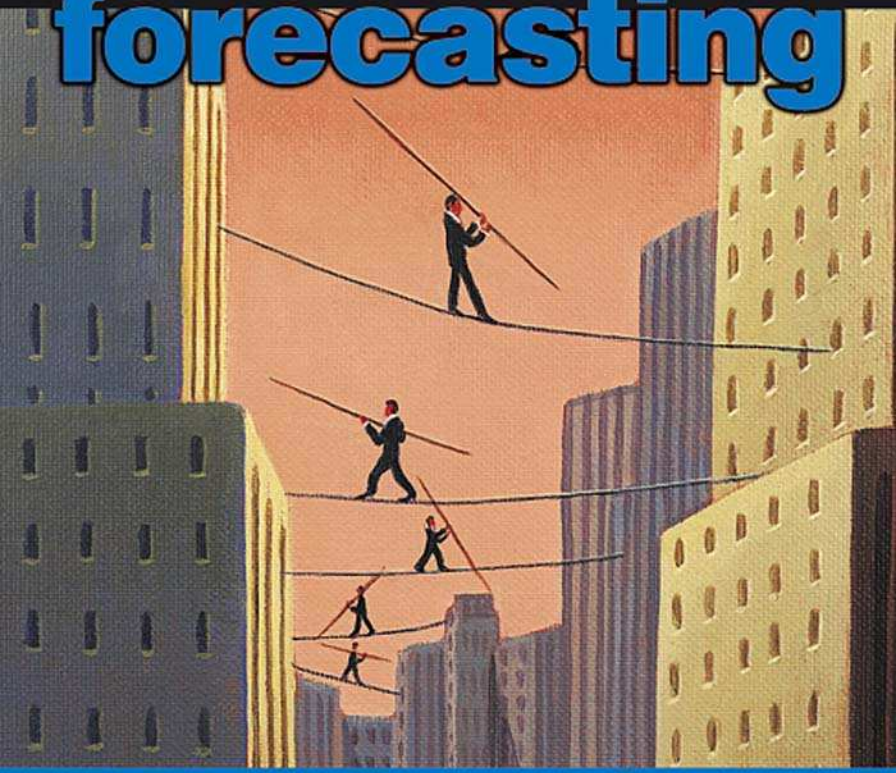
Andrew Fight

cash flow forecasting



ESSENTIAL CAPITAL MARKETS

Cash Flow Forecasting

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Cash Flow Forecasting

Edited by
Andrew Fight

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Preface

Welcome to this book on cash flow forecasting.

This book is presented in six chapters, each of which treats a specific aspect of cash flow forecasting. The individual chapters cover the following topics:

- Overview of cash flow forecasting
- Summary of financial statements
- Factors impacting financial performance
- Cash flow forecasting of financial statements
- Cash flow forecasting of project finance
- Pro forma forecasts using Amadeus electronic databases.

It also includes appendices, suggested reading, and a glossary.

This book aims to explain the background and *raison d'être* of cash flow forecasting as one of the techniques used in the capital markets to provide finance to companies, multinational corporations and large-scale projects.

Since most large loans and project financings are structured with a view to syndication in the international capital markets, cash flow forecasting also offers the possibility of structuring financings to satisfy the particular pricing, size and tenor appetites of the market.

It is suggested that this book be read in conjunction with the *Syndicated Lending* and *Introduction to Project Finance* books in this series, thereby linking the structuring of the cash flow forecasting facility to the marketing issues involved in loan syndication.

For newcomers to credit and financial analysis, the *Credit Risk Management* book in this series sets the analytical groundwork for understanding the concepts in *Cash Flow Forecasting*.

We hope that this book *Cash Flow Forecasting*, in the Essential Capital Markets Series, will be informative and instructional, and an indispensable and practical aid to persons seeking to understand this important area of banking.

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Chapter 1

Overview of cash flow forecasting

Introduction

What is cash flow forecasting? The term features prominently in the press, more specifically with respect to infrastructure, and public and private venture capital needs. The press often refers to huge projects such as building infrastructure projects like highways, the Eurotunnel, metro systems or airports. It is a technique that has been used to raise huge amounts of capital and promises to continue to do so, in both developed and developing countries, for the foreseeable future.

Cash flow forecasting, however, is also useful for more mundane applications. In many countries, the SME sector can account for as much as 40–50 per cent of economic activity. Small and medium-sized enterprises often require access to growth capital during their expansion phase, and the greatest single problem facing SMEs in an expansion role is insufficient liquidity. It is unfortunate that in many countries the SME sector is overlooked in the quest for more lucrative, albeit higher-risk, credit scenarios. National economic growth can also be fostered by the growth in the economic activity of SMEs, and it is therefore important to understand the techniques that can be used to provide funding to this sector. It is crucial for potential lenders to understand the financial situation, liquidity and cash flow situation of SMEs in order optimally to practise good lending principles.

This book on cash flow forecasting will therefore explore some of the mechanisms used in preparing cash flow forecasts, with a view to using

them for sensitivity analysis and designing appropriate financial structures and loan covenants to protect the bank's position in an adverse environment. Accordingly, this book will touch upon a number of issues *en passant*, such as the interrelations between items in a standard set of company accounts, ratio analysis, projection methodologies, debt runoff schedules, loan documentation, and the drafting of effective financial covenants in order to illustrate how to use the projections usefully.

The purpose of cash flow projections after all is not to construct elaborate mathematical models or predict the future, but rather to identify potential weaknesses in a given credit situation and point the way to adopt measures to enhance, correct or protect the bank's exposure.

Understanding the key risks and *practical applications* of cash flow forecasting and how it differs from other financing techniques is critical to all the major players in large capital projects (such as commercial and investment bankers), but also other players in lending situations (such as project finance, general contractors, subcontractors, insurance companies, suppliers and customers). All these participants will participate into an interlocking financing structure with mutual and multiple interdependencies.

In term lending, cash flow is the primary and usual source of loan repayment. The major credit issues are:

- Will the firm's projected cash flow – under various scenarios ranging from realistic to worst case – be sufficient to pay the interest and amortize the principal on existing long-term debt obligations? How do we measure the adequacy of cash flow to service debt, and what do we mean by a healthy cash flow?
- Does the projected asset structure and earnings stream indicate a potential need for additional financing in the future, and is there sufficient cash flow to service the near debt?
- What type of facility is appropriate, and how should the loan be structured? What would be the most appropriate amortization schedule for the new debt? What financial covenants should be included to provide

the bank sufficient protection against loss – that is, to preserve and control the cash flow and overall financial strength of the firm?

In the following sections we will explore each of these issues, beginning with a discussion of how to determine the relative 'health' and debt-servicing ability of a cash flow.

What is a healthy cash flow?

In term lending, we look to future cash flow for loan repayment. The objective of an analysis of cash flow as the primary repayment source is to ensure there will be sufficient cash to meet financing payments. Before considering future cash flow and determining its adequacy, it is useful to look at historical cash flow and pose the question: what constitutes a healthy cash flow? Whether a particular cash flow is healthy depends not only on the present financial condition of the company, but also on how it achieved its present position and the external and internal conditions it faces.

Consider Examples 1.1–1.5

Example 1.1

A company in the mature phase of its life cycle, where there is no expectation of continued growth, exhibits the following characteristics:

- earnings retained can finance permanent working investment
- cash 'throw-off' from depreciation (that is, the non-cash charge of depreciation on the income statement) is sufficient to maintain fixed assets
- the firm can pay down its short-term borrowings without riding the trade and without refinancing at the seasonal low point by borrowing from another bank
- there is sufficient cash to amortize existing long-term debt and pay dividends.

Here, the firm has a healthy cash flow.

Example 1.2

Considering Example 1.1, if the company had used its retained earnings to pay heavy dividends in excess of profits, with the following results:

- cash throw-off from depreciation was used to amortize the term loan
- the firm is increasingly riding the trade to finance permanent trading asset levels
- bank lines of credit could not be cleaned up

then this would be an unhealthy cash flow.

Example 1.3

A company in a growth situation has, because competition has reduced profitability, introduced a new product that requires new plant and increased working investment.

If the present situation was anticipated before erosion of profits became serious and:

- the company has had a conservative dividend policy
- a significant portion of long-term debt has been replaced with equity through the retention of profits
- plant can be maintained in efficient condition without reinvestment of the full amount of depreciation so that a significant portion of cash throw-off from depreciation may be used for other purposes
- working investment has not been increased by offering longer credit terms or by reducing credit standards in order to generate sales
- inventory turnover has been maintained at the maximum efficient level by careful planning and by control of both costs and the level of investment in each component

then so far, despite declining profitability, it would appear that the firm has been able to maintain a healthy cash flow and thus might

have some additional debt capacity to support the growth in assets necessary to introduce the new product. The decision to provide that financing hinges on an assessment of the firm's future cash flows as affected by the introduction of the new product.

Example 1.4

A company with proven growth potential in which:

- high profits have been retained
- there is excess capacity in a well maintained plant
- equity capital supports fixed assets and permanent working investment
- financial leverage is modest
- trade has been paid promptly

has a healthy cash flow.

Example 1.5

Considering Example 1.4, if:

- the company has no safety stock of inventory, and vital materials are scarce
- poor labour relations threaten strikes
- skilled labour is not available and training is a two-year process

then although at present the firm has a strong cash flow, its prospects for the future indicate that it may not be able to maintain its present strength.

An analysis of a firm's cash flow and a determination of whether management has successfully and efficiently managed the sources and uses of cash must be based on an understanding of the nature of business, and on its position in the normal life cycle of a business – whether it is a newly developing business, in the growth stage, at maturity or in decline.

As a basic proposition, however, the bank as a creditor defines a healthy cash flow as one in which net cash inflow from the normal operations of the firm is sufficient to cover both financing payments and the maintenance of the quality and efficiency of its assets. Depending on where the firm is in its business life cycle, the bank would also like to see some percentage of the growth in assets (increasing working investment and gross plant expenditure) covered by internally generated funds.

Analysis of cash flow concentrates, then, on the debt servicing ability of the firm. By isolating, in a firm's cash flow, an amount of cash available for debt servicing, however, it is important to remember that:

- this is not an identifiable pool of cash earmarked solely for debt servicing, and
- from the corporation's point of view there may be a number of other needs equally urgent and necessary to ensure solvency of the business that are competing for the limited cash available.

Analysis of cash flow, then, cannot merely isolate debt capacity but must also consider all the factors producing major changes in cash inflows and outflows. The primary hazard of too much debt compared to cash generated is the risk of insolvency, and debt servicing is given top priority as far as the bank is concerned. However, all decisions involving cash outflows vital to the survival of the firm need to be considered when evaluating cash solvency.

What are the uses of cash flow forecasting?

Cash flow forecasting is subject to several types of risks. It is useful, therefore, to look at these risks by category and identify their salient features and characteristics.

- *Credit worthiness* – a company's financial condition can be analysed and tested under various scenarios to assess and enhance the intrinsic credit worthiness

- *Project feasibility* – a project can be tested using various assumptions in order to establish whether or not the project is feasible, and what measures can be adopted to enhance the project's feasibility
- *Loan structuring* – specific weaknesses in the credit can be identified, thereby enabling the loan facility to be optimally structured in terms of amount, tenor, pricing
- *Financial covenanting* – specific financial covenants can be created and tailored to the borrower's financial condition
- *Security perfection* – specific shortfalls can be identified and the resulting credit risk enhanced via the perfection of security arrangements, including assets and guarantees
- *Loan document drafting* – financial projections can be used to identify the parameters of specific issues and problems, which can subsequently be managed via the appropriate drafting of loan documentation.

Chapter 2

Summary of financial statements

Introduction

This is not a treatise on financial analysis, but rather a consideration of the interrelations existing between the various components of the balance sheet and income statement and financial ratios which it is essential to understand in the preparation of cash flow forecasting.

In particular, we are concerned with the interrelationships existing between the income statement, balance sheet, and various financial ratios summarizing their interrelationships, and which can be manipulated with 'cash drivers' to project key accounts.

We therefore touch upon these topics as they relate to the manipulations required in effecting financial analysis.

The accounting process is divided into two basic elements, recording and reporting of financial information. The emergence of the large-scale limited liability company has been the single most important factor stimulating the need for financial reports. The larger and more complex the company, the more remote the management can become from day-to-day operations, and the more reliant they have to become on accounting information. In addition, the company that borrows money will need to demonstrate its financial solidity to its bankers, and financial statements are used by bankers and others as part of the basis for lending decisions.

In recent years, there has been recognition that there may be a large number of different parties with a legitimate interest in a company's performance:

- the equity investors – existing and potential shareholders
- the loan creditors – including existing and potential holders of debentures and loan stock, and providers of short-term unsecured loans and finance
- the company's bankers
- the company's employees
- the analysts/advisers – this will include financial analysts and journalists, economists, researchers, stockbrokers etc.
- customers, trade creditors and suppliers
- tax authorities, supervisory bodies, local authorities
- the general public – including taxpayers, consumers, political parties, and consumer and environmental groups.

Each of the groups will have a common interest in the financial statements of a company, but will use the information as the basis for different types

Table 2.1 Comparison between continental European and Anglo-Saxon accounting systems

	Continental European	*Anglo-Saxon*
Capital markets	Mainly from banking sector	Mainly stock markets
Culture	State-focussed	Individualistic
Legal system	Law provides detailed accounting rules	Rules from standard setting bodies
Fiscal system	Accounting/tax closely connected	Accounting not influenced by tax rules
Examples of countries	Belgium Germany France Italy Japan Switzerland	Australia Great Britain Ireland The Netherlands Singapore USA
Users of information	Creditors, taxman, investors	Notably investors
Accounting principles	Prudence	True and fair principle dominates

of decisions. There are differences in the amount of financial information made available to each of these groups, caused by different legal requirements and the company's management decisions as to what they wish to make available.

The annual report and accounts

The publication of an annual report and accounts by a company supposedly provides its shareholders and others with a means to keep themselves informed on the activities and financial position of the company.

The style and content of the annual report and accounts will vary from company to company, depending on the directors' design ideas and the financial resources available for the printing and designing of the report. Many companies will use their report and accounts as a marketing tool. However, there is a minimum amount of information that the law requires a company to print in the report and accounts. These requirements include four basic components:

1 The directors' report
2 A report by the company's auditors
3 A balance sheet and a profit and loss account
4 A statement of accounting policies and notes to the accounts.

Companies that are listed on the London Stock Exchange have to also produce a half-yearly interim report, and their annual report and accounts have to contain more information than do those of unlisted companies.

Under the Companies Acts, directors have a legal responsibility to prepare and publish accounts that give a 'true and fair' view of their company's financial affairs. The legal requirements currently in force are contained within the Companies Acts 1985 and 1989.

With reference to the Company's Act, the accounts must be delivered to the Registrar within a time limit fixed by reference to its accounting year end. The limit for a public company is seven months from its accounting year end. The Stock Exchange requires listed companies to issue an annual report within six months of the date of their financial year end.

Companies are also required to file with the Registrar the following information:

- copies of their Memorandum and Articles of Association, and details of subsequent changes
- the address of their registered office, and the place at which the company's registers are kept (e.g. a rented bedsit at Land's End)
- details of the company's share capital and debentures
- details of each mortgage and charge on the assets of the company
- a list of the directors and secretary, and any changes.

Statements of standard accounting practice, and financial reporting standards

There are various methods available for valuing and accounting for the different business assets (what the company owns) and liabilities (what the company owes). It is important that the company should state which policies have been employed, in order to enable the reader correctly to interpret the company's financial statements. The way a company's assets are valued can have a direct impact on profits. In the UK, accounting regulations operate under a specific regime:

The *Accounting Standards Committee* (ASC) was set up in 1970, and issued *25 Statements of Standard Accounting Practice* (SSAP).

The *Accounting Standards Board* replaced the ASC in 1990. The ASB adopted all of the SSAP, and in addition have been issuing further accounting standards, which are known as *Financial Reporting Standards* (FRS).

SSAP and FRS are guidelines for the production of company financial statements by accountants and the company, and some of their recommendations have been incorporated into the Companies Acts and have the force of law.

SSAP2 relates to the disclosure of accounting policies. It aims to ensure that companies prepare their accounts in accordance with certain fundamental accounting 'concepts', which it specifies. Companies report

which accounting 'policies' they have chosen from the accounting bases available for the purpose of valuing the assets and liabilities that appear in their accounts.

Company accounts are based on the following four premises:

1 *The going concern concept*. This assumes that the company will continue in business for the foreseeable future. The main effect of this assumption is that the liquidation value of fixed assets (which may be significantly different from the book value) may be ignored.
2 *The accruals (or matching) concept*. This requires that the revenues be matched with related expenses when measuring profit, and that revenues and expenses be included in the profit and loss account as they are earned and incurred rather than when they are received and paid.
3 *The consistency concept*. This requires the company to use the same accounting policies for valuing similar assets both within the accounting period and during consecutive accounting periods.
4 *The prudency concept*. This states that companies should not anticipate profits, but requires them to provide for all foreseeable losses.

'Accounting policies' is the term used to describe the accounting methods chosen by a particular company for the purposes of valuing assets and liabilities. The main provisions of SSAP2 are given statutory backing by the Companies Act 1985. The accounting policies on which a company's accounts are based are shown at the beginning of the notes to the accounts, and typically will include the basis of accounting for:

- sales
- deferred taxation
- depreciation of fixed assets
- investment grants
- research and development
- stocks and work in progress
- extraordinary items
- translation of foreign currencies.

There are at least three important points of interaction between the profit and loss account and the balance sheet where if abnormal

accounting policies are used they can materially alter the company's reported profits:

1 *Valuation of stock* – the higher the value at the end of the accounting period, the lower the cost of goods sold and therefore the higher the profit.
2 *Depreciation* – the lower the charge for depreciation in the accounting period, the higher the book value of assets carried forward and the higher the reported profits.
3 *Capitalizing expenditure* – all expenditure incurred by the company must either add to the total asset value in the balance sheet or be charged in the profit and loss account. Any amounts that can be capitalized will increase profits directly, as this would otherwise be a charge against profits. There will be an increased profit today against future years, when the higher capital value of fixed assets will require a higher depreciation charge and therefore reduce profits. Items that are sometimes capitalized include research and development costs, interest incurred on projects during construction, and start-up costs (e.g. advertising and promotional costs associated with launching a new product).

Consequences of fraudulent manipulation of accounts

If the company overstates its profits in the accounting period, it may be difficult to sustain them in the future. Once a company starts to cook the books, it becomes even more necessary to continue to do so in future.

Such practices are euphemistically known as 'creative accounting', although a more accurate description is manipulating the accounts or fraudulent accounting. It is sad to say that to carry this deception off, two parties need to play the game – the company and the company's auditors. Often the company's auditors participate in the deception since they feel they must please the client in order to keep the lucrative accounting business, as well as to be considered for even more lucrative consulting services! Accountants failing to please the client obviously will not be selected for lucrative consulting assignments. Hence the entire process of the auditing of financial statements by auditors could be considered to be compromised by commercial conflicts of interest.

Industry sources have admitted as much, saying that the accounting profession has lost its credibility and reliability and is in a state of dysfunction. Useful additional reading on this is provided by *Accounting for Growth*, by Terry Smith (see Suggested Reading).

The auditors' report

Every company is required to appoint at each of their annual general meetings an auditor to hold office from the date of that meeting until the next annual general meeting. This will usually be a firm of accountants.

The Companies Act 1985 made it an offence for a director or company secretary of a company to give false or misleading statements to their auditors.

The auditors are required to report to the shareholders of the company whether, in their opinion, the balance sheet, profit and loss and other financial statements have been properly prepared in accordance with legislation, and whether these give a true and fair view of the profitability and state of affairs of the company. If the auditors feel that the accounts have not been properly prepared, that the records do not accord with fact and/or they have not been able to obtain all the information that they need in order to give an informed opinion, they must state this in their report; this is known as qualifying the audit report.

It is important to note that the auditors' report does not certify the accuracy of the accounts, but expresses the opinion that the accounts show a true and fair view of the company.

An auditors' report should contain a clear expression of opinion on a company's financial statements. The opinion will be unqualified (i.e. everything appears to be in order as laid down by the Institute of Chartered Accountants Audit Policies) or qualified.

A qualified opinion is expressed by the auditors when either there is a limitation on the scope of the auditors examination of the company's

accounts and affairs, or the auditor disagrees with the way a matter has been treated or disclosed in the financial statements.

An adverse opinion is expressed by the auditors if their disagreement with the company is so material or pervasive that they feel that the company's accounts are seriously misleading and do not give a true and fair view of the company's situation.

A disclaimer of opinion is expressed by the auditors when the possible effect of a limitation on the scope of the audit is so material that the auditors have been unable to obtain sufficient material to support or express any opinion on the financial statements.

Fundamental uncertainty is where an inherent uncertainty exists which in the auditors' opinion is fundamental and is adequately accounted for and disclosed in the accounts. Here, auditors will include an explanatory paragraph in their report, making it clear that their opinion is not qualified by this.

The balance sheet

The balance sheet (see Figure 2.1) is one of the basic components of the company's report and accounts. It is a statement of the assets (what the company owns) and liabilities (what the company owes) of a company at the close of business on a stated date – 'the balance sheet date'.

The balance sheet shows:

- how cash is invested in the business
- how the assets are balanced with the liabilities
- how the company is financed.

Table 2.2 provides an example of the balance sheet as you are likely to encounter it in a 'spreadsheet'. Spreadsheets recast heterogeneous company account presentations into a standardized format to facilitate analysis and manipulation by analysts into forecasting models and peer group analysis.

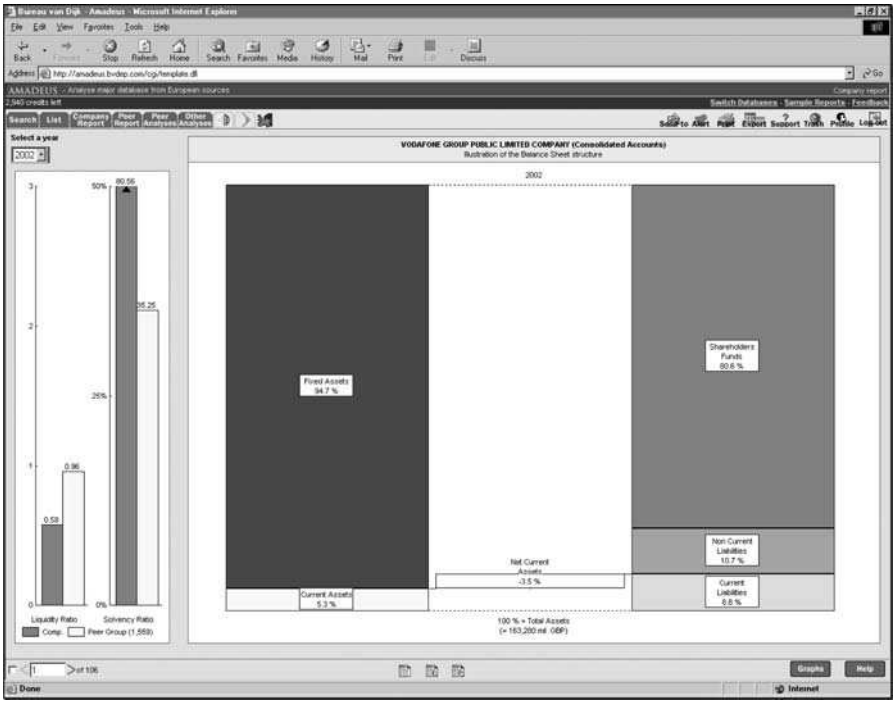

Figure 2.1 Simple balance sheet
Source: Bureau Van Dijk, AMADEUS 2004

Assets and liabilities

Assets

On the assets side we have fixed assets, which are the tangible assets that the company has bought and can be such things as a factory or office premises, machinery, tables and chairs and motor vehicles.

Also on the assets side of the balance sheet is a heading for current assets. These are assets that the company expects to turn into cash within 12 months from the balance sheet date. They can include stocks of goods and also cash deposits.

The balance sheet will always balance – that is, the figure for total liabilities must always be the same as for total assets. If not, something has been missed or wrongly accounted for.

Table 2.2 Balance sheet as a spreadsheet

NAME:	IT Services				
LOCATION:	England				
BUSINESS:	Manufacturing				
AUDITOR:	XYZ	FYE	31 DEC		
CONSOLIDATED:	Consol, €	€ (000)			
ASSETS		**2000**	**2001**	**2002**	**2003**
Cash		133	921	227	186
Marketable Securities					
Accounts Receivable – Trade		106,613	116,128	132,292	141,819
Accounts Receivable – Other					
Sundry Current Assets					
Inventory		34,986	30,466	44,883	43,956
Raw Materials					
Work in Progress					
Finished Goods					
Other					
CURRENT ASSETS		**141,732**	**147,515**	**177,402**	**185,961**
Land, Buildings, Equipment		1,228,115	1,356,033	1,553,581	1,675,825
Leased Assets		71,150	77,441		
Plant in Construction					
Accumulated Depreciation		−69,062	−140,637	−215,322	−301,728
TOTAL OTHER GENERAL ASSETS		**1,230,203**	**1,292,837**	**1,338,259**	**1,374,097**
Quoted Investments					
Unquoted Investments					
Invest in Associated Companies					
Loans to Associated Companies					
Prepaid Expenses					
Sundry Assets					
Goodwill					
Other					
TOTAL ASSETS		**1,371,935**	**1,440,352**	**1,515,661**	**1,560,058**
LIABILITIES					
Bank Loans and O/Ds					
Other ST Debt					
CPLTD					
CPLO					

(*continued*)

Customer Prepayment				
Accounts Payable	140,964	125,885	134,330	125,835
Accrued Expenses	152,132	142,550	137,866	139,555
Income Tax Payable				
Dividends Payable				
Due to Affiliates				
Sundry CL 1				
Sundry CL 2				
CURRENT LIABILITIES	**293,096**	**268,435**	**272,196**	**265,390**
Long Term Debt	826,231	943,612	1,023,407	1,058,017
Subordinated Debt				
Total Long Term Debt	826,231	943,612	1,023,407	1,058,017
Other Creditors				
TOTAL LIABILITIES	**1,119,327**	**1,212,047**	**1,295,603**	**1,323,407**
Deferred Taxes				
Minority Interest				
Common Stock	335,315	335,315	335,315	335,315
Preferred Stock				
Capital Surplus				
Revaluation Reserve				
Legal Reserve				
FX — Translation Reserve				
Retained Earnings	−82,707	−107,010	−115,257	−98,664
NET WORTH	**252,608**	**228,305**	**220,058**	**236,651**
TOTAL LIABILITIES & NET WORTH	**1,371,935**	**1,440,352**	**1,515,661**	**1,560,058**
Cross-check (TA-TL)	0	0	0	0
Contingent Liabilities:				

NAME:	IT Services		
LOCATION:	England		
BUSINESS:	Manufacturing		
AUDITOR:	XYZ	FYE	31 DEC
CONSOLIDATED:	Consol, €	€ (000)	

PROFIT & LOSS	**2000**	**2001**	**2002**	**2003**
NET SALES	493,308	467,106	516,063	553,192
Cost of Sales	440,885	360,035	376,538	370,681
Depreciation	69,062	71,575	74,685	86,432
Amortization of Goodwill				
Capital Grants	−52,872	−39,412	−51,984	−41,865
GROSS PROFIT	**36,233**	**74,908**	**116,824**	**137,944**
SGA	−17,345			
NET OPERATING PROFIT	**53,578**	**74,908**	**116,824**	**137,944**
Net Interest Expense	135,606	123,202	128,760	125,628
Interest Income				
Prov Dbt Recv				
Equity Income	−8,090	−6,600	−7,092	−3,935
	−648	−46		
NPBT	**−73,290**	**−41,648**	**−4,844**	**16,251**
Provision for Income Tax				
Deferred Tax Provision				
NPAT	**−73,290**	**−41,648**	**−4,844**	**16,251**
Unusual Items:				
FX Gains/Losses	9,373	−21,222	6,508	−342
Unrealized F/X Gain/Loss		9,744	1,256	
Realiz Profits of Rel Co				
Reval Reserve				
Sundry Res	44	−5,867	−4,361	
Goodwill on Consol				
Unexplained Adjustment				
NPAUI	**−82,707**	**−24,303**	**−8,247**	**16,593**
Dividends – Common				
– Preferred				
Min Int Expense				
RETAINED EARNINGS	**−82,707**	**−24,303**	**−8,247**	**16,593**
Changes in Net Worth				
Stock Sold		0	0	0
Purch Own Stock				
Chg. in Cap Surplus		0	0	0
Chg. in FX Reserve		0	0	0
Chg. in Reserves		0	0	0
Other		0	0	0
INCREASE IN NET WORTH	**−82,707**	**−24,303**	**−8,247**	**16,593**
Cross Check RE:	–	0	0	0
Cross Check NW:	–	0	0	0

(*continued*)

NAME: IT Services
LOCATION: England
BUSINESS: Manufacturing
AUDITOR: XYZ FYE 31 DEC
CONSOLIDATED: Consol, € € (000)

FACT SHEET	**2000**	**2001**	**2002**	**2003**
ROE (%)	−29.01%	−18.24%	−2.20%	6.87%
ROS (%)	−14.86%	−8.92%	−0.94%	2.94%
ATO	0.36	0.32	0.34	0.35
ALEV	5.43	6.31	6.89	6.59
Sales (M/MM)	493308	467106	516063	553192
Chg. in Sales (%)	#N/A	−5.3%	10.5%	7.2%
CGS/S (%)	89.4%	77.1%	73.0%	67.0%
GPM (%)	7.3%	16.0%	22.6%	24.9%
SGA/S (%)	0.0%	0.0%	0.0%	0.0%
NOP/S (%)	10.9%	16.0%	22.6%	24.9%
TIE	0.4	0.6	0.9	1.1
IE/Av. FD (%)	16.41%	13.92%	13.09%	12.07%
NPBT/S (%)	−14.9%	−8.9%	−0.9%	2.9%
Inc. Taxes/NPBT (%)	#N/A	#N/A	#N/A	0.0%
NPAT/S (%)	−14.9%	−8.9%	−0.9%	2.9%
NPAUI/S (%)	−16.8%	−5.2%	−1.6%	3.0%
Div./NPAT (%)	0.0%	0.0%	0.0%	0.0%
Work. Investment	−151497	−121841	−95021	−79615
Chg. in WI (%)	#N/A	#N/A	#N/A	#N/A
WI/S (%)	−30.7%	−26.1%	−18.4%	−14.4%
AR DOH	79	91	94	94
INV DOH	29	31	44	43
RM DOH	0	0	0	0
WIP DOH	0	0	0	0
FG DOH	0	0	0	0
AP DOH	117	128	130	124
AE DOH	126	145	134	137
Av. GP T/O	6.93	6.29	13.33	#N/A
Av. NP T/O	236.26	#N/A	#N/A	#N/A
Av. GP/DepExp.	1.38	1.04	0.52	#N/A
Av. AccDep./DepExp.	1.34	1.46	2.38	2.99
Av. NP/DepExp.	0.04	#N/A	#N/A	#N/A
Current Ratio	0.48	0.55	0.65	0.70
Quick Ratio	0.36	0.44	0.49	0.54
Coverage Ratio	0.13	0.12	0.14	0.14
CMB Leverage	4.43	5.31	5.89	5.59
% of Total Footings:				
STD (+CPLTD + CPLO)	0.0%	0.0%	0.0%	0.0%
Spont. Fin.	21.4%	18.6%	18.0%	17.0%
LTD	60.2%	65.5%	67.5%	67.8%
Grey Area	0.0%	0.0%	0.0%	0.0%
Equity	18.4%	15.9%	14.5%	15.2%
CA	10.3%	10.2%	11.7%	11.9%
Net Plant	89.7%	89.8%	88.3%	88.1%
Other	0.0%	0.0%	0.0%	0.0%
Asset Cover (TA − TSL/TA)	18.4%	15.9%	14.5%	15.2%
WC Adequacy (WC/CA)	−106.8%	−82.0%	−53.4%	−42.7%
Reliance on Inventory	532.6%	496.9%	311.2%	280.7%
Change in WC (%)	#N/A	#N/A	#N/A	#N/A

NAME:	IT Services		
LOCATION:	England		
BUSINESS:	Manufacturing		
AUDITOR:	XYZ	FYE	31 DEC
CONSOLIDATED:	Consol, €	€ (000)	

CASH FLOW	**2001**	**2002**	**2003**
NPAUI: NET PROFIT AFTER UNUSUAL ITEMS	**−24,303**	**−8,247**	**16,593**
+ Interest Expense	123,202	128,760	125,628
Unusual: Plant	−21,222	6,508	−342
Investment	9,744	1,256	0
FX − Adj.	0	0	0
Other (1 + 2)	−5,867	−4,361	0
Other (3 + 4 + 5)	0	0	0
− Interest Income	0	0	0
− Dividend Income	−46	0	0
− Equity Income	−6,600	−7,092	−3,935
− Commission Income	0	0	0
Sundry Inc./Exp.	0	0	0
Prov. f. Income Tax	0	0	0
− Income Tax Paid	0	0	0
+ Prov. f. Def. Tax	0	0	0
− Def. Tax Paid	0	0	0
− ITC (Gov't Grants)	0	0	0
NOPAT: NORMALIZED OPERATING PROFIT AFTER TAX	**74,908**	**116,824**	**137,944**
+ Depreciation	71,575	74,685	86,432
+ Amort. of Goodwill	0	0	0
+ Prov. f. Dbtf. Rec.	0	0	0
COPAT: CASH OPERATING PROFIT AFTER TAX	**146,483**	**191,509**	**224,376**
Gross (Net) A/Rec.	−9,515	−16,164	−9,527
− A/Rec. charged off	0	0	0
Inventory	4,520	−14,417	927
Cust. Prepayments	0	0	0
Acc./Payable	−15,079	8,445	−8,495
Accrued Expenses	−9,582	−4,684	1,689
Chg. Work. Inv.	−29,656	−26,820	−15,406
Prepaid Expenses	0	0	0
Due to Affiliates	0	0	0
Sundry C.A.	0	0	0
Sundry C.L. (1 + 2)	0	0	0

(*continued*)

CACO: CASH AFTER CURRENT OPERATIONS	**116,827**	**164,689**	**208,970**
− Interest Expense	−123,202	−128,760	−125,628
− CPLTD (incl. CPLO)	0	0	0
= Finan. Payments	−123,202	−128,760	−125,628
CBLTU: CASH BEFORE LONG TERM USES	**−6,375**	**35,929**	**83,342**
− Net Pl. Expend.	−112,987	−126,615	−121,928
Investments	−3,144	5,836	3,935
+ Interest Income	0	0	0
+ Dividend Income	46	0	0
Sundry Inc./Exp.	0	0	0
Market. Secur. + Dep.	0	0	0
Due from Affiliates	0	0	0
Sundry NCA	0	0	0
Sundry NCL	0	0	0
Unusual: all other	5,867	4,361	0
+ ITC (Gov't Grants)	0	0	0
CBF: CASH BEFORE FINANCING	**−116,593**	**−80,489**	**−34,651**
Short Term Debt	0	0	0
Long Term Debt	117,381	79,795	34,610
Minority Interest	0	0	0
Grey Area	0	0	0
FX − Translation G/L	0	0	0
− Dividends paid	0	0	0
Chg. in Net Worth	0	0	0
Change in Cash	**788**	**−694**	**−41**
Cash Account	**−788**	**694**	**41**
ADDITIONAL FIGURES:	**2001**	**2002**	**2003**
NOPAT/FP	0.61	0.91	1.10
NOPAT/(FP + DIV.)	0.61	0.91	1.10
FREE CASH FLOW	−48294	−11936	12316
FREE CF (after Div.)	−48294	−11936	12316
GROWTH FUNDED INTERNALLY	0.0%	0.0%	24.2%
G.F.I. (after Div.)	0.0%	0.0%	24.2%
YEARS TO SERVICE RATIO	#N/A	#N/A	85.9
Y.T.S. (after Div.)	#N/A	#N/A	85.9

Liabilities

On the liabilities side, we have a breakdown of the funding sources of the company.

When a company is formed, its members subscribe for shares – that is, they give money to the company in return for certificates which state that they own a certain percentage of the company. For example, in our simple balance sheet there is a figure of €335,315 shown as share capital. The cash raised by issuing these shares will be used in the business to buy fixed assets, such as an office or factory for the company's operations, machinery and motor cars, and to buy stock ready to start trading.

The share capital may not in itself be enough to pay all of the company's initial costs and to enable it to start trading. In our example balance sheet, there is a liability headed 'overdraft'.

The directors have negotiated credit terms with the suppliers of their raw materials and stock – i.e. the suppliers do not require immediate payment and become creditors of the company. To recap, creditors are people to whom the company owes money.

Therefore, on the liabilities side of the balance sheet we have:

- Share capital, put into the business by the shareholders
- Creditors, to whom the company owes money
- An overdraft facility representing money owed to the bank by the company.

Summary

We have taken a brief look at the assets and liabilities side of our simple balance sheet. We can summarize the balance sheet, as depicted in the preceding spreadsheet, as follows:

- *Fixed assets* show capital (funds) that is tied up on a long-term basis, i.e. assets that are not quickly and easily realizable. Tangible assets are the assets used in the operation of the business, and may include land,

buildings, plant and machinery. Intangible assets may comprise goodwill, patents and licences, rights, monopolies, contracts and databases.

- *Current assets* can be readily converted into cash within a short period, normally one year.
- *Stocks* – reported profits are affected by the valuation a company places on its stock, as high value produces high profits. Accountants therefore insist that stocks are valued at the lower of cost or net realizable value.
- *Current liabilities* are debts due for payment in less than one year. These include bank overdrafts and payment to suppliers, and expiring loans.
- *Long-term liabilities* are debts that need not be repaid within one year. These may include bank loans and mortgages.
- *Called up share capital* represents the number of shares that have been issued by a company. (If trading ceased, any money left over after settlement of all of the company's other liabilities would be distributed amongst the shareholders *pro rata* according to the number of shares that each of them holds.)
- *Share premium* is the difference between the nominal (face) value of a share and the amount at which it is offered for sale to shareholders. Successful companies issue shares at a premium to their nominal value.
- *Revaluation reserve* – assets valued, such as land, may actually be worth more than their original cost. The difference between these two figures is the revaluation reserve – it is not profit that the company has actually realized in cash terms, and therefore is not distributable to shareholders.
- *Profit and loss account figure*. This is the sum total of profits accumulated by the business and retained for use in the growth and expansion of the business.
- *Shareholders' funds* is the owner's equity.
- *Notes* – several of the figures given in the balance sheet will be explained in more detail in the notes that appear towards the end of the accounts.

Debtors

Debtors (also known as accounts receivable) are a current asset, and represent amounts owed to the company. The balance sheet formats as

prescribed in the Companies Act 1985 require the company to split their debtors figure into the following categories:

- *Trade debtors* – debts owed to the company arising from sale of goods to customers of the company on credit terms.
- *Amounts owed by group companies* – these amounts will represent inter-group trading activities, i.e. sums owed to the company by its parent company (if it is not itself the parent company), fellow subsidiaries or subsidiaries of its own.
- *Amounts owed by companies and other institutions in which the company has a participating interest* – that is, debts owed to the company by institution(s) in which the company has a holding of 20% or more of that institution's shares.
- *Other debtors* – for example, debts due to the company from the sale of fixed assets or investments.
- *Prepayments and accrued income* – for example, rent and rates paid by the company in advance.

Most companies will show a single figure for debtors in their balance sheet, but then break down the various categories in the notes section of their accounts.

Companies will have different debtor profiles. Supermarket chains will have very little showing in their accounts in the way of debtors, as most of their sales will be for cash; any debtors shown in their accounts are likely to be non-trade or prepayments. Other companies may conduct most or all of their trade on credit terms, and will have large debtor balances.

Some key questions to ask about debtors include:

- Customer concentration – is there too much reliance on one customer, or on one major industry? What would be the consequences to the company if it was to lose a major client? Unfortunately, in some instances the company will grant credit to a customer only to find that payment is not forthcoming.
- What is the age pattern of the debtors? Are some very old debts?
- Is there adequate provision for bad and doubtful debts?
- What is the company's credit granting policy (see Tables 2.3 and 2.4)?

Table 2.3 Country factors – terms of trade

Country	*Average payment terms (days)*
Finland	24
Denmark	35
Germany	38
Australia	43
UK	50
Ireland	59
France	64
Spain	73
Italy	84

Table 2.4 Industry factors – credit periods (days)

Industry	*1997 Q3*	*1996 Q4*	*1995 Q4*
Leisure and hotels	23	23	20
Building and construction	28	30	28
Breweries	35	35	38
Oil	42	48	43
Textiles and clothing	46	49	51
Builders' materials	49	53	46
Pharmaceuticals	60	69	61
Printing, paper, and packaging	61	66	64

Source: CCN Corporate Health Check.

Creditors

Creditors (also known as accounts payable) are those to whom the company owes money – for example, suppliers of raw material, who have given the company credit period in which to pay and are shown as liabilities in the balance sheet. They include the following categories:

- *Trade creditors* – suppliers to whom the company owes money. The size of the trade creditors figure will reflect the extent to which suppliers are financing the company's business. It is useful to compare debtor

and creditor days to see if there is any serious imbalance between them. For example, if the company's credit period is 30 days then it is paying its bills in a 30-day period, but at the same time if it is giving 100 days' credit this could produce very serious cash flow problems for the company, and indicate a serious deficiency in the company's debt collection procedures – and very possibly bad debts.

- *Debenture (secured) loans* – when a company wishes to issue loan capital, it can offer the lender some specific security on the loan. If it does so, the loan is called a debenture, or debenture stock.
- *Bank loans and overdrafts*.
- *Payments received on account* – e.g. deposits from customers paid in advance for work which the company is undertaking or will undertake.
- *Bills of exchange payable* – a way of raising short-term capital for the company. A bill of exchange is used to finance the sale of goods when the seller wishes to obtain payment at the time the goods are despatched to the buyer, and the buyer wants to defer payment until the goods are received (or later). A bill of exchange payable in a company's creditors would indicate that the company has purchased goods and has accepted a bill of exchange acknowledging its debt to the supplier and promising to pay at some future time.
- *Amounts owed to group companies* – amounts owed to institutions in which the company has a participating interest.
- *Other creditors* – including tax and social security, which are shown separately.
- *Accruals* – apportionments of a known future liability in respect of a service which the company has already partly received.
- *Deferred income* – money received by or due to the company, which has not yet been earned.
- *Dividends proposed* – although the company cannot pay proposed dividends until they have been approved at the Annual General Meeting, these are always shown as a liability.

Stock and work in progress

Traditionally companies have shown stocks as a single figure under current assets, described as 'stocks' or 'inventories' or 'stocks and work in

progress'. However, whichever term is used it covers three very different classes of assets:

1 *Raw materials* – components, consumables (such as paint and oil) used in the making of a product
2 *Work in progress* – items in the process of being turned from raw materials into the finished product
3 *Finished goods* – those either complete or purchased for resale.

The accurate valuation of stock on a consistent basis is crucially important to the company, because quite small variations can have a significant effect on the profits it reports. There are three main problems in valuing stock:

1 The price to be used if an item has been supplied during the year at varying prices
2 The value that is added to the item during the manufacturing process
3 Assessment of what the net realizable value of the items will be.

There are a number of different methods used to put a value on stock, of which the following are examples of the most commonly used:

- *First-in-first-out (FIFO)*. This method of stock pricing assumes for accounting purposes that the stock has been used in the order in which it was received by the company. Therefore, if there have been price rises the stock which has not been used will probably be that which was purchased by the company at the higher price, and it can be valued accordingly.
- *Average or weighted average price*. Where a company receives a number of stock deliveries during an accounting period at different prices, the average price, or weighted average price, will be used.
- *Standard price*. Some businesses will employ a standard cost system. They predetermine for each item that they manufacture the price that should be paid for material, wages and so on. Materials issued from store are priced at a standard cost, as are work in progress and finished goods. Any variances from standard are written off as operating losses (or profits) at the time they occur. As long as the standard price fairly represents the average cost of the material in stock, it can be used for accounting purposes.

Borrowing as shown in a company's accounts

A company's borrowings will broadly fall into three categories:

1 Debentures and unsecured loan stock and bonds, which can be bought and sold in the same way as shares in a company, and can be held by the general public
2 Loans from financial institutions
3 Bank overdrafts.

The former two categories of borrowings are shown separately in the balance sheet, and in the notes to the accounts there will be descriptions of the terms under which each loan is repayable, the rates of interest applicable on each loan, and whether they are secured or unsecured. The bank overdraft is shown under the current liabilities heading in the balance sheet, although this only tells us the balance utilized – not the full extent of the facility available to the company from the bank.

The amount that a company can borrow may be limited by the following:

- The company's borrowing powers as limited by its Articles of Association (the internal rules upon which the directors run the company, which are filed with the Registrar of Companies when the company is first established)
- Restrictions imposed by existing borrowings – terms of existing loan agreements may preclude the company from borrowing further
- The lender's requirement for capital and income cover
- The lender's general opinion of the company and its overall borrowing position.

Banking facilities

There are three main methods by which a company can borrow money from a bank:

1 *Overdrawing its current account against an agreed overdraft facility*. Bank advances on the overdraft are technically repayable upon demand by

the bank, and can leave the company vulnerable to increases in interest rates. However, they are a simple method by which to fund day-to-day working capital requirements, and the balance overdrawn is shown under current liabilities in the company's balance sheet.

2 *Bank loans*. These are shown in the balance sheet under two headings; one in current liabilities, which shows the amount of principal due to be repaid under bank loans within the next 12 months (CPLTD or current portion of long-term debt), and the balance under long-term liabilities, which shows the amount due to be repaid after 12 months.

3 *Bills of exchange under an Acceptance Credit facility*. The primary purpose of the bill of exchange as a funding instrument is to finance the sale of goods when the seller or exporter wishes to obtain payment at the time the goods are despatched, and the buyer or importer wants to defer payment until the goods arrive, or later. In these circumstances, company A, the supplier of the goods to company B, will draw up a bill of exchange for the goods which company B will accept as representing the debt to company A which is payable at some future time.

