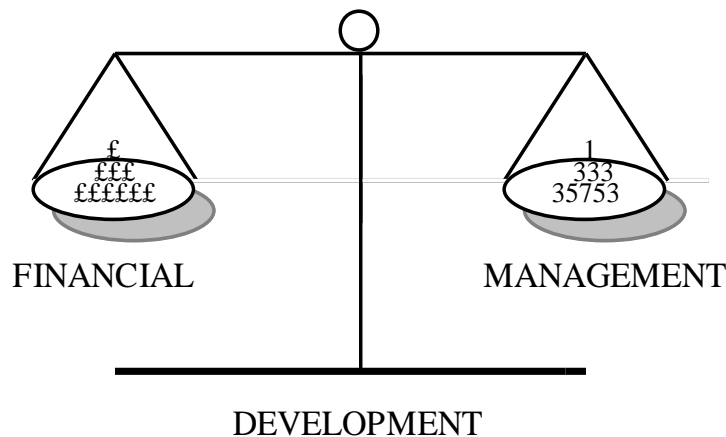
# FINANCIAL MANAGEMENT DEVELOPMENT

## Financial Accounting

### Reviewing Financial Data

NO 131

## RATIO ANALYSIS



ONE OF A SERIES OF GUIDES FOR  
FINANCIAL MANAGEMENT DEVELOPMENT

FROM

[www.FinancialManagementDevelopment.com](http://www.FinancialManagementDevelopment.com)

This is one of a series of documents produced by David A Palmer as a guide for managers on specific financial topics to assist informed discussion. Readers should take appropriate advice before acting upon any of the issues raised.

# RATIO ANALYSIS

## WHY USE RATIOS

Ratio Analysis is a very common management technique. It assists management by exception and enables the reviewer to compare and contrast different business units easily. This paper sets out the reasons for using financial ratios, the main users and the key financial ratios used to analyse corporate performance. In practice there are many financial and non financial ratios which are used to help identify performance trends, there is every reason why each organisation should produce its own relevant ratios to suit its own unique needs.

Ratios provide an insight into how a set of results compare on a like for like basis with another set of results. They can help comparisons over time, against budget, against other organisations or within an organisation, between departments. They can also be used to compare against pre-set benchmarks based on experience. They rarely answer questions but they help the reviewer identify the right questions to ask, by highlighting anomalies and trends.

## WHO USES FINANCIAL RATIOS

There are many different types of users of financial data. They fall into three categories.

1. Managers who want to examine operational performance
2. Creditors who wish to establish future stability
3. Investors who wish to assess profitability

The ratios they use are grouped under these three headings, although all may use any of the ratios to examine specific areas of business performance.

## MANAGEMENT OPERATIONAL RATIOS

The key management ratio is Return on Capital Employed (ROCE). It is also known as Return on Capital (ROC), Return on Net Assets (RONA), Return on Investment (ROI), Return on Average Capital Employed (ROACE), etc. As a consequence it has many different definitions and most organisations have their own version.

It is normally defined as

$$\frac{\text{OPERATING PROFIT}}{\text{SHAREHOLDERS' FUNDS PLUS BORROWINGS}}$$

As a measure this is similar to the return on an investment, where profit is seen as the return and the value of the funds employed in the business are seen as the amount invested. The profit normally used for this purpose is Profit before interest and tax as interest is affected by Gearing (see Below) and tax is frequently seen as outside operational management control.

Because Capital Employed must equal Net Assets, ROCE should be the same as Return on Net Assets (RONA) and it is RONA which is used as a basis to split the return down into its component parts as shown in the Hierarchy of Ratios. The first step is to introduce Sales into the equation.

$$\frac{\text{PROFIT}}{\text{NET ASSETS}} = \frac{\text{PROFIT}}{\text{SALES}} \times \frac{\text{SALES}}{\text{NET ASSETS}}$$

or ROCE = MARGIN X ASSET TURNOVER

This forms the basis for a number of ratios as follows

**MARGIN**

All costs can be expressed as a % of sales. Profit can be taken at Gross Profit level to reveal Gross Profit Margin (Sales less Variable or Direct Costs) as a %. This is particularly useful at budget time to see which costs are moving with sales and identify any anomalies. It is also common in interfirm and inter departmental analyses.

