

Understanding Annual Reports and Company Accounts

A Guide to Financial Statements

Ian McIsaac
www.mcisaac.co.uk

Welcome to this guide to financial statements and company accounts.

It is intended as a step-by-step guide to take you through the contents of company reports. It explains the purpose of financial statements and how they can be used to assess the performance of a company. There is also a chapter on the regulatory issues governing the preparation of financial information in the UK.

The guide is also recommended as pre-course reading for those intending to participate in Ian McIsaac's Finance for Non-Financial Manager programme or for the Foundation Course in Corporate Credit.

Contents

1	FINANCIAL STATEMENTS OVERVIEW	4
1.1	INTRODUCTION	4
1.2	THE BALANCE SHEET	4
1.2.1	The Sources of Funds	4
1.2.2	How the Money has been Spent	4
1.3	PROFIT AND LOSS (ALSO KNOWN AS THE INCOME STATEMENT)	5
1.4	THE RELATIONSHIP BETWEEN THE BALANCE SHEET AND THE PROFIT AND LOSS	5
1.5	CASH FLOW STATEMENTS	6
2	CONTENT OF THE ANNUAL REPORT & FINANCIAL STATEMENTS.....	7
2.1	INTRODUCTION	7
2.1.1	Chairman's Statement	7
2.1.2	Review of Operations	7
2.1.3	The Directors' Report	7
2.1.4	Statement of Directors' Responsibilities	7
2.1.5	Auditors' Report.....	8
2.1.6	Financial Statements.....	8
2.1.7	Notes to the accounts.....	8
3	THE FINANCIAL STATEMENTS IN DETAIL	9
3.1	THE BALANCE SHEET	9
3.1.1	Balance Sheet Classifications	10
3.1.2	Working capital	10
3.1.3	Formats of the Balance Sheet.....	11
3.1.4	What does the balance sheet tell us?	11
3.1.5	Explanation of Balance Sheet Terms	12
3.2	THE PROFIT AND LOSS IN DETAIL.....	14
3.2.1	Revenue Recognition	14
3.2.2	Explanation of Profit and Loss Terms	15
3.2.3	Revenue and Capital Expenditure.....	16
3.3	CASH FLOW STATEMENT IN DETAIL.....	16
3.3.1	Explanation of Cash Flow Statement Terms	17
3.3.2	What does the cash flow tell us?.....	18
4	FINANCIAL ANALYSIS.....	19
4.1	OVERVIEW	19
4.2	FINANCIAL RATIOS	19
4.2.1	Ratio Comparisons.....	19
4.3	RATIO ANALYSIS	21
4.3.1	Section C - Cashflow	21
4.3.2	Section L – Liquidity	21
4.3.3	Section A – Asset Management	22
4.3.4	Section S – Stake.....	24
4.3.5	Section P – Profitability	25
4.4	BREAK-EVEN ANALYSIS.....	26

1 Financial Statements Overview

1.1 Introduction

We shall begin by looking at the three key financial statements: the balance sheet, the profit and loss and the cash flow statement.

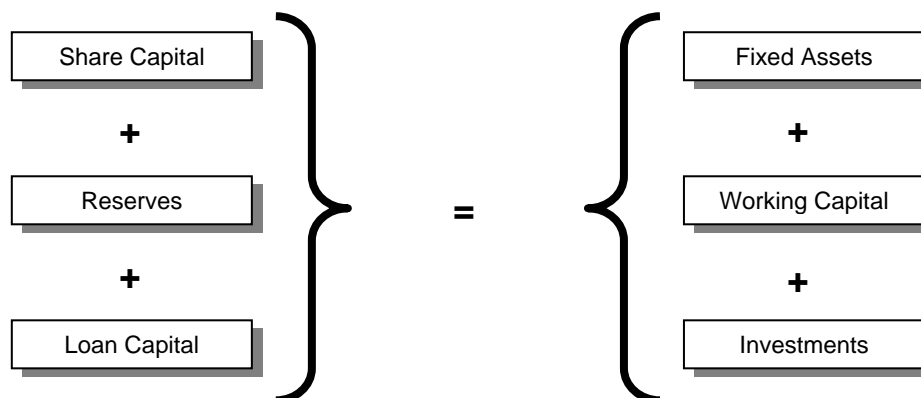
1.2 The Balance Sheet

The balance sheet is a snapshot of the financial position of a business at a particular point in time.

It reveals two important pieces of information about the business at the moment when the snapshot is taken. It shows

- the source of funds for the business
- and how the money has been spent

The diagram below shows the key elements of a simple balance sheet. The left hand side shows the sources of funds (the liabilities and the owners' claim on the business) and the right hand side shows the uses (the assets). The two sides must, of course, equal one another.



1.2.1 The Sources of Funds

There are three key sources of funds:

Share Capital - These are funds invested by the shareholders, or owners, of the business. In return, the owners receive shares which are the basic units of ownership of the business.

Reserves - Reserves are profits made by the company which have been ploughed back in to the business. There are other types of reserves which are discussed in chapter three.

Loan Capital - This is money obtained by borrowing. Borrowings are liabilities which have to be repaid at some point in the future.

1.2.2 How the Money has been Spent

There are also three areas where the company can use the funds:

Fixed Assets - These are items held on a continuing basis in order to generate wealth for the company in the future e.g. buildings, vehicles, plant and equipment.

Working Capital - Working capital items are not held permanently. One example is stock purchased from a supplier. Stock is usually held for a period of time before being sold to a customer. Working capital consists of a number of different items. These are discussed in more detail in chapter three.

Investments - These usually represent shares acquired in other companies.

1.3 Profit and Loss (also known as the Income Statement)

The profit and loss account shows the total revenue generated by a business and the total expenses incurred in generating that revenue. Unlike the balance sheet, it is not a snapshot but rather shows the revenues and expenses of a business over the course of a financial period.

The format of the profit and loss varies according to the type of business to which it relates. A typical example is shown below:

PROFIT AND LOSS FOR THE YEAR ENDED MARCH 2003	£000s
Turnover	48,494
Cost of sales	<u>(29,674)</u>
Gross Profit	18,820
Operating expenses	<u>(12,363)</u>
Operating profit	6,457
Net interest payable	<u>(332)</u>
Profit on ordinary activities before tax	6,125
Taxation	<u>(1,866)</u>
Profit for the financial year	4,259
Dividends	<u>(477)</u>
Retained Profit	3,782

Turnover is another term for sales. It includes both cash sales and sales of goods and services made on credit.

The gross profit represents the company's sales during the financial period less the costs of buying the goods that have been sold. Great care is taken when preparing accounts to ensure that the sales and the cost of making those sales are closely matched. Goods purchased during the financial period which are not to be sold until the following period will be 'excluded' from the cost of sales calculation.

Operating profit is calculated after deducting from the gross profit figure the other expenses incurred in running the business. These expenses are often known as the overheads and include administration and selling expenses.

Finally, the three financial expenses are deducted to arrive at the retained profit for the year. These expenses are the interest charges (i.e. the interest on the loan capital on the balance sheet), tax and dividends. Dividends are that part of profits paid to shareholders in proportion to the number of shares that they own.

1.4 The Relationship between the Balance Sheet and the Profit and Loss

The profit and loss can be regarded as linking the balance sheet at the beginning of the financial period with the balance sheet at the end of the financial period. The balance sheet at the end of the period will incorporate any extra profit shown on the profit and loss account since the last balance sheet was prepared.