Fixed assets

The Companies Act 1985 requires fixed assets to be set out in the balance sheet under three headings:

1 *Intangible fixed assets*, which will include such items as patents and trademarks, brand names, goodwill, concessions, and capitalized development costs. 'Goodwill' is the amount by which the value of a business as a whole exceeds the balance sheet value of its individual assets less liabilities. It is normally only recognized in the accounts of a company when it acquires another business, and it relates to the amount that the purchasing company has paid for the company being purchased over and above its balance sheet value.

2 *Tangible fixed assets*, which are assets with a long working life that have not been bought by the company for resale purposes in the ordinary course of their business, but for the purposes (directly or indirectly) of revenue generation. They will include items such as machinery on which the company's product is made, land on which the head office

or factories are based, buildings such as the offices and factories, and motor vehicles (lorries, sales representatives cars etc.).

3 *Investments*, which fall into four categories:
   - Investment in subsidiary companies.
   - Investment in associated undertakings.
   - Participating interests (these are interests held by the company on a long-term basis to secure a contribution to its activities by the exercise of control or influence over another party or parties). This would involve a holding of 20% or more of the shares of another institution. A participating interest becomes an interest in an associated undertaking if the company exercises a significant degree of influence over the operating and financial policy of the company in which it has a participating interest.
   - Other investments, which are share holdings in other companies that are none of the above, but which the company feels is a good investment for it and will bring a good return.

Depreciation

This is a measure of the loss of value of an asset due to use, the passage of time and obsolescence (obsolescence is particularly a problem in the field of high technology, such as computers and electronic equipment). This includes the amortization of fixed assets that have a pre-determined future life, and the depletion of wasting assets.

Factors affecting the depreciation of an asset will include the original cost of the asset, the estimated life of the asset, the method of depreciation calculation used, and the likely residual value. Depreciation methods include straight line, reducing balance, and the sum of digits. Straight line is the most commonly used method.

Book value

Traditionally, fixed assets are shown in the balance sheet at cost less aggregate depreciation to date – this is known as the net book value. This is not in any sense a true valuation of the worth of the asset today; it will require a professional valuation under today's market constraints.

Authorized and issued share capital

When a company is formed, the authorized share capital and the nominal value of its shares are written into the company's Memorandum of Association. Both the authorized and the issued share capital are shown in the company's accounts.

There are several different types of share capital, which carry different levels of risk dependent upon where they would rank for distribution in the event of liquidation of the company. The types of share capital, in ascending order of risk, are:

- *Preference (or non-equity) shares*. Preference shares earn a fixed rate of dividend, which is normally payable half-yearly, but preference shareholders have no right of legal redress against the directors of the company if they decide that no preference dividend should be paid. However, if no preference dividend is paid for an accounting period, then no other share dividend can be declared for the accounting period concerned. Varieties of preference shares can include one or a combination of the following features.
- *Convertible shares*, where shareholders have the option of converting their preference shares into ordinary shares within a given period of time (the conversion period).
- *Ordinary shares*, which comprise the main part of the share capital of a company. Ordinary shareholders are entitled to vote at the company's general meetings, giving them a say in company decisions – including the appointment of directors. They are entitled to the profits of the company that remain after tax and preference dividends have been deducted.
- *Deferred shares* form a class of share on which a dividend is not payable until ordinary shareholders' dividends have reached a certain level, or until the deferred shares have themselves been converted into ordinary shares.
- *Warrants* to subscribe for shares are transferable options granted by the company to purchase new shares from the company at a given price, called the 'exercise price'. The warrant is exercisable only during a specified time period, called the 'exercise period'.

Reserves

Reserves can arise via:

- accumulation of profits, from trading and from the sale of assets
- issue of shares at a premium, i.e. at more than their nominal value
- issue of warrants
- upward revaluation of assets
- acquisition of assets at below their balance sheet value.

Reserves can be reduced by losses, share issue and share redemption expenses, revaluation expenses, revaluation deficits, and the writing off of goodwill.

The Companies Act 1985 requires reserves to be shown under three main headings:

1 *Share premium account* – when shares are issued at a premium over their nominal value, the premium element must be credited to the share premium account. The share premium account has to be shown separately on the balance sheet, and may not be paid out to shareholders except on liquidation or under a capital reduction scheme.
2 *Revaluation reserve* (unrealized profits) – the surplus (or shortfall) on the revaluation of assets should be credited (or debited) to a separate reserve, the revaluation reserve.
3 *Other reserves* prohibited from distribution by the company's memorandum articles include capital redemption reserves. Shares may be redeemed or purchased by a company out of distributable profits or out of the proceeds of a new issue of shares. Where redemption or purchase is out of distributable profits, an amount equal to the amount by which the company's share capital is diminished must be set aside by the company in a reserve called the capital redemption reserve. This is shown separately under 'Other reserves'.

The profit and loss account

The profit and loss account is also one of the basic components of the company's report and accounts. It is a record of the trading activities of

a company for a given period of time. This period is called the accounting period, and is normally a year. The balance sheet is always drawn up on the last day of the company's accounting period.

The profit and loss account:

- compares revenue for the year against the cost of goods sold and other expenses, disclosing the profit or loss made
- measures the current performance of the business and shows turnover and expenses
- reveals the pre-tax profit or loss figure, which is an important pointer to the overall efficiency of the company.

The profit and loss account will show three things; how the profit (or loss) was earned, how much was taken in taxation, and what happened to the profit (or loss) after taxation was deducted.

Turnover

This is the amount derived from the provision of goods and services falling within the company's ordinary activities, after deduction of trade discounts and before addition of VAT and other sales-based taxes.

Under the Companies Act, the following information must also be given by the company relating to its turnover:

- If the company has carried on two or more classes of business during the year that, in the directors' opinion, differ substantially from each other, it should describe the classes of business and split out each businesses' turnover and pre-tax profits
- If in the accounting period the company supplied goods and services to different geographical markets, the amount of turnover attributable to each market should also be stated.

SSAP 25 requires companies which have two or more classes of business or which operate in two or more different geographical markets to report separately each market's turnover, pre-tax profits and net assets.

To summarize, the profit and loss account performs three functions:

1 It shows how much profit has been earned by the company, and whether this is sufficient to cover the dividends and to provide for expansion of the business
2 It explains how the reported balance of profit was computed
3 It shows how the reported profit has been distributed and what has been retained.

Problems with financial statements and auditors

It is important to note that there are several difficulties in using the information in a company's financial statements:

- There is no complete and comprehensive set of accounting standards. For example, in the same industry a transaction can be presented in several ways, all in accordance with FRS. The analyst should be aware of the way a company is presenting its accounts.
- Financial statements represent the work of two parties – the directors/management, and the auditors – with differing interests. There will be differences of opinion that must be reconciled to the satisfaction of both parties.
- Published financial statements are prepared for a wide audience. In addition to the shareholders, the annual report is targeted towards institutional investors, analysts, employees and the public.
- Accounting involves approximations – for example, it is difficult to value assets such as partially finished 'work in progress', or provisions for bad or doubtful debts.
- There are different methods of valuing assets. Current assets such as receivables, less provisions for doubtful debts, are often estimates. Likewise, stock/inventories can be valued in a number of different ways – LIFO (Last In, First Out), FIFO (First In, First Out), WACC (weighted average cost method), etc.
- In accounting, there are honest differences of opinion. There are also ambiguities that enable companies to manipulate accounts and misrepresent the true and fair state of their company, and often the

auditors collude with the company in signing off on financial statements known to be misleading if not outright fraudulent. The analyst should be aware that these exist, and that accounting in recent years has become unreliable. This is not only a breakdown in accounting practice, but indeed goes to the very heart of the ethos of accounting.

- Accounting terminology can vary. For example, income statement, profit and loss statement, statement of income and retained earnings and operating statement are all different ways of referring to the same statement; stock can be called inventory, and debtors either receivables or accounts receivable. It is important to be familiar with the general characteristics of the accounting language.
- Accounting has evolved by convention and tradition over time, and that there are many anomalies and differences of opinion in the practice. Accounting attempts to quantify the approximate and, at times, unquantifiable.

To this traditional list must be added the impact of new developments witnessed in the USA with Enron (merely the first of a baker's dozen of scandals), and in the EU with Parmalat.

Financial statements are hardly likely to explain fraudulent activities, how or why (for example) a company has several offshore special purpose vehicles (SPVs), and whether these are part of the company's business operations or speculative – indeed illegal – structures designed to evade regulation and taxation laws. The names of the Enron SPVs tell us something about the mentalities of the executives who set them up. Some of the partnerships were named after characters from Star Wars, such as Chewbacca (Chewco) and Jedi (Joint Energy Development Investments). Others were called Braveheart, Raptor, Porcupine and Condor.

What is surprising in these developments is the banality of the deception. It seems that a great many other companies are doing the same thing, and not only in the USA – as the Parmalat saga testifies.

This begs a host of questions: Why did Enron's accountants and lawyers approve of these activities? Why did Parmalat's auditors not see the 5 billion euro 'hole' in the company's accounts for 10 years? Incompetence

seems too tame an accusation to level at repeated audit teams over a decade. The word 'corruption' comes to mind.

Wall Street is now ridden with fears that other companies have overstated earnings because of similarly misleading accounting practices that were devised by the major accounting and law firms. The SEC is investigating Global Crossing. The stocks of companies such as Worldcom, Reliant Services, the Irish drug firm Elan, and even General Electric have been falling in price for fear they will have to restate earnings as scrutiny of corporate books increases.

The former chief accountant of the SEC, Lynn Turner, estimates that investors have seen company stock prices fall by $200 billion as earnings have been restated because of what were deemed accounting errors. He finds the number of companies that have had to restate earnings has doubled since 1997 ('Accounting in crisis', *Business Week*, 28 January 2002). Similarly, economists at the Levy Forecasting Center in Chappaqua, New York, believe that profits nationwide may be overstated on average by 20%.

Such developments render the traditional task of financial analysis effectively obsolete, and new, perhaps more intuitive and judgmental or psychological elements may have to be factored into the analytical process given the dearth of reliable quantifiable data.

The sad fact is that the accounting profession has proven itself to be more concerned about fostering a 'positive and dynamic can-do spirit' within its bright young things in order to chase business and feed itself into more lucrative consulting business, than in applying accounting principles effectively. The result is that the accounting profession, as well as the financial statements it audits, has lost all credibility and the word 'Andersen' has become a joke. The exorcizing of government, the deregulation and the emancipation of 'limits' on business are the very forces that will undermine its credibility and expose the foundations of financial statements for all to see.

The Powers Report is especially harsh on Arthur Andersen. It states that Andersen 'did not communicate the essence of the transactions in a

sufficiently clear fashion to enable a reader of the financial statements to understand what was going on'. The Powers Report also finds that Andersen had an integral part as consultants in creating the Raptor partnerships, earning nearly $6 million in fees on these and related partnerships alone.

The basic question arising from the Enron scandal is whether accounting statements can be required to reflect the true economic condition of the companies. In many companies, including Enron, there was at best a pretence of this, and often not even that. Perhaps the best overall reform, as Partnoy (1999) suggests, might be to adopt legislation to make corporations, their officers and their directors legally liable should the general requirement that disclosure must reflect the economic reality of a company be violated. Treasury Secretary O'Neill has proposed that executives should not be allowed to have insurance to cover any such liability, but few believe the White House will support his rather off-the-cuff proposal.

It is therefore important to bear these realities in mind when number-crunching a spreadsheet, and wondering about the true significance behind a change in an inventory turnover ratio from 57 to 64 days or the speed-up in days' receivables from 37 to 34 days.

Conclusion

The purpose of company financial information is to enable effective credit decisions to be made, so that costly lending errors can be avoided. It is important therefore that information is reliable. Consider the essential information that is obtained directly from members of senior management, such as the CEO or finance director. How reliable is this information?

In Enron, for example, the Senior Manager was Kenneth Lay and the Finance Director was Jeffrey Skilling, who in his testimony to Congress suffered from an acute loss of memory most atypical of a normal CFOs performance (he repeated 'I do not recall' 28 times during his testimony). Despite the fact that 27 Enron managers have been charged with fraud and 9 have pleaded guilty, Lay and Skilling have yet (as of February 2004) to be

brought into court on charges related to Enron's implosion (*Houston Chronicle*, 13 February 2004). In Europe, such CEOs have included Asil Nadir (following the collapse in the 1990s of the publicly quoted company Polly Peck Plc) and Ruiz-Mateus of Spain. Following the collapse of Polly Peck, Nadir sought refuge in the illegitimate state of Turkish North Cyprus, from where he cannot be extradited for having perpetrated corporate fraud in the UK.[1] Likewise, Ruiz-Mateus absconded to Argentina while the Spanish government combed over the ashes of the collapsed RUMASA group.[2]

In Italy, Parmalat hid a 15 billion euro 'hole' in its accounts from its auditors for 10 years by providing a forged photocopy of a deposit certificate with the pasted-on logo of an offshore subsidiary of a US bank.[3] It begs the question, what sort of audit guidelines did the company have in its audit procedures manual, and were they being followed or not?

It is normal to consider how accurate such information is likely to be both during a best-case scenario (inflating corporate performance to please share and rating analysts) and in a worst-case scenario (hiding the fraud). Moreover, it is worth considering whether the company's auditors are colluding in the fraud in an effort to retain profitable business and indeed sell more profitable 'consulting' business (for example, many of the fraudulent mechanisms present in Enron were designed by Andersen, its auditors, and the supporting documentary evidence was destroyed by Andersen after it received a subpoena from the Securities and Exchange Commission).[4]

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[1] Asil Nadir, the Polly Peck tycoon who fled to northern Cyprus in 1993 to avoid charges involving theft totalling £34 m, yesterday astonished friends, Turkish politicians and the serious fraud office by pledging to return to Britain to clear his name. (Nils Pratley, *The Guardian*, 3 September 2003)

[2] Peter Gooch, *Valencia Life Magazine*.

[3] The Commission's complaint, filed in the US District Court in the Southern District of New York, alleges that Parmalat engaged in one of the largest and most brazen corporate financial frauds in history (SEC Litigation Release No. 18527, 30 December 2003). After fraudulently certifying 8 billion euros ($10 billion) in assets in their company's balance sheet, Parmalat entered bankruptcy protection last week and founder and former CEO Calisto Tanzi fled the country. He subsequently returned and was immediately detained by police. The scandal and its aftermath continue to unfold, and Parmalat is being called 'the Europe Enron' for its massive fraud and illegal business practices (see the forged deposit certificate in Annex 6.1 to the Release.

[4] FT.Com, Q&A: 'Enron finds itself in a Washington circus', Adrian Michaels, Gerard Baker and Peter Thal Larsen, 13 February 2002.

Since it is impossible to certify all accounts as having been properly audited, prudency dictates that these audited statements be considered as failing to satisfy the requirements of mission-critical reliability.

These audit shortcomings have further knock-on effects, not only on the quality of financial statements but also on the relevance of credit ratings issued by the credit rating agencies, since they rely on them for issuing such ratings and cheerfully admit that they do not question the validity of accounting statements since this is the auditor's job.[5]

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[5] 'When asked by Committee staff whether they considered as a qualitative factor in their analysis whether the company was engaging in aggressive accounting, the agencies indicated that they rely on the auditors' work. This was consistent with their testimony at the hearing. In the Committee staff interviews, the credit rating analysts resisted staff's suggestion that a company's accounting methods should be part of their analysis, because even when financial statements comply with Generally Accepted Accounting Principles (GAAP), they nevertheless may not present all the information an investor would want to know, or all the information a credit rater would want to know. This is troubling, because the fact that a company may be using the flexibility of GAAP to hide problems should be a consideration, particularly if the credit raters take a long-term view' (Financial Oversight of Enron: The SEC and Private-Sector Watchdogs Report of the Staff to the Senate Committee on Governmental Affairs; 8 October 2002).

Chapter 3

Factors impacting financial performance

Introduction

Corporate credit analysis provides an overall assessment of the creditworthiness of a company, and is used for a variety of commercial and financial purposes. It is needed prior to accepting a financial risk on the ability of a company to satisfy its obligations in the future.

That risk may exist in a variety of forms. It is important to understand that the credit process is not limited to the examination of financial measures. Proper assessment requires a broader framework, involving a thorough review of business fundamentals, including judgements about the company's competitive position and evaluation of management and its strategies. Clearly such judgements are highly subjective indeed; subjectivity is at the basis of every credit decision.

Yet many of these factors will have a direct impact on the key variables used in building financial projections. It is therefore useful to consider the macroeconomic risk factors that can affect the key variables driving a business.

While these factors are subjective and non-numerical, familiarity with their characteristics and likely impact on financial statements and future performance is essential if financial projections are to be rooted in reality.

Table 3.1 summarizes the critical risk factors to be taken into account in an overall assessment of creditworthiness. The business risk factors clearly impact on the output symptoms of profitability balance sheet strength and cash flow.

Table 3.1 Credit analysis factors

Business risk	*Financial risk*
Environment	Profitability and operating performance
Competitive position (e.g. marketing, R&D, production efficiency)	Balance sheet strength
Management	Cash flow strength

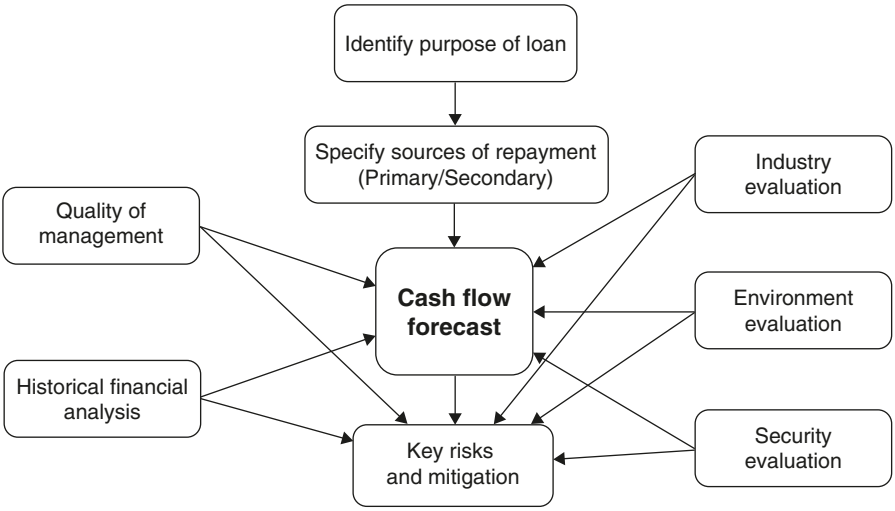

Figure 3.1 Overview of credit analysis process

The analytical variables are not separable; they are all interdependent (see Figure 3.1). The key to effective credit analysis to identify and understand these interdependent relationships within the context of cash flow forecasting, which enables mitigation of a risk through careful structuring of the transaction with the company.

Strategic analysis – the external environment

Successful companies are characterized by the way their business operations are based on clearly defined strategies. In well-managed companies,

the strategy-making process starts with the senior management specifying the businesses in which the company will compete and the means of competition. Operating managers then translate these goals into concrete action plans, often involving specific investment proposals. It is the results of this process that will determine how a company will perform in the future, and the risk profile it wishes to adopt.

The corporate analyst needs to make his or her own independent assessment of the feasibility and suitability of a company's strategy. In this section we shall be concerned with strategic analysis, which is the process of understanding the strategic position of an organization:

- How is the company placed in the context of a complex environment?
- What are the key commercial, economic, cultural and technological influences affecting the organization?
- How uncertain is the environment?
- What are the key risk factors affecting the firm?

These influences are the starting point for long-term decisions, and if they have not been correctly identified and evaluated they may have an adverse impact on the financial condition of the company in the future.

Environmental analysis

Figure 3.2 provides an illustration of the types of environmental influence that need to be taken into account as part of an overall strategic review. This list is not exhaustive, but may serve as a useful checklist. An important objective for the analyst is to determine whether the company is affected by rapid change or is operating in a stable environment. The speed of change will have an important bearing on the management's approach to strategy.

In a slow-change environment the past may provide a more reliable guide to the future than in a fast-change one, where a more flexible and intuitive approach to strategic decision-making will be required.

It is a useful exercise for the analyst to work through the influences and assess their relevance for a particular organization. The impact of some

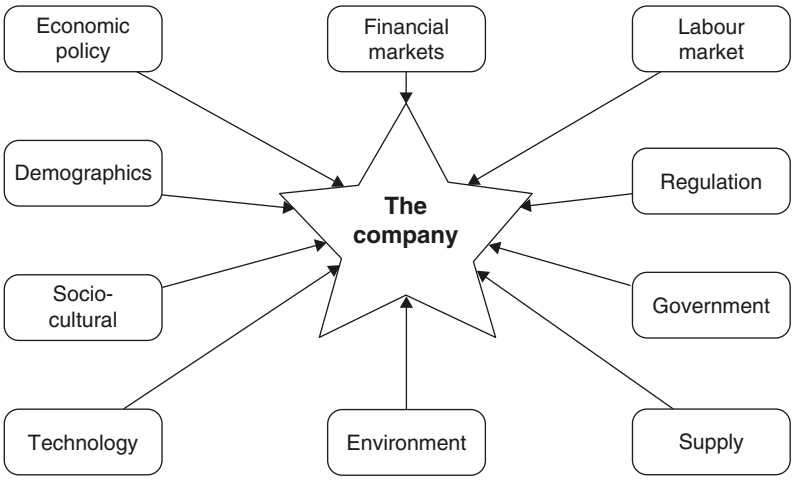

Figure 3.2 Macroeconomic risk areas

influences will be easy to identify. A rise in the exchange rate, for example, is likely to have an immediate impact on the performance of an exporting company. The impact of other influences will be less easy to assess.

PEST analysis

The PEST framework (see Figure 3.3) helps to identify the relative importance of political, economic, social and technological influences, and can be used to identify the key long-term drivers of change.

Competitive analysis

We have seen that certain limits on the strategy of companies are imposed by the overall environment of the firm. However, before a strategy can be formulated we need to take into account the strengths and weaknesses of the firm in relation to its competitors. The analytical framework developed by Professor Michael Porter is a useful tool to help us do this. He identified five factors that determine the intensity of the competition:

1 Threats from new competitors
2 Threat through substitution

Political – The analyst needs to know the effect of government policy on participants in the industry. Is the company affected by monopoly legislation? Will employment law affect its competitive position? Do foreign trade regulations need to be taken into account?	**Economic** – The sensitivity of the organization to the overall economy needs to be assessed. Does the industry lead or lag the economy? Are interest rates a key influence or is the company particularly vulnerable to movements in exchange rates?
Socio-cultural – Lifestyle changes may have a major impact on the company. To what extent will the trend towards health and quality of life have an effect? What effect are demographic changes, and in particular an ageing population, having on various industries?	**Technological** – This is a key influence in a rapidly changing global environment which provides both opportunities and threats for many companies. What benefits will new discoveries and speed of technology transfer offer? How will the threat of obsolescence affect companies?

Figure 3.3 The PEST analysis framework

3 Rivalry among existing businesses
4 The negotiating power of the supplier
5 The negotiating power of the purchaser.

The aim of an effective competition strategy is to ward off these five competitor strengths, at the same time creating a favourable position for the company's own measures. In particular, the firm must try to position itself in the market in such a way that its capabilities offer the best possible defence against existing strong competition. Sheer size can provide a measure of protection, and companies with large market shares in many cases have strong competitive positions. However, this is not universally true. In fragmented industries, such as textiles, there are many instances of large companies that are not in a position of price leadership.

The basis on which a company competes will determine which factors need to be analysed in depth.

Table 3.2 sets out the credit factors for the paper industry. The issues that are critical for this industry will be different from the factors affecting, say, an electronics distribution company. However, there will always be certain risk factors, such as reliance on one product, which need to be considered for all types of company.

Strategic analysis – the value chain

The next stage in strategic analysis is to identify whether the company has the resources to meet the demands of the environment and the competitive market outlined in the previous section. Value chain analysis is often used by corporate strategists to identify areas where a firm can seek to achieve competitive advantage. It involves assessing the capability of an organization at various levels of detail, and the separate activities it undertakes in designing, producing, selling and delivering its services.

Figure 3.4 provides an illustration of the value chain, which shows that value is added through five primary activities:

1 Inbound logistics are the receiving, storing and distributing of the inputs
2 Operations include machining, packaging, assembly and testing
3 Outbound logistics are the collection, storage and distribution of the product to the customer
4 Marketing and sales are promotion and selling activities
5 Services are installation, after-sales service, repairs and product support.

The support activities are then combined with the primary activities to form a matrix of separate activities. The support activities are:

- procurement, which involves acquiring goods and services to support each stage of the value chain
- technology development, which includes know how, product design, process development and information systems

Table 3.2 Credit factors for the pulp and paper industry

Production
Low-cost producer
Return on assets
Percentage of production accurately costed?
Effect of product range on production efficiency?
Mill cost per tonne or man hours per tonne
Quality control
Ratio of capital expenditure to depreciation
Integration of facilities (e.g. pulping on site)
Suitability of layout
Location of mills – closeness to market transport considerations
Supply issues
Sources of fibre and assurance of supply
Long-term supply contracts
Types of fibre
Energy sources
Alternative sources of supply
Marketing product mix
Value-added or commodity product
Diversity of mix
Profit/volume relationship
Degree of specialization
Type of customer – consumer or non-consumer end of the market?
Marketing approach
Market share
Distribution strategy
Effectiveness of promotion
Product viability and innovation
Customer dependency
Satisfaction of customers through surveys, etc.
Forward integration into conversion and distribution

- human resource management, which includes the motivation, training, organization and reward of staff
- infrastructure, which includes purchasing systems, production planning, quality control and finance.

Each of these support activities impacts on the primary activities, providing opportunities for adding value in each element of the value chain. For

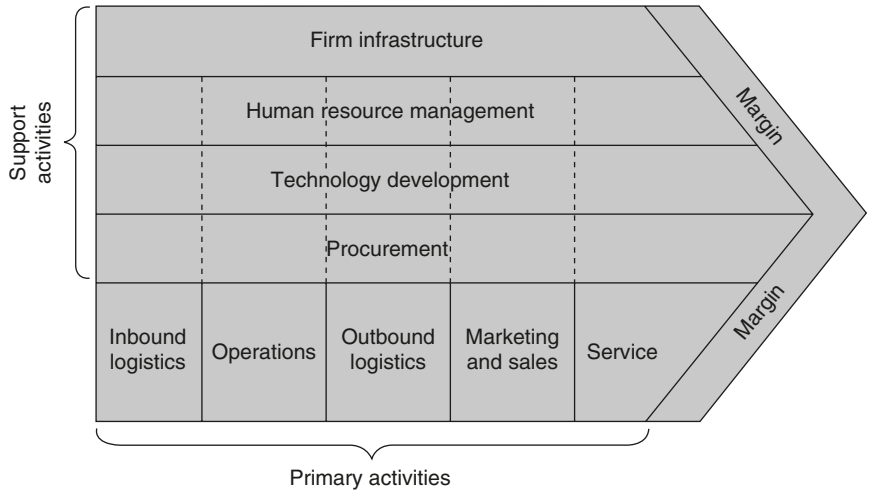

Figure 3.4 Value chain analysis (adapted from M.E. Porter, *Competitive Strategy*)

example, training may be the key to improving customer service, or improved process development may depend on more resources allocated to R&D.

Value chain competition example

Over the past 30 years the textiles industry in the UK has been in rapid decline, with a stream of bankruptcies and plant closures. A significant feature of the world market has been the proliferation of competitors in countries with low labour costs, such as Indonesia and Bangladesh, making cheap and often shoddy clothing. In textiles and clothing, labour can account for up to 30 per cent of total costs. The senior management of companies in the UK has therefore been faced with the task of exploiting areas within the value chain to achieve competitive advantage.

Companies have invested heavily in new technical developments, integrating CAD, laser engraving equipment and electronic colour dispensing. As a result, design and manufacture are linked to reduce development time and help make short runs economically viable. Clothing retailers do most of their ordering in advance, but sophisticated computer systems let manufacturers know how much of a particular garment

has been sold as soon as customers log it past the cash till. This signal allows them both to send new stock to the customer promptly and to divert their own production to whatever lines are selling well. In the high-cost economies the textile companies need to play to their strengths, and by using this technology and their proximity to the market they are able to counter the threat from competitors abroad with lower labour costs.

Management

Insufficient attention is often paid to the quality of management in a corporate credit analysis. However, corporate failure has on many occasions been ascribed to poor management, and it is therefore a critical risk area which needs to be assessed carefully.

A list of areas that must be explored includes:

- *Integrity*. Is company management fundamentally honest? How willing are managers to share information? How open do you think they will be if the company is confronted with problems? How long has management been known to us?
- *Stability*. How stable has the management team been? Is any conflict that exists at senior level constructive? Is there an autocratic style of management? Is succession planning a relevant issue? Does management have depth?
- *Skills*. Does the management team have the necessary skills for problem-solving and decision-making? Is it good at uncovering problems and identifying opportunities?
- *Management style*. What sort of management style is used? Is it participative or more prescriptive? What motivates management on a personal basis? Is it power, greed, status, money, or none of these?
- *Experience*. How long have the managers been in the industry? Is the experience relevant? Has the management team successfully negotiated a cyclical downturn? What has been the team's attitude to risk? Are members purely interested in short-term gain? Are they financially astute? What is the organizational recognition of the finance function?

Profitability and performance

The aim in this section is to analyse financial statements for the purpose of evaluating performance. Profitability is a critical determinant of credit-worthiness, since a company generating high profit margins will have a stronger ability to generate equity capital internally and attract it externally.

Performance measurement is much more an art than a science, and requires the use of imagination and judgement rather than relying on a given set of rules. There is no single measure of performance that will provide us with a straightforward answer on corporate credit risk. We need to use several measures, each of which may prompt the analyst to ask more searching questions.

Return on equity

One of the most well-known measures of financial performance is the return on equity (ROE), which measures the efficiency with which the firm employs owners' capital. It represents the percentage to owners on their investment in the firm. It is a useful starting point for analysis, and has great value for the analyst when broken down into its principal components:

$$\text{ROE} = \text{earnings/shareholders' equity}$$
$$\text{ROE} = (\text{earnings/sales})*(\text{sales/assets})*(\text{assets/shareholders' equity})$$

or, expressed differently,

$$\text{ROE} = \text{profit margin}*\text{asset turnover}*\text{financial leverage}$$

This formula demonstrates that company management can control and improve the return on equity in three different ways – by:

1 Squeezing more earnings out of each currency unit of sales
2 Generating more sales out of the assets employed in the company
3 Managing the amount of debt used to finance the assets.

Table 3.3 shows the breakdown of return on equity for a number of different types of company, and demonstrates that there are many different

Table 3.3 Breakdown of return on equity for different companies

	Return on equity (%)	=	*Profit margin (%)*	×	*Asset turnover*	×	*Financial leverage*
Bank	15.2	=	2.7	×	0.18	×	31.30
Manufacturer	14.6	=	10.7	×	0.88	×	1.55
Retailer	15.1	=	1.2	×	4.20	×	3.00
Utility	13.1	=	10.7	×	0.51	×	2.41

paths to achieving a high return on equity. In the remainder of this section we shall examine profitability in more detail, before continuing to the next two sections to look at asset turnover and leverage.

Net profit margin

The net profit margin shows the residual of revenues after operating costs, expenses, financial costs, taxes and exceptional items. Table 3.3 shows that profit margins differ widely among different industries, depending on the nature of the product and the company's competitive strategy.

Profitability and performance measurement

In order to obtain a more comprehensive analysis of performance, we need to extend our analysis of profitability to more than just the net profit figure. We need to examine each item of the profit and loss account, as well as trends over a period of time. Increases or decreases in turnover, the breakdown of sales from different products and geographic areas, and the detail of the cost structure all need to be analysed.

Two commonly used profit statistics are:

$$\text{Gross margin} = \text{gross profit/net sales}$$

and

$$\text{PBIT margin} = \text{profit before interest and tax (PBIT)/net sales}$$

The gross margin reflects the relationship of cost, volume and prices in the production or purchase of goods. It is often regarded as the 'raw profit', and highlights the basic operating efficiency of a company.

The PBIT margin is favoured by many analysts because it not only identifies operating efficiency but also takes into account administrative efficiency. It does not, however, take into consideration the level of debt or the tax liability that the company is carrying.

The profit margin and asset turnover relationship

The profit margin and asset turnover tend to vary inversely. A leading UK specialist plastics processing company, for example, has an asset turnover ratio of less than one. This is because it requires a heavy investment in assets, particularly plant and machinery, to add value to the raw materials. As a result, it is able to produce a specialized final product that commands high profit margins.

A food retailer, on the other hand, adds little to product value, and will consequently have low profit margins and high asset turnover.

It should be apparent, therefore, that a company with a high profit margin is not necessarily better than a low-margin company. It all depends on the combined effect of the profit margin and the asset turnover.

Reliability of financial information

We have looked at various techniques for analysing corporate performance, but we still have to establish the quality and reliability of the information on which we are basing our analysis. We have seen many examples internationally of companies that apparently were in good financial condition but then collapsed within a short period of reporting good results.

However, if the analyst had carried out a detailed examination of the company, it would have been possible in most cases to have detected signs of impending disaster. The majority of these signs would have

needed ferreting out of the notes. In recent years the presentation of accounts has been improved, and they have now become more rigorous and robust than in the late 1980s.

We must nevertheless not lose sight of the fact that financial managers, particularly of quoted companies, are going to want to present their accounts in the best possible light, and will use the ingenuity of their advisers to do this.

The analyst needs to bear in mind, therefore, that any 'creative accounting' will dishonestly attempt to inflate reported profits, and in particular earnings per share, and also to report profits at the expense of the balance sheet. This may result in profits being reported without an equivalent amount of cash being generated. Cash is ultimately more important than profits, since it is cash that pays interest and dividends. The lack of it causes companies to fail.

Accounting quality is a critical issue in corporate analysis. It is important to know that ratios derived from financial statements can be used accurately to measure a company's performance, and that there is a common frame of reference to assist with comparative analysis. Accounting issues to be reviewed include:

- *Valuation of assets*. Financial statements are prepared after judgements of valuation have been made by a company's auditors. This is most apparent with fixed assets and stock, so it is important that there is consistent valuation to avoid distortions to the profit and loss and balance sheets. The closing stock value is particularly important, because even small changes in the value can have a large impact on corporate profits.
- *Capitalization of interest*. Some companies, particularly in the real estate and retail sector, will add the interest charges into the cost of assets when they are borrowing money to finance a major building project. This will protect the profit and loss in the short run, although profits will be affected by a higher depreciation charge in the future. The analyst should make adjustments for capitalized interest when calculating the company's interest cover, a key ratio for determining creditworthiness (see Asset management, below).

- *Contingent liabilities*. Contingent liabilities are liabilities that may become concrete in the future. They are specified in a company's annual report, but are usually tucked away at the end of the notes. For some companies they have become potentially disastrous. Examples of contingent liabilities are guarantees of subsidiary borrowings, performance bonds and discounted bills.
- *Depreciation*. Changes in depreciation methods have often been used as a way of manipulating profitability. These changes can be particularly hard to identify because they do not count as a change in accounting policy, and therefore do not have to be noted as a change in the accounting policy notes.
- *Ratio analysis*. Despite the difficulties of interpretation referred to above, financial statements offer much valuable information to the analyst. Ratio analysis is widely used, and this technique can reveal much about a company and its operations. However, we should remember that the appropriate value for ratios is dependent on a company's specific circumstances, and that comparing ratios to rules of thumb has little value.

Comparing a company's ratios to industry ratios provides a useful indicator as to how the company is performing against its peer group. However, most companies have their own special differentiating factors, which results in some ratios deviating from industry norms.

Another useful method to evaluate ratios is trend analysis. Ratios should be calculated for a company over several years, and note taken of how they change over time. Trend analysis eliminates company and industry differences, enabling the analyst to make more accurate assessments of corporate creditworthiness and its change over time. Such pedestrian analytical methods in a volatile economic environment of hire and fire, merge and divest may, however, be limited in effectiveness.

Asset management

Asset turnover and liquidity

We saw in the previous section that the asset turnover of a company is to some extent determined by a company's products and industry sector.

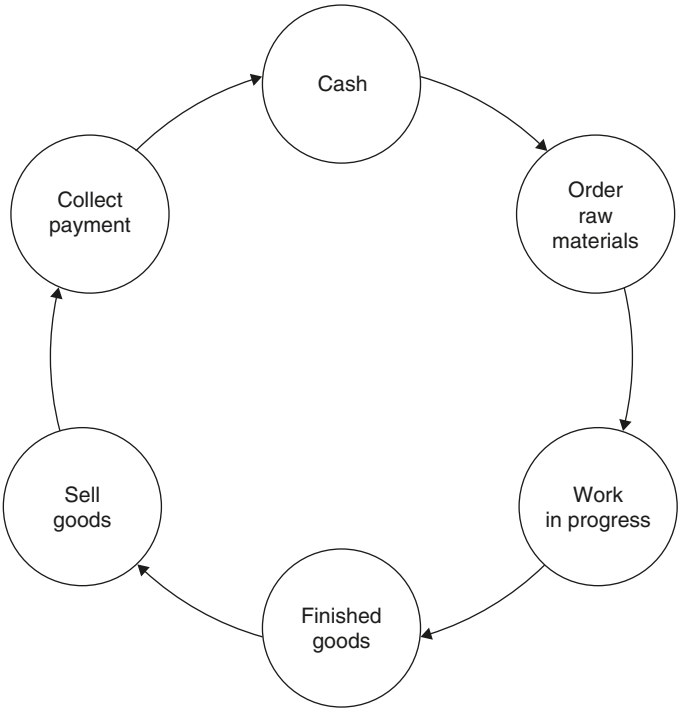

Figure 3.5 Asset conversion cycle

A low asset turnover signifies a capital-intensive business, and a high turnover the reverse. However, this is not the whole story. Management effectiveness in controlling all types of assets is vital.

Control of current assets is especially critical. The management team needs to make sure that there is sufficient liquidity in the company to turn operating assets into cash or another transferable asset (see Figure 3.5). It is therefore important for the analyst to pay particular attention to trade debtors and stock. Many companies have one-half or more of their money invested in current assets, and so it is easy to see that changes in the way these assets are managed can significantly affect the financial position of the company.

The current ratio compares the assets that will turn into cash within the year to the liabilities that need to be paid within the year. This ratio is still widely used by analysts as a measure of company liquidity, but in many respects it is a crude indicator. A low level of liquidity does not necessarily

mean that the company is high risk, and may even be evidence of efficient financial management. Conversely, a high liquidity ratio tells us nothing about the quality of the assets and whether, for example, debtors are liquid within a month, or perhaps a year. It is therefore necessary to delve deeper and analyse each type of asset individually. This, in turn, will improve our understanding of how a company's operating decisions can have a favourable impact on the company's ROE.

When we are measuring working capital efficiency, we are often comparing the firm's investment in an asset to sales (or a closely related figure). If a company's stock has risen over time, this could be due to the fact that sales have risen and stock has risen in line with this increase. Alternatively, management may have been less efficient in its control of stock and allowed an undesirable build-up. The ratio distinguishes between changes triggered by sales increases and other, perhaps less favourable, causes. Several different measures of working capital efficiency are shown below.

Stock turnover

The stock turnover ratio, also known as inventory turnover is defined as:

$$\text{Inventory turnover} = \text{cost of goods sold/inventory}$$

A stock turn of, say, two times means that an average item of stock turns over twice per year – or, put differently, the average item sits in stock for six months. It should be noted that the number of days a firm holds stock varies between industries, and will also depend on the types of stock-management techniques (such as just-in-time) that are in place.

Several alternative definitions of the stock turnover ratio exist, including sales divided by stock. The analyst should ensure that a consistent approach is adopted at all times. If sales are used as the numerator, the stock turnover ratio will differ significantly, especially in the case of companies with high gross profit margins. Costs of goods sold is more appropriate than sales, because sales include a profit mark-up which does not apply to stock.

Collection period

The collection period provides information about a company's debtors' management, and is defined as:

Collection period = trade debtors/credit sales per day

If all sales are on credit, we can use net sales in place of credit sales. Credit sales per day is defined as credit sales for the accounting period divided by the number of days in the accounting period. This ratio reveals a great deal about a company's credit policy and the efficiency with which it can collect money from its customers. A long collection period may also indicate an inferior quality product that requires better credit terms than its competitors to increase its appeal. The collection periods for various industries in the UK are shown in Table 2.4.

Payment period

The payment period is simply the collection period applied to creditors:

Payment period = trade creditors/credit purchases per day

Average payment periods vary considerably from industry to industry, and it is often the case that industries with long stock-holding and debtor periods have longer payment periods. It is also useful to consider this ratio in the context of a Five Forces competitive analysis, and see what the result tells us about the relative bargaining power between company and supplier.

Net working assets to sales and overtrading

Once an analysis on an item-by-item basis has been carried out, it is very useful to have a picture of the size of a company's total investment in working capital. Net working assets to sales is calculated as:

Net working assets/sales = (stocks + debtors − creditors)/sales

This ratio is useful in determining how much cash will be required by a company during a growth phase, and is a useful ratio (as we shall see) for forecasting purposes. It may, in fact, underestimate the real need, because debtors and stock tend to grow faster than sales, especially at times of rapid growth.

Some companies will have high net working assets to sales ratios simply because this reflects the type of industry they are in. However, when this ratio is high compared to a peer group, it may provide a signal to creditors that the financial condition of the company is deteriorating. This is particularly common with small companies whose fast-growth strategies are over-ambitious. Many of these firms pursue risky financial policies as part of the overall strategic objectives of the firm.

An example from the electronics distribution industry shows why the analyst needs to give careful consideration to the issues facing rapidly growing sales-oriented companies. This company increased its sales from €10.6 million to €18.1 million in one year, with operating profits rising from €117,000 to €545,000. At the same time short-term debt rose from €450,000 to nearly €3 million. A detailed financial analysis showed that the company had a net working assets to sales ratio of 0.47. This was a clear case of a firm with working capital investment exceeding the ability to generate funds internally.

The next stage of analysis is to examine each working capital component on an item-by-item basis. Is stock being managed adequately? Are debtors at a satisfactory level?

There is a tendency for companies that experience rapid sales growth to enter a debt spiral in order to fund their operational capital requirements. In other words, the company is growing too fast and sales are too high for the financial resources of the company. This condition of overtrading represents a big risk to creditors, and immediate remedial action is required by management doing one or more of the following:

- reducing the level of business activity
- increasing the capital base
- maintaining tight control over working capital.

Capital structure

Financial leverage

Financial leverage is the substitution of debt for equity in company financing. It is the third lever available to company management to

improve the return on equity. However, this is not to say that the use of debt will always result in an improved return for shareholders. During the 1980s, debt and leverage were seen as an expression of management's efforts to boost shareholders' returns. Even hard-headed finance managers and executives were afflicted by the fashion for borrowing funds on a highly leveraged basis. However, the arrival of the recession at the end of the boom period led to the discrediting of leveraged financing and a need to shore up balance sheets through new equity issues.

So what is the optimal balance between debt and equity? Academics have been labouring over this question for many years, and this has resulted in the publication of many papers on the subject and in hours of deliberation at conferences.

One of the theories at the forefront is Professor Myers' static trade-off theory, which emphasizes the tax advantages for a company in borrowing. At a certain level, however, the costs of the risks inherent in indebtedness become so significant as to outweigh the tax gains, and further borrowing pushes the firm towards bankruptcy.

One of the problems of applying the theory is that, in practice, most companies are neither on the brink of collapse nor sitting on a cash mountain. There is a large intermediate range where there is very little evidence that finance managers make an effort to move along the curve to any given debt/equity mix.

In reality, capital adequacy is much more dependent upon the quality and reliability of cash flows than on any particular debt ratio. It may vary substantially according to the nature of the firm, its assets, the industry and the economic environment. Table 3.4 shows borrowing ratios across various sectors in the US and UK.

Apart from the differences in the levels of absolute gearing between the two countries, it is noticeable that construction and property – two of the industries that might be expected to be exposed to high levels of market risk – have gearing levels above those of the utility companies. The figures do not appear to support the commonsense viewpoint that

Table 3.4 Borrowing ratios by sector, US v. UK

Sector	*UK (%)*	*US (%)*
Extraction	0.55	0.83
Construction	0.47	1.16
Engineering	0.42	0.77
Chemicals	0.54	0.81
Utilities	0.36	0.92
General retail	0.32	0.77
Transport	1.10	1.13
Breweries	0.31	0.47
Property	0.89	2.21
Oil exploration	1.07	0.61

Source: Datastream.

companies in less risky sectors will take on more debt. The reality of operating a company subject to complex and often highly regulated business environments intervenes.

At the end of the day, we need to remember that financial leverage is a technique to substitute debt financing for owners' equity in the hope of increasing equity returns. The word 'hope' is important here, because leverage does not always have the intended effect. If operating profits are below a critical value, financial leverage will reduce rather than increase equity returns. We can therefore say that financial leverage increases the return to owners in most instances, but it also increases the risk. To see these effects more clearly, let's look at the impact of financial leverage on return on capital.

Let us take as an example a property investment company which wishes to purchase a property costing €1 million, let to tenants at €90,000 per annum (see Table 3.5). The company has no other assets. Operating costs are €10,000 per annum. Apart from the proposed loan to finance the property, there are no other liabilities. There are two alternative financing proposals. Under scenario A, the entrepreneurs will provide 40 per cent of the finance and 60 per cent will be made available from the bank. Under scenario B, 80 per cent will be debt finance and 20 per cent provided in the form of equity.

Table 3.5 The impact of financial leverage on return on capital – balance sheets for a property company (€ 000s)

	Scenario A		*Scenario B*	
	Interest rate 6%	*Interest rate 12%*	*Interest rate 6%*	*Interest rate 12%*
Assets				
Property	1000		1000	
Liabilities				
Bank loans	600		800	
Equity	400		200	
Total liabilities	1000		1000	
Profit & Loss				
Rental income	90	90	90	90
Less:				
interest to bank	(36)	(72)	(48)	(96)
running costs	(10)	(10)	(10)	(10)
Net profit	44	8	32	(16)
Return on assets (%)	4.4	0.8	3.2	(1.6)
Return on capital (%)	11	2	16	(8)

It can be seen that under the more aggressive financing structure (scenario B), the return on capital is higher to the shareholders at the lower rate of interest of 6 per cent per annum. However, if interest rates rise to 12 per cent, the company is making a loss under scenario B because of the high interest charges and the return on capital is negative. This is a demonstration of the fact that increased leverage increases the level of risk. Under the more conservative financing structure (scenario A), the return on capital is positive even with the higher interest rate of 12 per cent per annum.