**ASSET TURNOVER**

ROCE can be improved by reducing asset levels or by increasing sales. Analysing the Net Assets into their constituent parts will prove a useful indicator over time.

**BEWARE**

One way of improving ROCE is to increase the Fixed Asset Turnover. This is good if done through efficiency but dangerous if it is done by failing to buy new fixed assets and allowing the ratio to improve through the action of Depreciation. A check is to establish if New Capital Expenditure exceeds Depreciation charges. If not, the assets are being run down. Many assets are not recorded on the Balance Sheet e.g. Employees, Customers, Patents, Knowledge, Brand Image and Supplier relationships. There is a danger in ignoring these as over time their value needs to be maintained if the business is to continue.

**FIXED ASSET TURNOVER**

A good measure in capital intensive industries.

$$\frac{\text{SALES}}{\text{FIXED ASSETS}}$$

**DEBTOR DAYS**

The comparison between Sales and Debtors is normally expressed as a number of days sales.

$$\frac{\text{DEBTORS}}{\text{SALES FOR A YEAR}} \times 365 = \text{Days Sales Outstanding}$$

There are norms in each industry for the appropriate level. An aircraft manufacturer may have 180 days, a Retailer zero. In some countries it is wise to allow for Sales Taxes which will be in the Debtors figure but not in the sales figure.

### STOCK DAYS

The comparison between Sales and Stock is also expressed as a number of days sales.

$$\frac{\text{STOCK}}{\text{SALES FOR A YEAR}} \times 365 = \text{Stock Days}$$

There are norms in each industry for the appropriate level. An builder may have 180 days, a food Retailer 2. The figure does not represent the number of days of sales in stock, because the stock is at cost price while sales are at sales price. However it provides a useful basis when the data is extracted from consecutive published accounts. In internal accounts it can be and should be related to the purchases figure or even expressed in units as a number of days usage.

### CREDITOR DAYS

The ratio between Sales and Creditors is also expressed as a number of days sales.

$$\frac{\text{CREDITORS}}{\text{SALES FOR A YEAR}} \times 365 = \text{Creditor Days}$$

Again there are norms in each industry for the appropriate level. Like the Stock Days, the figure does not represent the number of days of sales financed by creditors, because they are also at cost price while sales are at sales price. However it provides a useful basis when the data is extracted from consecutive published accounts. In internal accounts it can be and should be related to the purchases figure, although there may again be a need to adjust for Sales Taxes.

### STOCK/CREDITORS

Because both Stock and Creditors are at cost price and are available in Published Accounts, it is common to express stock/creditors to calculate the extent to which stock has been financed by suppliers. This again is a useful measure over time, although allowance may need to be made for any Sales Taxes in the creditors figure.

### CREDITORS RATIOS

Creditors, both Trade Creditors for goods supplied and Loan Creditors who have lent money, are mainly interested in whether they will be repaid. They are thus interested in short term liquidity and in levels of risk. They will look at:

SHORT TERM LIQUIDITY - CURRENT RATIO AND ACID TEST

The Current Ratio is defined as 
$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Banks frequently expect to see a ratio of 1 or more. This means that the company has enough liquid assets to pay its immediate debts.

The Acid test is more restrictive. It is defined as 
$$\frac{\text{Current Assets (excluding Stock)}}{\text{Current Liabilities}}$$

This assumes that in an emergency the stock may have little value. It is a matter of opinion as to what constitutes a good ratio. The higher the ratio the safer the company for creditors. However a high figure will mean a lower ROCE which suggests inefficiency on the use of working capital. There are industry norms for both ratios.

SHORT TERM RISK - INTEREST COVER

Interest Cover is a Banking concept. It is defined as 
$$\frac{\text{OPERATING PROFIT}}{\text{INTEREST PAYABLE}}$$

It merely calculates that there is sufficient scope for profits to fall before interest payments are at risk. In some published accounts interest is capitalised and therefore it is often best to take the interest paid from the cashflow statement than from the Profit and Loss Account.