If the reserves on the balance sheet stood at £1,000 at the beginning of the financial period and the company made a retained profit of £150 for the year, then this profit of £150 would be added to the reserves at the end of the period on the balance sheet.

A company with a steady record of profitability is likely to be building up its reserves on the balance sheet as the years go by. This is why it is common to describe the balance sheet as showing the accumulated wealth of a company at a particular point in time. If, on the other hand, there is a steady record of losses the reserves of the company are likely to be diminishing.

The word 'reserves' can be confusing. Reserves aren't equivalent to a war chest of cash that the managers of the business can use at any time. Reserves belong on the side of the balance sheet showing the sources of funds to a business. The other side of the balance sheet reveals how these sources have been used. It is possible that the company may have used the retained profits to build up cash on the asset side of the balance sheet but it is more likely that it will have chosen to purchase other assets such as new factory equipment which will provide a greater return for shareholders than cash normally provides.

1.5 Cash Flow Statement

The third financial statement is the cash flow statement. Its function is to explain the cash movements in and out of the business over the financial period.

Cash is of critical importance to all businesses. It is cash – rather than profit - that pays the staff costs and repays the bank loans.

There are a number of reasons why cash and profit are not the same thing. The profit and loss brings together all the income to be received and expenses payable for the year, regardless of whether or not cash has been received or paid for those transactions. For example, the cash flow statement would only show the cash received in respect of goods sold whereas the profit and loss shows all the sales made in the year whether the cash has been received or not.

A simple cash flow statement is shown below:

CASH FLOW STATEMENT FOR THE YEAR ENDED 31 MARCH 2003	£000s
Cash inflow from operating activities	12,676
Returns on investments and servicing of finance	(317)
Taxation	(1,703)
Capital expenditure and financial investment	(1,978)
Equity dividends paid	(238)
Net cash outflow before financing	8,440
Financing	(981)
Decrease in cash	7,459

The cash flow statement starts by showing the cash generated from day-to-day operating activities (it is useful to compare this figure with the operating profit when analysing a business). The statement above then shows the deductions for net interest expense (returns on investments and servicing of finance), tax paid, funds spent on the purchase of new fixed assets (capital expenditure) and the dividends paid to shareholders during the year. The net position is then shown after these deductions.

Financing refers to external sources of finance, either loans or the issue of share capital. A positive figure indicates that external finance has been provided whereas a negative figure indicates that funds have been repaid, usually to banks.

The Decrease in Cash shown at the foot of the statement refers to the change in the cash/overdraft position on the balance sheet from beginning of the year to the end of the year.

2 Content of the Annual Report & Financial Statements

2.1 Introduction

The annual report usually contains the following:

- Chairman's Statement
- Review of Operations
- Directors' Report
- Statement of Directors' Responsibilities
- Auditors' Report
- Financial Statements
- Notes to the Accounts

The directors are required by law to prepare a report to shareholders to show how they are managing the business and its assets. The content and presentation of the report is governed by the Companies Act which sets out standard formats for the content and presentation of accounts. The content is also governed by accounting standards whose role is to 'narrow the difference and variety of accounting practice by publishing authoritative statements on best accounting practice which will, whenever possible, be definitive'. In the UK the standards are issued by the Accounting Standards Board and are known as the Statements of Standard Accounting Practice (SSAPs) and Financial Reporting Standards (FRSs).

We shall briefly look at each item contained in the annual report.

2.1.1 Chairman's Statement

This usually contains useful information about the company's progress and its prospects for the future. This statement is not subject to a formal audit and remember that it is always likely to be written in an upbeat tone.

2.1.2 Review of Operations

This is a more detailed review of the company and often covers both an operating and financial review of the business.

2.1.3 The Directors' Report

The Companies Act sets out what must be included in this section. It contains an assortment of information including a fair review of the business, significant changes in fixed assets and any charitable donations. The company must also show the names of the directors and their shareholdings.

2.1.4 Statement of Directors' Responsibilities

The directors manage the company on a daily basis on behalf of the shareholders and their responsibilities are set out in the section. Directors are responsible for selecting suitable accounting policies (see below) and stating whether applicable accounting policies have been followed. It is instructive to compare this statement with the auditors' report.

2.1.5 Auditors' Report

It is a requirement of company law that auditors are appointed to help protect the interests of shareholders. This statement seeks to clarify their exact role and responsibilities. The auditors express an opinion as to whether the accounts represent a 'true and fair view'. 'True and fair' is fundamental to financial reporting in the UK but the Companies Acts themselves do not in fact provide a precise legal definition. This can be taken to imply that judgement will always play a big role in the preparation of accounts. Accounts can never be 100% accurate in every detail. 'True and fair' can be taken to mean that they are free of bias, disclose all material facts and comply with the appropriate accounting standards.

2.1.6 Financial Statements

These are the profit and loss, balance sheet and cash flow statements.

Many businesses consist of a number of different companies which trade as a group. These companies therefore prepare a group balance sheet, a group profit and loss and a group cash flow statement.

A group of companies is made up of a holding, or parent, company and one or more subsidiary companies. A subsidiary may be wholly-owned by the parent (100% of the shares are owned) or partially-owned (less than 100% but greater than 50%).

Most annual reports will present two balance sheets – one for the group and one for the 'company' (i.e. the holding company). This is a company law requirement.

The group balance sheet includes all the assets and liabilities of the holding company and the assets and liabilities of the subsidiaries. Similarly, the group profit and loss shows the results of the subsidiaries and the holding company combined. If a subsidiary is partially-owned, an adjustment is made for the portion that belongs to the outside shareholders. This is shown as 'Minority Interests'.

2.1.7 Notes to the Accounts

The notes to the accounts provide more information on a particular item in the balance sheet, profit and loss and cash flow. In each of the financial statements there is a column headed 'Notes'. This tells you where to look in the notes for more information. There is, for example, usually a note relating to the company's turnover which gives details of the geographic breakdown of sales.

The notes form part of the accounts and are subject to audit in the same way as the main body of the accounts. The first note usually discloses the accounting policies adopted in the financial statements. This is a company law requirement and sets out the practices employed in the preparation of accounts with regard to wide range of items such as stock valuation, research and development and the effects of foreign currency movements.

The Companies Act also recognises four fundamental accounting concepts which are more general than the detailed accounting policies. These concepts - applicable to all companies - are going concern, consistency, accruals (matching) and prudence.

3 The Financial Statements in Detail

3.1 The Balance Sheet

The balance sheet provides information about the source of funds for a business and how those funds have been used. The three sources are share capital, loan capital and reserves and the three uses are fixed assets, working capital and investments. It is now time to look at the components of a balance sheet in more detail, explain the various classifications of assets and liabilities and give more precise definitions to all the relevant terms.

We shall take as an example the recent balance sheets of a technology company. The information is taken from the group balance sheet of the annual report and the notes. Three years of information is provided so that we can make useful comparisons and identify changes over the period.