Financial flexibility

A discussion of capital structure issues needs to take into consideration the fact that financing decisions are not a one-time event. In reality, the individual decision regarding an appropriate debt–equity mix is part of the long-term strategy of a firm. Moreover, the strategy is to some extent

determined by the ease with which a company has access to the capital markets over time (remember that the financial markets were listed as a key environmental influence earlier in this chapter).

Financial flexibility is concerned with the ability of a company to refinance its debt through other financial institutions or the capital markets. For example, if a company has reached its debt capacity, its only external financing option may be the equity market. However, if for any reason the raising of funds through the equity market is unattractive, or not feasible, a company may find itself unable to raise funds to pursue the company's future strategy. There may be an argument, therefore, for raising funds from shareholders while the opportunity is available, so leaving the company with greater flexibility to refinance its obligations or raise new debt in the future.

Interest cover

The first test of earnings quality is the firm's ability to pay interest over time. Analysts are interested in the ability of the firm to service debt not just in the short term but also for the whole period that the risk is outstanding. Interest cover is calculated as profit before interest and tax, divided by interest payable. Analysts look for profits that are a consistently high multiple of interest as a sign of health. If the firm has an interest multiple of 10, it is able to pay its interest 10 times over – or see profits fall to one-tenth of the current level before interest servicing is at risk.

Table 3.6 sets out some of the key ratio medians for US industrial companies by rating category. These are among some of the key ratios used by Standard & Poor, a leading credit agency in analysing credit strength. The rating agencies are careful to point out that ratios are helpful in determining a company's position relative to rating categories. They are not intended to be hurdles. Furthermore, as ratings need to be valid over the whole business cycle, ratios of a particular firm at any point in the cycle may not appear to be in line with its assigned debt ratings.

The medians are constantly being affected by changing economic and environmental factors. However, Table 3.6 shows the importance of

Table 3.6 Standard and Poor's financial ratios, industrial long-term debt three-year (1992–1994) medians

	AAA	*AA*	*A*	*BBB*	*BB*	*B*
Interest pretax cov. (x)	21.39	10.02	5.67	2.90	2.25	0.74
EBITDA interest cov. (x)	31.68	14.78	8.25	5.02	3.46	1.56
Funds from operations/ total debt (%)	109.8	75.4	49.1	30.3	20.2	9.8
Long-term debt/ capital (%)	9.7	18.9	28.8	40.7	50.2	62.2
Total debt/capitalization inc. ST debt (%)	22.6	28.3	36.7	45.3	55.6	71.4

debt/equity and interest cover ratios in the credit decision. Analysts look for profits that are a consistently high multiple of interest as a sign of health. Table 3.6 demonstrates the large difference in interest cover between an AAA company and a typical B-rated company.

Cash flow

Cash flow analysis is probably the most useful tool available to the analyst in assessing company strength. Cash is the source of payment of dividends, interest and loan principal. Its broad principles are not difficult to grasp, but the detail can become complex, and there are times when a good knowledge of accounting is required.

Cash and profit

We saw in Chapter 2 that there is scope to manufacture profits through creative accounting. The 'creation' of cash, on the other hand, is almost impossible. The amount of cash in a bank account is not in any way reliant on a subjective opinion.

Creative accounting may partly explain why the cash generation of a company may differ from profitability, but this is by no means the full story.

There are many other reasons why cash and profit will differ, and these are examined below.

Let us start by considering a sale made by a company to one of its customers. If the sale is for cash, then cash realization and income realization happen at the same time. If it is a credit sale, then the sale is recognized as income when the invoice is raised and the corresponding contra-entry is a debit to debtors. When the customer pays after, say, 60 days, debtors are credited and the cash account is debited for the relevant amount. Over the course of the year a company is going to have many such transactions, and the net position may be as follows at the year end:

Debtors at beginning of year	€150,000
Debtors at end of year	€250,000
Profit and loss – sales	€1,000,000

Armed with this information we are able to determine the amount of cash inflow over the year in respect of sales, to take into account the timing differences that affect cash flow. We must first take the sales figure and adjust it by the change in debtors from the beginning to the end of the year.

$$\text{Cash inflow due to sales} = \text{sales} + \text{debtors at beginning of period} - \text{debtors at period end}$$

The cash inflow due to sales is therefore €1,000,000 + (€150,000 − €250,000) = €900,000. In other words, if debtors increase, the change in debtors is subtracted from sales, and if debtors decrease, the change is added to sales.

We can see that items on the profit and loss statement have a corresponding category on the balance sheet to account for the timing differences between income/expense recognition and cash receipt/expenditure. We can therefore devise a more generic formula as a method of calculating cash flow from the profit and loss and differences in balance sheet items:

$$\text{Cash flow} = (\text{decrease in assets}) \text{ OR } (\text{increase in assets}) \text{ OR } (\text{increase in liabilities}) \text{ OR } (\text{decrease in liabilities}) + (\text{credits to P/L}) \text{ OR } (\text{debits to P/KL})$$

If the resulting cash flow is positive, it is an inflow (i.e. a source). If the resultant cash flow is negative, it is an outflow.

It will now be clear that cash flow statements do not provide any new information, but are simply a reformulation of information provided elsewhere. However, it is still important for an analyst to be able to derive his or her own cash flow statement from a profit and loss and balance sheet. First, not all accounting standards bodies require a cash flow statement to be prepared and, even in countries where they are a requirement, exceptions do apply. Secondly, there is no better way for an analyst to get to grips with the financial fundamentals of a company than to draw up his or her own cash flow statements.

Operational cash flow

The operational cash flow is the cash flow associated with the company in its normal course of business. This represents the powerhouse of the company, and is the 'quality' cash flow to which the analyst needs to pay particular attention.

The activity format normally begins with the operating profit shown on the profit and loss for the relevant financial period. The Financial Reporting Standard requires a note (usually tucked away at the end of the annual report!) reconciling operating profit to the cash flow from operating activities. The most important components of this note are operating profit, depreciation and changes in working capital. Depreciation is a non-cash item, and therefore the annual charge needs to be added back in the cash flow statement. Also, because cash flow analysis is about cash realization, not income realization using accrual accounting, we need to make the adjustments for working capital explained earlier:

- *Returns on investments and servicing of finance*. These consist principally of priority outflows in respect of interest paid, dividends paid and the interest element of finance leases.
- *Taxation*. This shows the amount of tax actually paid, and often differs substantially from the amount shown on the profit and loss statement. This is because of the effect of advanced corporation tax, and because tax is normally charged in one year and paid in the next.
- *Investing activities*. This includes sales and disposals of fixed assets and acquisitions.

- *Financing activities*. This shows the cash flows from external sources of finance, including lenders and equity providers.
- *Net movement in cash and short-term investments*. This is the final calculation, and the analyst should ensure that the results reconcile from the balance sheet and cash flow.
- *Cash flow analysis*. It is an important principle of lending that each loan should have two independent sources of repayment (primary and secondary). The capacity to repay through cash generation (as opposed to a third-party guarantee) requires analysis in three different areas: (1) operational cash flow strength and the funds generated from the sale of goods and services in the day-to-day operations; (2) financial flexibility, which, as we have seen, is the ability of a company to refinance its debt through alternative sources of finance; and (3) operational flexibility, which is the ability of a company to raise cash through the liquidation of an asset or make operational changes to increase cash flow.

Our analysis can be strengthened by considering not only the overall amount of the cash flow but also the sources and uses of the cash. This can be done effectively by breaking down the cash inflows and outflows as depicted in Figure 3.6.

This will give a picture of the relative sources and uses of cash, and should be followed by a secondary phase of analysis which concentrates on issues such as the quality of the acquisitions and the effect on the underlying business of asset disposals.

It is also important to consider multi-period cash flows. A company that shows a steady and stable earnings stream in profit terms is likely to be a better credit than one where the aggregate earnings over a number of years are the same but which suffers volatility from year to year. The same is true for cash flow. We need to bear in mind that although cash flow analysis is the key tool for the creditor, the timing of cash flows is often irregular and they lack the smoothing effect of accruals.

Cash flow forecasting

To this point we have looked at past and present performance, evaluating existing financial statements. It is now time to look to the future.

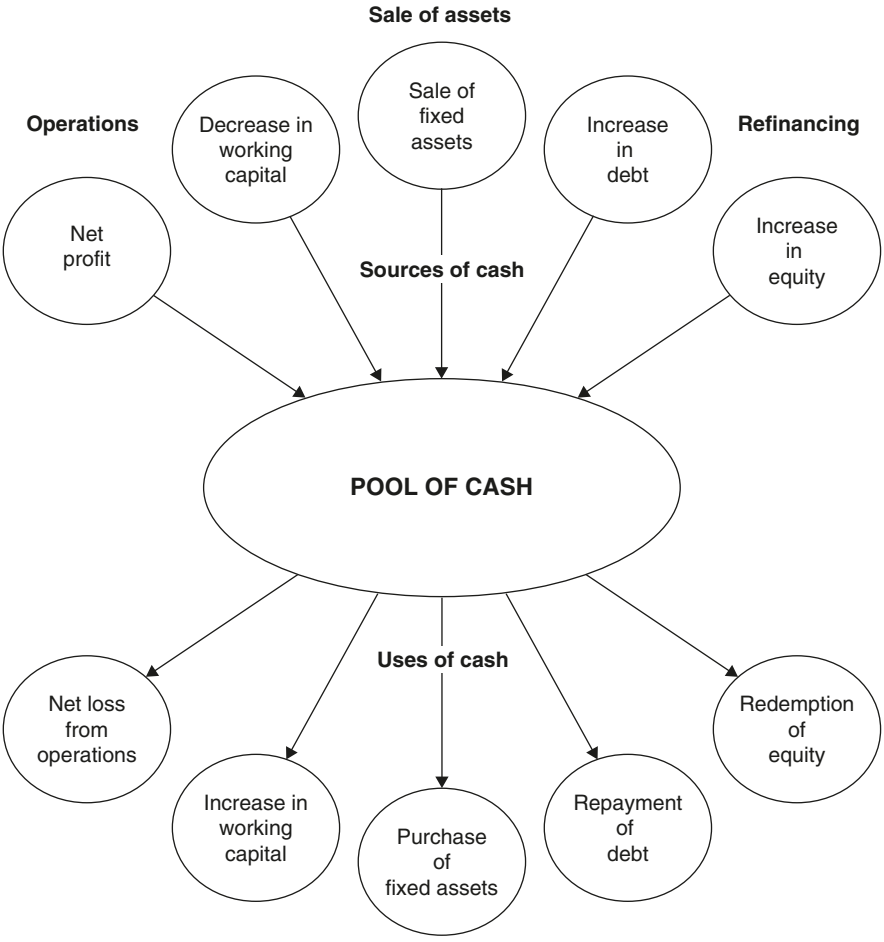

Figure 3.6 Sources and uses of cash

Every loan that has operating cash flow as its primary repayment source will be repaid by future cash flows.

Forecasting is notoriously difficult, but it is still an extremely valuable exercise to prepare a prediction of what a company's financial statements may look like in the future. An important use of pro forma forecasts is to estimate the company's future need for external financing.

Percent-of-sales forecasting

One simple yet effective way to project company financial performance is to tie as many of the profit and loss and balance sheet figures as possible

to future sales. The rationale for this approach is the tendency (which we examined earlier) for P&L items and most current assets and current liabilities to vary directly with sales.

For example, if stock on the balance sheet has historically been about 24 per cent of sales and next year's sales are forecast to be €10 million, we would expect inventories to be approximately €2.4 million. This will not be true for all of the entries in a company's financial statements, and it will be necessary to make independent forecasts of items, such as capital expenditure, which are not directly linked to sales. Nonetheless, the percent-of-sales method does provide a powerful forecasting tool when combined with accurate sales forecasts and careful extrapolation of past trends. The input variables usually include:

- sales growth
- operating margin
- interest rates
- depreciation
- dividend payout rates
- capital expenditure
- working capital activity ratios
- increases in equity
- changes in long-term debt
- tax rates.

These are the cash drivers that will determine not only the shape of the balance sheet and profit and loss statement, but also the cash flow. By assigning a value to each one of these variables, an analyst can prepare an integrated financial forecast that will show the cash demands of the company in the future. Management may help either by providing the cash flow forecasts or by giving their views on operational issues, which will aid the analyst in making assumptions.

However, always remember that company forecasts are going to tend to paint an optimistic future and certainly will not be predicting failure. In most cases analysts should regard management forecasts as a best-case scenario, and significant changes in the assumptions for the cash drivers must be made to reflect a less favourable scenario.

Forecasting methodology

Many corporate analysts have PC-based spreadsheet software adapted for forecasting clients' financial performance. This saves a great deal of time and allows 'what if' analysis, permitting the analyst to adjust the variables to show different scenarios. Some lending situations are so complex and specific in nature (such as the building of the Eurotunnel, or a metro, a gold mine or an oil field project) that customized spreadsheets enabling the incorporation of key variable inputs will be required. We analyse such a spreadsheet in Chapter 5.

With a properly constructed forecasting model, the analyst will be able to prepare an integrated financial projection of this company by attaching values to the cash drivers for each year of the forecast period. The historical values and the ratio analysis will assist the analyst with this task.

PC-based systems have many advantages, but the analyst must use forecasting models with care:

- It is important to identify the really critical variables. Is there one driver to which a company is particularly sensitive? Has there been correct identification of how a company will react to an increase in sales?
- The interrelationship between the variables must be considered. Can, for example, an improvement in the stock to sales ratio be achieved without an investment in a stock control system, i.e. a capital expenditure item?
- The forecasts should be consistent with company strategy the environment and historic performance.
- Computer printouts tend to be 'believable', but it is important to remember that all forecasts are only as good as the assumptions. Furthermore, it is necessary to remember that uncertainty increases with time.

Sustainable growth

We have seen that when companies are growing, they consume cash. Debtors and stock consume cash at a faster rate than growth in creditors

can support the growth of the company. The net working assets to sales ratio, which we referred to earlier, provides a useful indicator of how much cash a company will require to support a certain level of growth. A typical manufacturing company may require an investment of 30 pence in working capital to fund every extra pound of sales.

The sustainable growth rate is the rate at which a company can grow without increasing its leverage, provided that it maintains:

- the dividend payout ratio
- after tax profit margins
- net working asset activity ratios
- the sales/fixed asset ratio.

The sustainable growth rate is given by the following formula:

$$\text{Sustainable growth} = \frac{P(1-d)}{(1-D)}(NWA + FA) - \frac{P(1-d)}{(1-D)}$$

where

P = after tax profit margin/sales
d = dividend payout ratio
D = bank debt/bank debt plus equity
NWA = net working assets/sales
FA = fixed assets/sales.

The analyst needs to use his or her knowledge of the company to estimate whether sales growth in excess of the sustainable rate is going to be of concern. Sometimes this may be perfectly acceptable for a period of, say, two years, given the strategy of the company. At other times, it may be a sign that the company is heading for a debt spiral.

Corporate failure

We noted earlier that there have been a number of corporate failures in recent years which have happened soon after accounts have been prepared showing the company to be in an apparently sound financial condition. However, close scrutiny of the financial statements, particularly

the notes, would have revealed weaknesses which would have served as a warning for creditors to protect any exposure that they may have had to the company.

This serves to emphasize the importance of early identification of problems. The earlier the difficulties are spotted, the greater the opportunities for remedial action.

Reasons for failure

Several ostensibly amusing checklists have been compiled regarding warning signals of poor management. The most common causes of corporate failure are:

1 Autocratic chief executive (Maxwell, Nadir, Conrad Black)
2 Weak board of directors (Maxwell, Nadir, Conrad Black)
3 Combined role of chairman and chief executive
4 Fraud and corruption in accounting practices (Maxwell, Nadir, Conrad Black, Parmalat)
5 Lack of senior management experience in the company's industry (RUMASA)
6 Management neglect of the core business activity
7 Cyclical decline in demand which expose company weaknesses with regard to the environment, management controls and capital structure.

The New York Times suggests a more up-to-date list of perks.[1]

[1] 'Haircuts. Shower curtains. Parking reimbursements. Country club memberships. Use of corporate jets … James Follo, the chief financial officer of Martha Stewart Living Omnimedia, testified that Ms Stewart had asked the company to reimburse her $17,000 annually for her weekend driver as well as for trips to her hairdresser, coffee and other items. The trial of L. Dennis Kozlowski and Mark H. Swartz, two former top executives at Tyco International, a manufacturing conglomerate, has revealed that Tyco paid an array of their expenses including tuition to private schools for Mr Swartz's three children and $1 million for a birthday party in Sardinia for Mr Kozlowski's wife. And then there was the infamous $6,000 shower curtain and a $15,000 umbrella stand. In 2002, a filing in the divorce of John F. Welch Jr, the former chairman of General Electric, disclosed that G.E. was paying for a Manhattan apartment, New York Knicks tickets and other benefits for him even after he retired. He later agreed to give up many of the perks.' (Alex Berenson, 'From coffee to jets, perks for executives come out in court, *New York Times*, 22 February 2004.)

Most company problems allegedly arise due to the combination of the above. For example, Maxwell exhibited points (1) and (2); similarly, RUMASA showed (1), (2) and (5),[2] Crédit Lyonnais (1) and (5), etc.

It is unfortunate that this heirarchization of causes in classic business literature omits to mention the most recent cause of corporate failure – criminal fraud, as witnessed with the managements of BCCI, Enron, Worldcom, Parmalat, Barings, or the defunct auditor Andersen, who signed off on Enron's accounts (and shredded evidence to the same), to name a few.

None of these collapses are due to classic analytical explanations such as 'mature product cycle', 'poor working capital', 'entry of new competitors' or 'business cycle'. These collapses are due to greed and fraud perpetrated by two actors – management and auditors. Note that these are only the companies that have collapsed … what other surprises do top management and the auditors have waiting for us? When significant numbers of corporations are restating their profits downwards, this is suggestive of general rather than episodic breakdowns.

Recent research

Research was carried out by a leading firm of stockbrokers, County NatWest WoodMac (now NatWest Markets), into corporate failure during the early 1990s. The key conclusions were as follows:

- Fast, aggressive expansion, whether organic or by acquisition, is a likely precursor to problems. If also accompanied by a sharp rise in debt, particularly short-term borrowings, this should be viewed as very worrying.
- Dominant personalities are often connected with the companies that have foundered. Where there is a combined chairman/chief executive, often reinforced with a large shareholding, the extent of his or her influence is unchecked. Companies tend to be run like personal

[2]A summary of the RUMASA and Crédit Lyonnais collapses features in Andrew Fight's *Understanding International Bank Risk*, published by John Wiley & Sons (2004).

playthings, with the use of corporate jets to entertain friends (Kowalski of Tyco, Conrad Black of Hollinger International, Ladreit de Lacharriére of Fimalac/Fitch). Boardroom 'strife' should also be viewed as a leading indicator of trouble.
- 'Hype' often comes before a fall.

Failure prediction models

Credit analysis should adopt a holistic approach which relies on a combination of ratio analysis, cash flow strength and non-financial variables. Some academics have conducted empirical research to see whether there is any one group of ratios that can be a more reliable guide to predicting corporate failure than others.

Edward Altman in the USA developed the 'Altman Bankruptcy Predictor'. Credit-scoring techniques such as the Altman Bankruptcy Predictor (also called solvency analysis) use an offshoot of classic ratio analysis known as multiple discriminant analysis (MDA). MDA simply takes two populations, failed and non-failed corporations, and compares (discriminates between) the two population groups. Altman takes five well-known ratios expressed as decimals, multiplies each one by a weighted coefficient, and then totals them up into a 'Z score'. Z scores are then assembled for industries and compiled into a database classified according to SIC industry codes schemes.

The five ratios look at liquidity, profitability, leverage, solvency and activity:

- X1 = working capital/total assets
- X2 = retained earnings/total assets
- X3 = earnings before interest and taxes/total assets
- X4 = market value equity/book value of total liabilities
- XS = sales/total assets.

A company Z score is then referred to a bell curve (calculated from the totality of the sample universe depicting the overall parameters of corporate failure) to situate that particular company's probability of failure within the bell curve.

Table 3.7 The Altman solvency analysis model

XYZ Corporation, Industry SIC Code XXXX	*2000*	*2001*	*2002*	*2003*
Working capital/total assets*1.2	0.3343	0.2715	0.2397	0.3007
Retained earnings/total assets*1.4	0.3177	0.2662	0.2472	0.1231
EBITDA/total assets*3.3	0.0382	0.0044	(0.1055)	(0.2337)
Net worth/total debt*0.6	0.4946	0.3836	0.3545	0.1622
Sales/total assets	1.6599	1.5213	1.6768	1.7574
TOTAL Z SCORE	2.8447	2.4471	2.4126	1.9096

Range:
−4.000 to + 2.675 = 94% chance of bankruptcy in 1 year (average = 0.290)
+1.999 to + 2.999 = overlap area (grey area)
+3.000 to + 8.000 = solvent (average = 5.020).
Source: Edward I Altman, ZETA analysis, *Journal of Finance*, 1977.

We mention this technique in passing because analysts should be familiar with it; however, it is an idea whose time may have passed, since the mergers, realignments, and volatility of companies operating in an increasingly globalized market with cross-border electronic funds flows and different ratios across industries and borders renders such classic analytical techniques pedestrian. Moreover, the corruption of financial data does not help the accuracy of such statistically driven models.

The company Z score therefore gives an assessment of the element of risk inherent in a given company. As noted, each ratio is multiplied by a weighted coefficient as follows:

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + X5$$

An example of the Altman solvency analysis model appears in Table 3.7:

When used to assess manufacturing firms in the USA, this analysis technique was 95 per cent accurate in predicting bankruptcy within one year and 72 per cent accurate within two years. The financial structure and ratios of various companies can obviously vary from one country or

industry to another, and the use of such techniques must therefore take these factors into account when being interpreted. Although it is tempting to adjust the model in order to conform with conditions peculiar to a given country, this can affect the accuracy of the model's forecasting.

A variation on the Altman model, called the Syspas system, has been developed in the UK by Professor Richard Taffler from City University. As with the Altman system, Syspas looks at companies' financial ratios and scores them on a weighted combination. The approach is founded on multiple discriminant analysis: company performance needs to be assessed on a combination of ratios. The model has achieved country-specific effectiveness in predicting some of the recent corporate casualties in the UK. As with the Altman model, however, applying this model in an international context is somewhat more problematical.

The difficulty in adopting purely quantitative methods is that they rely on accounting data, which recent financial scandals have indicated are often corrupted and therefore unreliable for basing a financial analysis on. Therefore, whilst more subjective, a holistic approach can be a more likely assessment of failure provided financial analysts undertaking the analysis are proactive in their thinking and well structured in their argumentation, rather than seeking easy pre-digested formulae that will absolve them of engaging in assuming personal responsibility for their financial analysis.

Chapter 4

Cash flow forecasting of financial statements

Why cash flow analysis?

Banks lend cash to their clients, collect interest in cash, and require debt repayment in cash. Nothing else, just cash.

Term lending is typically to finance a company's medium- to long-term needs (five to seven years). Very often the loan is to purchase an asset which is expected to generate future cash flow and contribute towards the repayment of the loan. The assets being financed by the facility, such as plant or equipment, are usually expected to produce other assets, which, via manufacturing and sale, will generate sufficient cash to repay the loan. The fixed asset being financed is therefore not expected to be converted to cash to repay the loan. Rather, profits produced by the new equipment are the source of cash used to repay the loan. This is a long-term (multi-year) process.

Traditional bank credit analysis, however, typically resides in a balance sheet ratio analysis based on the borrower's historic financial statements. Classic balance sheet ratio analysis is useful in assessing the borrower's 'cushion' available to bank creditors in a bankruptcy scenario. However, no responsible banker is going to justify a credit proposal with the rationale that there is an adequate cushion of assets available in a bankruptcy. For one thing, there are too many legal and other variables which will make the likelihood of repayment in such a scenario uncertain – assets may be located in juridically unenforceable countries, or the attendant legal costs may be high.

The source of repayment in any term lending situation is cash, and a proper analysis should reside on an assessment of the borrower's ability to service future debt commitments by generating cash from future business operations, not from a liquidation. Furthermore, the purpose of analysis is to estimate the likelihood of liquidation scenarios occurring in order to avoid them in the first place.

Cash flow does not mean profits. For example, poor or declining profitability will not necessarily result in weak cash flows. A company's sales may fall, but it may still generate significant amounts of cash by selling off plant and equipment. If it uses up finished inventories and does not invest in more raw materials, then it will conserve cash.

This ability to post losses but generate a positive cash flow is illustrated in Figures 4.1 and 4.2. These screencaps are extracted Vodafone's accounts, and we can see that while the company has posted three years

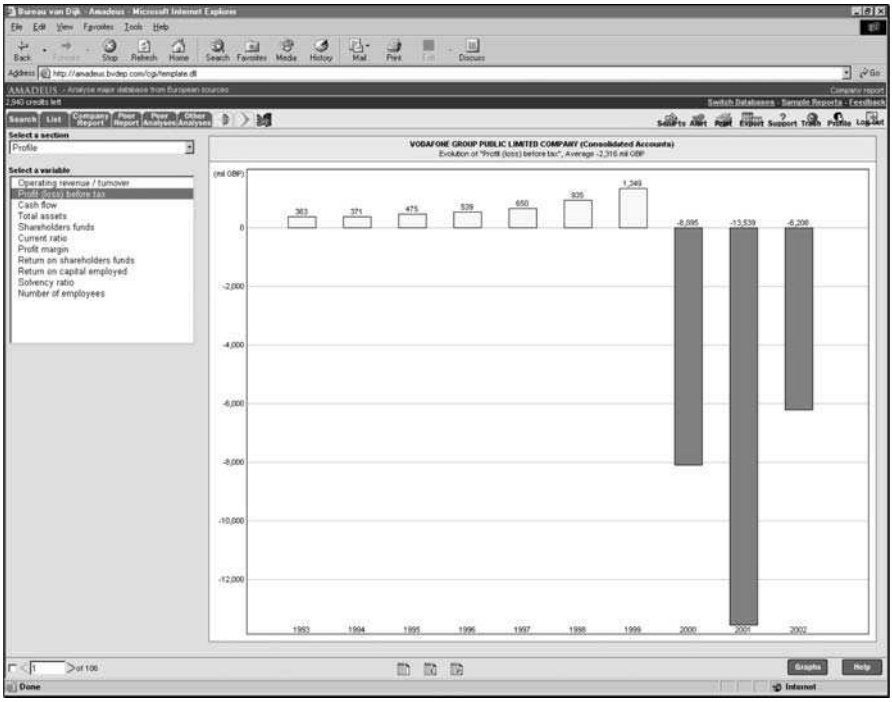

Figure 4.1 Vodafone accounts – profit (loss) before tax
Source: Bureau Van Dijk, AMADEUS 2004

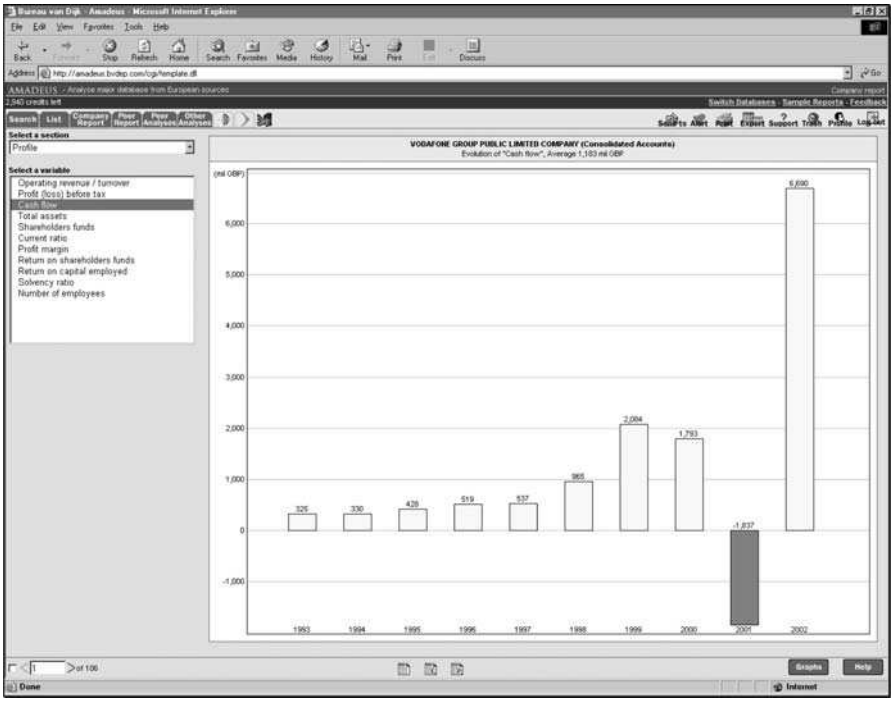

Figure 4.2 Vodafone accounts: cash flow
Source: Bureau Van Dijk, AMADEUS 2004

of losses, it only generated one year's negative cash flow. This distinction between profits and cash flow is graphically depicted in Figures 4.1 and 4.2. Bankers should therefore be more interested in cash flow than profit. Published profits can be manipulated, whereas cash generated by a company cannot.

In other words, to assess a potential borrower's ability to pay interest and service debt, we must focus on the ability to generate cash from future operations. This requires working through the distortions arising from accrual accounting on historical financial statements, and constructing projected financial and subsequently cash flow statements.

This will require the creation of projected income statements and balance sheets, and then deriving cash flow statements. These forecasts can later be adjusted or 'sensitized' to gain an understanding of the range of possible future operations.

To be able to pay all its debts as they become due, a company must be continually generating cash. This can only be done through:

- cash flow from operations
- sale of assets
- refinancing.

To assess the company's ability to generate cash in any of the above three areas, the company's capacity must be reviewed in three different areas:

1 NOCF – the ability to service debt through cash flows
2 Financial flexibility – the ability to raise new debt or equity
3 Operational flexibility – the ability to raise cash through asset disposals.

For financial projections, we shall be concerned with constructing operational cash flow models in order to better assess the company's operational characteristics in these areas. This chapter shall therefore explore how to use already analysed historical financial statements to construct financial and cash flow projections.

Finally, we will show how to use the results of such an analysis to produce a concise, logical, and effective credit assessment to evaluate the servicing of existing debt as well as structure future debt commitments.

Purpose of projections

Financial projection techniques are intended to enhance the understanding of a company and its lending situation. They are not intended to replace common sense or provide quick and ready answers. In addition to using the techniques outlined in this book, any good analyst will be alert to any other 'warning signals', which may or may not be quantifiable but may be useful signposts in the path of inquiry.

The objective of projections is to make a reasonable forecast of a firm's future performance and probable financial condition that will allow

you, as the analyst, to answer questions such as:

- Will the firm be able to pay back its current debt obligations out of future cash flow?
- How much additional financing will the firm need to finance its future growth?
- What is the firm's future debt capacity? What is the maximum amount of debt that can be serviced out of cash flow, given the firm's other needs, such as working capital, plant expenditures, etc.?
- What are the available shrinkage margins in the projected cash flow? How much can sales revenues, profit margins, and cash flow shrink before payback is in jeopardy?
- Will the firm be too highly leveraged as a result of increased debt resulting from growth?
- Given the above, how should the loan be structured? What kind of repayment schedule should be set up for the new debt?
- What forms of protection and control need to be included in the loan agreement in order to afford maximum safety for the bank's money?

Financial projections will enable you to assess factors such as the true purpose of a facility – whether it is appropriate for the purpose being considered (project finance, expansion, acquisition, debt refinancing) or whether it is for non-specific purposes (a warning signal) – to identify the term lending risks, and gauge the likelihood of repayment.

Financial projections can also have other uses: often companies need to restructure their debt profile for a variety of valid reasons. Financial projections will enable an assessment of the problems being considered, and identify the most appropriate repayment schedule in terms of the company's future cash flow (i.e. bullet, repayment, or interest servicing only).

Finally, in order to protect the bank's loans, projections can give an idea of sensitive areas in which the company may be vulnerable. In such cases, you may wish to include certain financial covenants in order to ensure the borrower operates within a certain set of constraints, in order to protect the facility.

After you have spread (ideally) three years of historical financial statements and stepped back to think about them, the first step in setting the groundwork for the tedious process of constructing projected cash flows is to construct projected financial statements: profit and loss, and then balance sheet statements.

In this chapter we will be looking at the financial statements of a fictitious company – AmaOS (Automated Management Operating Systems), a manufacturer of computer components and networking solutions. We will be working off accounts that have been cast into a standardized format known as a spreadsheet, and using those spreadsheets to build financial and cash flow projections.

Historical performance and variable input analysis

Historical analysis is the starting point for projecting a firm's future performance and financial condition. Analysing a firm's past performance and operations provides a basis for projecting a firm's performance under future conditions. The most important element for you to bear in mind when undertaking an historical financial analysis for building projections is to identify the key variables influencing the company, since it is this 'variable input analysis' that is your main tool in building the financial projections.

If, in historical analysis, you have been able to determine what has probably caused the demonstrated results, and if you have some information about future conditions provided by statistical organizations, industry projections or company plans, you can begin to make assumptions as to what future events may occur and how these events will affect the firm's future performance.

Financial statements over a minimum of three (and preferably five) years provide an opportunity to examine a variety of causes and effects in a firm's historical performance. The analysis of the firm's historical operations, performance and financial condition will help you to form reasonable assumptions about what is likely to happen in the future.

Before beginning projections, you should summarize your analysis of the company's performance in the following areas:

- Is the company operationally healthy?
- Is the company financially strong, or too highly leveraged?
- Are markets growing, stable or shrinking?
- How is the company situated amongst its competitors?
- A summary of present financial condition and existing cash flow
- Strength and weaknesses in management, industry position, nature of products and attendant risks, economic cyclicality
- Management performance as an influencing variable
- Operating risks
- Historical spreadsheets.

This book assumes that you are familiar with the mechanics of spreading historical financial statements (such as the historical figures for AmaOS), and that you already have a set to use for projections. Understanding spreadsheets is essential if you are to use them in preparing projections.

Defining the initial assumptions

The value of any set of projections revolves around the reasonableness of the underlying assumptions used in preparing them, and their whole credibility resides on this plain fact. Consequently, it is useful to remember a few golden rules on projected cash flows:

- *Projections are sales driven*. It is crucial to qualify the projection assumptions. Regardless of whether the projections are prepared by the customer or the analyst, without qualifying the assumptions on which they are based, they next to worthless.
- *Customers may produce certain scenarios* – for example, best case, most likely and worst case. Taking the customers' most likely scenario, you should play devil's advocate to their reasonableness and, where necessary, make adjustments. (If you want empirical evidence of customer optimism, ask any experienced banker if a customer has ever projected failure!)

- *The bank must protect itself against a downside*. Once projections have been prepared, adjustments (also known as 'sensitivity analysis') must be made to reflect a reasonable worst-case scenario. The bank must then ensure that it will be adequately protected in such a scenario.
- *Don't get lost in the numbers*; projections are not reality. Rather, step back and see if the projections make sense. Are the company's forecasts of 12 per cent annual growth in a mature industry characterized by over capacity realistic?

Often, in a term lending situation the borrower and/or agent bank may provide forecasted rates of sales growth. These may be perfectly adequate to construct forecasts on, but you, as analyst, will at least want to examine the assumptions underlying the growth rates in order to be satisfied that these assumptions are realistic. You can also make your own assumptions and then check them out with the customer in a marketing call.

Procedure for constructing projections

Projections are sales driven – in other words, company performance is linked to the inflow of money into the company. The projection of other income statement and balance sheet accounts is related, directly or indirectly, to the projected sales level. Sales level is, for example, a main determinant of asset growth – the higher the sales, the higher the working investment needed to support the sales.

There are two sources of financing:

1 Profits earned and retained in the business
2 Outside financing, either through increased equity (such as through the issuance of stock) or increased debt.

The process of creating a pro forma income statement and balance sheet can be broadly summarized as determining:

- probable sales revenue and related income statement expense items
- probable total asset growth and corresponding liability growth

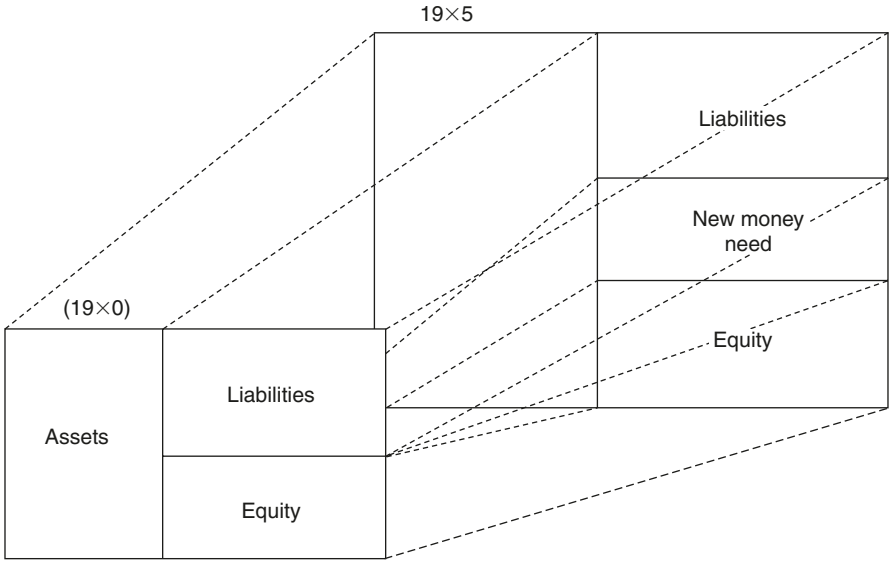

Figure 4.3 Projection of the balance sheet

- a bottom line profit figure and how much additional financing the company will need to support asset growth.

Figure 4.3 illustrates the projection of the balance sheet.

One approach to constructing projections

- Summarize conclusions from historical analysis
- Define assumptions underlying your variable input analysis for the future performance and conditions in the industry and economy
- Define the objectives of the projections
- Project income statement and balance sheet accounts.

The typical outline for projecting profit/loss and balance sheet statements (which we will treat section by section) can be summarized as in Table 4.1.

In projecting the various items in Table 4.1, you will see that some are driven by a number of variables related to net sales, which are known as 'cash drivers'. These drivers are listed in Table 4.2.

Table 4.1 Typical outline for projecting profit/loss and balance sheet statements

Project income statement items
- Sales
- CGS
- SGA
- Other sundry items as per historical averages

Project assets
- Determine CAPEX + new depreciation
- Determine working capital components
- Bring forward sundry items
- Approximate cash (or leave open to later adjustments)
- Total assets side of balance sheet

Project known liabilities
- Determine working capital components
- Determine existing LTD runoff
- Determine proposed facility debt runoff
- Bring forward sundry liabilities
- Estimate tax account
- Bring forward previous year's net worth
- Total liabilities side of balance sheet

NOTE: At this point, we have not yet determined the firm's profits for the year (retained earnings) or the amount of new debt it will need to take on to balance the gap between its sources and uses of funds. Therefore, the figure calculated at this point is not equal to total liabilities. The amount needed to balance the total known liabilities to projected total assets is a plug figure, 'new money need'. New money need consists of some amount of retained earnings and/or some amount of new debt.

Determine new debt need
- Plug new money
- Determine composition of new money need
- retained earnings + new debt/equity
- calculate interest expense
- complete income statement
- fine-tune balance sheet (cash/debt)
- Evaluate reasonableness of projections and adjust assumptions as necessary

Draw conclusions and make recommendations
- Sensitize cash flow
- Recommend allocation of new debt, as well as form, tenor and amount of the banks participation
- Recommend amortization schedule for new debt

Table 4.2 Cash drivers

Profit and loss drivers include:	*Balance sheet drivers include:*
■ Sales growth ■ Cost of goods sold (% of sales) ■ Gross profit (% of sales) ■ Selling, general and admin expenses: SGA (% of sales) ■ Plant expenditure/capital expenditure (% of sales) ■ Interest rates ■ Tax rates ■ Dividend payout ratio ■ Access to capital markets	■ Inventory turnover ■ Accounts receivable turnover ■ Accounts payable turnover

You will be closely concerned with these drivers, and should understand their casual relationships. You should also understand how sensitive the company is to each cash driver, and how variable each driver is when subjected to either management or external influences. The first group of drivers concerns the bulk of the preparation of the profit and loss projections, while the second group concerns preparation of the balance sheet projections.

We now turn our attention to the first category: projecting the income statement.

Table 4.3 shows four years of historical figures for AmaOS in spreadsheet form, with ratios already calculated. The projection method will be illustrated with reference to these figures, which should be studied. AmaOS is seeking to borrow €100 m from your bank, to be repaid in three equal instalments starting in the second year.