LONG TERM RISK - GEARING ITS EFFECT RETURN ON CAPITAL

Gearing, sometimes called the Debt to Equity Ratio or Leverage, is a measure of the relative risk of a company's capital structure. The impact is best illustrated by way of a simple example:

If you buy a house for £100,000 and sell it one year later for £130,000, you have made a profit of £30,000 and a Return on Capital of 30%. But, assume you borrowed half the cost of the house at an interest rate of 20%. The operational return from the transaction is unaffected by the way it has been financed. The total transaction, however has a profit and loss account that looks like this:

SALES	130,000
COST OF GOODS SOLD	100,000
	-----
OPERATING PROFIT	30,000
INTEREST	10,000
	-----
PROFIT AFTER ALL COSTS	20,000
	=====

The original investment was £50,000, (the other £50,000 has been borrowed). A return of £20,000 on an investment of £50,000 is a Return on Capital of 40%. By borrowing at a rate of interest lower than the operational rate of return you have geared up and increased the return on your funds. If you had borrowed all of the purchase price you would produce an infinite return of £10,000 on zero investment.

A high GEARING is relatively risky. The Ratio can be defined as:

Debt/Equity or Debt/(Debt plus Equity) i. e.  $50/50 = 100$  or  $50/(50+50) = 50\%$  for the above example. Both methods of calculation are in common use.

### INVESTOR RATIOS

Investors have a number of specific ratios, most of which are only relevant to companies whose shares are quoted on a Stock Exchange. The key ones are Earnings per Share, Price/Earnings Ratio, Dividend Yield and Dividend Cover.

#### EARNINGS PER SHARE

Earnings per Share is a crucial measure to compare a Company's performance over time. It makes allowance for any increases in Share Capital and shows the true after tax return on each shareholding. It is defined as

$$\frac{\text{PROFITS AFTER TAX (EARNINGS)}}{\text{THE NUMBER OF ISSUED SHARES}}$$

#### PRICE/EARNINGS RATIO

This is a key measure for Quoted Shares and is equivalent to the reciprocal of the Rate of Return on the Share Price. It is defined as

$$\frac{\text{PRICE PER SHARE}}{\text{EARNINGS PER SHARE}}$$

There are industry and stockmarket norms and a high P/E Ratio indicates that investors expect the earnings to improve faster than those of comparable companies.

#### DIVIDEND YIELD

The Dividend Yield is a measure of the return paid out to the Shareholder by way of Dividend. In order to be comparable with other quoted rates of return it is normally adjusted for withholding tax. It is defined as

$$\frac{\text{DIVIDEND PER SHARE (GROSSED UP FOR WITHHOLDING TAX)}}{\text{PRICE PER SHARE}}$$

#### DIVIDEND COVER.

Like Interest Cover, the Dividend Cover is a measure of the extent to which Earnings could drop before they would be insufficient to cover the Dividend. It is defined as

$$\frac{\text{EARNINGS PER SHARE}}{\text{DIVIDEND PER SHARE}}$$

Whilst it is possible to have a Dividend Cover below one by paying Dividends out of past years' profits, it is obviously not a long term sustainable option. For large Quoted UK Companies a cover of two to three is the norm i.e. between one half and one third of the after tax profits are paid out in Dividend.

### **NON FINANCIAL RATIOS**

Non financial ratios are almost exclusively used by Management since for outsiders the scope for different definitions makes comparison between organisations difficult.

The key approaches are based on Employees, Operational activities, Assets, Customers or Suppliers. They take many forms. Those shown below are examples:

#### **EMPLOYEES**

Output per Hour  
Employee cost per hour  
Employee cost per unit  
Staff Retention (or Turnover)  
Employee Satisfaction Survey Statistics

#### **OPERATIONAL**

Units per Day  
Rejects per '000  
Waiting time (or order fulfilment time)  
Cost per Hour  
Cost per Unit

#### **ASSETS**

Machine Utilisation (or idle time)  
Cost per unit  
Downtime  
Repair statistics

#### **CUSTOMER**

Customer Satisfaction  
Order fulfilment  
Complaint levels  
Returns  
Repeat Orders