BALANCE SHEET FOR THE YEAR ENDED	31-Mar-03	31-Mar-02	31-Mar-01
ASSETS			
Current Assets			
Cash at bank	4,406	672	741
Trade Debtors	11,824	13,885	10,091
Stock/Inventories	9,450	11,773	10,010
Prepayments	1,174	1,082	986
Other current Assets	250	306	418
Total Current Assets	27,104	27,718	22,246
Fixed Assets			
Tangible Fixed Assets	5,997	5,967	5,792
Investments	344	235	147
Goodwill	3,157	3,336	3,558
Total Fixed Assets	9,498	9,538	9,497
Total Assets	36,602	37,256	31,743
CAPITAL AND LIABILITIES			
Creditors due within one year			
Short-term Bank Loans/Leases	939	4,828	1,530
Trade creditors	5,735	5,873	7,021
Corporation Tax	1,137	1,106	885
Proposed dividend	477	238	0
Accrued Expenses	1,679	1,179	916
Other Debtors	1,392	1,634	1,054
Total Creditors Due within one year	11,359	14,858	11,406
Creditors due after one year			
Long term Debt/Leases	3,138	3,873	4,475
Equity Shareholder Funds			
Share Capital	2,982	2,977	2,974
Share Premium	9,519	9,509	9,503
Revaluation Reserve	218	218	218
Profit and loss reserve	9,386	5,821	3,167
Shareholders' Funds	22,105	18,525	15,862
Total Capital and Liabilities	36,602	37,256	31,743

We can identify the sources and uses of funds mentioned in chapter one within these balance sheets. The share capital and profit and loss reserve are to be found within equity shareholders' funds towards the bottom of the balance sheets (note the increase in accumulated wealth over the three periods shown in the profit and loss reserve). The equity shareholders' funds represent the claim of the owners against the business. The loan capital, together with other amounts owing to organisations and individuals, are part of creditors due within one year and creditors due after one year. These amounts are the liabilities of the company.

The fixed assets are shown clearly on the asset side of the balance sheet, and investments are normally shown as part of fixed assets (they may also appear as current assets if intended to be traded in the short term). Working capital includes the current assets of the business and is described more fully below.

3.1.1 Balance Sheet Classifications

Let us look at the classifications of the assets, liabilities and capital of the company as presented in the balance sheets above. These are the items marked in bold type: fixed assets, current assets, creditors due within one year, creditors due after one year and equity shareholders' funds.

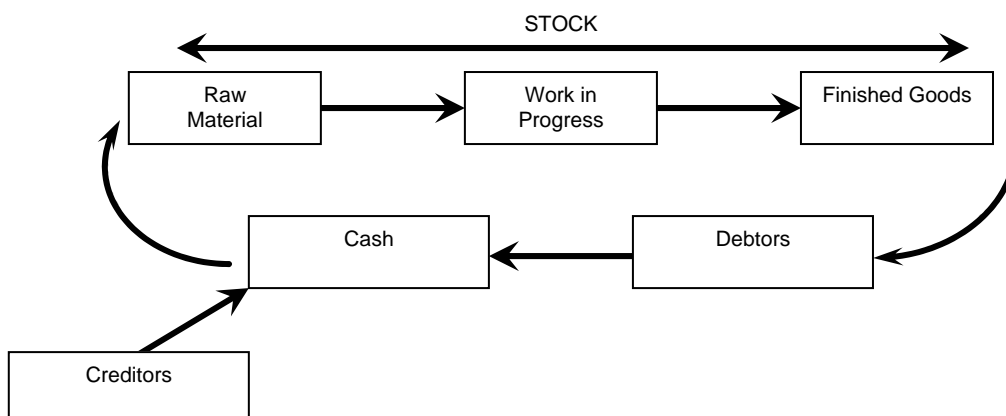
The current assets are not permanent but are held as part of the day-to-day trading activities of the business. The old name for these types of asset was "circulating assets". They are expected to be converted into cash (if not already cash) within 12 months. Fixed assets, on the other hand, are those assets held on a continuing basis in order to generate wealth e.g. buildings, vehicles, plant and equipment.

A distinction is drawn between the creditors due within one year (also called current liabilities) and creditors due after one year. In both cases these are amounts owing to individuals and organisations.

Equity shareholders' funds are the residual item left over after all liabilities have been provided for (assets less liabilities = equity shareholders' funds). It is the amount that ultimately 'belongs' to the shareholders. Equity shareholders' funds can change as a result of the shareholders providing more funds to the business or from the trading transactions of the business resulting in it making profits or losses (see 1.4).

3.1.2 Working capital

Working capital is often defined as the current assets less the current liabilities (or creditors due within one year). The working capital section of the balance sheet is a photograph of the trading cycle of the company at the balance sheet date. It shows the value of stock in the warehouses, the amounts owed by customers (trade debtors), the cash in the bank and the money the company owes to its suppliers (trade creditors). These four items – stock, trade debtors, cash and trade creditors – are the key elements of working capital. The working capital cycle is shown below.

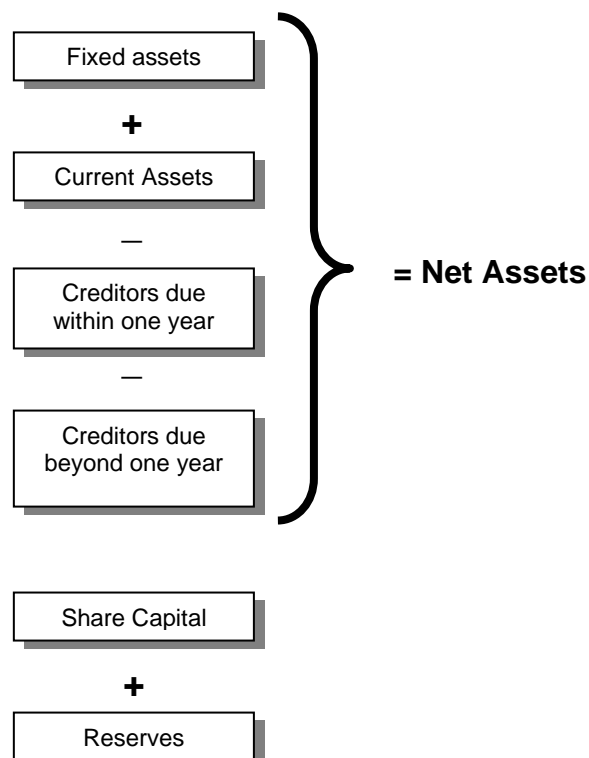


The cash conversion cycle is a way of measuring the time it takes for the cycle to turn. The sequence is as follows. Cash is used to purchase goods which are held as stock for a period of time (stock days). These are then sold and, after a credit period, converted back into cash (collection period). If credit is taken from a supplier to help fund this process (payment period), this reduces the number of days it takes for the cycle to turn. The cash conversion cycle is stock days plus the collection period less the payment period. For some food supermarkets the cycle is particularly advantageous as stock is purchased from suppliers and held for, say, 14 days and then cash is received immediately the goods are sold. It may be a further 10 days or so before the suppliers are paid (the cash conversion cycle is, in other words, about -10 days). Many industrial companies, on the other hand, have cash conversion cycles in excess of 100 days and this can be a restricting factor on them, especially in times of growth (see 3.3.1).

Further explanation of the individual balance sheet items is to be found later in the chapter.

3.1.3 Formats of the Balance Sheet

The format of the balance sheet shown above – known as the horizontal format - clearly shows the sources and uses of funds. However, the balance sheet in an annual report is displayed in a vertical format. The intention is to present the information from the shareholders' point of view but arguably this form of presentation makes immediate analysis more difficult. The vertical presentation format is shown below:



3.1.4 What does the balance sheet tell us?

The balance sheet shows the accumulated wealth of a company as it develops over time. A key measure of this accumulated wealth is the extent to which shareholders' funds have been increasing over time and, in particular, whether reserves been built up as a result of profits being ploughed back in to the business.