Profit and loss statement projections

In setting the groundwork for preparing projections, it is useful to examine your historical spreadsheets and think carefully about the company's

Table 4.3 AmaOS historical spreadsheet

NAME:	AmaOS			
LOCATION:	UK			
BUSINESS:	Manufacturing			
AUDITOR:	Andersen		FYE	31 DEC
CONSOLIDATED:	Yes		GBP 000	
ASSETS	**2000**	**2001**	**2002**	**2003**
Cash	124,019	194,212	69,323	131,680
Marketable Securities				
Accounts Receivable – Trade	54,809	130,629	100,432	88,628
Accounts Receivable – Other				
Sundry Current Assets				
Inventory	105,625	132,650	334,541	207,424
Raw Materials	16,360	25,367	47,099	26,162
Work in Progress	491	1,478	1,227	
Finished Goods	75,664	92,354	255,644	159,880
Other	13,110	13,451	30,571	21,382
CURRENT ASSETS	**284,453**	**457,491**	**504,296**	**427,732**
Land, Buildings, Equipment	15,393	29,122	53,607	53,803
Leased Assets				
Plant in Construction				
Accumulated Depreciation	−2,018	−3,835	−7,754	−7,621
TOTAL OTHER GENERAL ASSETS	**13,375**	**25,287**	**45,853**	**46,182**
Quoted Investments				
Unquoted Investments	1,058	1,242	44,699	28,537
Invest in Associated Companies				
Loans to Associated Companies				
Prepaid Expenses				
Sundry Assets	229	553	452	
Goodwill				
Other				
TOTAL ASSETS	**299,115**	**484,573**	**595,300**	**502,451**

(*continued*)

LIABILITIES				
Bank Loans and O/Ds				
Other ST Debt	27,552	111,137	148,407	99,450
CPLTD				
CPLO				
Customer Prepayment				
Accounts Payable	8,451	10,336	37,475	41,063
Accrued Expenses	5,569	9,950	27,636	5,877
Income Tax Payable	48,076	64,654	40,455	9,059
Dividends Payable	2,726	5,678	5,684	5,643
Due to Affiliates				
Sundry CL 1				
Sundry CL 2				
CURRENT LIABILITIES	**92,374**	**201,755**	**259,657**	**161,092**
Long Term Debt	24,848	24,848	24,848	24,848
New Debt				
Subordinated Debt				
Total Long Term Debt	24,848	24,848	24,848	24,848
Other Creditors				
TOTAL LIABILITIES	**117,222**	**226,603**	**284,505**	**185,940**
Deferred Taxes				
Minority Interest				
Common Stock	52,500	52,500	52,500	52,500
Preferred Stock				
Capital Surplus				
Revaluation Reserve				
Legal Reserve				
FX – Translation Reserve				
Retained Earnings	129,393	205,470	258,295	264,011
NET WORTH	**181,893**	**257,970**	**310,795**	**316,511**
TOTAL LIABILITIES & NET WORTH	**299,115**	**484,573**	**595,300**	**502,451**
Cross-check (TA-TL)	0	0	0	0
Contingent Liabilities:				

NAME:	AmaOS		
LOCATION:	UK		
BUSINESS:	Manufacturing		
AUDITOR:	Andersen	FYE	31 DEC
CONSOLIDATED:	Yes	GBP 000	

PROFIT & LOSS	**2000**	**2001**	**2002**	**2003**
NET SALES	525,684	645,174	638,756	614,538
Cost of Sales	349,786	397,865	429,845	438,745
Depreciation				
Amortization of Goodwill				
Capital Grants				
GROSS PROFIT	**175,898**	**247,309**	**208,911**	**175,793**
SGA	**50,644**	**192,622**	**144,302**	**230,791**
NET OPERATING PROFIT	**125,254**	**54,687**	**64,609**	**−54,998**
Net Interest Expense	1,491	1,491	1,491	1,491
Interest Income				
Prov Dbt Recv				
Equity Income				
NPBT	**123,763**	**53,196**	**63,118**	**−56,489**
Provision for Income Tax				
Deferred Tax Provision				
NPAT	**123,763**	**53,196**	**63,118**	**−56,489**
Unusual Items:				
FX Gains/Losses	17,916	−9,518	30,045	−59,865
Unrealized F/X Gain/Loss				
Realiz Profits of Rel Co		−13,363	−19,752	−2,340
Reval Reserve				
Sundry Res				
Goodwill on Consol				
Unexplained Adjustment				
NPAUI	**105,847**	**76,077**	**52,825**	**5,716**
Dividends – Common				
– Preferred				
Min Int Expense				
RETAINED EARNINGS	**105,847**	**76,077**	**52,825**	**5,716**
Changes in Net Worth				
Stock Sold		0	0	0
Purch Own Stock				
Chg. in Cap Surplus		0	0	0
Chg. in FX Reserve		0	0	0
Chg. in Reserves		0	0	0
Other		0	0	0
INCREASE IN NET WORTH	**105,847**	**76,077**	**52,825**	**5,716**
Cross Check RE:	–	0	0	0
Cross Check NW:	–	0	0	0

(*continued*)

NAME:	AmaOS		
LOCATION:	UK		
BUSINESS:	Manufacturing		
AUDITOR:	Andersen	FYE	31 DEC
CONSOLIDATED:	Yes	GBP 000	

FACT SHEET	2000	2001	2002	2003
ROE (%)	68.04%	20.62%	20.31%	−17.85%
ROS (%)	23.54%	8.25%	9.88%	−9.19%
ATO	1.76	1.33	1.07	1.22
ALEV	1.64	1.88	1.92	1.59
Sales (M/MM)	525684	645174	638756	614538
Chg. in Sales (%)	#N/A	22.7%	−1.0%	−3.8%
CoGS/S (%)	66.5%	61.7%	67.3%	71.4%
GPM (%)	33.5%	38.3%	32.7%	28.6%
SGA/S (%)	9.6%	29.9%	22.6%	37.6%
NOP/S (%)	23.8%	8.5%	10.1%	−8.9%
TIE	84.0	36.7	43.3	#N/A
IE/Av. FD (%)	2.85%	1.58%	0.96%	1.00%
NPBT/S (%)	23.5%	8.2%	9.9%	−9.2%
Inc. Taxes/NPBT (%)	0.0%	0.0%	0.0%	#N/A
NPAT/S (%)	23.5%	8.2%	9.9%	−9.2%
NPAUI/S (%)	20.1%	11.8%	8.3%	0.9%
Div./NPAT (%)	0.0%	0.0%	0.0%	0.0%
Work. Investment	146414	242993	369862	249112
Chg. in WI (%)	#N/A	66.0%	52.2%	−32.6%
WI/S (%)	27.9%	37.7%	57.9%	40.5%
AR DOH	38	74	57	53
INV DOH	110	122	284	173
RM DOH	17	23	40	22
WIP DOH	1	1	1	0
FG DOH	79	85	217	133
AP DOH	9	9	32	34
AE DOH	5	6	18	3
Av. GP T/O	#N/A	#N/A	#N/A	#N/A
Av. NP T/O	#N/A	#N/A	#N/A	#N/A
Av. GP/DepExp.	#N/A	#N/A	#N/A	#N/A
Av. AccDep./DepExp.	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Av. NP/DepExp.	#N/A	#N/A	#N/A	#N/A
Current Ratio	3.08	2.27	1.94	2.66
Quick Ratio	1.94	1.61	0.65	1.37
Coverage Ratio	2.43	2.02	1.77	2.30
CMB Leverage	0.64	0.88	0.92	0.59
% of Total Footings:				
STD(+CPLTD + CPLO)	9.2%	22.9%	24.9%	19.8%
Spont. Fin.	4.7%	4.2%	10.9%	9.3%
LTD	8.3%	5.1%	4.2%	4.9%
Grey Area	0.0%	0.0%	0.0%	0.0%
Equity	60.8%	53.2%	52.2%	63.0%
CA	95.1%	94.4%	84.7%	85.1%
Net Plant	4.5%	5.2%	7.7%	9.2%
Other	0.4%	0.4%	7.6%	5.7%
Asset Cover (TA – TSL/TA)	60.8%	53.2%	52.2%	63.0%
WC Adequacy (WC/CA)	67.5%	55.9%	48.5%	62.3%
Reliance on Inventory	−81.8%	−92.8%	26.9%	−28.5%
Change in WC (%)	#N/A	33.1%	−4.3%	9.0%

NAME:	AmaOS		
LOCATION:	UK		
BUSINESS:	Manufacturing		
AUDITOR:	Andersen	FYE	31 DEC
CONSOLIDATED:	Yes	GBP 000	

CASHFLOW	**2001**	**2002**	**2003**
NPAUI: NET PROFIT AFTER UNUSUAL ITEMS	**76,077**	**52,825**	**5,716**
+ Interest Expense	1,491	1,491	1,491
Unusual: Plant	−9,518	30,045	−59,865
Investment	0	0	0
FX – Adj.	−13,363	−19,752	−2,340
Other (1 + 2)	0	0	0
Other (3 + 4 + 5)	0	0	0
– Interest Income	0	0	0
– Dividend Income	0	0	0
– Equity Income	0	0	0
– Commission Income	0	0	0
Sundry Inc./Exp.	0	0	0
+ Prov. f. Income Tax	0	0	0
– Income Tax Paid	16,578	−24,199	−31,396
+ Prov. f. Def. Tax	0	0	0
– Def. Tax Paid	0	0	0
– ITC (Gov't Grants)	0	0	0
NOPAT: NORMALIZED OP PROFIT AFTER TAX	**71,265**	**40,410**	**−86,394**
+ Depreciation	0	0	0
+ Amort. of Goodwill	0	0	0
+ Prov. f. Dbtf. Rec.	0	0	0
COPAT: CASH OPERATING PROFIT AFTER TAX	**71,265**	**40,410**	**−86,394**
Gross (Net) A/Rec.	−75,820	30,197	11,804
– A/Rec. charged off	0	0	0
Inventory	−27,025	−201,891	127,117
Cust. Prepayments	0	0	0
Acc./Payable	1,885	27,139	3,588
Accrued Expenses	4,381	17,686	−21,759
Chg. Work. Inv.	−96,579	−126,869	120,750
Prepaid Expenses	0	0	0
Due to Affiliates	0	0	0
Sundry C.A.	0	0	0
Sundry C.L. (1 + 2)	0	0	0

(*continued*)

CACO: CASH AFTER CURRENT OPERATIONS	**−25,314**	**−86,459**	**34,356**
– Interest Expense	−1,491	−1,491	−1,491
– CPLTD (incl. CPLO)	0	0	0
– Finan. Payments	−1,491	−1,491	−1,491
CBLTU: CASH BEFORE LONG TERM USES	**−26,805**	**−87,950**	**32,865**
– Net Pl. Expend.	−2,394	−50,611	59,536
Investments	−184	−43,457	16,162
+ Interest Income	0	0	0
+ Dividend Income	0	0	0
Sundry Inc./Exp.	0	0	0
Market. Secur. + Dep.	0	0	0
Due from Affiliates	0	0	0
Sundry NCA	−324	101	452
Sundry NCL	0	0	0
Unusual: all other	13,363	19,752	2,340
+ ITC (Gov't Grants)	0	0	0
CBF: CASH BEFORE FINANCING	**−16,344**	**−162,165**	**111,355**
Short Term Debt	83,585	37,270	−48,957
Long Term Debt	0	0	0
Minority Interest	0	0	0
Grey Area	0	0	0
FX – Translation G/L	0	0	0
– Dividends paid	2,952	6	−41
Chg. in Net Worth	0	0	0
Change in Cash	**70,193**	**−124,889**	**62,357**
Cash Account	**−70,193**	**124,889**	**−62,357**

history and performance. This will help you to form the forecast assumptions you will be working with. This can be done with the aid of a score sheet (see forecast assumptions sheet below), listing your projection assumptions and then working down each item

Net sales projections

The starting point in building projections is to analyse the anticipated growth in net sales. Pro forma sales projections can be prepared using

the most basic assumptions (e.g. 'flat 8.5 per cent growth in net sales per annum') ranging up to more detailed variants such as subdividing the company's various operations into either geographic or product lines and forecasting each division's performance (including acquisition/disposal/capital expenditures) to arrive at an overall total.

Likewise, other models may factor in several variables such as fluctuating prices of the goods delivered plus the operating capacity of the production stream. For example, production may be at 90 per cent of capacity and the price at €70 per unit, or production may fall to 75 per cent of capacity but the market price rise to €110 per unit.

These assumptions may be further refined by factoring in expected inflation rates and economic growth or recession rates. Such economic data are available from sources such as the Central Statistical Office in the UK, or publications produced by banks or industry groups covering the economy in their home countries. Sales forecasts may also be provided by the company in its annual report or facility information memorandum.

It is important to break down the identifiable variables affecting the net sales figure over time accurately, so that key or vulnerable elements can be identified and individually manipulated. This is why often the net sales projections may be calculated in a stand-alone matrix specifically designed for this purpose. A detailed process of reflection is necessary to arrive at a reasonable estimate of net sales, since all other items will be derived (directly or indirectly) from this figure. Such a matrix for a manufacturing company with several product lines is depicted in Table 4.4.

Sales projections present the greatest analytical challenge, since this account encompasses the greatest number of variables and unknowns. The company's own forecast of sales, sometimes included in the annual report, can provide a starting point for projecting sales, but the company's projections should always be tested against the analyst's own assumptions and understanding of the problems that confront the company and that may affect its success in meeting its goals.

Table 4.4 Stand-alone matrix from net sales projections

COMPANY: *SALES FORECAST*	*HISTORIC 2000 SALES*	*2001 %GR*	*2001 SALES*	*2002 %GR*	*2002 SALES*
HOUSEHOLD FABRICS					
SEGMENT #1	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #2	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #3	0.0	0.00%	0.0	0.00%	0.0
TOT DIVISION 1	0		0		0
ECON INDICATORS 1					
DIVISION 1					
SEGMENT #1					
SEGMENT #2					
SEGMENT #3					
INDUSTRIAL FABRICS					
SEGMENT #1	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #2	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #3	0.0	0.00%	0.0	0.00%	0.0
TOT DIVISION 3	0		0		0
ECON INDICATORS 3					
DIVISION 3					
SEGMENT #1					
SEGMENT #2					
SEGMENT #3					
APPAREL FABRICS					
SEGMENT #1	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #2	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #3	0.0	0.00%	0.0	0.00%	0.0
TOT DIVISION 4	0		0		0
ECON INDICATORS 4					
DIVISION 4					
SEGMENT #1					
SEGMENT #2					
SEGMENT #3					
OTHER					
SEGMENT #1	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #2	0.0	0.00%	0.0	0.00%	0.0
SEGMENT #3	0.0	0.00%	0.0	0.00%	0.0
TOT DIVISION 5	0		0		0
ECON INDICATORS 5					
DIVISION 5					
SEGMENT #1					
SEGMENT #2					
SEGMENT #3					
TOTAL SALES	0		0		0

There is no one way to approach sales projections; however, these broad areas should be considered for each product line:

- What are the future economic conditions affecting the company likely to be?
- What is the industry outlook, and what are the demand factors in the company's line of business? Are there problems with sources of supply, competition, over- or under-capacity, consumer demand, etc.?
- How has the company historically performed under various economic conditions? What have been the major influences on sales?
- What are the company's identifiable strategies with respect to its product lines?

The problem in making sales projections is seldom too few data, but rather too many. This means the analyst needs to understand the underlying fundamentals of the company's past sales performance and outlook for the industry and economy, be able to make reasonable assumptions about the variables most likely to impact future performance, and eliminate extraneous variables.

Determining the probable future level of sales is ultimately a matter of judgement, estimate and approximation.

There are two broad methods of projecting net sales:

1 Evaluating the volume and price components of sales revenue for each separate product line, determining those factors that are likely to influence future volume and price levels, and estimating a total probable dollar sales figure
2 Relating the firm's past sales performance to overall conditions in the industry or economy, obtaining forecasts of future industry or economic conditions, and deriving a figure for projected sales.

We will look more closely at these two approaches.

Evaluating volume and pricing components

The dollar sales figure is a function of the volume of goods sold or services rendered and the price the company is able to obtain for these goods or services.

Factors to consider when determining the probable future volume of sales for each product line include the following:

- *Health of the market*. Is the company's product one that will be in demand in the future, or is it a product for which demand is decreasing? Is the product subject to unforeseen changes in consumer taste?
- *Production capacity*. At what percentage of total capacity is the firm now operating, and how much additional volume can it generate with its current capacity? If increased volume depends on increased capacity, how quickly can new capacity be put on?
- *Competitive conditions*. What is the company's position with regard to its competitors? Does the company have a competitive edge, and can it maintain its market share? Can its markets be expanded? Are there substitute products that will inhibit volume growth or trigger volume declines?
- *General economy*. Who are the consumers of the company's product? Is the product sold to distributors, wholesalers, retailers, or company-owned stores or outlets? Which factors can affect their demand for the product – economic, fashion, geographic, cyclicality?
- *Cost flexibility*. Can the company pass off increased costs to the consumer? Does the company's product enjoy brand-name identification advantages that make it possible to increase prices without diminishing demand, or does the company have a reputation for quality or service that makes price relatively unimportant – is the company's product one that is in short supply but high demand?

The number of factors that could affect a company's sales volume and product price is almost limitless, but a knowledge of the economic, market and industry conditions, the nature of the business and the characteristics of the company's asset conversion cycle will assist you in limiting the number of factors that will have a major impact on the company being analysed.

Relating a firm's performance to industry and economic conditions

Historical analysis may sometimes indicate a relationship between a firm's sales level and conditions in the industry and economy.

Specifically, a relationship might be found to exist between sales and some other variable, such as total industry sales or certain economic indicators. When a forecast of the other variable is available, the projected sales figure can be derived. Some examples will illustrate:

- *Sales projections by market share*. In some cases it may be appropriate to project sales by market share. The first step in this method is to analyse the company's historic market share. Has it been growing, stable, shrinking?
- *Sales projections in relation to economic indicators*. Historical analysis may sometimes indicate a relationship between sales and certain economic indicators. For example, we may observe for a particular company:

	Sales	*Index of industrial production*
20X1	4.3	100
20X2	4.6	200
20X3	4.9	300
20X4	5.2	400
20X5	5.5	500

When such a relationship has been observed to exist historically, it may sometimes be used as a basis to determine a projected sales figure, provided we have an estimate for the future value of the other variable – in this case, the index of industrial production.

This technique uses a method of calculation known as linear regression. It is important, however, to realize that linear regression is effective typically when dealing with large population samples – for example, of several hundred data points (e.g. voter registration patterns linked to income). Using linear regression techniques to project corporate data where the variables are relatively limited in number (five years) can often lead to misleading results, since individual extraneous events can

skew the linear regression model more than in cases where the population size is in the hundreds if not thousands. Small population samples thus are inherently vulnerable to larger margins of error. It is therefore useful to temper this methodology with subjective observations based upon your knowledge of the industry or company in question.

Example

The following example shows how to calculate forecasted growth rates using the sample historical spreadsheet for AmaOS.

AmaOS's historical performance for the past four years yielded the following growth rates:

2000	*2001*	*2002*	*2003*
na	+22.7%	−1.0%	−3.8%

Average annual sales growth = 5.98 per cent.

AmaOS's historical financials indicate that sales have slackened. This could be due to a variety of causes. It is your responsibility to identify and quantify the factors underlying such a decline, because they will be important in helping you estimate future sales growth rates.

Let's assume that AmaOS's chairman states in the annual report that the drop in sales is due to an ageing product line and economic recession. However, AmaOS's annual report informs you that the company has been developing a new product line which is scheduled to enter the market next year. Furthermore, let's assume that your independent research will have compiled data from government statistical sources which estimates that economic growth (GDP) is expected to grow by 5 per cent annually for the next five years. You may therefore feel that a projected sales growth rate of 4 per cent for 2004 (year 1), and 6 per cent for 2005, 2006, 2007 and 2008 (years 2, 3, 4, and 5) is a more realistic scenario

than the straight-line average figure of 5.98 (which moreover factored in the exceptional 22.7 per cent increase in net sales for 2001).

The sales forecast assumptions worksheet figures should therefore read as follows:

	2004	*2005*	*2006*	*2007*	*2008*
Net sales:					
€614,538	**€639,120**	**€677,467**	**€718,115**	**€761,202**	**€806,874**
Last actual year	4% growth	6% growth	6% growth	6% growth	6% growth

You will have worked out these figures from a combination of historical data plus factors that you have estimated. In preparing forecasts, it is important to summarize the assumptions used and include them with the forecasts in order to enable the reader to understand the underlying assumptions.

Next, select and check the factors that you think are relevant to the industry in which the company being analysed operates. The essential issue is to arrive at a forecasted rate of growth that you feel is realistic.

Completing the profit and loss projections

Once you have established pro forma net sales growth forecasts and projected them over the number of years being considered (usually five, although this can be longer), then constructing projected profit and loss statements, at least to the net operating profit level, is a relatively straightforward operation.

The usual starting point is to take an historical average of the various cash drivers from the historical profit and loss statement, namely:

- cost of goods sold
- gross profit
- SGA, and
- operating profit

and calculate them as an average percentage of net sales in the historical income statement spread. These percentages are then used in conjunction with the pro forma net sales forecasts to calculate their expected value in the projected income statements.

This technique should be applied to *operational items* which arise as a consequence of the activity generated by sales in the company's income statements.

Some factors, however, may not necessarily be linked to the company's historical sales activity, and will require specialized treatment. Cost of goods sold may require adjustments for anticipated changes, such as the availability of a key raw material used in the operational process. Another example is if the proposed facility is to acquire a company or operation that is operating with higher than average costs, or will generate additional costs following absorption into the company; these should also be factored in. It is the task of you, as the analyst, to identify such pertinent factors and understand how they can affect the drivers.

Cost of goods sold/gross margin projections

Cost of goods sold (CGS) is a function of sales. One logical technique used to project cost of goods sold is therefore to calculate a CGS/sales ratio, based on the historical relationship of cost of goods sold to sales (+ any other assumptions or factors that may affect the ratio in the future). The historical average ratio of CGS/sales can be then applied to the projected sales figure to yield a projected cost of goods sold figure:

Projected CGS = projected sales*(historical CGS/sales ratio)

To further refine the projected CGS/sales ratio, the analyst looks at the major components of cost of goods sold (such as raw materials, labour, overhead) and can then consider factors that have determined the cost level of each of these in the past and that may affect them in the future. Reasonable assumptions about what may happen in the future can then be made.

Data that may be employed in the determination of probable cost levels in the future include:

- projected rate of inflation and the company's ability to pass on increased costs to its customers
- industry and economic data, such as projected price increases for raw materials or energy sources
- information on labour contracts coming due in the future, and settlements reached by similar companies
- the operating leverage – that is, the relationship of fixed costs to total costs in the firm's cost structure.

If a company has a high operating leverage (high fixed costs to total costs), then as sales increase, the cost per unit – and consequently the CGS/sales ratio – will tend to decrease.

Conversely, if a firm has low operating leverage (high variable costs to total costs), then as sales increase, total costs will tend to increase proportionately and, other things being equal, the CGS/sales ratio will tend to remain relatively constant.

This is why you should carefully consider the nature of the CGS breakdown in the company you are analysing.

Example

In AmaOS's historical PL, the historical gross profit/sales margin has fluctuated as follows:

FACT SHEET	*2000*	*2001*	*2002*	*2003*	*2004*
GPM (%)	33.5%	38.3%	32.7%	28.6%	#N/A

Average GPM = 33.3 per cent.

Since no particular trends are evident in this index, you may want to use the average gross profit margin of 33.3 per cent for your five-year forecasts. If this is the case, then your gross profit will evolve as follows:

	2004	*2005*	*2006*	*2007*	*2008*
Net sales: €614,538	**€639,120**	**€677,467**	**€718,115**	**€761,202**	**€806,874**
Last actual year	4% growth	6% growth	6% growth	6% growth	6% growth
33.3% GPM historical average	33.3% GPM	33.3% GPM	33.3% GPM	33.3% GPM	33.3% GPM
GPM	**€212,827**	**€225,596**	**€239,132**	**€253,480**	**€268,689**

Having worked out AmaOS's gross profit using historical GPM averages in conjunction with projected sales growth, you can now work out AmaOS's cost of goods sold figure by calculating the difference between net sales and gross profit and inserting the amount in AmaOS's cost of goods category (above gross profit and below net sales).

Working out AmaOS's CGS is important because it's one of the elements used in calculating balance sheet amounts linked to turnover ratios (inventory, accounts payable and accounts receivable ratios). Hence, by difference, AmaOS's projected CGS works out as follows:

	2004	*2005*	*2006*	*2007*	*2008*
Net sales: €614,538	**€639,120**	**€677,467**	**€718,115**	**€761,202**	**€806,874**
Last actual year	4% growth	6% growth	6% growth	6% growth	6% growth
CGS	**€426,293**	**€451,870**	**€478,983**	**€507,721**	**€538,185**
33.3% GPM historical average	33.3% GPM	33.3% GPM	33.3% GPM	33.3% GPM	33.3% GPM
GPM	**€212,827**	**€225,596**	**€239,132**	**€253,480**	**€268,689**

Selling, general and administrative expense (SGA)

The technique for projecting the SGA account is similar to that for other sales-driven expense items in the P&L statement. This involves examining historic trends in the SGA/sales ratio and selecting a projected ratio that can then be applied to the projected sales figure to determine projected SGA expenses in cash terms. Alternatively, you can establish SGA by projecting operating profit (as with gross profit) and then work backwards to establish SGA.

The former approach is, however, preferable, as a number of factors can affect SGA, and analysis should include conditions that may cause a rise or fall in this account. For example, if AmaOS intends to achieve sales growth by expanding into new markets, it is likely that there will be an increase in selling expenses typically associated with 'start-up costs' (salaries, commissions, advertising, legal, and consulting fees).

Depending on the type of company, SGA may or may not be critical. SGA will be more important for retail stores than for a manufacturer. Other companies may spend on advertising or R&D (which will probably be cut back in a recession, since they fall under management control). You should understand the nature of the company you are analysing, and adjust these figures accordingly.

Operating profit

As with net sales and gross margin, forecasting expense items from gross profit on down to operating profit (SGA, depreciation, other expenses) follows a similar process. To determine operating profit, you can either:

- calculate SGA as in the preceding paragraph and subsequently derive operating profit, or
- calculate the historical operating profit average and then work out the various expense items above operating profit and below gross profit by calculating the difference between the two.

At this stage, you should begin to get a feel of the company's projected sales performance.

Example

Using the historical AmaOS spreadsheets, we see that operating expenses, SGA, is also accompanied by depreciation and other costs. For the sake of simplicity, we can estimate these items as a group by working out the average percentage of operating profit to historical sales:

FACT SHEET	*2000*	*2001*	*2002*	*2003*	*2004*
OP/sales (%)	23.8	8.5	10.1	−8.9	#N/A

Average OP/Sales = 8.37 per cent.

This average percentage can then be used to estimate future operating profits based on future net sales.

Projecting AmaOS's operating income at a historical average figure of 20.1 per cent of net sales (OPM: operating profit margin), the resulting projected operating income is:

	2004	*2005*	*2006*	*2007*	*2008*
Net sales:					
€614,538	**€639,120**	**€677,467**	**€718,115**	**€761,202**	**€806,874**
Last actual year	4% growth	6% growth	6% growth	6% growth	6% growth
CGS	**€426,293**	**€451,870**	**€478,983**	**€507,721**	**€538,185**
33.3% GPM historical average	33.3% GPM	33.3% GPM	33.3% GPM	33.3% GPM	33.3% GPM
GPM	**€212,827**	**€225,596**	**€239,132**	**€253,480**	**€268,689**
8.37% OP/sales historical average	8.37% OPM	8.37% OPM	8.37% OPM	8.37% OPM	8.37% OPM
Operating profit	**53,494**	**56,703**	**60,106**	**63,712**	**76,535**

You can now insert the difference between gross profit and operating profit as a plug representing all expenses grouped together in the operating expenses category (depreciation, SGA, other).

Alternatively, if required, you can (as previously mentioned) break down the projected operating expenses into their individual categories based on their historical average of operating expenses.

Since the purpose of projections is often to establish overall parameters for structuring loan facilities and constructing financial covenants, it may not be necessary to forecast sub-category items individually.

Profit before tax

After deriving operating income, you will find that the subsequent income statement categories are not directly linked to the company's sales activity. In our model, given the absence of intermediary items, we have assumed that AmaOS's PBT follows the historical average of 7.57 per cent as follows:

Year	*2000*	*2001*	*2002*	*2003*	*Avg*
Net sales	525,684	645,174	638,756	614,538	606,038
NPBT	123,763	53,196	63,118	−56,489	45,897
NPBT/sales	23.54%	8.25%	9.88%	−9.19%	7.57%

The main categories which are deducted from operating profit to arrive at profit before tax are described below:

- *Interest expense/interest income*. In order to calculate these items, you will have to arrange the company's existing as well as proposed debt into a debt runoff schedule (this will be treated in the balance sheet section). Realistic interest rate forecasts should then be used in order to calculate what the company's projected interest expenses will be. Preparing existing/projected debt into a debt runoff schedule is important because this will be used to construct the debt portion of

the liabilities section of the balance sheet. You should therefore leave this area blank until you have completed the new debt calculations for the balance sheet, and then return to the profit and loss statement to complete the interest expense section.

- *Extraordinary items*. While by definition 'extraordinary and unpredictable', extraordinary items should be included when required. These items are not linked to sales driven activity; however, they can have a significant impact on the company's cash flow and you should therefore attempt to identify and quantify them. For example, is the company expecting to sell (asset strip?) or buy any operating units as part of the organization plan which your term lending facility is destined to finance, and are losses or gains expected to arise as a consequence? You should try to gain an understanding of the company's future plans if possible, in order to factor such variables into your forecasts.

Once you have determined profit before tax, most likely based on historical averages and then accordingly adjusting back for interest expense and extraordinaries, you will want to arrive at your *profit after tax* figure. This will require projecting taxes and dividends, which are treated as follows:

- *Taxation*. Taxation rates should be forecasted; you can use the standard rates in effect in the country in which the company is operating. For companies with operations in several countries, it may be preferable to calculate a flat historical average of taxation as a function of profit before tax (as in the example PL statement), and apply this average percentage against the projected profit before tax figure to arrive as a projected tax figure.
- *Dividends*. Dividends will impact the level of retained earnings, which will follow through to net worth and affect the company's requirement for new financing. Therefore, you should attempt to estimate the expected level of dividends and funds available to be ploughed back into retained earnings in order to arrive at an estimated retained earnings figure for each of the projected periods. To arrive at this estimate, work out the average historical ratio of dividends to profit after tax (known as the dividend payout ratio), and, as in the case of taxation above, deduct it from profit before tax in order to obtain your projected net profits.

As these categories are not sales driven, you may have to account for them individually, and provide some sort of justification of the figures in your projection assumptions summary sheet.

In the abbreviated PL example, for sake of simplicity, the PBT and PAT have been calculated using historical averages against net sales of 7.57 per cent (in this case identical, since there are no intermediary items).

Once you have completed the above, you will have a preliminary set of projected income statements which you should study in order to see whether the company's future performance looks hopeful, and as optimistic as the company's pronouncements in the information memorandum – which, albeit informative, is designed to sell the financing package.

However, your task is far from complete at this stage! Many of these accounts may be impacted by balance sheet developments. This is why the next logical step is to use your initial P/L projections (see Table 4.5)

Table 4.5 Completed AmaOS forecasted P/L statement

NAME:	AmaOS
LOCATION:	UK
BUSINESS:	Manufacturing
AUDITOR:	31 DEC Andersen
CONSOLIDATED:	Yes

PROFIT & LOSS	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
NET SALES	614,538	639,120	677,467	718,115	761,202	806,874
Cost of Sales	438,745	426,293	451,871	478,983	507,722	538,185
Depreciation						
Amortization of Goodwill						
Capital Grants						
GROSS PROFIT	**175,793**	**212,827**	**225,596**	**239,132**	**253,480**	**268,689**
SGA	230,791	159,333	168,893	179,026	189,768	192,154
NET OPERATING PROFIT	**−54,998**	**53,494**	**56,703**	**60,106**	**63,712**	**76,535**
Net Interest Expense	1,491					
Interest Income						
Prov Dbt Recv						
Equity Income						

(*continued*)

NPBT	**+56,489**	**53,494**	**56,703**	**60,106**	**63,712**	**76,535**
Provision for Income Tax						
Deferred Tax Provision						
NPAT	**−56,489**	**53,494**	**56,703**	**60,106**	**63,712**	**76,535**
Unusual Items:						
FX Gains/Losses	−59,865					
Unrealized F/X Gain/Loss						
Realiz Profits of Rel. Co.	−2,340	5,000	6,000	7,000	8,000	9,000
Reval Reserve						
Sundry Res						
Goodwill on Consol						
Unexplained Adjustment						
NPAUI	**5,716**	**48,494**	**50,703**	**53,106**	**55,712**	**67,535**
Dividends – Common						
Dividends – Preferred						
Min. Int. Expense						
RETAINED EARNINGS	**5,716**	**48,494**	**50,703**	**53,106**	**55,712**	**67,535**
Changes in Net Worth						
Stock Sold	0	0	0	0	0	0
Purch. Own Stock						
Chg. in Cap Surplus	0	0	0	0	0	0
Chg. in FX Reserve	0	0	0	0	0	0
Chg. in Reserves	0	0	0	0	0	0
Other	0	0	0	0	0	0
INCREASE IN NET WORTH	**5,716**	**48,494**	**50,703**	**53,106**	**55,712**	**67,535**
Cross Check RE:	0	0	0	0	0	0
Cross Check NW:	−0	0	0	0	0	0

and cash drivers to work out key elements in your balance sheet projection. Once the balance sheet projections have been completed, you may then, for good measure, have to return to the profit and loss to 'fine tune' certain items (such as interest expenses/income) before undertaking the cash flow construction.

Balance sheet projections

Making balance sheet projections differs from the approach adopted in the income statement projections. There are several different techniques used for the different accounts in the balance sheet.

The starting point is to project items in the balance sheet directly related to sales and income activity, known as 'working investment'.

Key activity ratios (see Table 4.6) are used in conjunction with the projected figures derived in the income statement to calculate these items.

Table 4.6 Completed AmaOS forecasted ratio sheet

NAME:	AmaOS
LOCATION:	UK
BUSINESS:	Manufacturing
AUDITOR:	Andersen
CONSOLIDATED:	Yes

FACT SHEET	2003	2004	2005	2006	2007	2008
ROE (%)	−17.85%	14.66%	13.64%	12.82%	12.15%	12.93%
ROS (%)	−9.19%	8.37%	8.37%	8.37%	8.37%	9.49%
ATO	1.22	1.23	1.20	1.24	1.26	1.26
ALEV	1.59	1.42	1.36	1.23	1.15	1.08
Sales (M/MM)	614538	639120	677467	718115	761202	806874
Chg. in Sales (%)	−3.8%	4.0%	6.0%	6.0%	6.0%	6.0%
CoGS/S (%)	71.4%	66.7%	66.7%	66.7%	66.7%	66.7%
GPM (%)	28.6%	33.3%	33.3%	33.3%	33.3%	33.3%
SGA/S (%)	37.6%	24.9%	24.9%	24.9%	24.9%	23.8%
NOP/S (%)	−8.9%	8.4%	8.4%	8.4%	8.4%	9.5%
TIE	#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
IE/Av. FD (%)	1.00%	#REF!	0.00%	0.00%	0.00%	0.00%
NPBT/S (%)	−9.2%	8.4%	8.4%	8.4%	8.4%	9.5%
Inc. Taxes/ NPBT (%)	#N/A	0.0%	0.0%	0.0%	0.0%	0.0%

(*continued*)

NPAT/S (%)	−9.2%	8.4%	8.4%	8.4%	8.4%	9.5%
NPAUI/S (%)	0.9%	7.6%	7.5%	7.4%	7.3%	8.4%
Div./NPAT (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Work Investment	249112	260773.17	276419.69	293004.78	310585.08	329417.3
Chg. in WI (%)	−32.6%	4.7%	6.0%	6.0%	6.0%	6.1%
WI/S (%)	40.5%	40.8%	40.8%	40.8%	40.8%	40.8%
AR DOH	53	55	55	55	55	55
INV DOH	173	172	172	172	172	172
RM DOH	22	0	0	0	0	0
WIP DOH	0	0	0	0	0	0
FG DOH	133	0	0	0	0	0
AP DOH	34	21	21	21	21	21
AE DOH	3	8	8	8	8	8
Av. GP T/O	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A
Av. NP T/O	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A
Av. GP/ DepExp.	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A
Av. AccDep./ DepExp.	#DIV/0!	#REF!	#N/A	#N/A	#N/A	#N/A
Av. NP/DepExp.	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A
Current Ratio	2.66	11.81	12.20	11.77	11.59	11.68
Quick Ratio	1.37	6.45	6.83	6.40	6.22	6.29
Coverage Ratio	2.30	2.87	3.27	4.55	6.63	11.68
CMB Leverage	0.59	0.42	0.36	0.23	0.15	0.08
% of Total Footings:						
STD (+CPLTD+ CPLO)	19.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Spont. Fin.	9.3%	7.2%	7.0%	7.3%	7.4%	7.4%
LTD	4.9%	22.4%	19.2%	11.5%	5.5%	0.0%
Grey Area	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Equity	63.0%	70.3%	73.8%	81.2%	87.1%	92.6%
CA	85.1%	85.2%	85.9%	85.7%	85.8%	86.0%
Net Plant	9.2%	9.3%	9.0%	9.3%	9.5%	9.5%
Other	5.7%	5.5%	5.1%	4.9%	4.7%	4.5%
Asset Cover (TA – TSL/TA)	63.0%	70.3%	73.8%	81.2%	87.1%	92.6%
WC Adequacy (WC/CA)	62.3%	91.5%	91.8%	91.5%	91.4%	91.4%
Reliance on Inventory	−28.5%	−101.4%	−108.6%	−100.5%	−97.2%	−98.1%
Change in WC (%)	9.0%	51.9%	9.8%	1.9%	4.2%	6.5%

For items such as cash and marketable securities, an average percentage approach of total assets or a 'plug' figure in conjunction with 'new money need' (calculated using debt runoff schedules and projected assets after all other balance sheet calculations are completed) can be used.

For the liabilities side of the balance sheet, you should first determine the known quantities. This will include items linked to sales (accounts payable). For items such as debt, debt runoff schedules incorporating the company's existing debt runoff schedules (provided in the company's accounts), and the debt runoff schedule of the proposed term lending facility should be prepared. Other items can be brought forward on a historical average basis (e.g. tax accounts).

For net worth projections, you will rely on a combination of projected retained earnings and expected equity injections. Finally, you will have to balance assets with liabilities: this will require calculating the company's 'new money need': a 'plug' figure which can be used in conjunction with the cash/marketable securities caption (after all other balance sheet calculations are completed).

You should note that a substantial number of the accounts that you will be projecting are sales driven, and will be calculated using sales driven ratios. Hence, in addition to using projection assumptions and the projected profit and loss statement you will be making extensive use of the ratio sheet, which is based on your historical spreadsheets. You should be familiar with the ratio sheet and aware of how the various ratios are calculated, since you will be manipulating them in order to construct your projections.

We shall examine each of these areas on a case-by-case basis in further detail below.

A depiction of a balance sheet exhibiting a typical growth scenario can be seen in Figure 4.4.

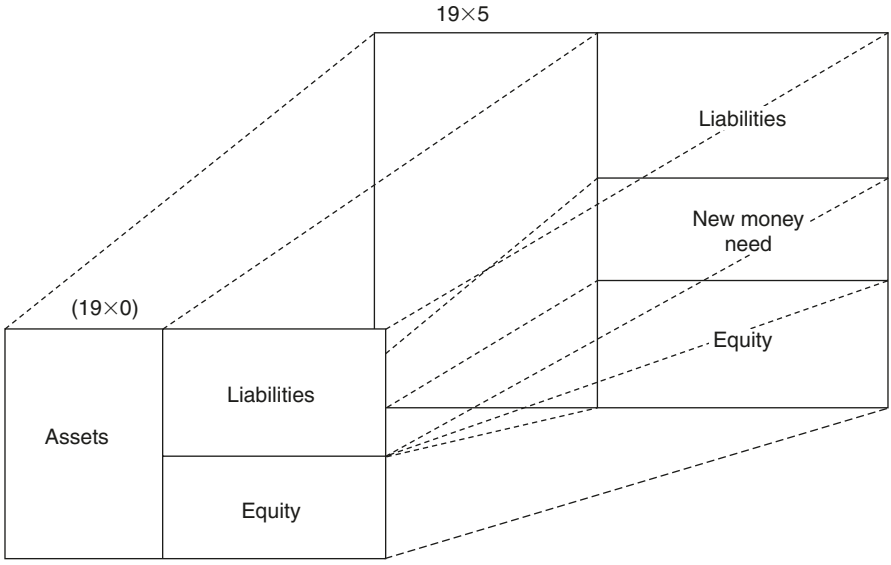

Figure 4.4 Projection of the balance sheet

Assets

The usual method of projecting the balance sheet is first to determine the primary asset categories which are linked to sales activities, and then adjust sundry items and cash to arrive at a preliminary total.

The working investment segment is the logical starting point in balance sheet projections, since the accounts are a direct function of sales. Working investment levels can have a significant effect on a firm's overall cash flow, since they are primarily composed of current assets and current liabilities. In addition, working investment levels are subject to a wide variety of rapidly changing conditions, and are largely a function of management discretion.

Working investment needs frequently increase proportionately with sales. However, there are many factors that can affect each component discretely, and that can alter the overall relationship of working investment to sales. To achieve the greatest accuracy in projections, therefore, working investment components are projected separately.

The technique usually applied in forecasting the working investment components is as follows.

1 Examine the historical turnover ratios on the ratio sheet of the spreadsheet, the relationship of the working investment components to sales (or cost of goods sold), and determine the causes for these historical ratios:
   - Sales/accounts receivable = Accounts receivable turnover
   - CGS/inventory = inventory turnover
   - CGS/accounts payable = accounts payable turnover
   - CGS/accrued expenses = accrued expenses turnover.
2 Decide on a turnover ratio that reflects your reasonable assumptions about what is likely to happen in the future to alter these ratios. Overall factors to consider include the following:
   - Historical trends – have the turnover ratios been relatively stable, or have they Fluctuated?
   - Projected economic conditions – what stage in the economic cycle do the projections represent, and how will the firm likely react to the economic conditions? (For example, in a recession a firm may liquidate inventory in anticipation of continued slowdown.)
   - Sales assumptions – working investment projections should reflect the assumptions on which sales have been projected. For example, sales increases resulting from the anticipated introduction of a new product line will usually be accompanied by an increase in the working investment accounts.
   - Factors affecting individual working investment components – factors to consider when evaluating the individual working investment components include accounts receivable (changes in selling terms as a means of meeting competition or extending markets); inventory (accounting methods – LIFO, FIFO – purchase commitments, availability of supply, price of raw materials); accounts payable (changes in term of trade, ability to ride trade, purchase commitments); and accrued expenses (ability to cut back on workforce or overhead, changes in the cost structure for labour or overhead).
3 Calculate the dollar value of each working investment account by applying the projected turnover rate for the account to the projected sales (or cost of goods sold) figure.

4 Check the reasonableness of the projected figures: (this means that the accuracy of the aforementioned is not certain and may need subjectively to be overridden).

Fixed assets, capital expenditure and depreciation

Depending on the type of company (capital intensive aircraft manufacturer), this forms one of the most important asset categories. Projections of the level of plant expenditures are based on three considerations:

1 *Management's plans for plant expenditure*. A company will often provide information on anticipated capital expenditures and operating capacities in its annual report. The amount and purpose of plant expenditures must be consistent with the assumptions on which sales projections have been made, and with the conclusions from historical analysis of the plant account.
2 *Historical analysis of plant*. Historical analysis of the plant account can provide information on the age, adequacy, capacity, utilization and efficiency of existing plant, and can assist the analyst in assessing the reasonableness of management's plans for plant expenditures.
3 *Sales assumptions*. The levels of sales and plant are inter-related. Although plant does not usually vary directly with sales, for a variety of reasons (accounting conventions, management decisions as to useful life, over- or under-capacity utilization, construction start-up time, and the fact that sales are in relatively current dollars and plant in older dollars), plant projections must be consistent with assumptions used to project sales. Important here is the aforementioned distinction between price and volume increases in sales. A sales increase attributable wholly to price requires no additional capacity. If there is a historical relationship between the level of sales and plant/machinery, the fixed asset turnover ratio may be helpful.

Example

Let us consider sales/net fixed assets (for simplicity's sake, net fixed assets excludes depreciation).

In our model, the last year's historical Sales/NFA ratio is:

$$614{,}538/46{,}182 = 13.30687281 \times$$

(meaning that 1 net fixed asset unit generates 13.3 units of sales).

Accordingly, for 2004, NFA is obtained by inverting the Sales/NFA ratio or:

$$639{,}120/13.30687281 = 48{,}029.$$

To derive net fixed assets for future years, that year's net sales figure is used in conjunction with the Sales/NFA ratio, as follows:

Historical	*2004*	*2005*	*2006*	*2007*	*2008*
Net sales: €614,538	€639,120	€677,467	€718,115	€761,202	€806,874
Sales/NFA ratio: 13.30687281	13.30	13.30	13.30	13.30	13.30
46,182	48,029	50,911	53,966	57,204	60,636

Inventory turnover

Again, depending on the type of company (e.g. supermarket or trading intermediary vs mobile telephone manufacturer), one of the most important categories of assets in a company's balance sheet is the level of inventories held. This account is directly related to the company's sales activity, and is the one most likely to reflect any changes in this activity.

The level of inventory held by a company varies from industry to industry, and is typically expressed as a function of sales; for example, a supermarket will perhaps hold 25 days inventory while a shipbuilder or aircraft manufacturer may approach 280 days. There are various statistical publications that provide data and averages regarding these ratios.

The objective therefore is to use the company's projected level of sales and historical average of DOH ratios to 'generate' an estimate of the levels or days of inventory that will be held by the company on the basis that if you know two elements of a formulae, you can calculate the third.

Example

From our historical spreadsheets, you will have seen that the historical ratio sheet contains four years of inventory DOH ratios. Since this performance will have varied over time, you can approximate the company's historical performance by taking an average of previous years' inventory DOH ratios.

FACT SHEET	*2000*	*2001*	*2002*	*2003*	*2004*
INV DOH	110	122	284	173	#N/A

Average inventory DOH = 172.14 days.

Once you have the average figure, you may see that there has been a 'trend' where the period has been gradually increasing. You may wish to override the DOH figure yourself in light of your current knowledge of the company.

In any case, once you have agreed on a inventory days-on-hand figure, you will want to derive a balance sheet pro forma inventory figure for each of the years you are projecting.

Adapting the inventory days on hand ratio:

(Inventory/CGS)*365 = inventory DOH

The formula to calculate the projected level of receivables is:

(CGS*inventory DOH)/365 = projected inventory

For example, using our sample spreadsheet CGS data,

	2004	*2005*	*2006*	*2007*	*2008*
CGS	**€426,293**	**€451,870**	**€478,983**	**€507,721**	**€538,185**

to project inventory for 2004, the calculation would be:

	2004	*2005*	*2006*	*2007*	*2008*
DOH	*172.14/365	*172.14/365	*172.14/365	*172.14/365	*172.14/365
Inventory DOH	201,042				

Try working out the inventory for years 2005 onwards.

Accounts receivable turnover

You can use the same approach outlined in the inventory example above to project accounts receivable. Once you have taken an average or agreed on a days receivable figure, you will want to derive a pro forma figure for each of the years you are projecting.

Example

Once again, adapting the accounts receivable in days ratio, the formula to calculate the projected level of receivables is:

(Net sales*receivables DOH)/365 = projected receivables

FACT SHEET	*2000*	*2001*	*2002*	*2003*	*2004*
AR DOH	38	74	57	53	#N/A

Average AR DOH = 55.50 days.

Using our spreadsheet data,

	2004	*2005*	*2006*	*2007*	*2008*
Net sales	€639,120	€677,467	€718,115	€761,202	€806,874

to project accounts receivable for 2004, the calculation would be:

	2004	*2005*	*2006*	*2007*	*2008*
DOH	*55.50/365	*55.50/365	*55.50/365	*55.50/365	*55.50/365
Accounts receivable DOH	97,175				

Try working out the accounts receivable for years 2005 onwards.

Cash and marketable securities

Cash and marketable securities are the accounts that are least related to sales and the company's ongoing operations:

- Cash arises from temporary liquid excesses due to seasonal variations, the sale of assets, or can be accumulated for special purposes such as potential acquisitions
- Marketable securities typically represent a temporary surplus of unused liquid assets which have been 'parked' into investment vehicles that provide a return on the assets.

In any case, it will be up to you to decide what levels of cash you believe will be appropriate for the company's future requirements, and qualify that level in your projection assumptions. You have considerable latitude with this heading, and can adjust it as you deem appropriate, within reason.

The cash accounts are also useful in the 'sensitizing' scenarios, where all the variables will have been calculated and the assets side of the balance sheet does not equal the liabilities. The 'cash' figure in the balance sheet can be adjusted to bring them into reconciliation (within reason!). You should also not forget to account for the fact that interest income is expected to be generated from these funds, and insert an estimated interest income figure in the projected profit and loss statement.

Example

In our sample worksheet, the company's sales growth is rather low. As we discussed, companies in a low sales growth scenario typically have strong liquidity. This, coupled with the new €100 million facility, means that the company's new money need is non-existent. In fact the company uses the facility to reduce its current liabilities, thereby strengthening its working capital position generates a cash surplus. Accordingly, after having worked out all the asset categories whose amounts are linked to the PL statement, a plug figure will eventually be inserted in the cash figure to balance the accounts.

As you sensitize for various scenarios (prepayment of debt, purchase of fixed assets), you will find that the relevant adjustments will occur in this category.

Liabilities

Once you have completed projecting the main asset categories, you must turn to the liabilities side to determine how this activity is going to be funded.

As with some of the asset categories, some of the liability accounts can be determined from net sales and the profit and loss account. This would include accounts payable and taxes. Other items such as debt can be worked out from historical data, as well as the facility you may be assessing in your credit proposal. Future injections of net worth may be disclosed or included.

Other accounts, however, will require some assessment: retained earnings and new money need. We discuss each of these categories in further detail below.

Current liabilities

Current liabilities typically include short-term funding facilities (overdrafts) and accounts payable. To project future overdrafts is not really

feasible, since they are not sales driven: you may therefore want to keep this category at a historical average or 'plug' since, as with the 'cash' accounts, overdrafts are not directly linked to any of the drivers we mentioned earlier.

In the example AmaOS forecasts, we have assumed that the new €100 million facility has been used to pay down the short-term debt portion of current liabilities and therefore current liabilities have been substantially reduced.

Accounts payable

The case for projecting accounts payable is identical to those other sales-driven asset categories outlined previously.

Once you have taken an average of historical days payables, or agreed on a days payable figure, you will want to derive a pro forma figure for each of the years you are projecting. Once again, adapting the accounts receivable DOH ratio, the formula to calculate the projected level of accounts payable is:

(CGS*payables DOH)/365 = projected payables

Example

From the spreadsheet:

FACT SHEET	*2000*	*2001*	*2002*	*2003*	*2004*
AP DOH	9	9	32	34	#N/A

Average AP DOH = 21.07 days.