#### **SUPPLIER**

Order fulfilment  
Complaint levels  
Returns

**SUMMARY OF RATIOS****MANAGEMENT OPERATIONAL RATIOS**

ROCE  $\frac{\text{OPERATING PROFIT}}{\text{SHAREHOLDERS' FUNDS PLUS BORROWINGS}}$

MARGIN  $\frac{\text{PROFIT}}{\text{SALES}}$

ASSET TURNOVER  $\frac{\text{SALES}}{\text{NET ASSETS}}$

FIXED ASSET TURNOVER  $\frac{\text{SALES}}{\text{FIXED ASSETS}}$

DEBTOR DAYS  $\frac{\text{DEBTORS}}{\text{SALES FOR A YEAR}} \times 365$

STOCK DAYS  $\frac{\text{STOCK}}{\text{SALES FOR A YEAR}} \times 365$

CREDITOR DAYS  $\frac{\text{CREDITORS}}{\text{SALES FOR A YEAR}} \times 365$

STOCK/CREDITORS  $\frac{\text{STOCK}}{\text{CREDITORS}}$

**CREDITORS RATIOS**

CURRENT RATIO  $\frac{\text{CURRENT ASSETS}}{\text{CURRENT LIABILITIES}}$

ACID TEST  $\frac{\text{CURRENT ASSETS (EXC. STOCK)}}{\text{CURRENT LIABILITIES}}$

INTEREST COVER  $\frac{\text{OPERATING PROFIT}}{\text{INTEREST PAYABLE}}$

GEARING  $\frac{\text{DEBT}}{\text{EQUITY}}$  OR  $\frac{\text{DEBT}}{(\text{DEBT PLUS EQUITY})}$

**NON FINANCIAL RATIOS**

EMPLOYEE BASED  
 OPERATIONALLY BASED  
 ASSET BASED  
 CUSTOMER BASED  
 SUPPLIER BASED



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David is an experienced financial professional who has devoted his skills to management training in practical understanding and utilisation of financial information. A Graduate, Chartered Accountant, and Associate of the Institute of Taxation, he is also a Member of the Chartered Institute of Personnel and Development and has been an Ordained as a Deacon in the Catholic Church.

He has worked as a Financial Controller and Company Secretary in the Finance industry and as a Director of Finance and Administration in the Computer Services industry. Since 1990 he has conducted management development programmes for over forty major organisations including Arla Foods, Blue Circle, BP, CSC Computer Sciences, Conoco, Ernst & Young, Lloyds Bowmaker, Royal Mail, Unilever and Zeneca. He also runs programmes for the Leadership Foundation and the management teams at a number of Universities. International training experience includes work in Belgium and Holland for CSC, in Denmark, Kenya and the Czech Republic for Unilever, in Holland and the US for Zeneca, in Dubai for Al Atheer, in Bahrain and Saudi Arabia for Cable & Wireless.

He specialises in programmes in financial management for both tactical and strategic decision making. In addition he has run courses in acquisition evaluation (The Economist, Eversheds, Blue Circle and Hays Chemicals) and in post-acquisition management (Unilever). All training is specifically tailored to the needs of the organisation with the emphasis on practical applications to enhance profitability and cashflow. He has developed material for delivery by in-house personnel (Royal Mail, Lloyds Bowmaker and Conoco), computer based training packages (The Post Office, Unilever and BP), and post course reinforcement self-study workbooks (CSC and Zeneca). He has also produced a training video on Cashflow Management.

He is a prolific writer of case studies, role plays and course material. He has also published articles on the financial justification of training, financial evaluation of IT investment proposals, the use of Activity Based Costing and Customer Profitability statements, commercial considerations for consultants, the need for taxation awareness training for general managers, evangelisation and Christian business ethics.

Many of his generic documents are freely available on his website:

**FinancialManagementDevelopment.com** including papers on Charity Management.

In addition to his Diaconal work in the Church, he has held a number of voluntary positions including University, College and School Governor, Hospice Treasurer and Trustee of various charitable institutions. He continues to provide ad hoc commercial advice to several other charitable organisations. He has been married for over 35 years and has one daughter and three granddaughters.

This series of papers is designed to help managers by providing a basic understanding of key financial concepts to assist them in their work. It is provided at no cost since this knowledge is a Gift from God and thus to be shared (Matthew 10:8).