The balance sheet also gives us information about the financial structure of a business. It is useful to examine the relative proportion of funds provided by the owners and retained profits as opposed to the external providers of finance. This involves comparing the extent to which the assets are financed by shareholders' funds rather than the external creditors and, in particular, banks. Shareholders' funds can be regarded as a 'safety cushion' in that the higher the proportion of shareholders' funds to the total balance sheet, the less risky the business will be. This is because there is less reliance on 'other people's money' and, in particular, loan capital. Debt can place heavy burdens on a company, especially when the business has to service interest and repay debt in difficult trading conditions

The ratio of interest-bearing debt to shareholders' funds is known as gearing and total liabilities to shareholders' funds as leverage. The higher these ratios, the more 'risky' the business will be.

3.1.5 Explanation of Balance Sheet Terms

The terms are described in the order in which they appear on the balance sheet of the technology company shown above.

Current Assets - These are assets that are already cash or are expected to be turned into cash within the following 12 months.

The most common current assets are stock, trade debtors (customers who owe money for goods and services) and cash itself. The current assets circulate within a business. Cash is used to purchase stock which is then sold on credit. When the trade debtors pay, the business receives extra cash and so the cycle continues.

Prepayments are discussed below in the context of 'accrued expenses'.

Most balance sheets also contain miscellaneous other current assets.

Tangible Fixed Assets - The tangible fixed assets have an underlying physical substance. They are shown in the balance sheet at their net book value i.e. after taking into account the 'wear and tear' (depreciation) that has affected the asset since it was first purchased.

Investments - These are often investments in an associated company. An associate is where one company owns 20% or more (but not more than 50%) of the voting shares in another company.

Goodwill - Assets that do not have an underlying physical substance - intangible assets - also sometimes appear on a balance sheet. Examples include patents, licenses, brand names and goodwill. Goodwill arises when one business purchases another and pays more than the value of the individual net assets acquired. The excess price paid is justified because it represents the intangibles over and above the acquired company's asset base such as workforce skills, reputation, customer loyalty etc. These items are normally excluded from the balance sheet because they are so difficult to measure.

Total Assets - The sum of current assets and fixed assets. This is the total size of the balance sheet.

Creditors Due within One Year - These are amounts due for payment to outside parties within the next year and include bank loans/overdrafts, amounts due to suppliers (trade creditors), tax payments and dividends due to shareholders.

Accrued Expenses - This relates to the accruals, or matching, concept which is the principle that revenues and expenses should be recognised in the period in which they are incurred, irrespective of the time of the cash transaction. Thus, for example, a charge would be recorded for the cost of gas in December, even though the quarterly bill for payment might not arrive until February. In this situation an accrued expense is shown on the balance sheet.

Sometimes expenses will be paid for in advance, in which case a prepayment is shown in current assets.

Creditors due after One Year - Creditors due after one year refer principally to the long-term loans or finance leases extended to a company. The portion of long-term debt that is due for repayment within the next year is shown as part of creditors due within one year.

Some companies (but not the technology company above) also have provisions as part of their long-term liabilities. These are amounts set aside for costs which are expected to arise in the future.

Net Assets - Net assets are shown when the balance sheet is displayed in the vertical format. Net assets are total assets less total liabilities (total liabilities = creditors due within one year and creditors due after one year).

Equity Shareholders' Funds - These are the amounts which ultimately belong to the shareholders and consist of share capital, retained profits and other reserves. All are described below.

Share Capital and Share Premium - Shares represent the basic units of ownership of a business. Companies issue ordinary shares which carry one vote each and an equal right to a proportionate share of dividends. A company can issue shares up to the number that has been 'authorised' by the shareholders.

Ordinary shares have a par or nominal value. The technology company above has an authorised share capital of 28,480,000 shares of which 23,853,086 have been issued. By multiplying together the par value (12.5p) and the number of shares in issue we can determine the value of the share capital (£2.982 million)

Shares are usually issued at a value considerably in excess of the par value. For a listed company, the shares will be issued close to their market value – i.e. the price at which they are quoted on the stock exchange. This may be, say, 300p. When a company issues shares at a price above the nominal value the difference between the issue price and the par value multiplied by the number of new shares issued is added to the share premium account. The share premium is shown separately in the shareholders' funds.

Reserves - The reserves consist of the share premium account, the retained profits (profit and loss account) and any revaluation reserve. A revaluation reserve will result from any revaluation of the fixed assets of the company, likely to be land or property.

Company law distinguishes between that part of the shareholders' claim that can be withdrawn and that which may not. The revenue reserves are available for dividends and include the retained profits and the realised profits from the sale of fixed assets. The capital reserves – share premium and revaluation reserve – together with the share capital are non-withdrawable.

3.2 The Profit and Loss in Detail

In chapter one we saw that the profit and loss statement shows the results of the group's operations over a financial period. We shall now look at this financial statement in more detail and continue to use the example of the technology company.

Profit and Loss for the year ended 31 Mar	2003	2002	2001
		£000s	
Turnover	48,494	41,204	41,263
Cost of sales	(29,674)	(25,501)	(26,795)
Gross profit	18,820	15,703	14,468
Distribution costs	(5,152)	(4,443)	(4,596)
Depreciation & amortisation	(1,929)	(1,738)	(1,563)
Research & development	(3,942)	(3,474)	(2,752)
Other admin. expenses	(1,340)	(976)	(1,000)
Operating profit	6,457	5,072	4,557
Net interest payable	(332)	(497)	(448)
Profit on ordinary activities before tax	6,125	4,575	4,109
Taxation	(1,866)	(1,451)	(1,410)
Profit for the financial year	4,259	3,124	2,699
Dividend	(477)	(238)	0
Retained profit for the year	3,782	2,886	2,699
Basic earnings per share (pence)	17.98	13.19	11.48
Normalised earnings per share (pence)	18.77	13.97	12.28
Diluted earnings per share (pence)	17.86	13.12	11.34

The first item to appear on the profit and loss statement is turnover. This shows the trading revenue resulting from selling goods in the marketplace. We can then see various 'layers' of profit: gross profit, operating profit, profit on ordinary activities before tax, profit for the financial year and retained profit. All these items provide us with information about the company's operations and are described more fully below.

3.2.1 Revenue Recognition

Revenue recognition refers to the point in the company's production/selling cycle when a sale is recognised. This is straightforward for many types of company. For a food supermarket, for example, the sale is recognised at the point at which we pay for the goods at the check out. However, for many companies, there are a number of different options. For a furniture manufacturer which makes goods to order the range of possibilities includes the point the goods are produced, the point at which the goods are delivered to the customer, the point at which the cash is received or even, very conservatively, only once a warranty has expired. The point chosen can have a significant effect on the profitability of the company. It is always useful to try and understand the relevant revenue recognition policies of a company when assessing its financial health. There have been cases of

over-aggressive revenue recognition recently, and the accounting bodies are currently looking at the issue closely.

Turnover is a good starting point for the analysis of any company. Increasing sales from one financial period to the next are normally a good thing and are a sign of an expanding market or increased market share, or both.