	2004	*2005*	*2006*	*2007*	*2008*
CGS	**€426,293**	**€451,870**	**€478,983**	**€507,721**	**€538,185**

To project accounts payable for 2004, the calculation would be:

	2004	*2005*	*2006*	*2007*	*2008*
DOH	*21.07/365	*21.07/365	*21.07/365	*21.07/365	*21.07/365
Accounts payable DOH	24,609				

Try working out the accounts payable for years 2005 onwards.

Accrued expenses payable

The case for projecting accrued expenses payable is identical to that of accounts payable outlined above. Once you have taken an average of historical accrued expenses DOH, or agreed on an accrued expenses DOH figure, you will want to derive a pro forma figure for each of the years you are projecting.

Once again, adapting the accrued expenses payable DOH ratio, the formula to calculate the projected level of accrued expenses is:

((CGS + SGA)*accrued expenses DOH)/365 = projected accrued expenses

From the spreadsheet:

FACT SHEET	*2000*	*2001*	*2002*	*2003*	*2004*
AE DOH	5	6	18	3	#N/A

Average AE DOH = 8.00 days.

	2004	*2005*	*2006*	*2007*	*2008*
CGS	€426,293	€451,870	€478,983	€507,721	€538,185
SGA	€159,333	€168,893	€179,026	€189,768	€192,154
TOT	*€585,626*	*€620,763*	*€658,009*	*€697,489*	*€730,339*

To project accrued expenses for 2004, the calculation would be:

	2004	*2005*	*2006*	*2007*	*2008*
AE DOH	*8.00/365	*8.00/365	*8.00/365	*8.00/365	*8.00/365
Accrued expenses payable DOH	12,835				

Try working out the accrued expenses figure for years 2005 onwards.

Debt runoff schedule + future facility

Figure 4.5 illustrates debt runoff and debt capacity.

Building a debt runoff schedule is important because:

- it will enable you to see what sort of debt levels the company will be operating with, and the level of interest expense that will arise (to be inserted in the profit and loss projections)
- it will help you to estimate the company's 'new debt need' and complete the projected balance sheet
- it will help you in building an appropriate debt amortization schedule for new credit facilities your bank may be underwriting or participating in.

The company's latest annual report usually provides a breakdown of the company's debt according to various criteria (including current lease obligations, which are regarded as financing costs) in the notes to the financial accounts. Indeed, EC directives now require financial accounts to include debt amortization breakdowns in years. The breakdown you should be most interested in is the repayment schedule in years.

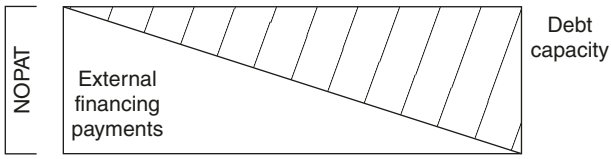

Figure 4.5 Debt runoff and debt capacity

Example

Let's assume that AmaOS's debt repayment schedule in the notes to the financial statements in its 2003 annual report shows that existing long-term debt (€24.848 million) is fully repaid in three years, with one-third being repaid each year. You can therefore include this in the debt runoff table under 'existing debt' and reduce it by one-third in 2004 (to €16.494 million), by one third in 2005 (to €8.247 million) and by one-third in 2006 (to €0), the final year. The debt runoff table at this stage should show how the company's debt is reduced (see Table 4.7).

Since you are most likely building these forecasts in order to gauge the appropriateness of a term lending facility whose terms and conditions you will have been provided with, you will also want to include the new facility in the table. Let's assume AmaOS's 2004 €100 million loan facility is repayable one-third in 2005, one-third in 2006 and one-third in 2007. This means that if the loan is granted in 2004, your new facility will show €100 million for 2004 and 2005, €66 million in 2006, €33 million in 2007, and €0 million in 2008.

You should arrange AmaOS's debt runoff in a format such as Table 4.7. The table should include the company's existing debt as well as proposed term debt facility (which forms the subject of the credit analysis). The runoff schedule should cover the life of the projections, and should then be totalled up to show the company's projected outstanding levels of debt. The total should then be inserted in the long-term debt portion of the forecasted balance sheet, and shown to run off accordingly. This can either be included as a single category or kept as two separate debt items for additional clarity when you insert them in the projected balance sheet: existing debt runoff and new debt runoff.

You will also want to estimate the interest expense the company will incur on this total debt (using a forecasted interest rate, 9 per cent in Table 4.7) at the bottom of the debt maturity table, since this figure will be later be inserted in the company's PL statement under the 'interest expense' category.

Table 4.7 Long-term debt and capital lease runoff schedule for AmaOS

AmaOS
LONG-TERM DEBT AND CAPITAL LEASE RUNOFF SCHEDULE
Interest Rate 9%

		2003	*2004*	*2005*	*2006*	*2007*	*2008*
1	Curr Port LTD	24,848	16,494	8,247	0	0	0
	LTD	0	0	0	0	0	0
	Int Expense	2,227	1,484	742	0	0	0
2	Curr Port LTD	0	0	0	0	0	0
	LTD	0	0	0	0	0	0
	Int Expense	0	0	0	0	0	0
3	Curr Port LTD	0	0	0	0	0	0
	LTD	0	0	0	0	0	0
	Int Expense	0	0	0	0	0	0
4	Curr Port LTD	0	0	0	0	0	0
	LTD	0	0	0	0	0	0
	Int Expense	0	0	0	0	0	0
5	NEW LT DEBT		100,000	100,000	66,667	33,333	0
	LTD	0	0	0	0	0	0
	Int Expense	0	9,000	9,000	6,000	3,000	0
6	Curr Port LTD						
	LTD	0	0	0	0	0	0
	Int Expense	0	0	0	0	0	0
7	CPLO	0	0	0	0	0	–
	LT O/S	0	0	0	0	0	0
	Int Expense	–	0	0	0	0	0
	TOT CPLTD	*0*	*0*	*0*	*0*	*0*	*0*
	TOTAL LTD	*24,741*	*116,494*	*108,247*	*66,667*	*33,333*	*0*
	TOT Int Exp 9%	*2,227*	*10,484*	*9,742*	*6,000*	*3,000*	*0*

Finally, it is very important to note that the debt runoff schedule is not a forecast of future levels of debt, but only that debt which already exists or is to be committed. Depending on the preliminary income statement, balance sheet and new equity projections, you may find that the company will generate a need for additional debt over and above that included in the debt runoff schedule. This separate future category is accordingly entitled 'new money need' (which can be either debt or equity), and is inserted under that heading in the projections.

Net worth

Forecasting net worth is relatively straightforward. The first step is to project expected levels of shares, factoring in any share issues that may or may not happen. Unless you have specific information concerning share issues, it is best to err on the side of conservatism and assume that any new money will consist of debt as opposed to new share issues (unless this is a specific requirement in the facility documentation).

You will also want to add the projected retained earnings from the income statement to the retained earnings brought forward in the balance sheet as outlined above, although this may be adjusted slightly subsequent to the 'fine tuning' of income statement items such as interest expenses, which will follow your initial set of rough projections.

Example

In our sample projections, we have assumed that AmaOS's equity remains unchanged at €52.5 million and that net worth growth is provided by net profit after dividend payments (retained earnings) as follows:

	2004	*2005*	*2006*	*2007*	*2008*
Share Cap	52,500	52,500	52,500	52,500	52,500
Historical Ret Earnings	312,505	363,208	416,314	472,026	539,561
264,011 Year's result	48,494	50,703	53,106	55,712	67,535
Net Worth	365,005	415,708	468,814	524,526	592,061

New money need

It is most likely that, after adding up the projected balance sheet, with all the categories you've projected, you'll find assets will not correspond to liabilities on the first attempt. This gap is represented in Figure 4.6 as 'new money need'. The reason for this is simply that each item was derived independently using heterogeneous criteria.

You may also find that your initial interest expense projections in the profit and loss will require an adjustment following your projected 'new

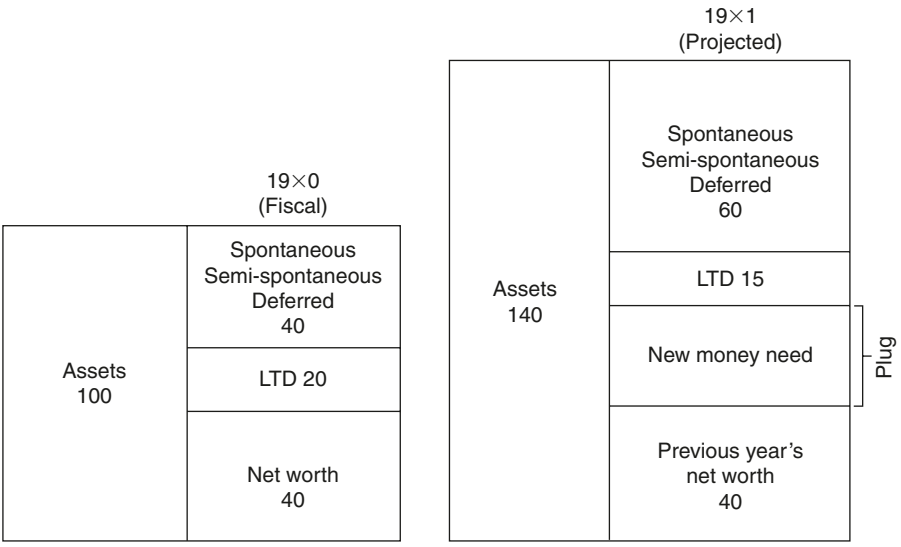

Figure 4.6 New money need

money need' figure. This will require a corresponding adjustment of your projected retained earnings figure to carry to the net worth account. This will then require a further incremental increase in 'new money need'. On computer programs this series of two or three cycles of adjustments is automatically calculated and is known as 'iterations'.

'New money need' is where this fine tuning comes in. After all these adjustments have been made, the balancing element can now be the cash account (surplus) or, if a desired balance has been established there, the new money need account (need).

A typical methodology is sequentially to:

- extrapolate on a straight-line basis retained earnings
- add the provisional P/L retained earnings account to the projected B/S retained earnings account
- carry forward cash at the last year's historical (or average) levels
- see where potential needs will arise.

New money need (NMN) is a 'plug' figure determined by Projected total assets – Projected known liabilities, as depicted in Figure 4.6.

Note that new money need, which is the gap between projected total assets and projected liabilities, will also include the amounts by which the original debt will have been amortized (see Figure 4.6).

(In our example spreadsheet, there is no new money need since the €100 million new money facility is being used to pay down current liabilities and thereby strengthen the company's working capital position.)

The picture is thus completed by inserting the new money need plug figure, which will equalize the assets and liabilities. This figure can be positive or negative, depending on the funds flows assumed. A 'positive cash balance' (or a 'negative new money need') will represent an excess of funds over the forecast needs, while a negative cash balance or positive accounts payable balance will indicate the need for obtaining additional funds.

Various sources of cash to service debt

The cash flow diagram in Chapter 3, Figure 3.6, illustrates that new money need can be obtained from various sources.
If operating profit is not sufficient to meet financing payments, alternative sources of cash may be available. However, if insufficient profitability is the major problem with the cash flow, these alternative sources of cash will be merely short-term palliatives.

- *Sources of equity and intercompany debt*. If the firm is closely held, or is a parent or subsidiary of a stronger firm with a vested interest in the firm's financial well-being, equity or debt injections may be available in times of cash flow difficulties.
- *Refinancing and restructuring*. As interest rates have increased over the years, many companies have committed to short-term debt, betting that rates would drop. Firms are often willing to refinance to stretch out loan amortization schedules over a longer term, thus reducing financing payments. The company may also have unused lines of credit that could be drawn down to pay current portions of long-term debt on a temporary basis. The tenor of the debt, however, may be due to other factors, such as high leverage that has prevented access to long-term markets.

(*continued*)

- *Cash and marketable securities*. Some firms hold cash and/or marketable securities above what might be needed to meet seasonal needs, and these may sometimes be liquidated as an alternate source of cash. Companies frequently build up these accounts in periods of high earnings in anticipation of poor periods or periods of heavy expenditures, such as for the building of a plant.
- *Working investment*. Permanent working investment can often be reduced by tightening inventory controls or receivables collections, thus releasing cash to be used for other purposes. Must a base stock of inventory, for example, be maintained at existing levels? Can sales terms be accelerated, or can the firm obtain better terms from its suppliers? In addition, a one-time infusion of cash can sometimes be obtained by selling a group of receivables to a factor.
- *Fixed asset investments*. Another option sometimes available to a firm is the sale and leaseback of fixed assets providing a one-time source of cash. The firm may have other assets or investments of value that can be sold without restricting the firm's operating capacity.
- *Dividends*. Although firms may be unwilling to cut off entirely the payment of dividends, they may be willing to pay them out at a lower level. Other methods of 'tightening the belt' include delaying plant expenditures or discontinuing unprofitable operations. Knowledge of the firm's operations is essential in order to identify such sources.

Fine tuning the ultimate amount of new money need is done by a process of estimation. There are four steps:

1 Estimate retained earnings and new debt
2 Calculate interest expense on new debt
3 Complete income statement based on interest expense estimates
4 Fine tune initial estimate of retained earnings and repeat above three steps.

Finally, you should step back a while and think about your 'new debt need' figure. While you may have a 'plug' figure which balances your

projections and appears reasonable, you will want to consider what this actually represents.

Obviously, it represents new debt obtained from other banks. Is this in itself a reasonable assumption? Will the company be able to fund itself via the capital markets without any difficulties? Does this tally with say the company's credit rating? Although your projections may indicate that the company can operate in a state of equilibrium, perhaps the indicators will be negative and the company will not be able to obtain new debt for a variety of reasons. You should therefore think carefully about what this 'new debt need' figure represents, and the likelihood of obtaining it without any undue difficulties.

Amortization schedule for new debt

Once the pro forma accounts and cash flow have been completed and new money need estimated for five projected years, the analyst can use 'sensitivity analysis' to test the upper and lower boundaries of the firm's probable future debt capacity.

This basically means playing with input variables such as sales, expenses, interest rates, currency rates, debt amortization schedules, etc. The idea is to see which of these variables can have the most adverse impact on the company's financial condition, so that appropriate measures or control mechanisms can be structured.

This will also require defining the composition of new money need, as the manner in which this is broken down will have an impact on the company's balance sheet structure, funding costs and risk profile. It does not make sense, for example, to allocate the entirety of a company's new money need to debt if this weakens the company's capital structure to the point that it cannot service its debt, violates its financial covenants or net worth covenants, or weakens its credit rating.

This is why sensitivity analysis and the breakdown of new money need may result in the bank imposing certain conditions on the borrower,

such as minimum net worth covenants, or commitments for future capital increases via various vehicles such as long-term debt, private placements, mezzanine finance, etc.

The allocation of new debt thus requires an analysis of the firm's projected cash flow. The technique usually employed is first to review the major projected sources and uses of cash on a cumulative basis. For example, if the new debt is being used to finance plant, the need is long term.

The tenor of the need is, in fact, probably longer than the bank would be willing to finance. In such a case, a revolving credit with takeout from a private placement would be one possible financing package.

In general, the issues that should be considered in structuring new money need can be summarized as follows:

- Debt servicing ability must be considered. The analyst must judge whether the additional financing payments, particularly CPLTD, that would result from the particular financing vehicle can be covered by the firm's cash flow and dividends.
- Tenor matching may indicate an appropriate allocation of new debt need. In general, the tenor of the asset being financed should match the tenor of the financing vehicle.
- The timing of the financing need is another consideration. For example, a revolving credit may be appropriate for a financing need that fluctuates throughout the year or the five-year period, while a standby term loan may be suited to finance construction that will be completed in stages.
- Flexibility in repayment is also important. If, for example, the firm's projected cash flow indicates flexibility in its ability to repay a loan, a revolving credit may be more appropriate than a term loan.
- The firm's historical preference in choosing financing vehicles should be reviewed, and may indicate the type of financing that should be recommended (e.g. a company may prefer debt in order to avoid share issues and the spectre of hostile takeovers).
- The financial leverage resulting from the new debt taken on should be considered. An increase in debt may result in a capital structure that

is too highly leveraged to provide the bank sufficient protection against loss.
- Previous loan covenants should also be considered – it would be counterproductive to impose conditions that would cause the borrower to default on previous loan commitments.

Along with determining the composition of new debt there is the need to determine an appropriate amortization schedule which is reasonable in relation to the firm's projected cash flow. This is to ensure that the recommended amortization schedule:

- is consistent with other requirements such as liquidity
- does not cause the company to violate existing financial covenants
- provides a comfortable margin of free cash flow or unused debt capacity to absorb unforeseen adverse circumstances.

As new debt amortizes, several things can happen to the company's projected financial statements:

- The CPLTD from the runoff of the new debt will increase the total CPLTD shown in the financing payments section of the cash flow. The new debt should be structured so as to start amortizing only when the firm can pay it back, and not before.
- Total liabilities will not change (other things remaining equal), but current liabilities will increase by the amount of the CPLTD associated with new debt running off.
- Ratios and other measures linked to current liabilities will change whilst ratios that vary with total liabilities (such as the leverage ratio) will remain the same.

The implication of these changes is that a firm's liquidity will be affected as new debt runs off. This is why it is important to consider these effects when structuring lending facilities.

Completed AmaOS forecasted balance sheet

Table 4.8 is the completed AmaOS forecasted balance sheet.

Table 4.8 Completed AmaOS forecasted balance sheet

NAME:	13.306873	AmaOS
LOCATION:		UK
BUSINESS:		Manufacturing
AUDITOR:	31 DEC	Andersen
CONSOLIDATED:		Yes

ASSETS	2003	2004	2005	2006	2007	2008
Cash	131,680	144,160	168,087	159,973	161,533	173,471
Marketable Securities						
Accounts Receivable – Trade	88,628	97,175	103,006	109,186	115,737	122,682
Accounts Receivable – Other						
Sundry Current Assets						
Inventory	207,424	201,042	213,105	225,891	239,445	253,811
Raw Materials	26,162					
Work in Progress						
Finished Goods	159,880					
Other	21,382					
CURRENT ASSETS	**427,732**	**442,378**	**484,198**	**495,051**	**516,715**	**549,964**
Land, Buildings, Equipment	53,803	48,029	50,911	53,966	57,204	60,636
Leased Assets						
Plant in Construction						
Accumulated Depreciation	−7,621					
TOTAL OTH GENERAL ASSETS	**46,182**	**48,029**	**50,911**	**53,966**	**57,204**	**60,636**
Quoted Investments						
Unquoted Investments	28,537	28,537	28,537	28,537	28,537	28,537
Invest in Associated Companies						
Loans to Associated Companies						
Prepaid Expenses						
Sundry Assets						
Goodwill						
Other						
TOTAL ASSETS	**502,451**	**518,944**	**563,646**	**577,554**	**602,456**	**639,137**

LIABILITIES						
Bank Loans and O/Ds						
Other ST Debt	99,450					
CPLTD						
CPLO						
Customer Prepayment						
Accounts Payable	41,063	24,609	26,086	27,651	29,310	31,069
Accrued Expenses	5,877	12,835	13,606	14,422	15,287	16,007
Income Tax Payable	9,059					
Dividends Payable	5,643					
Due to Affiliates						
Sundry CL 1						
Sundry CL 2						
CURRENT LIABILITIES	**161,092**	**37,445**	**39,691**	**42,073**	**44,597**	**47,076**
Long Term Debt	24,848	16,494	8,247			
New Debt		100,000	100,000	66,667	33,333	
Subordinated Debt						
Total Long Term Debt	24,848	116,494	108,247	66,667	33,333	0
Other Creditors						
TOTAL LIABILITIES	**185,940**	**153,939**	**147,938**	**108,740**	**77,930**	**47,076**
Deferred Taxes						
Minority Interest						
Common Stock	52,500	52,500	52,500	52,500	52,500	52,500
Preferred Stock						
Capital Surplus						
Revaluation Reserve						
Legal Reserve						
FX – Translation Reserve						
Retained Earnings	264,011	312,505	363,208	416,314	472,026	539,561
NET WORTH	**316,511**	**365,005**	**415,708**	**468,814**	**524,526**	**592,061**
TOTAL LIABILITIES & NET WORTH	**502,451**	**518,944**	**563,646**	**577,554**	**602,456**	**639,137**
Cross-check (TA – TL)	0	0	−0	−0	0	0
Contingent Liabilities:						

Cash flow projections

Now that we've completed our balance sheet and income statement forecasts, we can turn to analysing the spreadsheet generated cash flow forecasts to gain an understanding of how the anticipated scenario will impact on the company's expected performance, see whether the company will have sufficient cash flow to service and amortize new and existing debt, and establish whether the proposed repayment schedule is appropriate.

There are several formats that can be devised for cash flow projections. The cash flow statement for AmaOS (see Table 4.9) is a typical sample. It should be noted that there is no standardized method of calculating cash flows, and that analysts can use differing models.

Construction and evaluation of future cash flow model

Cash flows can be constructed in several ways, from the simple to the more time consuming. We will consider a relatively time-consuming model which appears in the AmaOS spreadsheets in order to gain a clear understanding of the underlying principles of the typical computer-generated cash flow model.

Once these principles are understood, producing various sensitized scenarios by changing some of the underlying assumptions will have the advantages of the speed of the computer model coupled with an understanding of the underlying principles.

The first step in constructing a cash flow is to identify sources and uses of funds, as these phrases are commonly used by companies.

Remember that an increase in assets represents a USE of cash and will therefore be a cash outflow (i.e. NEGATIVE), while an increase in liabilities represents a SOURCE of cash or funding and will therefore be a cash inflow (i.e. POSITIVE). For clarity, negative figures in the cash flow should be in <parenthesis>.

Examples of sources and uses appear in Table 4.10.

These inflows and outflows are depicted in Chapter 3, Figure 3.6.

Table 4.9 Completed cash flow projections sheet

NAME:	AmaOS
LOCATION:	UK
BUSINESS:	Manufacturing
AUDITOR:	31 DEC Andersen
CONSOLIDATED:	Yes

CASHFLOW	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
NPAUI: NET PROFIT AFTER UNUSUALS	**5,716**	**48,494**	**50,703**	**53,106**	**55,712**	**67,535**
Bloc 1						
+ Interest Expense	1,491	0	0	0	0	0
Unusual:	−59,865	0	0	0	0	0
Plant						
Investment	0	0	0	0	0	0
FX-Adj.	−2,340	5,000	6,000	7,000	8,000	9,000
Other (1 + 2)	0	0	0	0	0	0
Other (3 + 4 + 5)	0	0	0	0	0	0
− Interest Income	0	0	0	0	0	0
− Dividend Income	0	0	0	0	0	0
− Equity Income	0	0	0	0	0	0
− Commission Income	0	0	0	0	0	0
Sundry Inc./Exp.	0	0	0	0	0	0
+ Prov. f. Income Tax	0	0	0	0	0	0
− Income Tax Paid	−31,396	−9,059	0	0	0	0
+ Prov. f. Def. Tax	0	0	0	0	0	0
− Def. Tax Paid	0	0	0	0	0	0
− ITC (Gov't Grants)	0	0	0	0	0	0

(*continued*)

NOPAT: NORM OP PROFIT AFTER TAX	**−86,394**	**44,435**	**56,703**	**60,106**	**63,712**	**76,535**
Bloc 2						
+Depreciation	0	0	0	0	0	0
+Amort. of Goodwill	0	0	0	0	0	0
+Prov. f. Dbtf. Rec.	0	0	0	0	0	0
COPAT: CASH OP PROFIT AFTER TAX	**−86,394**	**44,435**	**56,703**	**60,106**	**63,712**	**76,535**
Bloc 3						
Gross (Net) A/Rec.	11,804	−8,547	−5,830	−6,180	−6,551	−6,944
−A/Rec. charged off	0	0	0	0	0	0
Inventory	127,117	6,382	−12,063	−12,786	−13,553	−14,367
Cust. Prepayments	0	0	0	0	0	0
Acc./Payable	3,588	−16,454	1,477	1,565	1,659	1,759
Accrued Expenses	−21,759	6,958	770	816	865	720
Chg. Work. Inv.	120,750	−11,661	−15,647	−16,585	−17,580	−18,832
Prepaid Expenses	0	0	0	0	0	0
Due to Affiliates	0	0	0	0	0	0
Sundry C.A.	0	0	0	0	0	0
Sundry C.L. (1+2)	0	0	0	0	0	0
CACO: CASH AFTER CURRENT OPS	**34,356**	**32,774**	**41,056**	**43,521**	**46,132**	**57,703**
Bloc 4						
−Interest Expense	−1,491	0	0	0	0	0
−CPLTD (incl. CPLO)	0	0	0	0	0	0
= Finan. Payments	−1,491	0	0	0	0	0

CBLTU: CASH BEFORE L/T USES	**32,865**	**32,774**	**41,056**	**43,521**	**46,132**	**57,703**
Bloc 5	59,536	−1,847	−2,882	−3,055	−3,238	−3,432
−Net Pl. Expend.						
Investments	16,162	0	0	0	0	0
+Interest Income	0	0	0	0	0	0
+Dividend Income	0	0	0	0	0	0
Sundry Inc./Exp.	0	0	0	0	0	0
Market. Secur. + Dep.	0	0	0	0	0	0
Due from Affiliates	0	0	0	0	0	0
Sundry NCA	452	0	0	0	0	0
Sundry NCL	0	0	0	0	0	0
Unusual: all other	2,340	−5,000	−6,000	−7,000	−8,000	−9,000
+ITC (Gov't Grants)	0	0	0	0	0	0
CBF: CASH BEFORE FINANCING	**111,355**	**25,927**	**32,174**	**33,466**	**34,894**	**45,271**
Bloc 6						
Short Term Debt	−48,957	−99,450	0	0	0	0
Long Term Debt	0	91,646	−8,247	−41,580	−33,334	−33,333
Minority Interest	0	0	0	0	0	0
Grey Area	0	0	0	0	0	0
FX – Translation G/L	0	0	0	0	0	0
–Dividends paid	−41	−5,643	0	0	0	0
Chg. in Net Worth	0	0	0	0	0	0
Change in Cash	**62,357**	**12,480**	**23,927**	**−8,114**	**1,560**	**11,938**
Cash Account	**−62,357**	**−12,480**	**−23,927**	**8,114**	**−1,560**	**−11,938**

Table 4.10 Sources and uses of assets

SOURCES (inflow)	*USES (outflow)*
Cash generated from operations	Cash absorbed by operations
Equity issues	Dividends
Sale of fixed assets	Purchase of asset/investment
Additional short/long term debt	Repayment of debt
Dividends from associates	Payments to minority interests
Government grants	Closure/redundancy costs
Increase accounts payable	Decrease accounts payable
Decrease inventories	Increase inventories
Decrease accounts receivable	Increase accounts receivable

Preparing the cash flow is the most purely mechanical aspect of our task, since all the underlying variable assumptions and guesswork and estimates will already have been factored into our profit and loss/balance sheet statements. There is no new information to consider, but there is analysis to be done so that we can better understand what the figures mean.

We will consider the cash flow statement (Table 4.9) bloc by bloc.

The first bloc of the cash flow matrix starts with the bottom figure of the income statement, net profit after unusual items, and adjusts this figure accordingly (see Table 4.11).

The idea is to remove all the distortions arising from extraordinary items and dividend payments and arrive at a normalized operating profit after tax figure. For example, the losses attributed to subsidiaries and FX movements in the company's P/L are added back since these funds were actually generated (but deducted in the P/L) by the company during the year.

The second bloc (see Table 4.12) in the cash flow statement in turn is adjusted for depreciation and other non-cash items such as goodwill. This translates into a rough estimate of cash flow, which some banks use as their definition of cash flow.

On our matrix, we refer to this as cash operating profit after tax.

Table 4.11 The first bloc of the cash flow matrix

NPAUI: NET PROFIT AFTER UNUSUALS	5,716	48,494	50,703	53,106	55,712	67,535
Bloc 1	1,491	0	0	0	0	0
+Interest Expense						
Unusual: Plant	−59,865	0	0	0	0	0
Investment	0	0	0	0	0	0
FX-Adj.	−2,340	5,000	6,000	7,000	8,000	9,000
Other (1 + 2)	0	0	0	0	0	0
Other (3 + 4 + 5)	0	0	0	0	0	0
−Interest Income	0	0	0	0	0	0
−Dividend Income	0	0	0	0	0	0
−Equity Income	0	0	0	0	0	0
−Commission Income	0	0	0	0	0	0
Sundry Inc./Exp.	0	0	0	0	0	0
+Prov. f.	0	0	0	0	0	0
Income Tax						
−Income Tax Paid	−31,396	−9,059	0	0	0	0
+Prov. f. Def. Tax	0	0	0	0	0	0
−Def. Tax Paid	0	0	0	0	0	0
−ITC (Gov't Grants)	0	0	0	0	0	0
NOPAT: NORM OP PROFIT AFTER TAX	−86,394	44,435	56,703	60,106	63,712	76,535

COPAT basically adjusts NOPAT by adding back these items because they represent non-cash expenses which have been deducted from the income statement. The company's actual cash expenses during the year were less (by the amount of the items) than was recorded on the income statement, so we adjust accordingly. The idea is to arrive at a net operating cash figure through these adjustments.

To work towards a true estimate of the company's cash flow, however, you must adjust for more than just depreciation. This is where the third bloc of the cash flow statement comes in (see Table 4.13). This bloc adjusts our gross operating cash flow figure by the variations witnessed

Table 4.12 The second bloc of the cash flow matrix

CASH FLOW	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
NOPAT: NORM OP PROFIT AFTER TAX	−86,394	44,435	56,703	60,106	63,712	76,535
Bloc 2						
+Depreciation	0	0	0	0	0	0
+Amort. of Goodwill	0	0	0	0	0	0
+Prov. f. Dbtf. Rec.	0	0	0	0	0	0
COPAT: CASH OP PROFIT AFTER TAX	−86,394	44,435	56,703	60,106	63,712	76,535

in the current assets and current liabilities categories, also referred to as 'cash after current operations' (changes in working investment).

Here, we are eliminating the distorting effects of the various working investment balance sheet movements in order to arrive at a view of the actual cash generated by the company's operations. For example, in 2005 we see that inventory increased by €12 million, and the gross accounts receivable account by €5.8 million (negative). Conversely, accounts payable increased by €1.4 million (positive). Remember, an increase in assets represents an outflow of funds while an increase in liabilities represents an inflow of funds.

Moving through the various current asset/current liability items in the balance sheet items, this tracks the changes between the previous year's and current year's accounts, as shown above. Hence, this third bloc of the cash flow statement adjusts COPAT for the various changes in working investment, to yield a cash after current operations figure.

In this bloc, we are basically adjusting for the change from one year to the next that has occurred in both current assets and current liabilities in order to establish whether the net movement represented an inflow or outflow of funds in the company's accounts. To place this in perspective, if the company had high levels of inventory in the previous year and ran them down without purchasing large quantities of raw materials to

Table 4.13 The third bloc of the cash flow matrix

CASH FLOW	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
COPAT: CASH OP PROFIT AFTER TAX	−86,394	44,435	56,703	60,106	63,712	76,535
Bloc 3						
Gross (Net) A/Rec.	11,804	−8,547	−5,830	−6,180	−6,551	−6,944
–A/Rec. charged off	0	0	0	0	0	0
Inventory	127,117	6,382	−12,063	−12,786	−13,553	−14,367
Cust. Prepayments	0	0	0	0	0	0
Acc./Payable	3,588	−16,454	1,477	1,565	1,659	1,759
Accrued Expenses	−21,759	6,958	770	816	865	720
Chg. Work. Inv.	120,750	−11,661	−15,647	−16,585	−17,580	−18,832
Prepaid Expenses	0	0	0	0	0	0
Due to Affiliates	0	0	0	0	0	0
Sundry C.A.	0	0	0	0	0	0
Sundry C.L. (1 + 2)	0	0	0	0	0	0
CACO: CASH AFTER CURRENT OPS	34,356	32,774	41,056	43,521	46,132	57,703

replace them, this development represents a contribution to the company's cash flow.

The fourth bloc adjusts CACO for financing payments and interest expenses to arrive at a cash flow before long term uses (financing) uses (see Table 4.14).

Basically, the company's financial commitments can be divided into two areas:

1 Interest expenses on the company's current debt obligations
2 Repayments of principal on its debt which is due in the current year (called current portion of long term debt, or CPLTD).

Table 4.14 The fourth bloc of the cash flow matrix

CASH FLOW	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
CACO: CASH AFTER CURRENT OPS	34,356	32,774	41,056	43,521	46,132	57,703
Bloc 4	−1,491	0	0	0	0	0
−Interest Expense						
−CPLTD (incl. CPLO)	0	0	0	0	0	0
=Finan. Payments	−1,491	0	0	0	0	0
CBLTU: CASH BEFORE L/T USES	32,865	32,774	41,056	43,521	46,132	57,703

Adjusting CACO to obtain CBLTU is one of our most accurate indicators of the cash generated by the company. CBLTU is our most important measure because it not only indicates what amount of cash was actually generated by the company during its year of operations, it also shows us how much cushion or interest coverage the company has available to service debt commitments. However, we aren't through yet!

The fifth bloc (cash before financing) indicates where the company's internal funding came from – plant expenditures, investments, interest income, purchase or sale of securities, or unusual items (see Table 4.15).

CBF leads us in turn to the sixth and final bloc of the statement – where the company's external financing is coming from (see Table 4.16).

For AmaOS, we can see that the company's long-term debt reduced by €8.247 million and that this (decrease in liabilities) represented an outflow of funds (hence negative in the cash flow statement).

The final line of the cash statement, after tracking all the changes in the balance sheet except the cash account, leaves a residual figure which corresponds to the actual movement in the cash account (in this case, an increase of €23.9 million).

Table 4.15 The fifth bloc of the cash flow matrix

CASH FLOW	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
CBLTU: CASH BEFORE L/T USES	32,865	32,774	41,056	43,521	46,132	57,703
Bloc 5	59,536	−1,847	−2,882	−3,055	−3,238	−3,432
−Net Pl. Expend.						
Investments	16,162	0	0	0	0	0
+Interest Income	0	0	0	0	0	0
+Dividend Income	0	0	0	0	0	0
Sundry Inc./Exp.	0	0	0	0	0	0
Market. Secur. +Dep.	0	0	0	0	0	0
Due from Affiliates	0	0	0	0	0	0
Sundry NCA	452	0	0	0	0	0
Sundry NCL	0	0	0	0	0	0
Unusual: all other	2,340	−5,000	−6,000	−7,000	−8,000	−9,000
+ITC (Gov't Grants)	0	0	0	0	0	0
CBF: CASH BEFORE FINANCING	111,355	25,927	32,174	33,466	34,894	45,271

Needless to say, if the end result of the cash flow statement does not balance, this means that an error has occurred – typically:

- the balance sheet does not balance
- the income statement does not properly reconcile the difference between net profit and its various allocations, leaving the year's retained earnings to reconcile with the change in retained earnings in the company's balance sheet
- there is an error in the programming of the cash flow spreadsheet (check your positives and negatives: assets: Y1 – Y2, liabilities: Y2 – Y1!).

Table 4.16 The sixth bloc of the cash flow matrix

CASH FLOW	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
CBF: CASH BEFORE FINANCING	111,355	25,927	32,174	33,466	34,894	45,271
Bloc 6						
Short Term Debt	−48,957	−99,450	0	0	0	0
Long Term Debt	0	91,646	−8,247	−41,580	−33,334	−33,333
Minority Interest	0	0	0	0	0	0
Grey Area	0	0	0	0	0	0
FX – Translation G/L	0	0	0	0	0	0
–Dividends paid	−41	−5,643	0	0	0	0
Chg. in Net Worth	0	0	0	0	0	0
Change in Cash	62,357	12,480	23,927	−8,114	1,560	11,938
Cash Account	−62,357	−12,480	−23,927	8,114	−1,560	−11,938

Cash flow ratio analysis

Having completed our financial projections, we can now step back and try to see what it all means. Usually, the computer models will calculate a series of ratios based on the projected cash flow statements. While the thrust of this book has been on the mechanics involved in preparing projected financial statements as opposed to the subject of ratio analysis, it is worth briefly touching on the specialized ratios that relate to cash flow statements (see Table 4.17).

Interest cover ratio

$$\text{Interest times cover} = \text{NOCF/interest expense}$$

Table 4.17 Ratios relating to cash flow statements

ADDITIONAL FIGURES:	*2003*	*2004*
NOPAT/FP	−57.95	#N/A
NOPAT/(FP + DIV.)	−56.40	7.87
FREE CASH FLOW	−87884.88	44435
FREE CF (after Div.)	−87925.88	38792
GROWTH FUNDED INTERNALLY	0.0%	328.9%
G.F.I. (after Div.)	0.0%	287.2%
YEARS TO SERVICE RATIO	#N/A	2.6
Y.T.S. (after Div.)	#N/A	2.6

This ratio basically measures how many times the company's cash flow can cover its interest expense (i.e. service but not repay existing debt commitments). A cover greater than 1 is essential, and bankers typically look for a factor of 3 or greater. This is dependent on the volatility of operating profits and interest rates. If you have a ratio of 1.5 or lower, you should find out what the company is doing now or in the future in order to correct this position, or else re-analyse the credit to see if there are other viable sources of repayment (e.g. asset sales).

Financing payments cover ratio

Finance PMT times cover = NOCF/(interest expense + CPLTD + dividends)

This ratio examines what portion of operational cash flow is used to service debt and pay dividends. Again, the higher the ratio, the better the credit. This ratio is perhaps of more use than most debt cover ratios for those larger corporate customers whose dividends are cut by management only in the last resort.

Total debt payout

Total debt payout years = total interest bearing debt/NOCF

This ratio helps to give a feel for the company's ability to repay debt on current (historic) cash flow performance. It is particularly useful when compared to a company's debt repayment schedule. (European Community companies must note in their accounts how much debt matures in one year, two years, and three to five years.)

Long term debt payout

LT debt payout years = total interest bearing LTD/NOCF

This ratio is similar to the previous one. It assumes, however, that the short-term debt in current liabilities, although only committed one year at a time, is evergreen in nature. The banks making the commitments might view the situation differently!

When looking at the number of years, it is important to relate it to the expected life of the assets that are generating the cash flow: if the payout is within five years, this would be conservative for a property investment company but not for a service company with minimal fixed assets.

Debt service ratio

DSR = NOCF/(ST debt + CPLTD + interest expense)

This is the real test of whether a company can service its debt assuming the bankers call in all short-term borrowings, as well as measuring whether cash flow covers interest expense and the amortizing portion of long-term debt.

The bank's control over such types of lending will reside on establishing financial covenants and conditions on the borrower to ensure that the lender retains some element of control on the borrower should the financial condition deteriorate. This topic will be treated in a subsequent section.

Sensitivity analysis

We are now ready to put into use the concepts we have been exploring. Some words of caution should, however, be expressed at this point. All of the forecasting methods described up to here are based on the initial

assumptions we have made. The assumptions necessary to make forecasts are often made, with substantial uncertainty, on the basis of:

- historical relationships (to the extent that it is reasonable to expect the future to be the same as the past)
- management forecasts (to the extent that there are not obvious forces biasing management)
- industry data (not overly useful, as there typically exists a wide range of diverse companies within an industry)
- common sense.

Although you may not know which variables the results are most sensitive to, you may have an idea. If these variables can be isolated, not only can the area of concern be isolated but also, and just as importantly, the extent to which the expected results would be affected by changes in these variables can be established.

This can be accomplished by running a series of new forecasts in which all the original assumptions except one are held constant. This is known as a 'sensitivity analysis'. In such an analysis, each of the variables can be changed individually to determine which are of crucial importance.

For example, you may not be convinced by the company's sales projections and may want to change them, or you may decide that cost of goods sold will rise, as will debt or interest expenses, and want to 'sensitize' the forecasts accordingly.

You may also want to see how much of a sales downturn and for how long would be required before a company started to violate its financial covenants and erode its net worth, position in order to assess what sort of worst-case scenario the company could survive.

With computer forecasting models you can test these changes within a matter of minutes, and generate infinite variations such as 'base line' (neutral), 'downside', 'expensive debt', 'equity injection', 'Rasta Dub Mix', 'Party House Mix' or which ever mix your credit committee prefers.

Figures 4.7–4.11 obviously depict the linear nature of the extrapolated statements. Reality, of course, is anything but linear.

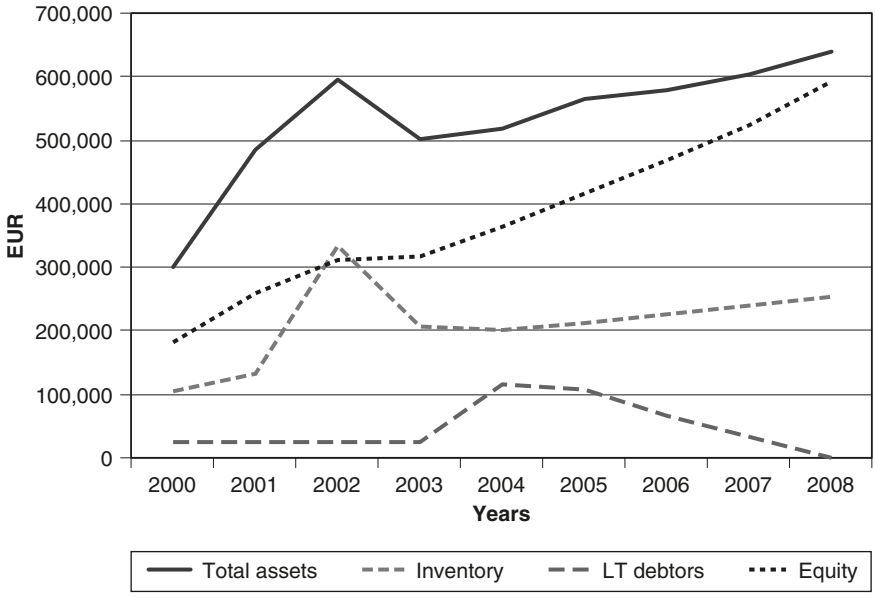

Figure 4.7 AmaOS financial highlights

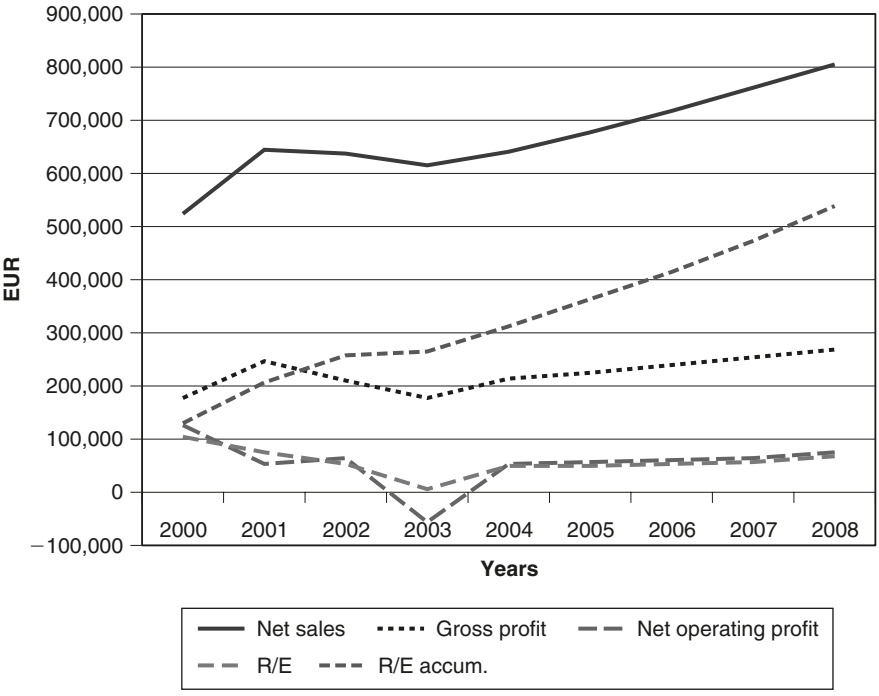

Figure 4.8 AmaOS P/L

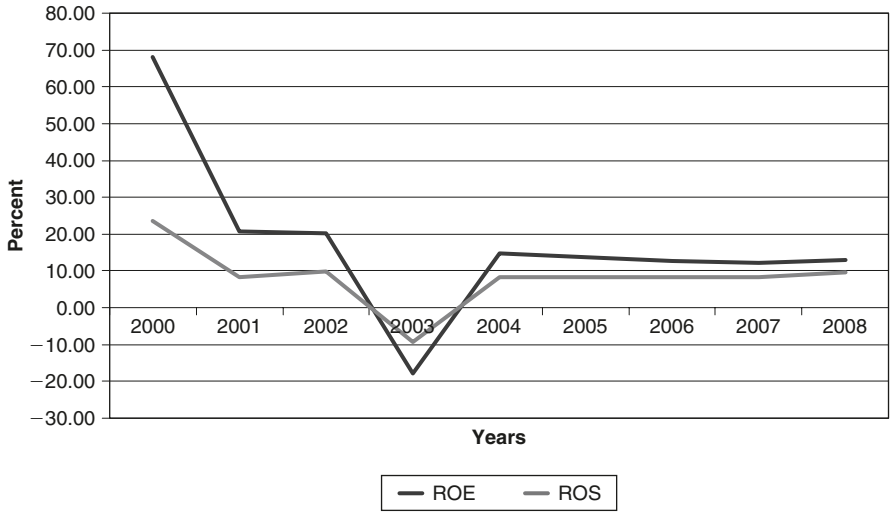

Figure 4.9 AmaOS profitability

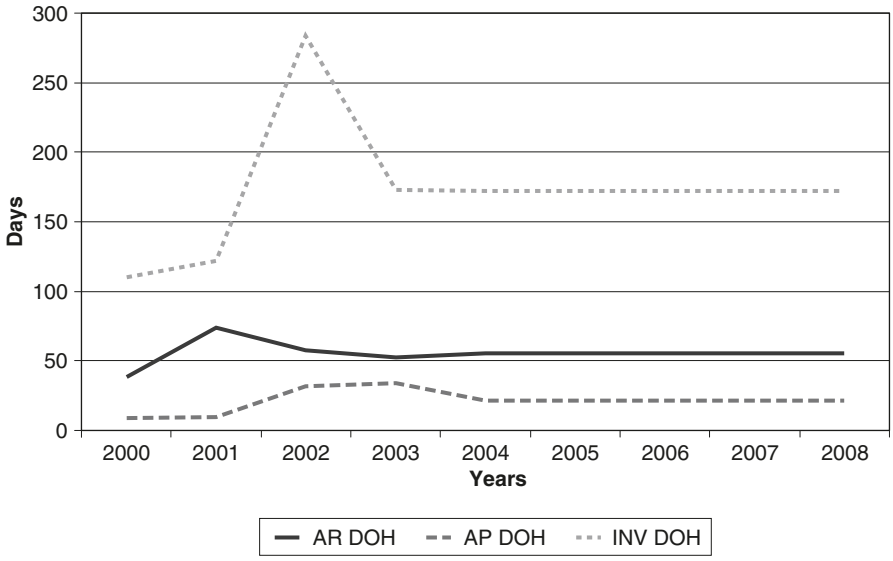

Figure 4.10 AmaOS activity ratios

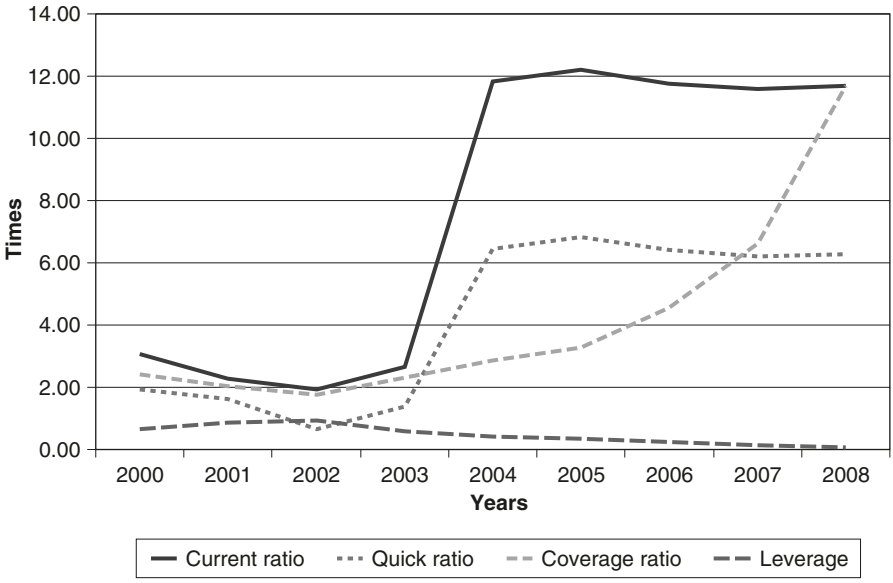

Figure 4.11 AmaOS capitalization/liquidity

Protection and control in term lending

Covenants, events of default, and their relationship to projections

Cash flow forecasting is a tool, and obviously should be linked to the issues of protection and control. In term lending, the bank expects to be repaid from cash flow – primarily from a level of future profits. From our analysis of financial projections, we can see that the bank's protection against loss in term lending has two aspects:

1 The future prospects of the firm – that is, its ability to generate a high and stable level of profits in the future (i.e. future sources of cash)
2 The future financial strength of the firm, as measured by its liquidity (working capital position) and leverage (i.e. future uses of cash, primarily debt obligations).