Remember, too, that the turnover figure just provides information about the value of sales made during the year and does not tell us about the cash received in respect of those sales.

3.2.2 Explanation of Profit and Loss Terms

Turnover - This is another term for sales. It represents all the cash and credit sales made outside the group during the financial period. The notes usually provide a geographic breakdown of sales.

Gross Profit - The gross profit represents the company's sales during the financial period less the costs of buying the goods that have been sold. It is sometimes referred to as a measure of the company's success in the marketplace before taking into account the 'supporting' expenses such as administrative costs etc.

Operating Expenses - These come under broad headings such as administrative expenses, research and development (where relevant) and distribution costs. The notes to the accounts reveal a little more information about operating costs, especially with regard to auditors' fees and depreciation.

However, the breakdown of expenses is not very detailed and certainly a lot less detailed than many managers are used to seeing in internal company management reports. One of the reasons for this is that companies do not want to reveal in the public domain too much commercially sensitive information which could be of value to competitors.

Depreciation and amortisation are described below in section 3.2.3.

Operating Profit - Operating expenses are deducted from gross profit to arrive at the next 'layer' of profit, operating profit. This is a key measure of the company's trading performance before taking into account the financial charges of the business.

Net Interest Payable - This is the interest payable on loans, overdrafts and leases less interest receivable in the financial period on investments/bank deposits.

Profit on Ordinary Activities before Tax - This measures the profitability of the business before the deduction of tax and dividends.

Taxation - This refers to corporation tax which is the tax levied on company profits.

Profit for the Financial Year - This profit is the remaining profit available for shareholders.

Dividends - Dividends are that part of profits paid to the shareholders in proportion to the number of shares they own.

Retained Profit - The retained profit is reinvested in the business and added to the reserves as described in chapter one.

Earnings per share - This is calculated as the profit for the year after tax divided by the average number of shares in issue during the year. This is an important stock market ratio.

Alternative EPS calculations are also shown. Normalised earnings per share is shown after adjusting profit after tax for the effects of goodwill amortisation and is more indicative of underlying performance. In the final calculation the weighted number of shares is adjusted for the number of shares under option.

3.2.3 Revenue and Capital Expenditure

We have pointed out that the profit and loss and the balance sheet perform different functions but you may have also noticed that both statements include items of 'expenditure'. We have described the asset side of the balance sheet as showing how the money is spent and seen, for example, that a company will show its expenditure on plant and equipment (a fixed asset) on the balance sheet. The profit and loss also includes expenditure items such as salaries, rent and other administrative expenses. What determines which type of expenditure goes where?

The answer is that fixed asset items such as plant and equipment are put on to the balance sheet as they will be held for the long term. This is known as capital expenditure. Expense items such as rent, electricity and wages, which are consumed by the business more immediately, are put on the profit and loss. These items are known as revenue expenditure. The accounting bodies place great emphasis on ensuring that expenses which should appear on the profit and loss are not deferred to the balance sheet as pseudo-assets. The aim is to protect the profit and loss from manipulation.

Although the fixed assets are included on the balance sheet and have a life beyond one year, a portion of the original cost of a fixed asset is 'used' in each financial period in generating sales. A charge, known as depreciation, is made on the profit and loss in each financial period reflecting the 'use' of the asset and the 'wear and tear' that affects assets such as vehicles and plant and equipment. Assets are usually depreciated in equal instalments over their useful life (the straight line method of depreciation).

Depreciation is the allocation of the cost of an asset to individual accounting periods and should not be regarded as a way of providing for the replacement of an asset when it reaches the end of its useful life.

The reduction in value of an intangible asset is known as amortisation. Goodwill is normally amortised over 20 years from the date of an acquisition.

3.3 Cash Flow Statement in Detail

This statement sets out the cash movements in and out of the company over a financial period. The cash flow statements of the technology company are set out below.

Cash flow statement for the year ended 31 March	2003	2002	2001
		£000s	
Cash inflow from operating activities	12,676	788	4,248
Returns on investments and servicing of finance	(317)	(540)	(468)
Taxation	(1,703)	(1,252)	(597)
Capital expenditure and financial investment	(1,978)	(1,353)	(1,074)
Equity dividends paid	(238)	0	0
Net cash outflow before financing	8,440	(2,357)	2,109
Financing	(981)	(994)	(1,347)
Decrease in cash	7,459	(3,351)	762

3.3.1 Explanation of Cash Flow Statement Terms

Net Cash Inflow from Operating Activities - The operating profit and the net cash flow from operating activities are not the same because there are items in the profit and loss which do not affect cash. A note to the accounts helps us reconcile the operating profit to the operating cash. This is often to be found towards the back of the annual report.

This reconciliation addresses two key areas where cash and profit differ. The first is non-cash charges. The operating profit in the profit and loss statement is arrived at after making a charge for various non-cash items. The two principal ones are depreciation and amortisation. These non-cash charges are added back as part of the reconciliation.

The second is the changes in working capital over the financial period. These include trade debtors, trade creditors and stock. Let us look at trade debtors as an example.

We have already said that the profit and loss shows sales made in the year irrespective of whether cash has been received or not. The cash flow, on the other hand, shows the cash received in respect of goods sold. The two are hardly ever the same and it is the changes in trade debtors over the period on the balance sheet that helps explain the difference. If a company is not successful in getting cash in from customers, we would expect to see an increase in amounts owing to the company (i.e. an increase in trade debtors). An extreme example would be an increase in trade debtors from the beginning of the financial period to the end equivalent to the total amount of sales for the year. This would indicate that no cash has come in at all in respect of sales. A more usual outcome, especially for growing companies, is an increase in trade debtors over the financial period in line with the growth in sales.

The actual way to determine the cash inflow from sales is to take sales for the financial year on the profit and loss and deduct the amount by which trade debtors have increased over the financial period. Consequently we often see, especially for growing companies, an amount deducted (in brackets) in the reconciliation in respect of debtors. This deduction broadly represents the amount by which trade debtors have increased over the year. Sometimes trade debtors reduce over the year and this will have a favourable effect on the cash flow.

A similar adjustment is made in respect of stock, trade creditors and other working capital items. In the way that sales are closely related to trade debtors on the balance sheet, cost of sales is closely related to trade creditors and stock. In the reconciliation there is effectively an adjustment to cost of sales according to whether stock and trade creditors have increased or decreased over the financial period.

In the case of the technology company, there is a substantial difference between the operating cash flow (£12.7million) and the operating profit (£6.5million) in 2003. The difference is largely accounted for by adding back the non-cash charges of £1.7 million, a reduction in stocks of £2.3 million on the balance sheet over the year and a reduction in debtors of £2.1 million over the year.

Returns on Investments and Servicing of Finance - This shows how much the company has received in cash on its investments and paid out in interest on loans and leases.

Taxation - This shows the total amount of corporation tax and overseas tax paid. Once again, because of timing differences, this amount does not correspond exactly to the taxation figure shown on the profit and loss statement.

Capital Expenditure and Financial Investment - This shows the amount spent on the purchase of fixed assets after deducting any amounts received in respect of asset disposals. Amounts spent in respect of the purchase of the company's own shares will also be shown here.

Some companies will also have a section showing amounts spent on the acquisition of subsidiaries and associates.

Equity Dividends Paid - This shows the amount of dividends paid during the year. Because of timing differences, this amount does not correspond to the dividend figure shown on the profit and loss statement.