Analysis of problem credits in the past has shown the key financial and other indicators that accompany trouble in a firm's ability to generate sufficient cash flow (either internally or externally) to meet its needs and

ensure its solvency include the following:

- inadequate working capital
- a sharp fall in the market value of a company's stock, reflecting the market's perception of the company's future cash flow
- low or negative retained earnings in relation to assets
- an unexpected change in 'corporate objectives' or 'business profile', such as in introducing new products or divisions
- vulnerability to economic cycles from debt heavy balance sheets or high fixed cost operations
- debt repayment schedules inappropriate in relation to cash flow.

In order to protect against loss and to control the source of repayment, loan agreements are drawn up in order to define and govern the conditions surrounding and affecting the proposed loan. Loan documentation in itself could form the subject of an entire book. We shall however, touch briefly on aspects that relate specifically to the company's financial condition and ability to generate cash flow sufficient to service debt commitments.

The first requirement is to ensure that the debt amortization schedules which have been set up in the loan agreement are appropriate in terms of the firm's projected cash flow. The second is to verify that financial covenants, which are designed to preserve and control the firm's cash flow and its financial strength, have been included in the loan documentation.

Financial covenants are conditions which define the framework of the financial plan agreed upon by the company and the bank. Drafting this framework is typically a process of negotiation, and the degree of protection which is obtained through such negotiations can vary and is often imperfect. Indeed, some companies may vigorously resist the inclusion of such covenants. We briefly cover the main types below:

- *Primary covenants* include factors that have a direct impact on the company's financial statements. These include limitation of future debt (including contingent liabilities), prohibition of new secured debt or obligations which will rank ahead of the proposed term loan

('negative pledge'), provision for a minimum level of working capital, and provision for a minimum level of net worth. Such limits can either be defined in absolute ($/*) or ratio terms. Requirements for the company to provide audited financial statements on a regular basis in order to verify the above should also be included in the loan agreement.

- *Secondary covenants* include aspects related to the company's management and ongoing operations. These can include prohibition on the sale of subsidiaries or assets, limitations in the prepayment of other debt, prohibitions on mergers or consolidations without consent of the lenders, limitations in investments or capital expenditures, and limitations in dividends. Conversely, rather than limiting dividend payments, 'ratcheting' clauses requiring minimal annual increases in net worth may be included.

In assessing the future loan facility, it will be necessary to test the covenants that have been included in the loan agreement and see how they hold up against the projections you will have prepared. You may want to sensitize your forecasts for a downside scenario to see whether the proposed covenants will enable the banks to take action to protect their loan before it becomes too late to arrest the company's financial deterioration.

Finally, there are 'events of default'. These establish conditions under which the lending bank has the right to accelerate repayment of the loan. This right to accelerate is rarely used, but typically gives the lenders the control to renegotiate lending terms or take other steps in order to protect the loan before it is too late. The events of default that we are concerned with refer specifically to breaching (failing to meet) financial covenants. Often, lenders may temporarily breach covenants; in these cases, waivers are typically requested from (and granted by) the banks.

While loan covenant issues are not directly related to the mechanics of cash flow projections and analysis, the final projections you will have prepared will naturally be held up against those covenants to see how effective they are. It is therefore a good idea to have addressed these issues in the event you are questioned on them.

Conclusion

What confidence can you have in forecasts? A frank answer is 'not very much', although there are a number of factors that could qualify that answer. That, however, is partially beside the point. The main value of forecasts to the analyst is not necessarily diminished by the fact that they may be perceived not to be completely airtight. It is easy for critics to look at a given forecast and shoot holes in it on the basis that there are bound to be certain assumptions that will not hold true. Furthermore, the greater the number of assumptions and the further into the future they go, the more sceptical the observer becomes – for the possible scenarios are literally limitless.

Too often, bankers ascribe too much meaning to such forecasts. To recap, projections are useful:

- to evaluate appropriateness of proposed term lending
- in constructing covenants/facility structure
- as a tool in ultimate credit decision
- as tools in problem loan restructuring.

They are not meant to predict the future, but can be useful in helping to reach an informed decision.

It should also be noted that the exponential effect on straight-line scenarios means that a small variation in Year 1 assumptions, extrapolated through to Year 5, may result in completely ridiculous balance sheet structures necessitating manual 'nip and tuck' overrides, thus making a mockery of the exercise of carefully selecting input variables. If this is the case, you should backtrack and ensure that you are making the proper assumptions, or at least develop convincing answers to the probing questions your credit committee will no doubt relish subjecting you to.

Analysts and rating analysts traditionally harp on about the 'quality of cash flow', which basically considers that a company which can report a 'steady and consistent earnings stream' is a 'better credit' than one whose aggregate earnings over a number of years is the same but which suffers volatility from year to year.

While this sounds wonderful in theory, in an era of mergers, acquisitions, divestitures, and permanent restructurings, as well as layoffs and outsourcing, harping on the virtues of stable cash flow today seems as pedestrian as advocates of historical ratio analysis were considered to be by aficionados of cash flow analysis in the 1980s. A look at the Vodafone cash flow provides ample evidence of this.

Moreover, the plethora of accounting scandals in 2003 and acknowledgement by industry gurus that the accounting profession has regressed to exercises of profit inflation, obfuscation, legerdemain, dysfunction and fraud means that the foundation of your analytical work – published accounts – may in themselves be unreliable.

To adopt a well known maxim of computer programming: 'GIGO' (Garbage In, Garbage Out) means that it is absolutely essential that you, the analyst, be able to understand the underlying quality of the information you are incorporating into your financial projections model and accordingly understand the inherent shortcomings of the data as well as the projection model.

Indeed, the main value of projections may not be as a forecasting tool but as a due diligence tool to ensure, in the event your bank is sued for negligence, that 'prudent lending principles' using 'established financial analysis techniques' were 'diligently adhered to', and that the finger of blame can thus move on, during the witch hunt, to the auditors of the company's financial statements!

Finally, while the use of sophisticated software packages which produce forecasts save time, you should understand how they work. You don't have to be a computer programmer, but you should at least know whether, for example, if you lower or raise debt in a company's balance sheet, will the changes arising in interest expenses be calculated by the model and accordingly inserted in the profit and loss statement or not? Another example is a case where you base the level of accounts receivable on sales. If you decide to change the sales growth assumption, do you have to adjust accounts receivable accordingly on the balance sheet, or does the computer model do so automatically?

While computer models are accurate and save time, you should at least understand how the model works so that you are able to answer any trick questions your enemies in the credit committee may throw at you.

Chapter self-test

1. Projections are useful for:
   (a) Predicting future company performance
   (b) Identifying a company's sensitive financial areas
   (c) Predicting bankruptcy
   (d) Identifying potential financial problems
   (e) Giving clues to a company's ability to repay debt

2. A company is expected to repay a large loan in semi annual instalments over a period of five years. The expected source of repayment would normally be:
   (a) The company's levels of cash
   (b) The company's finished goods in inventory
   (c) Accounts payable
   (d) Interest income
   (e) Cash flow from operations

3. What is the importance of net worth in cash flow analysis?
   (a) It indicates the company's ability to repay a loan
   (b) It indicates financial strength
   (c) It is used in calculating gearing
   (d) It indicates management effectiveness
   (e) None of the above

4. CF analysis differs from profit analysis in that:
   (a) It is harder to predict
   (b) Profit can be positive while CF can be negative, meaning the company may experience debt repayment problems
   (c) It is more precise than profit analysis
   (d) It can be used to predict gearing
   (e) It accounts for funds flows other than profit

5. What is cash flow lending?
   (a) Lending where repayment is from ongoing operations
   (b) Lending where repayment is secured by collateral
   (c) Lending where repayment is guaranteed by a parent

6. Building projections starts with forecasting:
   (a) Profits
   (b) Profitability
   (c) Sales
   (d) Gearing
   (e) Debt

7. What are cash drivers?
   (a) Items that contribute to profits
   (b) Items that generate cash
   (c) Profit and loss items that are linked to certain balance sheet items
   (d) Items that repay debt
   (e) Items that are used to project balance sheet accounts

8. Forecast assumptions are important because they
   (a) Predict future activity
   (b) Inform the reader of what underlies the projections
   (c) Define what variables are being used
   (d) Predict failure
   (e) Are used in calculating activity ratios

9. Historical profit margins are useful because they
   (a) Give clues to past performance
   (b) Can predict failure
   (c) Indicate profitability
   (d) Are used in calculating projected profit and loss accounts
   (e) Can indicate upwards or downwards trends

10. What can be wrong with using historical averages in projections?
    (a) They give a broad idea of the company's performance
    (b) They are useful in comparing subject with competitors
    (c) They do not accounts for trends which may have occurred

(d) They can give a good basis for projections
(e) They can even out the effects of one-off occurrences

11. In the balance sheet example, we have assumed that AmaOS's surplus funds arising from the €100 million debt facility and retained earnings stream are balanced on the assets side of the balance sheet by cash holdings. Which criticisms of this scenario are valid?
    (a) Cash should be linked to sales
    (b) It is unlikely that AmaOS would borrow debt just to hold it as cash and not invest it in fixed assets
    (c) Cash should be used to repay debt

12. Why might AmaOS hold the surplus funds as cash?
    (a) To generate interest income
    (b) To increase working capital
    (c) To use for unforeseen major acquisitions

13. If AmaOS shifted its surplus holdings from cash to fixed assets, what would happen?
    (a) Sales would increase
    (b) Cash flow would increase
    (c) Working capital would decrease

14. Using the information below, fill in the blanks:
    Sales 450,000
    Gross profit margin 35%
    Operating profit margin 17%
    Inventory DOH 95
    Accounts payable DOH 68
    Accounts receivable DOH 37
    Cost of goods sold
    Gross profit
    Operating profit
    Inventory
    Accounts payable
    Accounts receivable

15. Why is new money need usually assumed to be debt?
    (a) To obtain conservative gearing ratios
    (b) Companies rarely indicate equity issues over a five-year timeframe
    (c) It results in a higher interest expense yielding a conservative interest cover ratio

16. If you adjust CGS upwards to account for increased future expenditures, what will happen to accounts payable?
    (a) Accounts payable will increase
    (b) Accounts payable will decrease
    (c) There will be no change

17. If trends indicate that inventory turnover is going to slow down, which element in the projections calculation (CGS*Inv DOH/365) would you change, and how, to account for this?
    (a) Cost of goods sold up
    (b) Inventory DOH up
    (c) Inventory DOH down
    (d) a, b
    (e) a, c

18. If AmaOS uses its €100 million facility to reduce current liabilities, which of the following statements would be true?
    (a) Working capital would rise
    (b) Interest expenses would fall
    (c) Interest expenses would be more predictable

Chapter self-test answers

Q1: (b), (d), (e)

Q2: (e)

Q3: (e) (although all are true, only (e) relates to CF analysis)

Q4: (b), (e)

Q5: (a)

Q6: (c)

Q7: (c), (e)

Q8: (b), (c)

Q9: (a), (d), (e)

Q10: (c)

Q11: (b)

Q12: (c)

Q13: (e)

Q14: Cost of goods sold 292,500

Gross profit 157,500

Operating profit 76,500

Inventory (CGS) 76,130

Accounts payable (CGS) 54,493

Accounts receivable (CGS) 9,650

Q15: (a), (b), (c)

Q16: (a)

Q17: (b)

Q18: (a), (c). Current liabilities would fall, improving the working capital position. The long-term funding profile would be not only more predictable but more stable. (b) might be true, but you can't answer (b) because it is unlikely that you could establish the true interest cost of fluctuating current liabilities.

Chapter 5

Cash flow forecasting of project finance

Introduction

In the previous section we looked at how to build projected financial statements based on historical financial statements, and in turn use the cash flow statement generated by the spreadsheet to undertake an analysis about the borrower's future ability to repay credit facilities. This exercise in turn entailed mastering various supporting component techniques such as net sales projections, historical averages of ratios, manipulating ratios, constructing debt runoff schedules, and making assumptions about allocation of new money needs. All this is useful when looking at a company with a historical track record.

There are other scenarios, however, that require cash flow projection techniques – for example, a merger of two companies, or the case of creating a special purpose vehicle to build a large-scale construction project such as a metro system, airport, road or dam. Here we are also interested in the use of projections, for example in understanding the future condition of an entity that a lender may be presently considering extending finance to. In this case, the key importance in preparing projections is not only to assess the inherent credit risk but also how to enhance that risk due to judicious structuring of the financing facility and identification of negotiating points to enhance that security further.

The underlying data and focus of this analysis will therefore be quite unlike that in the preceding chapter, and the analytical and construction techniques will be significantly different.

In this chapter we will look at the case of a special purpose vehicle designed to build a housing subdivision for expatriates in a foreign country, as this injects an element of juridical uncertainty into the equation and necessitates building financial projections without the use of a balance sheet or historical data. In effect, you, as an analyst, are forming a set of financial projections without any underlying historical financial data.

In this example, your bank is being approached to participate in a syndicated loan facility whose terms and conditions are summarized as follows.

Details of project and borrower

Borrower	OASIS RESIDENCES (Durakistan) Ltd
Amount	€2,000,000 participation in a €8,000,000 loan (it is proposed that the bank should act as Agent Bank)
Purpose	To finance the construction of 40 executive houses in Durakistan, a small country in the Middle East, together with associated engineering and site works
Period of drawdown	Eighteen months from date of loan
Repayment	Five equal annual instalments of €1,600,000 commencing 12 months from date of loan agreement
Security offered by customer	Charge over the project plus the possibility of a guarantee from Oasis Residences (International) Ltd
Interest rate	Tentatively 8%

Oasis Residences (International) Ltd., the international arm of the Oasis Residences Group PLC, has formed a new company – Oasis Residences (Durakistan) Ltd – for the purpose of the above project. Oasis Residences (International) Ltd does not, however, have any equity interest in this new company. Local interests wholly own it under the law of the land.

The borrower has entered into a form of agreement with the Emir of Durakistan to lease a plot of land in Durakistan, and will enter into further contracts with Oasis Residences (Homes) Ltd UK for the supply and erection of 40 prefabricated houses.

The engineering, ancillary site works etc. will be carried out by local subcontractors. The company advises that the demand for houses of this

nature from international companies operating in Durakistan for their expatriate staff is strong. In view of the serious shortage of accommodation in the area, no difficulty is foreseen in letting the houses; in fact, a number of Letters of Intent to lease the houses are already being negotiated.

Repayment of the loan will come from the rental income, after deduction of overheads, payments under the Head Lease, etc.

The Oasis Residences Group is a good customer of the bank, but the bank's General Management Committee has recommended that further exposure should be on a secured basis only. The legal opinion and cash flow have been obtained, and extracts are reproduced here.

The following legal opinion has been received from the bank's lawyer:

> The 'Head Lease' of the land constitutes an agreement whereby the use of the land, and all proceeds there from, are granted by the lessor to Oasis Residences (Durakistan) Ltd for a period of ten years. Oasis Residences (Durakistan) Ltd have an obligation under the agreement to complete the housing project up to local building standards within period of two years at a cost of not less than €8 million. This is to ensure sufficient expenditure in Durakistan and on the project. If it does not comply with this obligation within the specified two years, the lessor has the right to terminate the agreement and reclaim the land. At the end of the ten-year lease period, ownership of the land, the housing and all proceeds there from revert to the lessor.
>
> This is necessarily a rather artificial agreement when considered in the light of the whole transaction, and we feel that we should add the following general comments. The Law of the State of Durakistan relating to the business of contracts of works requires that all companies must either be wholly owned by a Durakistani national or be granted a Durakistani decree of exemption before it can operate in this field. At the present the authorities are not issuing such decrees, and so the majority of construction companies are operating by supplying a Durakistani company with management and expert construction advice. In practice, this means that their position is exactly the same as set out in the agreement. This fact is fully

accepted by the authorities, who have never interfered with or questioned this practice as it is appreciated that such expertise is necessary, but at the same time the ultimate responsibility or the works remain with a Durakistani as required by the relevant legislation. In this case, the authorities are less likely to investigate this work as it is not their practice to interfere in an individual Durakistani's affairs.

In conclusion, therefore, we would comment that, although some vestige of doubt must remain as such practice has never been brought before the commercial court and has not been directly approved in all the circumstances, we consider that in practice this is a satisfactory arrangement.

The agent bank has provided summary financial statements for the project.

Cash flow forecasting

Step one

Before committing to financing, you are asked to identify the major risks of the project. In particular:

- what questions would you ask about the assumed cash flow figures (see Table 5.1)?
- what relevant general points can be made?

Observations

- No rental increases or variable testing have been factored into the model
- No occupancy rates or variable testing have been factored into the model
- There is no segregation of operational and financial expenses
- There is no variable testing of interest expenses
- There is no ability to calculate financial rations
- First indications indicate a weak (negative) cash flow, but it is difficult to see this in terms of total cash inflows
- This is basically a rudimentary and poorly designed set of projections, although there is enough information present to undertake a more thorough analysis.

Table 5.1 Oasis Residences Project Finance Case Study No. 1

YEAR	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Cash Inflows										
Equity Capital	1000									
Loan	7300	700								
Rental Income	240	2340	2340	2340	2340	2340	2340	2340	2340	2340
Net Elec Receipts	2	144	144	144	144	144	144	144	144	144
Total Inflows	**8542**	**3184**	**2484**	**2484**	**2484**	**2484**	**2484**	**2484**	**2484**	**2484**
Cash Outflows										
Construction Costs	6657	952								
Legal Fees	200									
Ground Rent	500	500	500	500	500	500	500	500	500	500
Loan Interest	255	534	448	320	192	64				
Loan Repayment		1600	1600	1600	1600	1600				
Total Outflows	**7612**	**3586**	**2548**	**2420**	**2292**	**2164**	**500**	**500**	**500**	**500**
Cash Surplus/ Deficit	**930**	**−402**	**−64**	**64**	**192**	**320**	**1984**	**1984**	**1984**	**1984**
Cumulative Surplus/Deficit	**930**	**528**	**464**	**528**	**720**	**1040**	**3024**	**5008**	**6992**	**8976**

Step two

You are asked to check whether the cash flow cover for interest payable and debt repayment each year is acceptable.

Rearrange the cash flow table to arrive at new lines for:

- net cash flow before finance payments
- interest and debt repayment
- total interest and debt payments.

Calculate the debt service ratio for each year. What comments would you make about it?

(See Table 5.2.)

Observations

- The model has been redesigned to include cash flow *before* and *after* financing payments
- This enables debt service ratios in function of pre-finance available cash flows to be calculated

Table 5.2 Oasis Residences Project Finance Case Study No. 2

YEAR	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Cash Inflows										
Equity Capital	1000									
Loan	7300	700								
Rental Income	240	2340	2340	2340	2340	2340	2340	2340	2340	2340
Net Elec Receipts	2	144	144	144	144	144	144	144	144	144
Total Inflows	**8542**	**3184**	**2484**	**2484**	**2484**	**2484**	**2484**	**2484**	**2484**	**2484**
Cash Outflows										
Construction Costs	6657	952								
Legal Fees	200									
Ground Rent	500	500	500	500	500	500	500	500	500	500
Operating Outflows	**7357**	**1452**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**500**
Net CF Before Finance Pmts	**1185**	**1732**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**
Loan Interest	255	534	448	320	192	64				
Loan Repayment		1600	1600	1600	1600	1600				
Total Debt + Interest Pmts	**255**	**2134**	**2048**	**1920**	**1792**	**1664**	**0**	**0**	**0**	**0**
Total Outflows	**7612**	**3586**	**2548**	**2420**	**2292**	**2164**	**500**	**500**	**500**	**500**
Cash Surplus/Deficit	**930**	**−402**	**−64**	**64**	**192**	**320**	**1984**	**1984**	**1984**	**1984**
Cumulative Surplus/Deficit	**930**	**528**	**464**	**528**	**720**	**1040**	**3024**	**5008**	**6992**	**8976**
Debt Service Ratio	**4.65**	**0.81**	**0.97**	**1.03**	**1.11**	**1.19**	**NA**	**NA**	**NA**	**NA**

- We can therefore see that the DS ratio is consistently weak and that the facility is ill-adapted to the project cash flows (as they stand)
- The model still does not enable variable input analysis to be made, however, and is still a poorly designed spreadsheet.

Step three

For the purposes of analysis, and to assist in restructuring the finance package, the bank decides that a minimum figure of 1.40 should be set for the debt service ratio. Considering the riskiness of the project, this should be sufficient to maintain acceptable cover in the event of adverse variations in constructing costs and rental income.

Working within this new constraint, it comes up with a revised cash flow (see Table 5.3).

Table 5.3 Oasis Residences Project Finance Case Study No. 3

YEAR	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Construction Costs	−6657	−952								
Legal Fees	−200									
Ground Rent	−500	−500	−500	−500	−500	−500	−500	−500	−500	−500
Rental Income	240	2340	2340	2340	2340	2340	2340	2340	2340	2340
Net Elec Receipts	2	144	144	144	144	144	144	144	144	144
NOCF	**−7115**	**1032**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**
Equity Capital	2000									
Loan	5500	1000	500							
NC Before Finance	**385**	**2032**	**2484**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**	**1984**
Loan Interest		451	395	306	204	202	275			
Loan		1005	1385	1111	1213	1215	1075			
Total Fin Outflows	0	1456	1780	1417	1417	1417	1350	0	0	0
NCF	385	576	704	567	567	567	634	1984	1984	1984
DS Ratio		1.40	1.40	1.40	1.40	1.40	1.47	NA	NA	NA

Calculate the debt service ratio for each year. What comments would you make about it?

Observations

The spreadsheet has been redesigned to separate cash inflows from operations, and from debt. We also see that the project financing has been restructured with:

- a €1 million reduction in the loan outstanding
- a €1 million capital injection varying (lowered) annual repayments
- a longer repayment period stretching over six years as opposed to five.

This shows the ability to inject capital and adjust the size/tenor of the facility to yield a more acceptable DS ratio (as a potential negotiating point). However, this is not ideal, since the repayment period is a non-standard six years. Moreover, none of the key underlying net sales assumptions have been identified or tested.

The new spreadsheet enables the company forecasts and DS rations to be graphically depicted as in Figures 5.1 and 5.2.

Step four

The bank tests the new package by flexing:

- construction costs
- rental prices
- occupancy rates
- electricity receipts
- equity injections
- debt injections
- amortization schedules
- interest expenses.

This necessitates a complete redesign of the spreadsheet to enable the manipulation of variable inputs. The resulting effect on the cash flow is shown in Table 5.4.

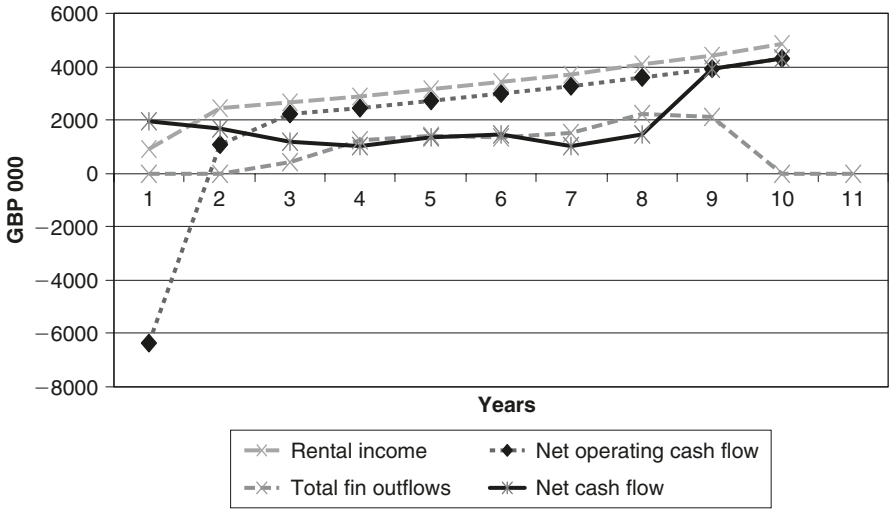

Figure 5.1 Housing project cash flow model, base case

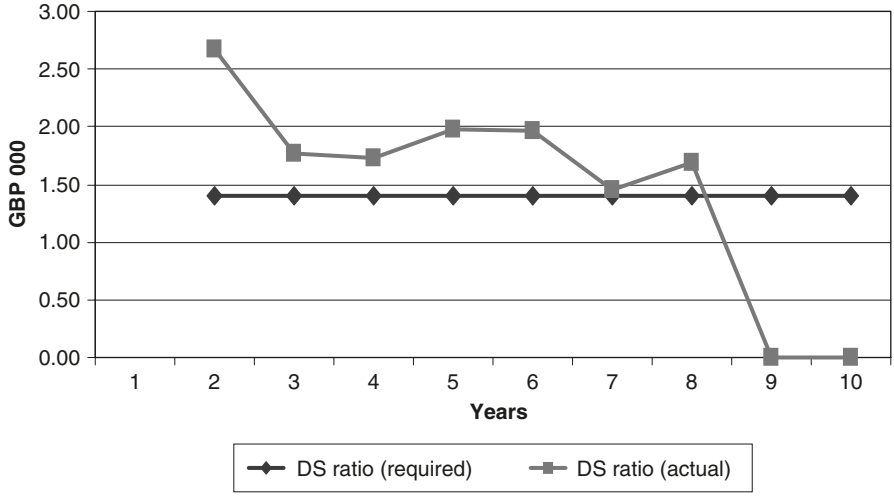

Figure 5.2 Housing project cash flow model, debt service ration – base case

Table 5.4 Oasis Residences Project Finance Case Study No. 4

VARIABLE INPUT ZONE										
Increase in house rent	9.0%		DSR	130%		Int Rate	6%		Equity	1500
Increase in land rent	3.0%	Y1	FULL rent	2340		Y1 elec	144			
Occupancy	40%	95%	95%	95%	95%	95%	95%	95%	95%	95%
FULL occupancy	2340	2551	2780	3030	3303	3600	3924	4278	4663	5082
YEAR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Construction Costs	−6657	−952								
Legal Fees	−200									
Ground Rent	−500	−515	−530	−546	−563	−580	−597	−615	−633	−652
Rental Income	936	2423	2641	2879	3138	3420	3728	4064	4429	4828
Net Elec Receipts	58	137	137	137	137	137	137	137	137	137
Net Operating Cash Flow	−6363	1093	2247	2469	2712	2978	3268	3586	3933	4313
Equity Capital	1500									
Loan	6800	1000	200							
NCF Before Finance	1937	2093	2447	2469	2712	2978	3268	3586	3933	4313
Loan outstanding	6800	7800	7200	6200	5200	4000	2000	0	0	0
Loan Interest		408	468	432	372	312	240	120	0	0
Loan			800	1000	1000	1200	2000	2000		0
Total Fin Outflows	0	408	1268	1432	1372	1512	2240	2120	0	0
Net Cash Flow	1937	1685	1179	1037	1340	1466	1028	1466	3933	4313
Carry forward Net	1937	3621	4801	5838	7178	8644	9672	11137	15070	19383
DS Ratio Actual		**268%**	**177%**	**172%**	**198%**	**197%**	**146%**	**169%**	**NA**	**NA**
DS Ratio Required		**140%**	**140%**	**140%**	**140%**	**140%**	**140%**	**140%**	**140%**	**140%**

Comment on the impact on the bank and on shareholders. Are any further measures needed?

Observation

It is obvious that the earlier three spreadsheets were poorly designed and did not enable a proper sensitivity analysis to be made. Accordingly, the final spreadsheet has been completely redesigned with the following innovations:

- All input variables are colour-coded to the appropriate area of the spreadsheet.
- All input variables are grouped at the top of the spreadsheet in a 'dashboard format' so that individual variables can be changed and the net effect seen in the spreadsheet.
- Key financial indicators are linked to graphs that provide a clear view of the project cash flow dynamics.
- Rental income in the previous models exhibited no increases for ten years! The new spreadsheet sensitizes the rental income stream to two key elements – rental increases and occupancy rates.
- The occupancy rates can therefore build up more slowly and rental increases be phased in over time. This has a dramatic effect on project cash flow and the profits accumulated during the ten-year timeframe.
- Electricity receipts are linked the occupancy rates.
- Land rent is subject to an annual increase.
- Equity can be adjusted.
- Outstanding debt is subject to variable interest rate changes.

Such a model enables the identification of all key variables and adoption of measures to improve the security of the facility, such as:

- negotiating rent increases in the tenancy contracts
- obtaining bloc commitments from company rentals
- planning and identifying potential vacancies
- understanding how much discount can be offered without excessively adverse impact on project cash flows

- the advantages in setting up an escrow account in order to monitor cash flows and hold portions of the accumulated surplus as security to compensate for the legal ambiguity of property rights in Durakistan.

The end result is that it is possible to construct a cash flow model where the FP ratio is entirely adequate. The next step of course is negotiating a facility which is accepted by the borrower and is sufficiently well structured to meet with interest in the syndication marketplace.

Conclusion

This project finance forecasting model illustrates several key points:

1 The need to be able to construct projections when no financial statements are available
2 The need to identify key project variables
3 The need to select the appropriate indices to measure performance
4 The need to consider carefully the above two points in designing a spreadsheet that incorporates all relevant elements of the project and enables the manipulation and testing of key variables.

Chapter 6

Pro forma forecasts using AMADEUS electronic databases

Subscription services via the Internet provide information on nearly anything anybody might need. Such information can be particularly useful to see what a company has been doing since its last published annual report. For example, a company could have changed its corporate structure, dismissed certain members of management, sold or acquired a subsidiary, entered into an alliance or cooperative agreement with a competitor to market or distribute a product, or availed itself of the services of a rival bank in closing a transaction.

One such on-line database is AMADEUS. AMADEUS (Analyse MAjor Database from EUropean Sources) is a comprehensive, pan-European database containing financial information on 7 million public and private companies in 38 European countries. It combines data from over 30 information providers (IPs). AMADEUS is a modular product; you can choose the level of coverage that you require – the top 250,000 companies, the top 1.5 million, or all companies. AMADEUS is available on CD/DVD-ROM, as an intranet feed and on the Internet.

AMADEUS is exclusive to BvDEP and its information providers, and is not available via any other platform. BvDEP identifies the best source of information in each country and applies strict inclusion criteria to prevent any bias in coverage.

A standard company report includes:

- twenty-two balance sheet items
- twenty-five profit and loss account items
- twenty-six ratios
- descriptive information, including trade description and activity codes (NACE 1, NAICS or US SIC can be used across the database)
- ownership information, which is researched by BvD's own team of consultants
- Reuters' news, security and price information
- links to an executive report with integral graphs
- a report comparing the financials of the company's default peer group.

In addition to the existing ratios you can also create your own, which you can display in the reports and also use in your searches and analyses.

Each company is part of a default peer group based on its activity codes, and integral graphs illustrate its position in this peer group. A company tree diagram instantly illustrates the structure of the group.

The advantage of AMADEUS is that it provides the ability to undertake peer group analysis. Typically it comes to the fore when there is a wealth of data to work with. The financial ratios calculated on the spreadsheet can be compared with published data, such as lists of industry standard ratios.

The problem here is that you do not know how the spreadsheets and resulting calculations from the published sources have been arrived at, which would render comparison between the published work and the analysts' spreadsheet meaningful.

The screencap in Figure 6.1 illustrates the company search mechanism.

Such on-line databases are rapidly supplanting traditional paper-based annual reports and idiosyncratic and heterogeneous spreadsheet models.

The on-line database can be accessed by web browser, and reports converted into exportable RTF or XL format for subsequent manipulation.

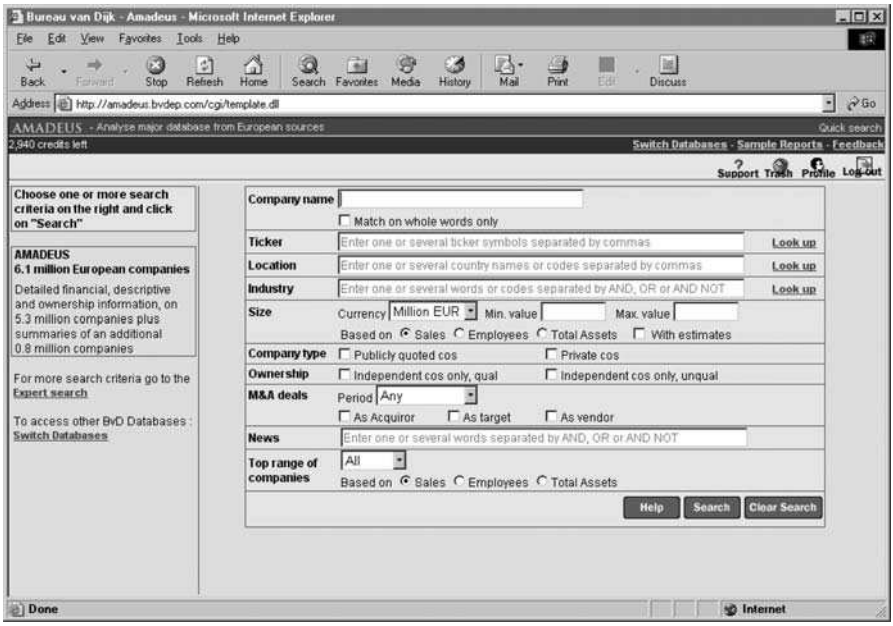

Figure 6.1 The company search mechanism
Source: Bureau Van Dijk, AMADEUS 2004

Forecasts can therefore be prepared quickly by extracting the financial statements for, say, two companies, and combining them into a spreadsheet model (see Chapter 4) to effect hypothetical merger projections.

It should be remembered, however, that you become completely dependent on the accuracy of the accounts classified by BVD into its database.

Here, we provide the full spreadsheet for a major EU corporate, Vodafone, the mobile telephone operator (see Table 6.1).

Table 6.1 Spreadsheet for Vodafone

VODAFONE GROUP PUBLIC LIMITED COMPANY

Reporting basis	**Consolidated data**

Vodafone House/The Connection
RG14 2FN NEWBURY

UNITED KINGDOM

Phone: +44 1635 33251

Web site: www.vodafone.co.uk

BVD ID number:	GB01833679
BVD account number:	GB01833679C
ISIN number:	GB0007192106
SEDOL number:	0719210
VALOR number:	000416029
Date of incorporation:	17/07/1984
Legal form:	Public, quoted
Latest account date:	31/03/2003
Account published in:	GBP
Type of account avail.:	Consolidated

Status: Active
Publicly quoted: Yes

Main exchange: London Stock Exchange SETS

Ticker symbol: VOD

Operating revenue/Turnover:	30,375 mil	**P/L for period:**	−9,164 mil
Market Cap: (9/01/2004):	100,893,417 th	**Employees:**	66,667
Primary Nace Rev 1.1 code:	6420 – Tele-communications		
Peer Group:	6420 VL – (very large companies)		
No. of recorded shareholders:	6	**No. of rec. subsidiaries:**	77
BvD Independence Indicator:	A–		

FINANCIAL PROFILE

Consolidated data	**31/03/2003 12 months milGBP**	**31/03/2002 12 months milGBP**	**31/03/2001 12 months milGBP**	**31/03/2000 12 months milGBP**	**31/03/1999 12 months milGBP**
Operating revenue/turnover	30,375	22,845	15,004	7,873	3,360
Profit (loss) before tax	−6,208	−13,539	−8,095	1,349	935
Cash flow	6,690	−1,837	1,793	2,084	965
Total assets	163,280	162,900	172,065	153,368	3,644
Shareholders funds	131,534	133,428	147,782	142,360	815
Current ratio	0.60	0.70	1.43	0.57	0.52
Profit margin (%)	−20.44	−59.26	−53.95	17.13	27.83
Return on shareholders funds (%)	−4.72	−10.15	−5.48	0.95	114.80
Return on capital employed (%)	−3.41	−8.49	−4.35	1.17	48.70
Solvency ratio (%)	80.56	81.91	85.89	92.82	22.36
Number of employees	66,667	67,178	53,325	29,465	12,642

(*continued*)

VODAFONE GROUP PUBLIC LIMITED COMPANY
INDUSTRY/ACTIVITIES

Trade Description
Group is principally engaged in the provision of mobile telecommunications, providing mobile voice, messaging, business, information and entertainment services to its global customer base.

UK SIC (2003) code(s)

Primary code:

6420 – Telecommunications

Secondary code(s):

7415 – Holding companies including head offices

NACE Rev. 1.1 code(s)

Primary code:

6420 – Telecommunications

Secondary code(s):

7415 – Management activities of holding companies

US SIC code(s) [derived from NACE Rev. 1.1 code(s)]

Core code:

489 – Communications services, not elsewhere specified

Primary code(s):

4899 – Communications services, not elsewhere specified

Secondary code(s):

6712 – Offices of bank holding companies
6719 – Offices of holding companies, not elsewhere classified
6722 – Management investment offices, open-end

NAICS 2002 code(s) [derived from NACE Rev. 1.1 code(s)]

Core code:

5179 – Other Telecommunications

Primary code(s):

517910 – Other Telecommunications

Secondary code(s):

551111 – Offices of bank holding companies
551112 – Offices of other holding companies

VODAFONE GROUP PUBLIC LIMITED COMPANY

BALANCE SHEET **Consolidated data**	**31/03/2003** **12 months** **milGBP**	**31/03/2002** **12 months** **milGBP**	**31/03/2001** **12 months** **milGBP**	**31/03/2000** **12 months** **milGBP**	**31/03/1999** **12 months** **milGBP**
Fixed assets	154,689	153,462	154,375	150,851	2,852
Intangible fixed assets	108,085	105,944	108,839	22,206	329
Tangible fixed assets	19,574	18,541	10,586	6,307	2,150
Other fixed assets	27,030	28,977	34,950	122,338	372
Current assets	8,591	9,438	17,690	2,517	792
Stocks	365	513	316	190	45
Debtors	2,858	3,397	1,863	977	385
Other current assets	5,368	5,528	15,511	1,350	362
Cash & cash equivalent	475	80	68	159	6
Total assets	163,280	162,900	172,065	153,368	3,644
Shareholders funds	131,534	133,428	147,782	142,360	815
Capital	4,275	4,273	4,054	3,797	155
Other shareholders funds	127,259	129,155	143,728	138,563	660
Non-current liabilities	17,453	16,017	11,906	6,567	1,299
Long term debt	13,175	12,584	10,772	6,038	1,137
Other non-current liabilities	4,278	3,433	1,134	529	162
Current liabilities	14,293	13,455	12,377	4,441	1,530
Loans	1,443	1,329	3,618	796	174
Creditors	2,497	3,335	1,899	706	216
Other current liabilities	10,353	8,791	6,860	2,939	1,141
Total shareh. funds & liab.	163,280	162,900	172,065	153,368	3,644
Working capital	726	575	280	461	214
Enterprise value	91,142	102,376	108,872	177,159	36,820
Number of employees	66,667	67,178	53,325	29,465	12,642

(*continued*)

PROFIT AND LOSS ACCOUNT Consolidated data	31/03/2003 12 months milGBP	31/03/2002 12 months milGBP	31/03/2001 12 months milGBP	31/03/2000 12 months milGBP	31/03/1999 12 months milGBP
Operating revenue/ turnover	30,375	22,845	15,004	7,873	3,360
Sales	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of goods sold	17,896	n.a.	8,702	4,359	1,809
Gross profit	12,479	n.a.	6,302	3,514	1,551
Other operating expenses	17,774	n.a.	12,741	2,533	704
Operating P/L	−5,295	−11,834	−6,439	981	847
Financial revenue	210	−860	−500	756	183
Financial expenses	1,123	845	1,156	388	94
Financial P/L	−913	−1,705	−1,656	368	89
P/L before tax	−6,208	−13,539	−8,095	1,349	935
Taxation	2,956	2,140	1,290	685	252
P/L after tax	−9,164	−15,679	−9,385	664	683
Extr. and other revenue	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other expenses	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other P/L	0	0	0	0	0
P/L for period	−9,164	−15,679	−9,385	664	683
Export turnover	n.a.	n.a.	11,560	4,972	1,273
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	2,266	1,987	1,540	874	349
Depreciation	15,854	13,842	11,178	1,420	282
Interest paid	1,123	845	1,156	388	94
Cash flow	6,690	−1,837	1,793	2,084	965
Added value	13,035	3,135	5,779	4,031	1,661
EBIT	−5,295	−11,834	−6,439	981	847
EBITDA	10,559	2,008	4,739	2,401	1,129

VODAFONE GROUP PUBLIC LIMITED COMPANY
RATIOS

Consolidated data	31/03/2003 12 months	31/03/2002 12 months	31/03/2001 12 months	31/03/2000 12 months	31/03/1999 12 months
Current ratio	0.60	0.70	1.43	0.57	0.52
Liquidity ratio (%)	0.58	0.66	1.40	0.52	0.49
Shareholders liquidity ratio (%)	7.54	8.33	12.41	21.68	0.63
Solvency ratio (%)	80.56	81.91	85.89	92.82	22.36
Gearing (%)	14.37	13.00	10.50	5.17	180.80
Share funds per employee (Ths.)	1,973	1,986	2,771	4,831	64
Work. capital per employee (Ths.)	11	9	5	16	17
Total assets per employee (Ths.)	2,449	2,425	3,227	5,205	288
Profit margin (%)	−20.44	−59.26	−53.95	17.13	27.83
Return on shareholders funds (%)	−4.72	−10.15	−5.48	0.95	114.80
Return on capital employed (%)	−3.41	−8.49	−4.35	1.17	48.70
Return on total assets (%)	−3.80	−8.31	−4.70	0.88	25.67
Interest cover	−4.72	−14.00	−5.57	2.53	9.00
Stock turnover	83.22	44.53	47.48	41.44	75.17
Collection period (days)	34	54	45	45	41
Credit period (days)	30	53	46	32	23
Net assets turnover	0.20	0.15	0.09	0.05	1.59
Costs of employees/oper. rev. (%)	7.46	8.70	10.26	11.10	10.39
Operat. rev. per employee (Ths.)	456	340	281	267	266
Aver. cost of empl./year (Ths.)	34	30	29	30	28
Profit per employee (Ths.)	n.a.	n.a.	n.a.	46	74
Cash flow/turnover (%)	22.02	−8.04	11.95	26.47	28.73
Gross margin (%)	41.08	n.a.	42.00	44.63	46.15
EBIT margin (%)	−17.43	−51.80	−42.92	12.46	25.20
EBITDA margin (%)	34.76	8.79	31.58	30.50	33.60
Export turnover/total turnover (%)	n.a.	n.a.	77.05	63.15	37.87

(*continued*)

VODAFONE GROUP PUBLIC LIMITED COMPANY
BOARD MEMBERS AND OFFICERS

Name	Function
Peter Bamford	Director
Michael Boskin	Director
Alec Broers	Director
John Buchanan	Director
Vittorio Colao	Director
Thomas Geitner	Director
Paul Hazen	Director
Julian Horn-Smith	Director
Penny Hughes	Director
Kenneth Hydon	Director
Ian Maclaurin	Director
Arun Sarin	Director
David Scholey	Director
Jurgen Schrempp	Director
Luc Vandevelde	Director
Stephen Scott	Company Secretary

Auditors
Deloitte & Touche

VODAFONE GROUP PUBLIC LIMITED COMPANY
SHAREHOLDERS

Company name	Country	Type	Ownership		Source		Company inform.		
			Direct (%)	Total (%)	Source ident.	Date of inform.	Closing date	Op. revenue (mil USD)*	Total assets (mil USD)
Shareholders									
1. Bank of New York	n.a.	B	13.40	n.a.	RS	05/2002	n.a.	n.a.	n.a.
2. UNICAJA – Montes de Piedad y Caja de Ahorros de Ronda, Cadiz, Almeria, Malaga Y Antequera	ES	B	0.13	n.a.	WW	05/2003	><	510	15,440
3. Gent C.C.	n.a.	I	–	n.a.	RS	03/2002	–	–	–
4. Horn-Smith J.M.	n.a.	I	–	n.a.	RS	03/2002	–	–	–
5. Hutchison Whampoa Ltd	HK	C	–	n.a.	OS	05/2003	><	9,647	63,302
6. Hydon K.J.	n.a.	I	–	n.a.	RS	03/2002	–	–	–

* For an insurance company the corresponding value is the Gross Premium Written, and for a bank it is the Operating Income (memo).

This is a quoted company.

VODAFONE GROUP PUBLIC LIMITED COMPANY
SUBSIDIARIES (Roll-up structure)*

	Company name	Country	Ownership				Source		Company inform.		
			Direct (%)	Total (%)	Level of own.	Status	Source ident.	Date of inform.	Closing date	Op. revenue (mil USD)*	Total Assets (mil USD)
1.	**Project Telecom PLC**	GB	100.00	100.00	1	UO+	OS	10/2003	><	508	123
2.	Vodafone Finance Limited	GB	100.00	100.00	1	UO+	RM	03/2002	><	n.a.	6,404
3.	Vodafone Americas INC	US	–	100.00	n.a.	UO+	RM	03/2002	n.a.	n.a.	n.a.
4.	**Vodafone Deutschland Gmbh**	DE	–	100.00	n.a.	UO+	RM	03/2002	><	3,579	n.a.
5.	**Vodafone Europe B.V.**	NL	–	100.00	n.a.	UO+	RM	03/2002	=	n.a.	6,820
6.	**Vodafone International B.V.**	NL	–	100.00	n.a.	UO+	RM	03/2002	=	1,325	7,901
7.	Vodafone International INC.	US	–	100.00	n.a.	UO+	RM	03/2002	n.a.	n.a.	n.a.
8.	Vodafone Ireland Limited	IE	–	100.00	n.a.	UO+	RM	03/2002	n.a.	n.a.	n.a.
9.	**Vodafone Limited**	GB	–	100.00	n.a.	UO+	RM	03/2002	=	6,238	15,665
10.	Vodafone New Zealand Limited	NZ	–	100.00	n.a.	UO+	RM	03/2002	n.a.	n.a.	n.a.
11.	**Vodafone UK Limited**	GB	–	100.00	n.a.	UO+	RM	03/2002	><	0	32,523
12.	**General Mobile Corporation Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	159
13.	**Mobile Telecom Group Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	35	6
14.	**Voda Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	934
15.	**Vodacall Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	n.a.
16.	Vodafone (New Zealand) Hedging Limited	GB	WO	WO	1	UO+	JO	05/2002	><	n.a.	253
17.	**Vodafone Asia Pacific Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
18.	**Vodafone Cellular Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	1,828
19.	**Vodafone Corporate Secretaries Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
20.	Vodafone Euro Hedging Limited	GB	WO	WO	1	UO+	JO	05/2002	><	n.a.	44,723
21.	**Vodafone Euro Hedging Two**	GB	WO	WO	1	UO+	JO	05/2002	><	n.a.	30,778
22.	**Vodafone European Investments**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	143,766
23.	**Vodafone European Portal Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
24.	**Vodafone Global Products and Services Limited**	GB	WO	WO	1	UO+	JO	05/2002	><	284	267
25.	**Vodafone Group (Directors) Trustee Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
26.	**Vodafone Group Pension Trustee Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
27.	**Vodafone Group Services Limited**	GB	WO	WO	1	UO+	JO	05/2002	><	113	164

28.	**Vodafone Group Share Schemes Trustee Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
29.	**Vodafone Group Share Trustee Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
30.	**Vodafone International Holdings BV**	NL	WO	WO	1	UO+	JO	03/2003	=	n.a.	20,433
31.	**Vodafone International Operations Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	260,557
32.	**Vodafone Investments Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	1,063
33.	**Vodafone Mobile Communications Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	5,172
34.	**Vodafone Mobile Enterprises Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	46,052
35.	**Vodafone Nominees Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	0
36.	Vodafone Overseas Finance Limited	GB	WO	WO	1	UO+	JO	05/2002	><	n.a.	4,598
37.	Vodafone PTY Limited	AU	WO	WO	1	UO+	JO	03/2003	n.a.	n.a.	n.a.
38.	**Vodafone Satellite Services Limited**	GB	WO	WO	1	UO+	JO	05/2002	><	0	117
39.	**Vodafone Ventures Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	3
40.	**Vodafone Yen Finance Limited**	GB	WO	WO	1	UO+	JO	05/2002	=	n.a.	3,788
41.	Vodafone Americas INC	US	WO	n.a.	1	UO+	WW	01/2003	><	5,181	17,553
42.	**Vodafone D2 GMBH**	DE	–	99.70	n.a.	UO+	RM	03/2002	><	1,533	10,363
43.	**Vodafone Holding GMBH**	DE	–	99.60	n.a.	UO+	RM	03/2002	><	12,478	70,881
44.	**Vodafone Information Systems GMBH**	DE	–	99.60	n.a.	UO+	RM	03/2002	=	283	201
45.	Vodafone Network PTY Ltd	AU	–	95.50	n.a.	UO	RM	03/2002	n.a.	n.a.	n.a.
46.	Vodafone Pacific Limited	AU	–	95.50	n.a.	UO	RM	03/2002	n.a.	n.a.	n.a.
47.	**Vodafone Espana SA**	ES	–	91.60	n.a.	–	RM	03/2002	><	2,617	2,597
48.	**Vodafone Magyarország Mobil Távközlési RT.**	HU	–	83.90	n.a.	UO	OS	10/2002	><	74	406
49.	Vodafone Malta Limited	MT	–	80.00	n.a.	UO	RM	03/2002	n.a.	n.a.	n.a.
50.	**Vodafone Libertel N.V.**	NL	77.56	n.a.	1	UO	OS	11/2002	=	1,626	1,834
51.	**Omnitel Pronto Italia**	IT	–	76.59	n.a.	UO	RM	03/2002	><	5,096	7,256
52.	**Arcor Ag & Co. KG**	DE	–	73.59	n.a.	UO	RM	03/2002	=	1,425	2,013
53.	**Europolitan Vodafone AB**	SE	–	71.09	n.a.	UO	RM	03/2002	=	742	1,096
54.	J-Phone Co Ltd	JP	–	69.70	n.a.	UO	RM	03/2002	n.a.	n.a.	n.a.
55.	Japan Telecom Holdings Co., Ltd.	JP	–-	66.70	n.a.	UO	RM	03/2002	=	15,002	15,312
56.	Vodafone Egypt Telecommunications Co SAE	EG	–	60.00	n.a.	UO	RM	03/2002	n.a.	n.a.	n.a.
57.	Panafon Hellenic Telecommunications Company SA	GR	–	51.90	n.a.	UO	RM	03/2002	n.a.	n.a.	n.a.
58.	**Vodafone Telecel-ComunicaÇoes Pessoais, S.A.**	PT	–	50.90	n.a.	–	RM	03/2002	><	838	878

(*continued*)

Company name		Country	Ownership				Source		Company inform.		
			Direct (%)	Total (%)	Level of own.	Status	Source ident.	Date of inform.	Closing date	Op. revenue (mil USD)*	Total Assets (mil USD)
59.	**Mannesmann Italiana**	IT	–	MO	n.a.	UO	WW	05/2003	><	6	3
60.	Vodafone Ag & Co. OHG	DE	–	MO	n.a.	UO	WW	04/2003	n.a.	12,200	n.a.
61.	Vodafone Americas INC	US	–	MO	n.a.	UO	WW	06/2003	n.a.	21	n.a.
62.	Vodafone Fiji Limited	FJ	–	49.00	n.a.	UO–	RM	03/2002	n.a.	n.a.	n.a.
63.	Cellco Partnership	US	–	45.00	n.a.	UO–	RM	03/2002	n.a.	19	n.a.
64.	Verizon Wireless INC.	US	45.00	n.a.	1	–	WW	10/2002	><	7,659	15,843
65.	Grupo Lusacell SA DE CV	MX	–	34.50	n.a.	UO–	RM	03/2002	n.a.	n.a.	n.a.
66.	Vodacom Group (PTY) Limited	ZA	–	31.50	n.a.	UO–	RM	03/2002	n.a.	n.a.	n.a.
67.	**Cie Transatlantique Telecommunication (Transtel)**	FR	30.00	n.a.	1	–	SC	08/2003	><	0	1,264
68.	Safaricom Limited	KE	–	30.00	n.a.	UO–	RM	03/2002	n.a.	n.a.	n.a.
69.	**Belgacom Mobile**	BE	–	25.00	n.a.	–	RM	03/2002	><	2,157	1,787
70.	**Swisscom Mobile AG**	CH	–	25.00	n.a.	–	RM	03/2002	><	2,965	2,711
71.	RPG Cellular Services Limited	IN	–	20.80	n.a.	–	RM	03/2002	n.a.	n.a.	n.a.
72.	**Mobifon SA**	RO	–	20.10	n.a.	–	RM	03/2002	><	437	495
73.	**Societe Francaise DU Radiotele Phone (SFR)**	FR	20.00	n.a.	1	–	SC	08/2003	><	6,658	5,587
74.	**Polkomtel S.A.**	PL	–	19.60	n.a.	–	RM	03/2002	><	1,283	1,853
75.	**Cegetel Groupe**	FR	15.00	n.a.	1	–	WW	02/2003	><	5,633	7,556
76.	China Mobile (Hong Kong) Limited	HK	3.27	n.a.	1	–	PC	12/2002	><	15,804	34,419
77.	**Vodafone Group (Senior Managers) Trustee Limited**	GB	–	n.a.	n.a.	–	RT	04/2001	><	n.a.	0

* For an insurance company the corresponding value is the Gross Premium Written, and for a bank it is the Operating Income (memo).

Appendices

Appendix 1: Credit rating agency rating scales

Moody's Issuer Rating Symbols

Aaa	Issuers rated Aaa offer exceptional financial security. While the creditworthiness of these entities is likely to change, such changes as can be visualized are most unlikely to impair their fundamentally strong position.
Aa	Issuers rated Aa offer excellent financial security. Together with the Aaa group, they constitute what are generally known as high-grade entities. They are rated lower than Aaa-rated entities because long-term risks appear somewhat larger.
A	Issuers rated A offer good financial security. However elements may be present which suggest a susceptibility to impairment sometime in the future.
Baa	Issuers rated Baa offer adequate financial security. However, certain protective elements may be lacking or may be unreliable over any great period of time.
Ba	Issuers rated Ba offer questionable financial security. Often the ability of these entities to meet obligations may be moderate and not well safe-guarded in the future.
B	Issuers rated B offer poor financial security. Assurance of payment of obligations over any long period of time is small.
Caa	Issuers rated Caa offer very poor financial security. They may be in default on their obligations or there may be present elements of danger with respect to punctual payment of obligations.
Ca	Issuers rated Ca offer extremely poor financial security. Such entities are often in default on their obligations or have other marked shortcomings.
C	Issuers rated C are the lowest-rated class of entity, are usually in default on their obligations, and potential recovery values are low.

Note: Moody's applies numerical modifiers 1, 2, and 3 in each generic rating category from Aa to Caa. The modifier 1 indicates that the issuer is in the higher end of its letter rating category; the modifier 2 indicates a mid-range ranking; the modifier 3 indicates that the issuer is in the lower end of the letter ranking category.

Source: Moody's Investor Service.

Standard & Poor's Long Term Debt Ratings

AAA	The highest rating assigned by Standard & Poor's. Capacity to pay interest and repay principal is extremely strong.
AA	A very strong capacity to pay interest and repay principal and differs from the highest rated issues only to a small degree.
A	Debt rated A has a strong capacity to pay interest and repay principal although it is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than debt in higher rated categories.
BBB	An adequate capacity to pay interest and repay principal. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity to pay interest and repay principal than in higher rated categories.
BB	Debt rated BB and below is regarded as having predominantly speculative characteristics. The BB rating indicates less near-term vulnerability to default than other speculative issues. However, the issuer faces major ongoing uncertainties or exposure to adverse economic conditions which could lead to inadequate capacity to meet timely interest and principal payments.
B	Indicates a greater vulnerability to default than BB but currently issuer has the capacity to meet interest payments and principal repayments. Adverse business, financial or economic conditions will impair capacity or willingness to pay interest and repay principal.
CCC	Denotes a currently identifiable vulnerability to default and dependence upon favourable business, financial and economic conditions to meet timely payment of interest and repayment of principal. In the event of adverse business, financial or economic conditions, it is not likely to have the capacity to pay interest and repay principal.
CC	The rating CC is typically applied to debt subordinated to senior debt that is assigned an actual or implied CC rating.
C	Typically applied to debt subordinated to senior debt which is assigned an actual or implied CC rating.
C1	The rating C1 is reserved for income bonds on which no interest is being paid.
D	Borrower is in default. The UDU rating is also used when interest payments or principal repayments are expected to be in default at the payment date, and payment of interest and/or repayment or principal is in arrears.

From AA to B, a plus (+) or minus (−) may be added to give two further gradations of risk for each letter.

Source: Standard & Poor's International Creditweek.

Standard & Poor's Short Term Commercial Paper Debt Ratings

A1	The degree of safety regarding timely payment is either overwhelming or very strong. Those issues determined to possess overwhelming safety characteristics are denoted with a plus (+) designation.
A2	Capacity for timely payment is strong. However, the relative degree of safety is not as high as for issues rated A1.
A3	A satisfactory capacity for timely payment, though somewhat more vulnerable to the adverse effects of changes in circumstances than obligations carrying the higher designations.
B	Only an adequate capacity for timely payment. However, such capacity may be damaged by changing conditions or short-term adversities.
C	Doubtful capacity for payment.
D	Issue is either in default or is expected to be in default upon maturity.

Source: Standard & Poor's International Creditweek.

Appendix 2: Country risk criteria

Political risk profile

1. **Characteristics of political system**
   (a) Type of government
   (b) Process and frequency of political succession
   (c) Degree of public participation
   (d) Degree of centralization in decision-making process

2. **Executive leadership**
   (a) Relationship with supporting government institutions
   (b) Relationship with supporting political coalitions

3. **Government institutions**
   (a) Responsiveness and access to executive leadership
   (b) Effectiveness and efficiency
   (c) Policy responsibilities

4. **Social coalitions**
   (a) Major socio-economic and cultural groups (i.e. church, military, landowners, management, labour, ethnic groups, etc.)
   (b) Political parties and their constituencies

5. **Social indicators**
   (a) Level and growth of per capita income, and other measures of the standard of living
   (b) Distribution of wealth and income
   (c) Regional disparities
   (d) Homogeneity of the populace

6. **External relations**
   (a) Relationship with major trading partners
   (b) Relationship with neighbouring countries
   (c) Participation in international organizations

Economic risk profile

1. **Demographic characteristics**
   - (a) Level and growth of population
   - (b) Age distribution
   - (c) Urbanization trends

2. **Structure of the economy**
   - (a) Extent and quality of infrastructure
     - (i) Transportation and communications
     - (ii) Utilities
     - (iii) Housing
     - (iv) Education
     - (v) Health services
   - (b) Natural resource endowment
     - (i) Agriculture, forestry, fishing
     - (ii) Non-energy minerals
     - (iii) Energy resources
   - (c) Distribution of productive activities
     - (i) Agriculture and livestock
       - (1) Land tenure system
       - (2) Degree of mechanization
       - (3) Principal crops
       - (4) Markets
     - (ii) Forestry and fishing
     - (iii) Mining
     - (iv) Construction
       - (1) Residential
       - (2) Non-residential
     - (v) Manufacturing
       - (1) Concentration and size of manufacturers
       - (2) Product types (i.e. consumer, intermediate and capital goods)
       - (3) Markets
     - (vi) Services-financial/non-financial, public/private
   - (d) Public sector participation in productive activities

3. Recent economic trends

(a) Composition and growth of aggregate demand (nominal and real terms)
  (i) Consumption
    (1) Private sector
    (2) Public sector
  (ii) Investment
    (1) Private sector
    (2) Public sector
  (iii) External savings (i.e. exports/imports)

(b) Domestic economy
  (i) Total production (i.e.: GDP)
  (ii) Production by sector
    (1) Agriculture, forestry and fishing
    (2) Mining
    (3) Construction
    (4) Manufacturing
    (5) Utilities
    (6) Services
  (iii) Price movements and major determinants
    (1) External factors
    (2) Wages
    (3) Public sector deficit financing
    (4) Private sector credit expansion
    (5) Supply bottlenecks
  (iv) Employment trends
    (1) Level of growth of employment and labour force
    (2) Labour participation rates
    (3) Unemployment rate and structure
    (4) Sectorial trends
    (5) Regional trends
    (6) Composition of employment: public vs. private

(c) External sector
  (i) Current account balance
    (1) Export growth and composition
      (a) Agricultural commodities
      (b) Minerals
      (c) Manufactured goods

(2) Destination of exports (i.e. markets)
(3) Price and income elasticity of exports
(4) Import growth and composition
    (a) Food
    (b) Other consumer goods
    (c) Energy
    (d) Other intermediate goods
    (e) Capital goods
(5) Price and income elasticity of imports
(6) Geographic origin of imports
(7) Terms of trade
(8) Services account
    (a) Interest payments and receipts
    (b) Transportation
    (c) Other
(9) Transfers

(ii) Capital account balance
(1) Direct investment
(2) Long-term capital flows
    (a) Private sector
    (b) Public sector
(3) Short-term capital flows
(4) Access to capital markets
    (a) Types of instruments used
    (b) Types of borrowers and lenders

(iii) International reserves
(1) Level
(2) Composition (i.e.: gold, foreign exchange)
(3) Secondary reserves

(iv) External debt
(1) Amount outstanding
(2) Composition by borrower
    (a) Central government
    (b) Other public sector
    (c) Publicly guaranteed
    (d) Private

(3) Composition by lender
  (a) Bilateral
  (b) Multilateral
  (c) Private financial institutions
  (d) Suppliers' credits
(4) Maturity structure
(5) Currency composition
(6) Growth rate
(7) Comparison with export earnings and GDP
(8) Debt service payments
  (a) Amortization
  (b) Interest
  (c) Comparison with export earnings
  (d) Future debt service schedule

4. Economic policy

(a) Price and wage policies
  (i) Wage settlement process
    (1) Trade union activity
    (2) Management groups
    (3) Role and influence of government
  (ii) Degree of wage indexation
  (iii) Productivity trends
  (iv) Non-wage benefits and unemployment insurance
  (v) Direct price controls
    (1) Public sector tariffs
    (2) Private sector pricing
  (vi) Price subsidies (agricultural, industrial, etc.)

(b) Monetary policy
  (i) Level of development of financial system
    (1) Types of financial institutions
    (2) Types of financial instruments
    (3) Role of government in credit allocation
    (4) Foreign participation
  (ii) Trends for monetary aggregates
    (1) Money supply growth targets and actual experience
    (2) Domestic credit expansion

(a) Public sector
(b) Private sector
(3) Velocity (national income/money supply)
(4) Changes in international reserves

(iii) Monetary policy instruments
(1) Reserve requirements
(2) Open market operations
(3) Credit controls
(4) Interest rate regulations
(5) Ability to sterilize international reserve flows
(6) Controls on foreign borrowing and
(7) Rediscount facilities

(c) Fiscal policy
(i) Structure of the public sector
(1) Central government
(2) Social security system
(3) State agencies and enterprises
(4) Regional and local governments

(ii) Budgetary process
(1) Executive branch
(2) Legislative branch
(3) Major constituencies (business, labour, etc.)

(iii) Revenues
(1) Composition
(a) Direct taxes-personal income, corporate income, property, others
(b) Indirect taxes-valued added, sales, export & import duties, others
(c) Service charges and public sector tariffs
(2) Income elasticity of revenues
(3) Distribution of tax burden by income groups
(4) Overall tax burden (% of GDP)
(5) Tax collection and evasion
(6) Tax incentives (i.e. investment, export, employment)

(iv) Expenditures
(1) Current expenditures
(a) Distribution by expenditure category

(b) Transfers to households
(c) Transfers to other levels of government
(2) Capital expenditures
(v) Current operating balance (absolute level and relative to GDP)
(vi) Gross financing requirements (operating balance plus net capital expenditures)
(1) Trend relative to GDP
(2) Means of financing
(a) Domestic money creation
(b) Domestic borrowing
(c) External borrowing
(vii) Public sector debt: domestic and external
(1) Size (direct and guaranteed)
(2) Debt service requirement
(3) Debt management

(d) External policies
(i) Exchange rate policy
(ii) International reserve management
(iii) Export promotion measures
(iv) Import substitution/trade protectionist measures

(e) Long-term planning and special programs
(i) Energy
(ii) Industrial development/restructuring
(iii) Employment creation
(iv) Others

S&P's sovereign rating profile

In order to evaluate the elements in the preceding political and economic risk profile, the most recent five years of the following information should be incorporated.

1. Demographic characteristics

(a) Total population (millions)
(b) Age structure (% of total)
(i) 0–14

(ii) 15–64
(iii) 66 and over
(c) Urban population (% of total)
(d) Total labour force (millions)
(i) % Employment agriculture
(ii) % Employment industry

2. Economic structure & growth
(a) GDP, current prices
(b) GDP, constant prices
(c) GDP per capita, current prices
(d) Composition of real GDP (%)
(i) Agriculture
(ii) Mining
(iii) Manufacturing
(iv) Construction
(v) Electricity, gas & water
(vi) Transportation & communication
(vii) Trade & finance
(viii) Public administration
(ix) Other services
(e) Investment, constant prices
(f) Investment, current prices
(g) Investment/GDP
(h) Net energy imports/total energy consumption (%)

3. Economic management
(a) Consumer price index
(b) Money supply-M1
(c) Money supply-M2
(d) Domestic credit
(e) Wage index
(f) Unemployment rate
(g) Budget deficit/GDP (%)
(h) Public expenditures/GDP (%)

4. Government finance
(a) Current revenues

(b) Current expenditures
(c) Operating balance
(d) Net capital expenditures
(e) Budgetary balance
(f) Non-budgetary balance
(g) Domestic financing
(h) Foreign financing

5. External payments

(a) Exchange rate
  (i) Local currency/USUSD
  (ii) Local currency/SDR
(b) Imports/GDP (%)
(c) Composition of imports (%)
  (i) Food
  (ii) Non-food agricultural
  (iii) Non-fuel mining & metals
  (iv) Fuels
  (v) Machinery & equipment
  (vi) Other manufactured goods
(d) Composition of exports (%)
  (i) Food
  (ii) Non-food agricultural
  (iii) Non-fuel mining & metals
  (iv) Fuels
  (v) Machinery & equipment
  (vi) Other manufactured goods
(e) Balance of payments
  (i) Exports
  (ii) Imports
  (iii) Trade balance
  (iv) Net factor services (interest payments)
  (v) Net transfers
  (vi) Current account balance
  (vii) Long-term capital flows
    (1) Public
    (2) Private

(viii) Short-term capital flows
  (1) Public
  (2) Private
(ix) Errors and omissions
(x) Reserves movements
(xi) Current account balance/GDP (%)
(xii) Current account balance/exports (%)

(f) International reserves
(i) Central bank reserves, minus gold
(ii) Central bank gold reserves (millions of troy ounces)
(iii) Reserves, rest of banking system
(iv) Reserves/imports (%)
(v) Net foreign assets of banking system
(vi) Imports (%)

(g) External debt
(i) Long-term debt
  (1) Public
  (2) Private
(ii) Short-term debt
  (1) Public
  (2) Private
(iii) External debt/GDP (%)
(iv) Debt service payments a. Public b. Private
(v) Debt service payments/exports (%)
(vi) Debt service schedule

Appendix 3: Summary of lending types

Summary of lending types

	Purpose	*Source of repayment*	*Risks*	*Protection against loss*	*Form of control*
Temporary or seasonal finance	Financing the short-term seasonal build-up of current/ working assets	Cash received from the successful conversion of the raw material asset into completed goods which have been sold, and the payment received	Inability to recover costs through company's unsuccessful completion of the asset conversion process	Asset marketability/ liquidity; management's ability to complete asset conversion cycle; short time factor	Structure facility to enable lender to review situation frequently before renewal of facility or disbursement of funds
Working investment lending	Evergreen (permanent) financing of a permanent level of circulating working assets	Successful completion of successive transactions of turnover and cash flow; liquidation of (easily marketable) assets in default situation	Inability to generate sufficient cash flow; decline in market value of assets below amount needed to satisfy senior creditors in the event of liquidation	Management's ability to keep the flow of transactions moving and to generate a satisfactory level of profits over a number of years; liquidity of the assets being financed, and low shrinkage of value in a forced sale	Demand/short-term notes; security and proper documentation; debt limitations and covenants where appropriate
Cash flow lending	Financing of long-term fixed or plant assets; financing of corporate acquisitions	Cash from profits generated by the asset being financed, by the company's operations, and by the profits retained in the business over time	Inability of the company or management to generate a sufficient level of profits to cover operating costs and debt servicing costs	Management's ability to generate profits; adequate equity cushion; unused debt capacity	Include covenants in the loan agreement which ensure that the company's financial structure remains within certain parameters

Appendix 4: Complete AmaOS spreadsheet

NAME:	AmaOS				AmaOS				
LOCATION:	UK				UK				
BUSINESS:	Manufacturing				Manufacturing				
AUDITOR:	Andersen	FYE	31 DEC		Andersen				
CONSOLIDATED:	Yes	EUR 000			Yes				
ASSETS	2000	2001	2002	2003	2004	2005	2006	2007	2008
Cash	124,019	194,212	69,323	131,680	144,160	168,087	159,973	161,533	173,471
Marketable Securities									
Accounts Receivable – Trade	54,809	130,629	100,432	88,628	97,175	103,006	109,186	115,737	122,682
Accounts Receivable – Other									
Sundry Current Assets									
Inventory	105,625	132,650	334,541	207,424	201,042	213,105	225,891	239,445	253,811
Raw Materials	16,360	25,367	47,099	26,162					
Work in Progress	491	1,478	1,227						
Finished Goods	75,664	92,354	255,644	159,880					
Other	13,110	13,451	30,571	21,382					
CURRENT ASSETS	284,453	457,491	504,296	427,732	442,378	484,198	495,051	516,715	549,964
Land, Buildings, Equipment	15,393	29,122	53,607	53,803	48,029	50,911	53,966	57,204	60,636
Leased Assets									
Plant in Construction									
Accumulated Depreciation	−2,018	−3,835	−7,754	−7,621					
TOTAL OTHER GENERAL ASSETS	13,375	25,287	45,853	46,182	48,029	50,911	53,966	57,204	60,636
Quoted Investments									
Unquoted Investments	1,058	1,242	44,699	28,537	28,537	28,537	28,537	28,537	28,537
Invest in Associated Co's									
Loans to Associated Co's									
Prepaid Expenses									
Sundry Assets	229	553	452						
Goodwill									
Other									
TOTAL ASSETS	299,115	484,573	595,300	502,451	518,944	563,646	577,554	602,456	639,137

LIABILITIES									
Bank Loans and O/D's									
Other ST Debt	27,552	111,137	148,407	99,450					
CPLTD									
CPLO									
Customer Prepayment									
Accounts Payable	8,451	10,336	37,475	41,063	24,609	26,086	27,651	29,310	31,069
Accrued Expenses	5,569	9,950	27,636	5,877	12,835	13,606	14,422	15,287	16,007
Income Tax Payable	48,076	64,654	40,455	9,059					
Dividends Payable	2,726	5,678	5,684	5,643					
Due to Affiliates									
Sundry CL 1									
Sundry CL 2									
CURRENT LIABILITIES	92,374	201,755	259,657	161,092	37,445	39,691	42,073	44,597	47,076
Long Term Debt	24,848	24,848	24,848	24,848	16,494	8,247			
New Debt					100,000	100,000	66,667	33,333	
Subordinated Debt									
Total Long Term Debt	24,848	24,848	24,848	24,848	116,494	108,247	66,667	33,333	0
Other Creditors									
TOTAL LIABILITIES	117,222	226,603	284,505	185,940	153,939	147,938	108,740	77,930	47,076
Deferred Taxes									
Minority Interest									
Common Stock	52,500	52,500	52,500	52,500	52,500	52,500	52,500	52,500	52,500
Preferred Stock									
Capital Surplus									
Revaluation Reserve									
Legal Reserve									
FX – Translation Reserve									
Retained Earnings	129,393	205,470	258,295	264,011	312,505	363,208	416,314	472,026	539,561
NET WORTH	181,893	257,970	310,795	316,511	365,005	415,708	468,814	524,526	592,061
TOTAL LIABILITIES & NET WORTH	299,115	484,573	595,300	502,451	518,944	563,646	577,554	602,456	639,137
Cross-check (TA-TL)	0	0	0	0	0	−0	−0	0	0
Contingent Liabilities:									

(*continued*)

Appendix 4: (continued)

NAME:	AmaOS				AmaOS						
LOCATION:	UK				UK						
BUSINESS:	Manufacturing				Manufacturing						
AUDITOR:	Andersen	FYE	31 DEC		Andersen						
CONSOLIDATED:	Yes	GBP 000			Yes						
PROFIT & LOSS	2000	2001	2002	2003	2004	2005	2006	2007	2008	AVERAGE	AVERAGE (%)
NET SALES	525,684	645,174	638,756	614,538	639,120	677,467	718,115	761,202	806,874	606,038	100.00
Cost of Sales	349,786	397,865	429,845	438,745	426,293	451,871	478,983	507,722	538,185	404,060	66.67
Depreciation											
Amortisation of Goodwill											
Capital Grants											
GROSS PROFIT	175,898	247,309	208,911	175,793	212,827	225,596	239,132	253,480	268,689	201,978	33.33
SGA	50,644	192,622	144,302	230,791	159,333	168,893	179,026	189,768	192,154	154,590	25.51
NET OPERATING PROFIT	125,254	54,687	64,609	−54,998	53,494	56,703	60,106	63,712	76,535	47,388	7.82
Net Interest Expense	1,491	1,491	1,491	1,491						1,491	0.25
Interest Income											
Prov Dbt Recv											
Equity Income											
NPBT	123,763	53,196	63,118	−56,489	53,494	56,703	60,106	63,712	76,535	45,897	7.57
Provision for Income Tax											
Deferred Tax Provision											
NPAT	123,763	53,196	63,118	−56,489	53,494	56,703	60,106	63,712	76,535	45,897	7.57
Unusual Items:											
FX Gains/Losses	17,916	−9,518	30,045	−59,865						−5,356	−0.88
Unrealised F/X Gain/Loss											

Realis Profits of Rel Co		−13,363	−19,752	−2,340	5,000	6,000	7,000	8,000	9,000	−11,818	−1.95
Reval Reserve											
Sundry Res											
Goodwill on Consol											
Unexplained Adjustment											
NPAUT	105,847	76,077	52,825	5,716	48,494	50,703	53,106	55,712	67,535	60,116	9.92
Dividends – Common –											
Preferred											
Min Int Expense											
RETAINED EARNINGS	105,847	76,077	52,825	5,716	48,494	50,703	53,106	55,712	67,535	60,116	9.92
Changes in Net Worth											
Stock Sold		0	0	0	0	0	0	0	0	0	0.00
Purch Own Stock											
Chg in Cap Surplus		0	0	0	0	0	0	0	0	0	0.00
Chg in FX Reserve		0	0	0	0	0	0	0	0	0	0.00
Chg in Reserves		0	0	0	0	0	0	0	0	0	0.00
Other		0	0	0	0	0	0	0	0	0	0.00
INCREASE IN NET WORTH	105,847	76,077	52,825	5,716	48,494	50,703	53,106	55,712	67,535	60,116	9.92
Cross Check RE:	—	−0	−0	0	0	0	0	0	0		
Cross Check NW:	—	−0	−0	−0	0	0	0	0	0		

(*continued*)

Appendix 4: (continued)

NAME:	AmaOS			AmaOS
LOCATION:	UK			UK
BUSINESS:	Manufacturing			Manufacturing
AUDITOR:	Andersen	FYE	31 DEC	Andersen
CONSOLIDATED:	Yes	GBP 000		Yes

FACT SHEET	2000	2001	2002	2003	2004	2005	2006	2007	2008	AVERAGE (%)
ROE (%)	68.04	20.62	20.31	−17.85	14.66	13.64	12.82	12.15	12.93	22.78
ROS (%)	23.54	8.25	9.88	−9.19	8.37	8.37	8.37	8.37	9.49	8.12
ATO	1.76	1.33	1.07	1.22	1.23	1.20	1.24	1.26	1.26	1.35
ALEV	1.64	1.88	1.92	1.59	1.42	1.36	1.23	1.15	1.08	1.76
Sales (M/MM)	525684	645174	638756	614538	639120	677467	718115	761202	806874	
Chg. in Sales (%)	#N/A	22.7	−1.0	−3.8	4.0	6.0	6.0	6.0	6.0	5.98
CoGS/S (%)	66.5	61.7	67.3	71.4	66.7	66.7	66.7	66.7	66.7	66.72
GPM (%)	33.5	38.3	32.7	28.6	33.3	33.3	33.3	33.3	33.3	33.28
SGA/S (%)	9.6	29.9	22.6	37.6	24.9	24.9	24.9	24.9	23.8	24.91
NOP/S (%)	23.8	8.5	10.1	−8.9	8.4	8.4	8.4	8.4	9.5	8.37
TIE	84.0	36.7	43.3	#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
IE/Av. FD (%)	2.85	1.58	0.96	1.00	#REF!	0.00	0.00	0.00	0.00	1.60
NPBT/S (%)	23.5	8.2	9.9	−9.2	8.4	8.4	8.4	8.4	9.5	8.12
Inc. Taxes/NPBT (%)	0.0	0.0	0.0	#N/A	0.0	0.0	0.0	0.0	0.0	
NPAT/S (%)	23.5	8.2	9.9	−9.2	8.4	8.4	8.4	8.4	9.5	8.12
NPAUI/S (%)	20.1	11.8	8.3	0.9	7.6	7.5	7.4	7.3	8.4	10.28
Div./NPAT (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Work. Investment	146414	242993	369862	249112	260773.1705	276419.6945	293004.7839	310585.0843	329417.3045	
Chg. in WI (%)	#N/A	66.0	52.2	−32.6	4.7	6.0	6.0	6.0	6.1	
WI/S (%)	27.9	37.7	57.9	40.5	40.8	40.8	40.8	40.8	40.8	
AR DOH	38	74	57	53	55	55	55	55	55	55.50
INV DOH	110	122	284	173	172	172	172	172	172	172.14
RM DOH	17	23	40	22	0	0	0	0	0	25.53
WIP DOH	1	1	1	0	0	0	0	0	0	0.73
FG DOH	79	85	217	133	0	0	0	0	0	128.44

AP DOH	9	9	32	34	21	21	21	21	21	21.07
AE DOH	5	6	18	3	8	8	8	8	8	8.00
Av. GP T/O	#N/A	#N/A	#N/A	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A	
Av. NP T/O	#N/A	#N/A	#N/A	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A	
Av. GP/DepExp.	#N/A	#N/A	#N/A	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A	
Av. AccDep./DepExp.	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#REF!	#N/A	#N/A	#N/A	#N/A	
Av. NP/DepExp.	#N/A	#N/A	#N/A	#N/A	#REF!	#N/A	#N/A	#N/A	#N/A	
Current Ratio	3.08	2.27	1.94	2.66	11.81	12.20	11.77	11.59	11.68	2.49
Quick Ratio	1.94	1.61	0.65	1.37	6.45	6.83	6.40	6.22	6.29	1.39
Coverage Ratio	2.43	2.02	1.77	2.30	2.87	3.27	4.55	6.63	11.68	2.13
CMB Leverage	0.64	0.88	0.92	0.59	0.42	0.36	0.23	0.15	0.08	0.76
% of Total Footings:										
STD (+CPLTD + CPLO) (%)	9.2	22.9	24.9	19.8	0.0	0.0	0.0	0.0	0.0	19.22
Spont. Fin. (%)	4.7	4.2	10.9	9.3	7.2	7.0	7.3	7.4	7.4	7.29
LTD (%)	8.3	5.1	4.2	4.9	22.4	19.2	11.5	5.5	0.0	5.64
Grey Area (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Equity (%)	60.8	53.2	52.2	63.0	70.3	73.8	81.2	87.1	92.6	57.31
CA (%)	95.1	94.4	84.7	85.1	85.2	85.9	85.7	85.8	86.0	89.84
Net Plant (%)	4.5	5.2	7.7	9.2	9.3	9.0	9.3	9.5	9.5	6.65
Other (%)	0.4	0.4	7.6	5.7	5.5	5.1	4.9	4.7	4.5	3.52
Asset Cover (TA-TSL/TA) (%)	60.8	53.2	52.2	63.0	70.3	73.8	81.2	87.1	92.6	57.31
WC Adequacy (WC/CA) (%)	67.5	55.9	48.5	62.3	91.5	91.8	91.5	91.4	91.4	58.57
Reliance on Inventory (%)	−81.8	−92.8	26.9	−28.5	−101.4	−108.6	−100.5	−97.2	−98.1	−44.08
Change in WC (%)	#N/A	33.1	−4.3	9.0	51.9	9.8	1.9	4.2	6.5	#N/A

(*continued*)

Appendix 4: (continued)

NAME:	AmaOS			AmaOS				
LOCATION:	UK			UK				
BUSINESS:	Manufacturing			Manufacturing				
AUDITOR:	Andersen	FYE	31 DEC	Andersen				
CONSOLIDATED:	Yes	GBP 000		Yes				
CASH FLOW		2001	2002	2003	2004	2005	2006	2007	2008
NPAUI: NET PROFIT AFTER UNUSUAL ITEMS		76,077	52,825	5,716	48,494	50,703	53,106	55,712	67,535
+Interest Expense		1,491	1,491	1,491	0	0	0	0	0
Unusual: Plant		−9,518	30,045	−59,865	0	0	0	0	0
Investment		0	0	0	0	0	0	0	0
FX-Adj.		−13,363	−19,752	−2,340	5,000	6,000	7,000	8,000	9,000
Other (1 + 2)		0	0	0	0	0	0	0	0
Other (3 + 4 + 5)		0	0	0	0	0	0	0	0
−Interest Income		0	0	0	0	0	0	0	0
−Dividend Income		0	0	0	0	0	0	0	0
−Equity Income		0	0	0	0	0	0	0	0
−Commission Income		0	0	0	0	0	0	0	0
Sundry Inc./Exp.		0	0	0	0	0	0	0	0
+Prov. f. Income Tax		0	0	0	0	0	0	0	0
−Income Tax Paid		16,578	−24,199	−31,396	−9,059	0	0	0	0
+Prov. f. Def. Tax		0	0	0	0	0	0	0	0
−Def. Tax Paid		0	0	0	0	0	0	0	0
−ITC (Gov't Grants)		0	0	0	0	0	0	0	0
NOPAT: NORMALISED OPERATING PROFIT AFTER TAX		71,265	40,410	−86,394	44,435	56,703	60,106	63,712	76,535

+Depreciation	0	0	0	0	0	0	0	0
+Amort. of Goodwill	0	0	0	0	0	0	0	0
+Prov. f. Dbtf. Rec.	0	0	0	0	0	0	0	0
COPAT: CASH OPERATING PROFIT AFTER TAX	71,265	40,410	−86,394	44,435	56,703	60,106	63,712	76,535
Gross (Net) A/Rec.	−75,820	30,197	11,804	−8,547	−5,830	−6,180	−6,551	−6,944
−A/Rec. charged off	0	0	0	0	0	0	0	0
Inventory	−27,025	−201,891	127,117	6,382	−12,063	−12,786	−13,553	−14,367
Cust. Prepayments	0	0	0	0	0	0	0	0
Acc./Payable	1,885	27,139	3,588	−16,454	1,477	1,565	1,659	1,759
Accrued Expenses	4,381	17,686	−21,759	6,958	770	816	865	720
Chg. Work. Inv.	−96,579	−126,869	120,750	−11,661	−15,647	−16,585	−17,580	−18,832
Prepaid Expenses	0	0	0	0	0	0	0	0
Due to Affiliates	0	0	0	0	0	0	0	0
Sundry C.A.	0	0	0	0	0	0	0	0
Sundry C.L. (1+2)	0	0	0	0	0	0	0	0
CACO: CASH AFTER CURRENT OPERATIONS	−25,314	−86,459	34,356	32,774	41,056	43,521	46,132	57,703
−Interest Expense	−1,491	−1,491	−1,491	0	0	0	0	0
−CPLTD (incl. CPLO)	0	0	0	0	0	0	0	0
= Finan. Payments	−1,491	−1,491	−1,491	0	0	0	0	0
CBLTU: CASH BEFORE LONG TERM USES	−26,805	−87,950	32,865	32,774	41,056	43,521	46,132	57,703
−Net Pl. Expend.	−2,394	−50,611	59,536	−1,847	−2,882	−3,055	−3,238	−3,432
Investments	−184	−43,457	16,162	0	0	0	0	0
+Interest Income	0	0	0	0	0	0	0	0
+Dividend Income	0	0	0	0	0	0	0	0
Sundry Inc./Exp.	0	0	0	0	0	0	0	0

(*continued*)

Appendix 4: (continued)

Market. Secur. + Dep.	0	0	0	0	0	0	0	0
Due from Affiliates	0	0	0	0	0	0	0	0
Sundry NCA	−324	101	452	0	0	0	0	0
Sundry NCL	0	0	0	0	0	0	0	0
Unusual: all other	13,363	19,752	2,340	−5,000	−6,000	−7,000	−8,000	−9,000
+ITC (Gov't Grants)	0	0	0	0	0	0	0	0
CBF: CASH BEFORE FINANCING	−16,344	−162,165	111,355	25,927	32,174	33,466	34,894	45,271
Short Term Debt	83,585	37,270	−48,957	−99,450	0	0	0	0
Long Term Debt	0	0	0	91,646	−8,247	−41,580	−33,334	−33,333
Minority Interest	0	0	0	0	0	0	0	0
Grey Area	0	0	0	0	0	0	0	0
FX-Translation G/L-	0	0	0	0	0	0	0	0
Dividends paid	2,952	6	−41	−5,643	0	0	0	0
Change in Net Worth	0	0	0	0	0	0	0	0
Change in Cash	70,193	−124,889	62,357	12,480	23,927	−8,114	1,560	11,938
Cash Account	−70,193	124,889	−62,357	−12,480	−23,927	8,114	−1,560	−11,938
ADDITIONAL FIGURES:	2001	2002	2003	2004	2005	2006	2007	2008
NOPAT/FP	47.80	27.10	−57.95	#N/A	#N/A	#N/A	#N/A	#N/A
NOPAT/(FP + DIV.)	−48.77	27.21	−56.40	7.87	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
FREE CASH FLOW	69774.12	38919.12	−87884.88	44435	56703	60106	63712	76535
FREE CF (after Div.)	72726.12	38925.12	−87925.88	38792	56703	60106	63712	76535
GROWTH FUNDED INTERNALLY (%)	70.5	21.9	0.0	328.9	306.0	306.0	306.0	343.8
G.F.I. (after Div.) (%)	73.5	21.9	0.0	287.2	306.0	306.0	306.0	343.8
YEARS TO SERVICE RATIO	1.9	4.5	#N/A	2.6	1.9	1.1	0.5	0.0
Y.T.S. (after Div.)	1.9	4.5	#N/A	2.6	1.9	1.1	0.5	#N/A

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Glossary

Acceleration After a default, the loan is fully due and payable. Repayments are accelerated to the present.

Account party In a commercial letter of credit, the party instructing the bank to open a letter of credit and on whose behalf the bank agrees to make payment.

Accounting period The period of activity which the accounts reflect (e.g. a year, six months, etc.).

Accounts payable (Payables or Creditors) Amounts owed to suppliers for goods or services received.

Accounts receivable (Receivables or Debtors) Amounts owed by customers or buyers as a result of a sale of goods, or the performance of a service.

Accruals Allowing for income or costs when they are incurred and not when they are either received or paid out.

Accrued interest Interest earned but not collected.

Acid test (Quick ratio) The relationship between the current assets which may be quickly converted into cash (excluding stock) and current liabilities – i.e. current assets, less inventories divided by current liabilities.

ADB Asian Development Bank.

Ad valorem Off the gross or stated value, usually a percentage.

Advance agent A loan drawdown is advanced by the funder.

After tax cash flow Total cash generated by the project annually, defined as profit after-tax plus depreciation.

Aged analysis A form of reporting based on the time a financial item has been outstanding, commonly used for receivables and payables.

Agent The bank charged with administering the project financing. Generic: a party appointed to act on behalf of a principal entity/person.

Agent banks The banks that arrange the financing on behalf of a corporate borrower. Usually, the banks commit to underwrite the whole amount if they are unable to fully place the deal. Typically, however, the place the bulk of the facility, and retain a portion on their books for themselves.

All-in rate Interest rate which includes margin, commitment Fees, up-front fees.

Amortization The technique of writing-off an asset over a period of time.

Amortization Reduction of capital or up-front expenses (capitalized) over time, often an equal amount p.a. Sometimes describes Repayments.

Amortization The process of paying off an amount gradually by spreading the payments over several years.

Amortization (depreciation) A process of establishing an expense in respect of assets (normally fixed assets) over a number of accounting periods to reflect the value of an asset over its economic life.

Annual report The company's annual accounts, audit statement, and narrative account of the year at hand. Presentations vary considerably.

Annuity The sum of principal and interest is equal for each period.

Arbitrage Take advantage of discrepancies in price or yields in different markets.