Net Cash before Financing - This is the net total of the sections described so far. In the case of the technology company there is sufficient operating cash flow to cover the interest, tax, dividends and capital expenditure. The net cash before financing is £8.4 million.

Financing - This shows the cash flows in respect of the external providers of finance, principally the shareholders and the banks. There is usually a note in the accounts explaining the detail.

The notes for the technology company reveal that loans and leases totalling £981,000 have been repaid during the year (repayments are indicated by a negative figure).

Increase/Decrease in Cash - After taking into account all the cash inflows and outflows mentioned above, the net amount will be equal to the change in the cash balance and overdraft position on the balance sheet since the beginning of the financial period. There is usually a note which gives the detail of this reconciliation. It can be very complex, especially for larger companies.

In the case of the technology company, the surplus after financing of £7.5 million has been used to build up the cash at bank to £4.4 million (shown on the balance sheet in chapter 3.1) and the repayment of overdrafts.

3.3.2 What does the cash flow tell us?

Start by comparing the operating cash flow with the operating profit on the profit and loss. The add-back of depreciation described above is often offset by the working capital changes, especially for growing companies. The result is that operating cash is less than operating profit. This is by no means an indication of problems, but poor management of working capital has been the cause of many corporate failures. Large and sustained increases in stock and debtors on the balance sheet can be serious for a business, especially for companies that are growing fast and have slow cash conversion cycles.

Look also at the extent to which the operating cash flow is covering the interest paid and also other priority payments such as tax and dividends.

The expenditure on purchasing fixed assets and acquisitions is more discretionary and can be cut back in harsh trading conditions. It is usually good to see companies spending an amount on new fixed assets in excess of the depreciation charge. This is an indication that assets are being replenished adequately in order that the business can remain competitive.

Many companies do not have sufficient cash after the payment of 'priority' items to finance all the new capital expenditure and therefore have to go to the external providers for financing. This is quite normal but we need to be satisfied that the capital expenditure is well-directed in terms of generating future profits and cash flows.

Many analysts look at the EBITDA of a business. This is a measure of profit before taking into account the interest payable and receivable, tax, depreciation and amortisation. These last two items are non-cash charges and so EBITDA can be seen as creating an earnings measure closer to cash flow from operations. A high level of EBITDA to interest payable is an indication that the business is not having any difficulty paying its interest costs. The key shortcoming of EBITDA is that it does not take into account the working capital changes mentioned in 3.3.1 and can overstate cash flow in periods of working capital growth.

4 FINANCIAL ANALYSIS

4.1 Overview

Financial analysis is both art and science, requiring professional judgement and an understanding of a company's business and strategy. It forms only one part of a comprehensive analysis of a company and should contribute towards, and benefit from, the assessment covering the non-financial aspects of the business.

Ratios provide a relatively simple means of examining the financial health of a business. However, ratio analysis – by itself – is incomplete. A product of any analysis of financial statements should be a list of questions for the financial management of the company.

Financial analysis involves an understanding of each of the three basic and important financial statements: balance sheets, profit and loss statements and cash flow statements. Each statement is an indicator of three critical dimensions of performance: balance sheet strength (liquidity, leverage), operating performance and cashflow strength.

<u>Balance Sheet strength</u>	Liquidity:	The short run financial capacity to meet obligations and move opportunistically.
	Leverage:	The balance of debt and equity for long run risk/return tradeoffs.
<u>Operating Performance:</u>		The ability to generate returns from the efficient employment of assets and capital.
<u>Cashflow Strength:</u>		The ability to service debt, pay dividends and taxes and to make discretionary expenditures (such as capital expenditure).

4.2 Financial Ratios

There are different types of ratios and we need to be familiar with them. Here are examples of some that are used regularly:

<u>Ratio type</u>	<u>Example</u>	
Percentage ratio	36.2%	Gross profit margin
Times ratio	1.6	Interest cover
Converted ratio	72	Debtor collection days

The ratio-type terminology is not in itself important, as long as we understand that there are different ways of showing a ratio and that we can interpret what it is telling us.

4.2.1 Ratio Comparisons

Ratios are a method of summarising and presenting financial information in an easily understandable form. We can use them to assist in assessing the performance of a business by identifying relationships between different figures which we consider to be significant. The use of ratios is valuable to us not necessarily because they provide answers but because they help to focus our attention on the important areas at question. Therefore there is less likelihood of us failing to identify a significant trend or weakness.

In isolation a ratio is of limited value. They must always be considered relative to each other and also relative to whatever other information is available about the company, its strategy and the market place. There are two comparisons that can be carried out.

a) *Historic*

This is where we need to compare the company against its own past record. Ratios can be used to assess previous performance by looking at trends over a number of periods (this involves looking at the ratios horizontally). Such an exercise will give us a good idea of what is changing, or indeed not changing. To ensure meaningful analysis of ratios, a minimum of three years financial information is required.

b) *Industry*

We can carry out a peer group analysis i.e. information we can obtain about the industry. Certain ratios can be “standard” across an industry. However, if you are comparing different business within the same industry, take care to think about:

- the size of the company
- accounting procedures
- product mix
- geographical spread

There is one further comparison which we have not yet mentioned and that is the vertical comparison i.e. if one ratio is increasing what impact can this have on another ratio? It is important to understand the impact that a change in one ratio has on another. If there are contradictory movements in related ratios, this should lead you to question and to investigate why, to understand how the risk in the business is changing.

For example, a decrease in the gross profit margin could have a knock on effect to:

- the net profit margin
- an increase in gearing caused by increased borrowings to compensate for lower profitability.

If the reverse was the case, it could mean higher contribution from sales to cover overheads leading to an improvement in the net profit margin and perhaps a decrease in borrowing.

Conclusion

Ratio comparison is essential to gauge the financial effect of the management decisions. Also look at the vertical connections to see whether the changes that are occurring do fit with what we know about the business.

Do not forget, comparing figures will in itself prove nothing but should raise questions in our minds which we need to direct towards the management of the business.

4.3 Ratio Analysis

When using ratios we should view them both horizontally – trends from period to period – and vertically. Vertical comparisons can be 'split' into distinct 'groupings' as detailed below.

SECTION	C	CASH FLOW	Measures the businesses ability to meet financial commitments from cash flow.
SECTION	L	LIQUIDITY	Assesses the business ability to meet the current liabilities as they fall due.
SECTION	A	ASSET MANAGEMENT	Shows the speed of funds through the business operating cycle and how effectively working capital is managed.
SECTION	S	STAKE	Compares the extent to which the business is funded by its shareholders, lenders and creditors and indicates its ability to service external debt.
SECTION	P	PROFITABILITY	Shows profit margins, return on capital and equity.

The relationship between the ratios in these five 'groups' can be of invaluable help in analysing a business.

4.3.1 Section C - Cashflow

Cash flow is the lifeblood of any business. Therefore we begin our structured analysis with cash flow ratios. The ratios should of course be read in conjunction with the full cash flow statement.

$$a) \quad \text{Overall Cash Cover} = \frac{\text{Net Cash Flow from Operations}}{\text{Interest Costs \& Short Term Debt/Overdrafts and Dividends/Drawings}}$$

- A broad measure of the business's ability to meet all of its short-term financial obligations from core cash flow.

$$b) \quad \text{Interest Cash Cover} = \frac{\text{Net Cash Flow from Operations}}{\text{Interest Paid}}$$

- Indicates the ability to service total interest commitments from cash generated from operations.
- Compared to Interest Cover in Section S (stake) this ratio gives a far better indicator, given that profit is not equivalent to cash.

4.3.2 Section L – Liquidity

Liquidity has an immediate bearing on the financial profile of a business and therefore its ability to survive. A business that cannot turn its current assets into cash runs the risk of failing. It is essential therefore that when we look at a business, that they are appropriate i.e. long-term facilities are used

for longer term/fixed assets, and short-term facilities for working capital. This should ensure an acceptable structure to the balance sheet and mean that the business should have sufficient cash to ensure the servicing and repayment of its short-term debts.

$$a) \quad \text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

(Liquidity)

- The number of times the business's short term assets cover its short term liabilities i.e. a measure of the business's ability to meet its day to day commitments.
- Technically if the ratio falls below 1.1 then the business is illiquid, although the trading practice within the industry may make this acceptable (e.g. food retailers) and comparison needs to be made with others in the same industry.

It is essential when analysing this ratio to look at a number of factors such as the nature of the business, the quality of the assets and the seasonality of its trading.

- Who are the debtors/how well spread/age/how easy to 'realise'?
- How saleable is the stock?
- If there is cash – where is it and is it, say, not tied up in overseas companies?

Although the current ratio is a banker's traditional favourite, it is unfortunately one of the worst for predicting failure.

$$b) \quad \text{Acid Test} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

(Quick Ratio)

$$\text{Quick Assets} = \text{Current Assets less Stock and Work in Progress (W.I.P.)}$$

- A more conservative ratio than the current ratio as it removes stock and W.I.P., which reflects the assumption that these items will often take longer to convert to cash than the other current assets.
- If the acid test is appreciably lower than the current ratio this indicates that stock constitutes a large portion of current assets. Comparison of the 'gap'/difference between current/acid test must therefore be monitored and particularly if the gap is widening, period on period, then stock investigations need to be made.

4.3.3 Section A – Asset Management

This section is concerned with how effectively the assets of the business are being used. Many of the ratios relate to the working capital of the business i.e. – stock, (raw materials, W.I.P. and finished goods) trade debtors and trade creditors. It complements the liquidity measures and helps us to understand movements in some of the component parts of liquidity.

$$a) \quad \text{Asset Turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

- A broad measure of asset efficiency. A ratio of 1.2 means that the business generates £1.20 of sales for each pound invested in assets.
- The ratio is a measure of capital intensity, with a low asset turnover signifying a capital-intensive business and a high turnover the reverse.

$$b) \quad \text{Trade Debtors Days} = \frac{\text{Trade Debtors}}{\text{Sales}} \times 365$$

(Collection Period)

- One of the so-called activity ratios that measures the average time in days that it takes to collect payment from debtors and hence indicates the ability of management in controlling/collecting payments from trade debtors – compare with terms of trade and industry norms if these are available.

An increase in the ratio is generally a poor sign and could signify:

- Selling to larger, financially stronger customers who demand/take longer periods of credit.
- A build up of bad debts within debtors figure.
- Customer selling to less reputable/weaker customers who take longer to pay, in an effort to hold/increase sales levels.
- A relaxing of credit control
- A general decline in the industry or economy putting pressure on all 'parties' in the industry.

$$c) \quad \text{Stock Turnover Period} = \frac{\text{Stock \& W.I.P.} \times 365}{\text{Cost of Sales}}$$

(Stock Days)

- Indicates the efficiency of stock control.
- Indicate the rate at which stocks & W.I.P. are turned into cash and therefore profit.
- Long and increasing period may indicate obsolete/unsaleable stocks being held.
- Check the 'split' between stock and W.I.P. where increasing W.I.P. could indicate inefficiencies in production processes and management.

All fluctuations need to be investigated:

- Increasing ratios could be a bad sign (see above) but new products/change in product mix could be a satisfactory explanation.
- Falling ratios could be a good sign but if the business is 'forced' to sell from stock to protect/preserve cash flow then the opposite may be the case.

$$d) \quad \text{Trade Creditors Period} = \frac{\text{Trade Creditors} \times 365}{\text{Cost of Sales}}$$

(Payment Period)

- Indicates the length of credit in days taken from suppliers and extent therefore of reliance on creditors – compare with terms of trade and industry norms.
- Can be used to gauge the contribution made by suppliers (creditors) to working capital management – but care, excessive utilisation over the terms of trade may render the business vulnerable to loss of goodwill and pressure from creditors.
- Investigate particularly increases in this trend, which may be as a result of pressure on the business's cash flow.

N.B. If cost of sales includes a substantial portion of non-supplier element – i.e. direct labour, machinery costs etc. the ratios will be distorted although still revealing a trend period on period (providing make up of cost of goods remains the same).

$$e) \quad \text{Net Working Assets (NWA)} = \text{Stock} + \text{Trade Debtors} - \text{Trade Creditors}$$

NWA includes only those current assets and current liabilities that vary in direct proportion to sales turnover assuming the terms of trade and stock-holding policy remain the same. It is a useful measure of the amount of money that is tied up in funding the day-to-day trading activities of the business.

$$f) \quad \text{Net Working Assets to Sales} = \frac{\text{Net Working Assets} \times 100\%}{\text{Sales}}$$

- Provides a measure of the business' efficiency in employing working capital to generate sales.
- Provides therefore a rough and ready guide to the likely amount of additional working capital funding required from a given increase in sales. If the net working assets to sales ratio is 15% this means that the company has to invest 15 pence in working capital for every incremental £1 of sales. Companies with high cash conversion cycles (see chapter three) will have to invest higher amounts.

4.3.4 Section S – Stake

$$a) \quad \textit{Gearing} \quad = \quad \frac{\textit{Total External Finance}}{\textit{Shareholders' Funds}}$$

- Indicates the capital sufficiency or insufficiency of the business.
- Indicates the extent to which a business relies on borrowed funds compared to shareholders funds. Total External Finance refers to interest-bearing liabilities.
- The more highly geared the business, the more vulnerable it is to a downturn in cash flow and profits, as the interest burden will become disproportionately heavier and thus restrict the scope for further borrowings. More seriously, the business may not be able to meet its debt repayments as they fall due.

Increases in the ratio could be caused by:

- Losses – reducing capital resources
- Sales increasing rapidly, with working capital funding requirement (see Net Working Assets to Sales) increasing faster than profit, requiring increased debt to finance 'the gap'.
- A build of fixed assets (funded by borrowings) that are not making an adequate contribution to profitability.
- Margins depressed as a result of competition perhaps with a fall-off in profit and retained profits in the business.
- A low ratio may indicate the extent to which the business could raise further funds.
- Gearing varies from industry to industry, company to company. There is no "ideal" gearing ratio – the situation has to be assessed on a case by case basis and looked at in the context of the strength of the company's cash flow and business risk.

$$b) \quad \textit{Leverage} \quad = \quad \frac{\textit{Total Long and Short Term Liabilities}}{\textit{Shareholders' Funds}}$$

- Indicates the extent to which a business relies on all liabilities compared to shareholders funds.
- Like gearing, a higher and increasing ratio indicates an increasing financial risk.
- In comparing leverage to gearing:
 - If gearing is increasing whilst leverage remains static (or reducing) then external finance (borrowing) is taking the place of other creditors – if the reverse movement is seen, then there is more reliance on other creditors.
 - Compare also with movements in Trade Creditors Period ratio.

$$c) \quad \textit{Interest Cover} \quad = \quad \frac{\textit{Profit/Loss Before Interest \& Tax}}{\textit{Interest Charge}}$$

- Indicates the extent to which a business is generating profit to meet its interest commitments.
- As long as a business is generating high levels of profits and interest rates are low, then it should be able to carry a large debt burden, i.e. cope with high levels of gearing, provided it is also generating sufficient operating cash flow to meet debt maturities as they fall due.

- A ratio of 1.0 occurs when the underlying profit before interest is sufficient only to cover the interest charge and allowing no profit retention to grow the capital base of the company.
- A ratio of less than 1.0 indicates potentially serious problems which cannot continue over long periods.

$$d) \quad \textit{Dividend Cover} = \frac{\textit{Profit/Loss After Tax}}{\textit{Dividend \& Drawings}}$$

- Indicates the number of times the profit after tax covers the company's declared dividend or drawings.
- If the ratio is less than 1.0 the directors are paying more to the shareholders than the company earned.

4.3.5 Section P – Profitability

$$a) \quad \textit{Sales Growth} = \frac{\textit{This year's sales} - \textit{Last year's Sales} \times 100\%}{\textit{Last year's Sales}}$$

- Reasonable sales growth is normally "a good thing". It indicates an increasing market share or an expanding market or both.
- A negative sales growth may indicate that the company has cut out unprofitable lines and therefore improved the overall situation for the company or it may indicate that the company's market is shrinking and/or its market share is decreasing

$$b) \quad \textit{Gross Profit Margin} = \frac{\textit{Gross Profit/Loss} \times 100\%}{\textit{Sales}}$$

- Any material changes in this ratio must be questioned, as this ratio provides the measure of profitability of the core business of the business. A measure of success in the marketplace.
- Depreciation can on occasions be included within cost of sales, which will have an effect on gross profit. We need to enquire as to any changes in depreciation policy as this will have an impact on gross profit.
- A fall in the ratio whilst generally a poor sign could occur due to a change in the method of stock valuation. Look at the notes to the accounts to identify whether this is taking place.
- Any change in product mix where different margins apply will affect the overall margin. Does the management have separate management information to assist the company in understanding its impact?
- A rising ratio could be:
 - Increased efficiency
 - New cheaper raw material supplier utilised. Is quality affected?
 - Discounts received on bigger raw material orders
 - Cheaper labour costs when moving overseas

$$c) \quad \textit{Profit before Tax to Sales} = \frac{\textit{Profit/Loss before tax}}{\textit{Sales}} \times 100\%$$

- This ratio provides a further measure of the efficiency of the business.
- It will be controlled by the pricing policy of the business along with its control of overheads.
- Different industries will achieve different returns e.g. manufacturing expects higher margins than food retailer which relies on high volume, low margins.
- If this ratio is out of line with gross margins, investigate the cause. Have overheads increased or decreased and why? Can they be controlled or are they sustainable?

- How significant are the overheads to overall profitability?
- Has there been a change in the depreciation policy?
- Have costs moved from being variable to fixed or vice versa?

d) *Overall Return on Capital Employed*

$$(\text{Overall ROCE}) = \frac{\text{Profit/Loss Before Interest and Tax}}{\text{Overall Capital Employed}} \times 100\%$$

- This ratio measures the return on all capital employed (including long-term debt as well as equity) against all net income (core and non-core business) before tax and interest.
- The business's performance should be judged on ROCE, as it will not continue for long, without support, unless this return exceeds at least the cost of borrowing.

e) *Return on Equity (ROE)* =
$$\frac{\text{Profit after Tax}}{\text{Net Worth}} \times 100\%$$

- A comprehensive measure of a company's performance, especially from an equity investor's perspective.
- From the banker's perspective he needs to ensure that the equity investors are happy with the return from a company, given the level of risks involved in the company.

f) *Return on Assets* =
$$\frac{\text{Profit Before Interest \& Tax (PBIT)}}{\text{Total Assets}} \times 100\%$$

- A further comprehensive ratio measurement which measures the return on the total assets being used by the business

Some analysts place too much reliance on ratio analysis. Empirical studies such as those conducted by Professor Beaver demonstrate that such ratios are not reliable predictors of failure. Professor Altman invented the Z-Score – a weighted composite of financial ratios, but though a better predictor of failure than many individual ratios, it still could not achieve the 99% reliability required by the banker.

4.4 Break-Even Analysis

Break-even Analysis is concerned with the profit and cost structure of a company and how these relate to the level of activity in the business. It is a useful tool for the analyst to quantify the risks under various business alternatives and to measure the prospective results of management's short-term decisions.

Break-even is defined as the point, or revenue level, at which losses cease and profits begin. Profit, simply put, is the difference between revenue and total costs:

$$\text{Revenue} = \text{Costs} + \text{Profit (R=C+P)}$$

We can break this down further by recognizing that all costs do not change at the same rate and in the same way. The cost of an increase in productive labour, for example, has no effect on the depreciation cost of a machine, or on the rent paid for the building. However, volume of production (or revenue) is one of the usual causal factors in changing productive labour costs (more revenue

may mean you must hire additional staff). The depreciation expense and the rent cost, on the other hand, are fixed with time.

Therefore, costs can be broken down into **variable costs** (varying according to volume) and **fixed costs** (which remain constant up to a certain revenue level or given unit of output).

Now, let's take a second look at our revenue equation:

$$\text{Revenue} = \text{Variable Costs} + \text{Fixed Costs} + \text{Profits (R=VC+FC+P)}$$

Let us suppose that, in a business producing pots, 70%, or £0.70, out of every sales pound represents the variable cost. Fixed costs are £30,000. £0.30 pence (£1.00 - .70 = .30) out of every sales pound will be left over to contribute to the coverage of the fixed costs and profit. It follows that the number of units that must be sold to break-even would be:

$$\text{Break-Even (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution}} \text{ or } \frac{\text{£30,000}}{\text{£0.30}} = 100,000 \text{ units}$$

Clearly, any pots sold above the break-even level would mean that the "contribution" would all go to profit, since the fixed costs were already covered.

Now suppose that the company decided to do some additional advertising to stimulate sales revenue, say an additional £9,000. Because advertising is most often a commitment not based on volume, the firm in effect would be increasing its fixed costs by that amount. Thus the fixed costs would now be £39,000. Quite logically this moves the break-even point further out. The contribution remains the same so the new break-even point would be:

$$\frac{\text{£39,000}}{\text{£0.30}} = 130,000 \text{ units}$$

This means the company must sell an additional 30,000 pots (130,000 – 100,000) to reach the break-even point and begin making a profit again. So what's the decision? Well, the manager would have to feel that the additional money spent on promotion would indeed generate more than just 30,000 units before it would be a wise move.

It must be added that we have looked at a quantitative measure for examining alternatives. There may be other factors – qualitative factors – that play a part in your final decision. Even though a certain service in the short run provides a fairly low contribution, you may still decide it is necessary because customers demand it as part of their total package. Break-even/Contribution analysis is often of considerable help in providing additional data for decision-making. After that, it still becomes a matter of managerial judgement.

Analysts may also come across the term operational gearing when they are looking at the cost structure of a company. An activity with relatively high fixed costs to its variable costs is said to have high **operational gearing**.