Arrangement fees For their efforts in arranging the deal, agent banks collect arrangement fees. These fees are attractive because they represent revenues that do not have to be generated by the balance sheet, which is subject to capital adequacy ratios.

Arranger The senior tier of a syndication. This implies the entity that agreed and negotiated the cash flow forecasting structure. Also refers to the bank/underwriter entitled to syndicate the loan/bond issue.

Articles of association This document is drawn up by the company when it is formed and lays down the internal rules by which the directors will run the company.

Asset Something a company or person owns or has use of, and which is expected to be of economic benefit.

Asset The physical project and its associated contracts, rights, and interests of every kind, in the present or future, which can be valued or used to repay debt.

Asset-backed securities Securities collateralized by a pool of assets. The process of creating securities backed by assets is referred to as asset securitization.

Assets Resources or legal rights owned by the business. These may be physical (e.g. a building) or contractual (e.g. a receivable).

Assets Any item owned by a company or individual that can be given a monetary value and used if necessary to pay debts. There are many kinds of assets, described by terms like current assets and fixed assets.

Asset turnover ratio A broad measure of asset efficiency, defined as net sales divided by total assets.

Assignment Grant of the right to step in to the position of a party to a contract or legal agreement.

Associate company A company which is more than 20 per cent owned by another company. A company will take onto its own profit and loss account its share of the associate's profits or losses.

Audit A process of examination of financial statements and the underlying accounting. An independent audit will provide a systematic investigation of the accounting systems and controls to ensure compliance with prescribed accounting and auditing standards.

Audit An official examination and checking of a company's accounts by an independent accountant called an auditor, to certify that the accounts (as presented by the directors) comply with the law, and in their opinion give a true and fair view of the company's affairs.

Auditors Accountants who certify that the company's accounts have been reviewed in accordance with FRS (Financial Reporting Standards for the UK – see below) and note the findings of their inquiry.

Authorized signatories Persons authorized to sign on behalf of the company borrowing the money. Specimen signatures are usually in a booklet provided by the company. It is the bank's (i.e. analyst's) responsibility to verify this: if the signatory is not authorized, the company does not have to pay the money back.

Availability The project financing is available for drawdown. A period prior to financial close may also be included.

Available cash flow Total cash sources less total cash uses before payment of debt service.

Average life Average for all repayments, usually weighted by amounts outstanding.

Avoided cost The capital and expense that would otherwise have to be spent if the project did not proceed.

Balance sheet A statement reflecting the financial position at a specific moment in time.

Balance sheet The accounts which show assets, liabilities, net worth/ shareholders' equity.

Balloon payment A large single repayment.

BAR Builders' All Risk, a standard construction insurance.

Barter The physical form of countertrade.

Basis point (bp) One hundred bp equals 1 percentage point.

Bearer Bond The Bond certificate is itself. Negotiable. (It is not recorded as being owned by any particular Investor.)

Best efforts A very high standard of undertaking, nevertheless excusable in the event of *force majeure* or failure to execute the matter in question after trying to do so on a sustained, dedicated basis.

BI Business interruption insurance available once the project is in business.

Bid bond A small percentage (1–3 per cent) of the tender contract price is established as a bid 'performance' bond. Once the contract is awarded, bid bonds are refunded to the losers.

Blocked currency Due to inconvertibility, or transfer risk, a currency cannot be moved out of the country.

Bond The paper evidence of a legal promise by the issuer to pay the investor on the declared terms. Bond are usually negotiable. Bonds are customarily longer term, say 5–25 years. Short-term bonds are usually referred to as notes.

BOO Build Own Operate (and Maintain).

Book runner The arranger or bank extending the invitations for a syndication and tallying final take.

Borrower risk Risks pertaining to the company, including management, profitability, non-performance, and bankruptcy: all factors relating to the borrower.

BOT Build Own Transfer, where the project is transferred back to the party granting the concession. The transfer may be for value or at no cost.

Break even The reduction of a cash flow forecasting net cash flow to zero by changing an input variable such as price or costs.

Broker A party which brings together sponsors, finance, or insurances but is not acting as a principal.

Builders-All Risk The standard insurance package during construction.

Bullet A one-time repayment, often after no/little amortization of the loan. A balloon.

Bullet repayment A loan whose interest is payable at intervals agreed in the loan agreement, and whose principal is repayable in a lump sum at final maturity. The source of repayment is usually a new facility that is put into place.

Buy-back A promise to repurchase unsold production. Alternatively, a promise to repay a financial obligation.

Buydown A once-off payment out of LDs to reflect cash flow losses from sustained underperformance. Often used to 'buy' down the cash flow forecasting loan.

Buyer credit Financing provided to a buyer to pay for the supply of goods or services usually by an exporting country or the supplier company.

Call An option to buy a security or commodity for a set price at a given time in the future.

Call option A contract sold for a price that gives the holder the right to buy from the writer of the option, over a specified period, a specified property or amount of securities at a specified price.

Cap A ceiling on an interest or FX rate through a swap, options, or by agreement.

Capex Capital expenditures usually by way of direct investment.

Capital Money invested in the business by its owners.

Capital & reserves (Shareholders' funds/net worth) The value the owners have invested in the business. This is represented by share capital and reserves.

Capitalized interest Prior to completion, the convention is to capitalize interest into the project financing – i.e. to borrow to pay interest. See IDC.

Capital markets A broad term to include tradable debt, securities and equity as distinct from private markets or banks.

Cash flow The inflow and outflow of cash through a company. It is used to describe the cash needed to finance operating expenses and other obligations.

Cash flow The generation of cash by a project.

Cash flow forecast Estimation of expected cash flow used to alert management to future cash shortages and surpluses.

CDC Commonwealth Development Corp – a British development finance institute.

Certificates of registration These certify that the company has registered with the state authorities. Photocopies are usually available from the company on request.

Charge Under Crown Law, the document evidencing mortgage security. A fixed charge refers to a defined set of assets, and is usually registered. A floating charge refers to other assets which change from time to time, e.g. cash at bank, inventory, etc., which become a fixed charge after a default.

Claw back The ability to recover prior project cash flow that may have been distributed/paid away as dividends to the sponsors.

Close company A company which is under the control of five persons or less, or is under the control of its directors.

Club A group of underwriters who do not need to proceed to syndication.

Coface The French ECA.

Co-financing Where the different lenders agree to fund under the same documentation and security packages, yet may have different interest rates, repayment profiles and term, perhaps via A and B tranches.

Co-generation Besides electricity, another energy is produced and sold from the waste heat from a power plant, e.g. steam, hot air, refrigeration.

Collar A ceiling and floor to an interest or FX rate structured through swaps, options, hedging, or by agreement.

Collateral Additional security pledged to support a project financing.

Co-manager A second-tier participant, ranked by size of participation.

Combined cycle The waste heat from an electric generation unit is recovered as steam, which is used to generate more electricity through a steam turbine.

Commitment fee A per annum fee applied to the portion of the unused project financing (the amount not yet drawn down) until the end of the availability period.

Company (Corporation) A legal entity with perpetual succession.

Compensation trade The form of countertrade where an incoming investment is repaid from the units/revenues generated by that investment.

Complementary financing Where different lenders agree to fund under similar yet parallel documentation and a pro-rata security package.

Completion In a project financing, when the project's cash flows become the primary method of repayment. It occurs after a completion

test. Prior to completion, the primary source of repayment is usually from the sponsors or from the turnkey contractor.

Completion risk Construction, development, or cost overrun risk. The risk that a project will not be able to pass its completion test.

Completion test A test of the project's ability to perform as planned and generate the expected cash flows. The time when the project can move from recourse to a project financing.

Compound Interest is reinvested to earn additional interest in the following period.

Consortium All of the participants or developers. For the early stages of a project it may be a loose association, not a legal or contractual entity/JV.

Constant dollar Inflation or escalation is not applicable. Prices and costs are de-escalated/re-escalated to a single point in time.

Contingency An additional amount/percentage to any cash flow item, e.g. Capex. Care is needed to ensure it is either 'to-be-spent' or a cushion.

Contingent For liabilities, those that do not yet appear on the balance sheet – guarantees, supports, lawsuit settlements. For support or recourse, the trigger may occur at any time in the future.

Contingent liabilities Items that do not represent a liability on the balance sheet at the time of statement date but which could do so in the future. Such items include guarantees issued in favour of third parties, and lawsuits currently in progress whose outcome is uncertain.

Convertible A financial instrument that can be exchanged for another security or equity interest at a pre-agreed time and exchange ratio.

Cost of goods sold The direct cost of acquiring or producing goods which have been sold.

Counterparty The other participant, usually in a swap or contract, and includes intermediaries.

Countertrade One party supplies a unit/funding in return for other material/funding See Barter.

Country risk Includes sovereign risk, but usually an estimate of the likelihood of a country debt rescheduling which will prompt currency inconvertibility. Sometimes referred to as sovereign risk.

Coupon The interest amount or rate payable on a bond. A coupon may be physically attached to the bond certificate.

Covenant An agreed action to be undertaken (Positive) or not done (Negative). A breach of a covenant is a default.

Covenants Conditions in the loan agreement signed by the bank and the borrower, which the borrower must respect. Covenants can cover conditions on management performance, disposal of subsidiaries, negative pledges, amounts of debt incurred, and adherence to financial ratios. Non-compliance is known as an event of default.

Cover The amount above unity of a debt service ratio.

CPI Consumer Price Index, a measure of inflation at the consumer level.

Credit The process of taking a risk for the settlement of an obligation in the future.

Credit enhancement The issuance of a guarantee, L/Q or additional collateral to reinforce the credit strength of a project financing.

Credit scoring Technique used to evaluate a potential borrower according to a pre-defined matrix procedure. Usually used in retail banking and credit card processing; may be used in evaluating corporates.

Creditworthy The risk of default on a debt obligation by that entity is deemed low.

Cross-collateral Project participants agree to pool collateral, i.e. allow recourse to each other's collateral.

Cross default A default by another project participant or by the sponsor (other than the project financing) triggers a default.

Crown Law Law derived from English law, e.g. as in England, Ireland, Canada, PNG, Australia, Hong Kong, Singapore, India, Malaysia.

Cure Make good a default.

Current assets Assets owned which by their nature are likely to be transformed (sold, used in production, increased or decreased) within one year. These include stocks, cash, debtors and prepayments.

Current dollar Actual or real prices and costs. Escalation/inflation effects are included.

Current liabilities Liabilities which will have to be met by the business within the next year. These include short-term bank debt, creditors, taxes due.

Current ratio Current assets divided by current liabilities (a liquidity ratio).

Cushion The extra amount of net cash flow remaining after expected debt service.

D:E ratio The amount of debt as a ratio of equity, often expressed as a percentage.

D:E swap Debt in a blocked currency is swapped for equity in a local company project, usually at a discount.

DCF Discounted cash flow, where net cash flow is brought to a present value using a given percentage discount rate.

Debenture Long-term loan secured on specific assets or through a floating charge on the business as a whole; a legal security over the issuer's general credit/balance sheet.

Debottle-necking Each transition of a project's flowsheet or sequence is optimized to increase output. This may require minimal Capex.

Debt The obligation to repay an agreed amount of money.

Debt service Principal repayments plus interest payable; usually expressed as the annual dollar/currency amount per calendar or financial year.

Deductible An amount or period which must be deducted before an insurance payout or settlement is calculated.

Default A covenant has been broken or an adverse event has occurred. A money default means a repayment was not made on time. A technical default means a project parameter is outside defined/agreed limits, or a legal matter is not yet resolved.

Default interest A higher interest rate payable after default.

Defeasance Some or all of the debt is cash collateralised, usually indirectly or via Zero-coupon structures.

Deficiency The amount by which project cash flow is not adequate for debt service.

Deficiency agreement Where cash flow, working capital or revenues are below agreed levels or are insufficient to meet debt service, then a deficiency or make-up agreement provides the shortfall to be provided by the sponsor or another party, sometimes to a cumulative limit.

Defined event The definition applicable to the trigger of a loss in an insurance policy, particularly PRI.

Depreciation The amount by which a fixed asset is diminished in value in a particular year through its use in the business. This amount is charged directly against profits.

Depreciation Amortization for accounting (book), tax calculations or income calculations. A regular reduction in asset value over time.

Derivative A financial instrument based on an underlying contract or funding, such as a swap, option or hedge.

Devaluation Either a formal reduction in the FX rate or one gradually occurring according to FX market forces.

DIS Delay-in-start-up insurances which can cover all non-site *force majeures*, change in a law and contingent contractor liability (efficacy). Sometimes called advanced loss-of-profits insurances or advanced business interruption insurance.

Discount rate The annual percentage applied to NPV or PV calculations (and is often the all-in interest rate or the interest rate plus margin for project financing). The discount rate may be the WACC.

Dividend The payment or distribution by a business to its shareholders; the amount paid out per share, usually once or twice a year, by a company from its profits as decided by the board of directors.

Documentation Anything (such as certificates of registration, loan agreements, guarantees, etc.) relating to the legal agreements and guarantees governing the facility extended to the borrower.

Documentation risk The risk of non-repayment due to a defect in the loan agreement or security arrangements. This can arise due to faulty drafting, mitigating circumstances, juridically non-enforceable and faulty collateral, or guarantees which have expired and not been renewed. The analyst is not expected to assess legal issues, but is expected to obtain legal opinions when necessary and note them in the credit analysis.

Double dip Tax depreciation is accessed in two countries concurrently.

Drawdown The borrower obtains some of the project financing, usually progressively according to construction expenditures plus IDC.

Drop-dead A fee payable when the underlying transaction does not proceed.

DSCR Debt service cover ratio; usually annual.

DTI Department of Trade and Industry. It is a valuable source of information on companies and many business matters in the UK and abroad.

Earnings Net income, net profit.

EBIT Earnings before interest and taxes.

EBIT DA Earnings before interest and tax, depreciation and amortization.

EBRD European Bank for Reconstruction and Development targeted at Eastern Europe and the former Soviet Union, an MIA.

ECA Export credit agency established by a country to finance its national's goods, investment and services. They often offer PRI.

ECGD Export Credit Guarantee Dept., the UK ECA.

EDC Export Development Corp., Canada's ECA.

EFIC Export Finance Insurance Corp., Australia's ECA.

EIS Environmental impact statement, which may have been subject to public comment.

Engineering risk Design risk. The impact on project cash flow from deficiencies in design or engineering.

Environmental risk Economic or administrative consequence of slow or catastrophic environmental pollution.

Equity The owners equity in the company is a residual interest, a claim on the assets not required to meet the claims of lenders and creditors. Equity will comprise the amounts originally contributed by the owners, along with profits from previous years which have not been distributed by way of dividend.

Equity In a project financing, the cash or assets contributed by the sponsors. For accounting, it is the net worth (or total assets) minus liabilities.

Equity In the context of credit analysis, this refers to the net value of all assets after deduction of all charges. Also known as share capital or shareholder's funds.

Equity kicker A share of ownership interest in a company, project or property, or a potential ownership in them. The kicker may take the form of stock, warrants, purchase options, percentage of profits, or percentage of ownership.

Escrow Where documents or money accounts are put beyond the reach of the parties.

Eurobonds Bonds issued in any currency and commonly listed in Luxembourg. They cannot be traded in the USA. Eurobonds are often Bearer Bonds.

Eurodollar € deposited with banks outside the USA.

Events of default A covenant in the loan agreement which the borrower failed to meet, enabling the bank to call the loan in for prepayment. Such events can range from the Channel tunnel boring failing to reach mile 12.75 on 25 October, to mailing an annual report to the lending bank three days late.

Evergreen facility A facility that automatically renews itself unless the borrower or lender gives notice to cancel.

Execute Formal signing of documentation. To implement an action required under the documentation.

Expropriation The state has taken over a company or project, implying compensation will be paid. Nationalization. Creeping expropriation occurs when a government squeezes a project by taxes, regulation, access or changes in law.

Factoring Selling of invoices to raise cash. Debts of various kinds are put together and sold to banks or corporate treasurers. A term used in international trade.

Fee A fixed amount or a percentage of an underwriting or principal.

Final take The final participation.

Finance lease The lessor receives lease payments to cover its ownership costs. The lessee is responsible for maintenance, insurance, and taxes. Some finance leases are conditional sales or hire purchase agreements.

Financial close When the documentation has been executed and conditions precedent have been satisfied or waived. Drawdowns are now permissible.

Financial year end The close of the year accounts (FYE).

Financing agreements The documents which provide the project financing and sponsor support for the project as defined in the project contracts.

Fiscal year-end The end of the tax year as defined by the tax authorities.

Fixed assets Assets owned which by their nature are not likely to be transformed (sold, used in production, increased or decreased) within one year. These include land and buildings, plant and machinery fixtures and fittings.

Fixed cost Operating cost which does not vary per unit of output.

Fixed rate Interest rate that is fixed for a defined period.

Float See IPO.

Floating charge Security, in the form of a range of assets, which is given by the company for a loan.

Floating rate Interest rate that is reset periodically, usually every couple of months or sometimes daily.

Floor A level which an interest rate or currency is structured not to go below.

Force majeure Events outside the control of the parties. These events are acts of man, nature, governments/regulators, or impersonal events. Contract performance is forgiven or extended by the period of *force majeure*.

Foreign exchange The conversion of one currency into another.

Forex FX, Foreign exchange.

Forward contract Forwards. An agreement to exchange currency or interest obligations in the future. For tradable commodities or securities, an agreement to buy or sell at a future date.

FRNs Floating rate notes, where the interest is reset by a panel or by reference to a market floating rate.

FRS/SSAP Financial Reporting Standard/Statement of Standard Accounting Practices. A set of standardized guidelines and procedures which have become mandatory for directors in the UK for all company accounts.

Full recourse No matter what risk event occurs, the borrower or its guarantors guarantee to repay the debt. By definition, this is not a project financing unless the borrower's sole asset is the project.

Funding risk he impact on project cash flow from higher funding costs or lack of availability of funds. Interest risk.

Funds Value used in a business (includes cash, credit, capital).

Futures These are formal agreements to purchase a given item in the future at a price agreed today. The practice began in Chicago in the nineteenth century and centred around the agricultural market, but records show that it was common in Holland and Japan in the sixteenth century. The purpose is to hedge against price changes.

Futures market A market where forward contracts can be traded before their maturity.

FX Foreign exchange.

FX rate One currency unit expressed in terms of another. Foreign exchange rate.

FX risk The effect on project cash flow or debt service from a movement in the FX rate for revenue, costs, or debt service.

Gas turbine Electricity generation by way of a turbine from burning natural gas or liquid fuels.

Gearing This is a ratio that sums up the financial standing of a company. It is obtained by dividing the total interest bearing debt by the

shareholders' funds. The higher the number, the greater the risk. A company that has a large proportion of its permanent capital from debt is referred to as being highly geared.

General partner The partner with unlimited liability.

Goodwill The amount paid in excess of book value on the balance sheet, usually for intangible assets such as trademarks or licences.

Grace After a default, days of grace may be stated within which the cure is effected. A period when interest or principal is not yet payable, usually a period after start-up/commissioning/completion in a project financing.

Gross margin Sales revenue minus cost of goods sold.

GSM Global System for Mobiles, a mobile phone standard.

Guarantee Usually an undertaking by a third party to assume the debts of the borrower in the event of default. A common situation with parent/affiliate lending arrangements. Guarantees can and do expire, and the analyst should ensure in the credit review that they are either still valid, or have been renewed.

Guarantor A party who will guarantee repayment or performance of a covenant.

Heat rate The amount of fuel required to generate a kilowatt hr (kwh) of electricity, usually expressed as an energy value such as kilojoules (kJ).

Hedge To take a forward contract or option to effect an anticipated change in a currency, commodity, interest rate or security, so that gains or losses are offset.

Hell-or-high-water An absolute commitment, with no contractual defence.

Hermes The trade finance agency for Germany.

Hire purchase The user of the asset is entitled to purchase the asset according to a pre-agreed method. The user may be the owner for tax purposes.

Holding company Company which holds, directly or indirectly, more than 50 per cent of a subsidiary company, or controls the composition of the board of directors.

Hurdle rate A minimum IRR.

IFC International Finance Corporation, the private enterprise arm of the World Bank.

Illiquid Not easily traded or not readily converted to cash.

Incipient default Potential default.

Income Operating cash flows less overheads and depreciation, either before tax (BT) or after tax (AT). Earnings.

Inconvertibility Where a local currency cannot be exchanged for another currency. Often includes transfer risk.

Indemnity A legal obligation to cover a liability, however arising.

Indexed rate An interest rate linked to an index, usually the CPI.

Information memorandum An information circular which the borrowing company and agent banks will prepare providing information relating to the company and its borrowing requirements, and which is circulated to interested parties during a loan syndication.

Infrastructure risk The impact on project cash flows from infrastructure problems. Sometimes labelled transportation risk.

Institutions Insurance companies, pension funds, trusts, foundations, mutual funds, funds managers, bank investment departments.

Instrument A financial tool. Sometimes a discrete type of funding or a security.

Intangible assets Assets which are neither physical nor financial (e.g. goodwill, licences, trademarks).

Interest rate The percentage payable to the lender calculated at an annual rate on the principal. May be all-in.

Interest risk The impact on project cash flow from higher interest costs or lack of availability of funds. Funding risk.

Intermediary An entity standing between parties to funding or a swap. An intermediary may be at risk.

Inventory Finished goods, raw materials or work in process.

Inverse order Applied to the periodic repayment schedule, and means from the end, expected maturity. 'Current order' means the next periodic principal repayment.

Investment bank The US term for a merchant bank.

Investment grade For a rating, the rating level above which institutional investors have been authorized to invest.

Investor/creditor community Entities which provide funds to companies. Investors buy shares in the company (equity), while creditors lend money to companies (debt).

IPO An initial public offering of shares. A float.

IPP Independent power plant, a BOO development.

IRR The discount rate to make the NPV zero. Multiple IRRs occur mathematically if the periodic cash flows change sign more than once.

Islamic loan Interest cannot be charged. Rather, the loan is structured using discounts, sale/lease, profit participation, or repurchase agreements.

Iterations The number of times circular references in a spreadsheet are recalculated before the calculation reaches an (approximated) acceptable degree of accuracy (interest expenses calculated on projected debt, projected debt based on the final P + L result which depends on interest expense, etc. …). Computers perform such laborious calculations instantly.

Joint venture (JV) The legal means of dividing the project's equity either by shareholdings in a company (incorporated JV) or by way of a contract (unincorporated JV).

Junk A high-yield bond of speculative grade.

L/C Letter of credit, a guarantee to pay limited to an amount and time triggered by defined events or exchange of agreed documents. Used for credit enhancement.

Latent default A potential default that may have always been present but unidentified.

Lawsuits Items which do not appear on the balance sheet but can have a financial impact on the company. Also considered as 'contingent liabilities', these should be explained in the notes to the financial statements.

LDs Liquidated damages. The amount payable for delays and substandard performance under a construction, equipment supply, or 0 & M contract.

Lead arranger The senior tier of arranger.

Lead bank A senior bank involved in the negotiations for a project financing. Subordinate to an arranger.

Lead manager Senior tier of lender in a loan syndication.

League tables A ranking of lenders and advisers according to the underwriting, final take, or number of cash flow forecasting loans or advisory mandates.

Lease The owner of an asset (lessor) agrees to receive lease payments/rentals from the user (lessee), usually at a fixed rental level. The lessor/owner takes the benefit of depreciation as a tax deduction. Its primary security is the asset.

Lease rate The equivalent interest rate calculated from a stream of lease payments.

Lease term The life of a lease including any renewal options.

Legal risk A risk that a defect in the documentation will affect cash flow or debt service.

Lending risk Risks relating to lender, including legal enforceability, documentation, interest rates, etc. The risks the bank is getting into by putting the loan into place.

Lessee The user who pays lease rentals to the owner/lessor.

Lessor The owner of a leased asset.

Leverage 1. This is the American term for gearing. 2. In the UK this is the same as gearing, with the addition of non-interest bearing external debt.

Leveraged lease A lessor borrows to finance a leased asset. Recourse may be limited to the lease rentals or the asset.

Liability Obligation of a company to make payment for goods or services already received.

Liability The obligation to repay a defined amount or to perform a service.

LIBOR London Interbank Offered Rate, often quoted as a 1-, 3-, 6-month rate for €.

Lien A legal security interest in an asset.

Limited recourse Under certain conditions (legal or financial), there is access to the sponsor's credit or other legal security for repayment (besides the project's cash flows). There is usually recourse in the event of fraud or misrepresentation/non-disclosure. Thus non-recourse is better described as 'limited-recourse'.

Liquid Easily traded or converted to cash.

Liquidation The process of disposal or sale of the project or project assets with the proceeds used to repay the project financing.

Liquidation Selling off the company's assets to satisfy creditors during a winding up. The main risk in a liquidation is asset shrinkage – whether the assets being liquidated can fetch a market value sufficient to satisfy all the creditors.

Liquidity The pool of accessible funds, either in cash or in assets that may be converted rapidly into cash to meet immediate debts.

Liquidity The ability to convert current assets into cash to meet current liabilities when they fall due.

Liquidity ratios The acid test and current ratios used to measure changes in liquidity between various accounting periods.

Listed company A public company whose shares are listed on the Stock Exchange so that a 'market' can be made in its shares.

Loan agreement Every loan should have one. These define the rules and obligations binding on the lenders, borrowers guarantors and related parties.

Loan officers The persons who look after client relations and new business opportunities. The analyst's work is to evaluate objectively the companies and businesses that loan officers are proposing to lend to, and submit their evaluations in the credit review process.

Loans, short-term Loans under one year in duration.

Loans, term Loans of between three and seven years' duration.

Long term Three years or more; in accounting, more than one year.

Long-term liabilities Liabilities of the business which will fall due in a period more than 12 months from the balance sheet date.

Loss payee A party to whom an insurance loss payment or settlement may be paid directly.

LP Limited partner who is not liable for the debts of the partnership beyond the funds contributed.

Make-up Where a cash flow or capital item is deficient, the amount of such deficiency – e.g. an interest make-up relates to the interest amount above a ceiling percentage.

Management accounting Part of the accounting system used to provide information for managing the business in a form required for internal use, compared to financial accounting, which is for external use and must reflect prescribed formats and content.

Manager A medium-level participant established according to final take.

Mandate The formal appointment to advise on or arrange a project financing.

Margin The amount expressed in percentage p.a. above the interest rate basis or cost of funds. For hedging and futures contracts, the cash collateral deposited with a trader or exchange as insurance against default.

Market risk Changes to the amounts sold or the price received, which impacts on gross revenue. Sometimes called sales risk.

Market value The price at which an asset may be bought or sold.

Maturity The final date a cash flow forecasting loan is repayable. The end of the term.

Maturity schedules The repayments on the loan. A good set of company financial statements will break out all the various debts which they have, the interest rates, and periods of repayment. The analyst should pay particular attention to bullet repayments on future cash flow. Debt maturity schedules in years in financial statements are now required by EC directives.

Medium term Two to six years.

Memorandum of Association This is a document drawn up by each newly formed company, which lays down the rules that govern the company's dealings with the outside world. It includes company name, the activities of the company, details of share capital, list of shareholders.

Merchant bank A bank which, besides lending and deposit-taking (usually not from the public), engages in trading and advisory services, and acts as an underwriter and funds manager of securities.

MIGA Multilateral Investment Guaranty Agency, the PRI arm of the World Bank.

MILA Multilateral agency such as IFC, ADB.

Mine-mouth Where the coal mine is beside the power station. A dedicated coal mine.

Minority interests Where a company does not own 100 per cent of the shares of a subsidiary company, the percentage of shares which are held by outside investors is called a minority interest. The appropriate procedure is to include the full amount of the subsidiary's assets and liabilities in the consolidated balance sheet, with the proportion financed by outside investors represented by a credit balance described as 'minority interest'.

MITI Ministry of International Trade and Industry of Japan.

Monetization Securitization of the gross revenues of a contract.

Monte Carlo Simulations using random numbers.

MW Megawatts – one thousand kW, or one million watts.

Negative pledge The borrower agrees not to pledge any of its assets as security and/or not to incur further indebtedness.

Negotiable A financial instrument can be bought or sold by another investor, privately or via a stock exchange/computer trading.

Net realizable value When relating to a company's products, this is the actual or estimated selling price less all costs of manufacturing and costs to be incurred in marketing, selling and distributing.

Net worth (Owners' equity) The value owed by a business to its owners reflecting the difference between the total value of all assets and total of all liabilities. It is the value attributable to the owners in respect of the net financial position of the business.

Nominal value The face value of a share.

Non-recourse The financiers rely on the project's cash flows and collateral security over the project as the only means to repay debt service. This usually occurs after completion.

NPV The periodic net cash flows are each discounted by the discount rate to a present date, and the appropriate cash outflows/investment for construction or acquisition are deducted from the total.

O&M Operations and maintenance.

Offtake(r) The purchase(r) of the project's output.

Open-cycle The waste energy/exhaust from a power plant is not captured.

Operating cash flow Project revenues less (cash) Opex.

Operating risk Cost, technology and management components which impact Opex and project output/throughput. Costs includes inflation.

Opex Operating expenses, always expressed as cash. Therefore, depletion and depreciation are excluded.

Option A contract in which the writer of the option grants the buyer of the option the right, but not the obligation, to purchase from or sell to the writer something at a specified price within a specified period of time (or a specified date).

Ordinary shares These give the holder the right to vote on major decisions and to participate in the profits of the company by way of dividend payments.

Oversubscription Underwriting commitments from a syndication exceeds the amount sought by the amount of over subscription.

Overrun The amount of Capex or funding above the original estimate to complete the project.

p.a. per annum, yearly.

Parent company Company that owns a majority of shares in another company.

Pari passu Equal ranking of security pro-rata to the amount owed.

Participant A party to a funding. It usually refers to the lowest rank/smallest level of funding. Alternatively, it is one of the parties to the project financial/project documents.

Participant risk The credit of the participants and the risk of non-performance under the project contracts or financing agreements.

Participation The amount of loan/bond issue taken directly or from another direct lender/underwriter.

Partnership The partners agree to a proportional share of profits and losses and thus have the same tax treatment.

Payback The period in years to recover the investment or loan. It may be calculated on a discounted, non-discounted, leveraged or unleveraged basis.

Payment The amount that is required to repay a loan with interest and fees.

Performance bond A bond of 5–10 per cent of a contract payable if a project is not completed as specified. Usually part of a construction contract or supply agreement.

Physical completion The project is physically functioning, but not yet (fully) generating cash flow.

Placement Securities are placed with a small group of investors.

Point One percentage point on a note or a bond.

Political risk Eight risks, usually comprising currency inconvertibility, expropriation, war and insurrection, terrorism, environmental activities, landowner actions, non-government activists, legal, and bureaucratic/approvals. The first three are insurable. It overlaps with the political component of *force majeure* risk.

Potential default A condition where a default would occur in time, or where a notice or default event has not yet been formalized.

PPA Power purchase agreement, a long-term power supply contract.

Preference shares Non-voting shares which carry the preferential right to receive a dividend out of profits of a fixed percentage of the share capital before the ordinary shareholders get any dividend.

Premium The cost of an insurance policy. The price of an option. An extra margin payable with prepayment of principal.

Prepayment Repayment of greater than the scheduled amount. If forced, it is referred to as a mandatory prepayment.

PRI Political risk insurance.

Price earnings ratio The relationship between a company's profits and the publicly quoted value of its shares. This is usually expressed as market value of shares/earnings per share.

Prime rate A (US) bank interest rate charged to prime customers for loans in excess of $100,000.

Principal The quantity of the outstanding project financing due to be paid. Generic: a principal is a party bearing an obligation or responsibility directly (as distinct from an agent).

Private company This is a company which is not a public company; all companies with the word 'limited' at the end of their name are private companies.

Private placement The placement of debt or equity investment is not publicized and may not be tradable.

Production A defined portion of the proceeds of production up to a dollar amount.

Production loan A project financing where the repayment is linked to the production, often on a $/unit basis.

Profit & loss account A record of income and expenses in the business in a specific period of time.

Pro forma A financial projection based on assumptions.

Project The asset constructed with or owned via a project financing which is expected to produce cash flow at a debt service cover ratio sufficient to repay the project financing.

Project contracts The suite of a agreements underlying the project.

Project financing A loan structure which relies for its repayment primarily on the project's cash flow, with the project's assets, rights and interests held as secondary security or collateral.

Pro rata Shared or divided according to a ratio or in proportion to participations.

Prospectus A formally approved document describing the business and affairs of the issuer and the terms and conditions of the security. An Offering Circular in the US filed with the SEC, e.g. for an IPO or a Rule 144a Bond Issue.

Public company Defined by the Companies Act 1985 as a company limited by shares or by guarantee (shareholders' liability is limited to the amount of share capital or to the amount of guarantee given), which

has a minimum share capital of €50,000, whose Memorandum states that it is a Public company. All public companies will have the words Public Limited Company (or PLC) at the end of their name, but note that a Public company is not necessarily a listed company.

Purchasing power parity A view that differential escalation rates (in different countries) determines the systematic change in FX rates.

Put An option to sell (back) a security or commodity at a set price at a given time.

Rating The ranking, usually grades of A to E, of the creditworthiness/ability to repay. The ranking of bonds is related to the estimated percentage default rate. Countries are similarly ranked, and ranking may include an estimation of political risk.

Ratio analysis Calculation of financial ratios as an aid to interpretation.

Ratio analysis The technique of analysing company performance by calculating financial ratios for historical and comparative purposes.

Receiver A person/entity appointed under the legal security documents to administer the security on behalf of the project financiers.

Recourse In the event that the project (and its associated escrows, sinking funds or cash reserves/standby facilities) cannot service the financing or completion cannot be achieved, then the financiers have recourse to either cash from other sponsor/corporate sources, or other non-project security.

Refinancing Repaying existing debt and entering into a new loan, typically to meet some corporate objective such as the lengthening of maturity or lowering the interest rate.

Regulatory actions Legal requirements on a company. If the government passes a law forcing chemical companies to process carcinogenic waste instead of dumping it in our drinking water, this is known as a regulatory action. Regulatory issues can adversely impact a company's profitability and viability.

Representations A series of statements about a project, a sponsor, or the obligations under the project contracts or the financing agreements.

Reserve account A separate amount of cash or L/C to service a payment requirement such as debt service or maintenance.

Residual The assumed value of an asset at the end of a loan, lease or pro forma cash flow. It is sometimes insured.

Residual cover The cash flow remaining after a project financing has been repaid expressed as a percentage of the original loan.

Residual cushion The amount of net cash flow from the project after the project financing has been repaid. If it is expressed as a percentage of the original loan amount, it is the 'residual cover'.

Retention An amount held back from construction contract payments to ensure the contractor completes the construction, when the retention (5–15 per cent of the contract price) is returned to the contractor.

Return on assets (ROA) Net profits after taxed divided by assets. This ratio helps a firm determine how effectively it generates profits from available assets.

Return on equity (ROE) Net profits after taxes divided by stockholders' equity.

Revenues Sales or royalty proceeds. Quantity multiplied by price realized.

Rights issue The opportunity for a company's shareholders to invest more money in the company by subscribing for new shares at a cost less than the current market price.

Risk The event which can change the expected cash flow forecast for the project financing. 'At risk' means the cash or loan. For insurance, it means the total amount or type of event insured.

ROCE Return on capital employed.

Royalty A share of revenue or cash flow to the government or grantor of the concession or licence.

Rule 144a Under US SEC regulations, a Rule 144a security (usually bonds but can be equity/shares) can be placed with professional investors who are prequalified/registered and take minimum €100,000 amounts. Less strict document/disclosure/due diligence is permitted than for a full prospectus.

SACE The Italian ECA.

Sales (Sales turnover) The value of goods sold or services provided in a specific accounting period. Sometimes described as 'revenues'.

Sales completion The project has reached physical completion and has delivered product or generated revenues in satisfaction of a sales completion test.

Salvage value The estimated selling price of an asset once it has been fully depreciated.

SEC Securities & Exchange Commission, which regulates disclosure and practices for companies and public issues of debt and equity in the USA.

Securitization Packaging up a stream of receivables or assets to fund via a capital markets, tradable funding.

Security A legal right of access to value through mortgages, contracts, cash accounts, guarantees, insurances, pledges or cash flow, including licences, concessions and other assets. A negotiable certificate evidencing a debt or equity obligation/shareholding.

Security The assets or guarantees you claim when the loan is in default. Forms of security can vary from high-grade government bonds to partially completed stock, and are defined in the loan agreement.

Security agreement An agreement in which title to property is held as collateral under a financing agreement, usually by a trustee.

Senior Ranking for repayment, security or action. Most project financings are senior debt obligations with first, senior security.

Sensitivity A change to a cash flow input to determine the change to DSCR.

Setoff Money held on behalf of a borrower may be applied to repay the loan. It usually implies without the permission of the borrower.

Share premium Money received by the company for a share issue which is in excess of its nominal value.

Shareholders' equity Net worth. Book value of total assets less total liabilities.

Short-term Up to 12 months.

Sinking fund A regular payment is set aside in anticipation of a future payment.

SOE State-owned enterprise.

Sovereign risk The government's part of political risk.

Sponsor A party wishing to develop a project. A developer. A party providing financial support.

Spreadsheet The analyst's main tool in unscrambling a typical set of company accounts.

Statement of cash flow A statement which reconciles movements in cash between two accounting periods.

Steam turbine Electricity generation from steam pressure.

Structure How a project financing is drawn down, repaid, and collateralized secured.

Subordinated The subordinated party accepts a lower priority of repayment and/or security than senior debt.

Subsidiary company A company in which all of its share capital is owned by another company.

Sunk costs Capital already spent.

Supplier credit The supplier of goods or services agrees to deferred repayment terms.

Supply risk The raw materials or input to a project change from those assumed/projected. For a resources production project, this is called reserves risk.

Swap An exchange of the basis of obligations to repay principal, interest or currency. For interest-rate swaps (floating to fixed), the underlying principal may not be exchanged.

Sweep All available cash flow is used for debt service.

Syndication The selling of a cash flow forecasting to a group of prospective participants, the syndicate.

Tail The remaining reserves after the project financing has been repaid. Sometimes means the residual.

Take-and-pay If the project's output is deliverable and can be taken, it will be paid for.

Take-or-pay In the event the project's output is not taken, payment must be made whether or not the output is deliverable.

Takeout A financing to refinance or take out another e.g. construction loan.

Tangible assets Assets which have a tangible, real or ascertainable value.

Tangible net worth The value attributable to shareholders when realistic (tangible) values are applied to the calculation of net worth.

Tenor The number of years a loan is outstanding. The term.

Term The loan life or tenor; the period to a loan's maturity. Generic: A condition attached.

Throughput A throughput agreement is a hell-or-high-water contract to put and pay for material through a facility. *Force majeure* gives no relief.

TNW Total net worth.

Tolling A contract to process or convert a raw material into a saleable or finished product. The tolling contract does not require the purchase of the raw material or the sale of the output.

Tombstone An advertisement listing the sponsor, amount funded, participants, and key roles.

Tranche A separate portion of a project financing, perhaps with different financiers, margins and term.

Transfer risk Currency cannot be sent out of the country, usually due to Central Bank restrictions or a national debt rescheduling.

Trustee An independent or nominated third party who administers corporate or financial arrangements.

Turnkey The construction of a project to meet a standard or the completion test where it is ready to produce cash flow. Turnkey contracts usually have LDs and retentions.

Turnover The gross revenue net of VAT which the company has earned from providing goods/services to customers.

Underwriting The commitment to fund is not contingent on syndication.

Unsecured The financier has no security, merely the obligation/undertaking to repay.

Unwind To reverse a swap or hedge.

WACC Weighted Average Cost of Capital calculated from the returns on interest rates payable on the different components of a company's or a project's deemed capital structure.

Well A drill hole in the petroleum industry.

Withholding A tax on interest, royalty, or dividend payments, usually those paid overseas. It may be deducted at source.

Working capital The amount of short-term funds available to a business to perform its normal trading operations. Usually defined as the difference between current assets and current liabilities.

Working capital Cash required to fund inventories and accounts receivable. Accounting definition is current assets less current liabilities. It is recovered entirely when the project ceases.

Workout The project financiers are responding to work out a potential problem or have arranged to take over the operation after a default to attempt to rehabilitate the cash flow generating capacity of the project.

World Bank An MILA based in Washington DC. The international bank for reconstruction and development. Usually involved in government-related deals.

Yield The financial return, usually expressed as a percentage p.a.

Zero coupon No interest is paid. A bond or note is issued at a discount, which is calculated to yield a compound interest equivalent return.

Profitability indicators

Cost of goods sold (CGS) The cost of the raw materials and resources used in the manufacturing process, both in their composition (wood for paper manufacturing) as well as in other manufacturing related resources (chemicals, electricity).

Dividend payout ratio The ratio of dividends paid out as a percentage of net profits, useful in calculating the level of retained earnings.

Gross profit (GP) Net sales revenue minus cost of goods sold = gross profit.

Gross profit margin (GPM) This is the company's gross profit expressed as a percentage of net sales. This index is useful to see whether the company's sales activity is generating more or less profits. Historical average gross profit margins, in conjunction with projected future sales, are also useful in projecting future cost of goods sold and gross profits.

Net margins Percentage of each sales pound remaining after all operating expenses and taxes have paid: net income divided by net sales.

Profit The amount of funds available after satisfying preceding expenses. In descending order in the profit and loss statement, we are concerned with several types of profit: gross profit, operating profit, profit before interest and taxes, and net profit.

Profitability Measures the amount of profit generated in relation to net sales. If your sales double and profits rise by only 20 per cent, you will have increased your profits but your profitability will have taken a sharp downturn.

Retained earnings (R/E) The amount of a company's profits which are transferred to net worth after payment of dividends to the company's shareholders. From our projections viewpoint this item is important, as it contributes to growth in net worth and maintaining adequate leverage.

Return on assets (ROA) Percentage return on each pound of assets employed: net income divided by total assets.

Return on equity (ROE) Percentage return on each pound of equity employed: net income divided by net worth adjusted for intangibles.

Selling, general and administrative expenses (SGA) These are expenses arising from the company's ongoing operations in completing the manufacturing process.

SGA as a percent of sales Percent of each sales pound used for selling, general and administrative expense: SGA divided by net sales.

Turnover and efficiency indicators

Accounts payable in days Accounts payable/sales*365. This is another index linked to sales activity. Also known as supplier credit, this ratio measures the extent to which the company avails itself of credit from its suppliers. While modest levels are to be expected, undue variations can be indicative of liquidity problems in the company.

Accounts receivable in days Total accounts receivable/sales*365. Also known as the collection period, this ratio measures how long it takes the company to collect payments from its clients. This activity is linked to sales activity, but can vary for other reasons such as inadequate collection procedures.

Asset to sales (ATO) The ratio of assets to net sales, also known as asset turnover (ATO). This ratio basically measures how many units of sales a company is able to generate in terms of its balance sheet size. A company which is able to generate more sales then a competitor with a similar-sized balance sheet is more 'asset efficient'. Asset efficiency should not be confused with profitability, however: an asset-efficient company may generate a loss, unlike its less asset-efficient competitor, due to other variables (rising operating costs, loss on sale of sub, etc.).

Inventory in days Total inventory/sales*365. Inventory levels are directly linked to sales: if the company is keeping inventory longer than in previous years, this can be an indication of inadequate inventory controls (raw materials) or slow sales (finished goods). From the Land of The Rising Sun comes the vogue concept of 'just-in-time' inventory, which attempts to minimize levels of inventory held to the bare minimum (hours), as inventory represents financial resources lying idle. Easier said than done, though, if your business is located in a country prone to transport strikes.

Net plant to sales (NP/S) Net plant/sales. This ratio measures the amount of net plant needed to support each unit of sales. NP/S is a

useful indicator in determining the level of capital expenditures which will be required to support projected sales growth. If sales rise, you will want to multiply sales by the historical average of the NP/S ratio to determine the level of future net plant.

Financial position indicators

Current ratio The working capital relationship expressed as a ratio (current assets divided by current liabilities). A company with a current ratio of 1 or above is said to be liquid, and a company with a current ratio of below 1 to be illiquid.

Debt to equity ratio This ratio, also known as 'leverage', measures the amount of debt relative to equity in the company's balance sheet: total liabilities divided by net worth. A company with a high debt to equity ratio is said to be highly leveraged or geared.

New money need (NMN/NDN) A 'plug' figure required to reconcile projected liabilities with projected assets in order to finance the projected balance sheet growth. New money need (NMN) can be funded by debt or equity, or by a combination of the two. Without equity, this caption is known as 'new debt need' (NDN).

Quick ratio A variant on the current ratio: the relative amount by which current assets which can be readily converted to cash (i.e. cash, marketable securities, and receivables but not inventories) exceed (or fall short of) current liabilities – in other words, current assets less inventories divided by current liabilities. This measures the amount available to creditors in a liquidation scenario after excluding the unsellable and half-completed bric-a-brac stored in its warehouses (e.g. used oil-drilling equipment that will fetch 10 cents on the dollar in a fire sale).

Working capital (W/C) The difference between current assets and current liabilities. This represents the cushion available to cover current liabilities in the event they are all called in (if short-term uncommitted financing facilities are withdrawn). If a company's working capital is negative (i.e. current liabilities exceed current assets), the company is said to be 'technically insolvent'.

Working investment Working investment is the amount of accounts receivable and inventory (current assets less cash/marketable securities) that must be financed by sources other than accounts payable and

accrued expenses – in other words, the difference between current assets less current liabilities, excluding cash, marketable securities, overdrafts and other non-cash-driven 'working' elements. Working investment therefore is a net asset investment used in completing the manufacturing (sales) cycle that must be supported by either equity or borrowed money. In other words: WI = (A/R + Inv.)(A/P + /E's).

Cash flow terms

Actual change in cash Amount by which the cash account on a balance sheet changes from the previous year. If calculated cash flow is properly constructed, cash after external financing will equal the actual change in cash.

Cash after debt amortization Cash position of the company after all operating expenses, financing costs and scheduled debt amortization is paid. If positive, the firm generates sufficient cash to pay interest and repay scheduled debt. If not, the company has to meet its financing requirements from external sources.

Cash after external financing Amount by which cash raised from external sources (i.e. debt or equity) exceeds/falls short of the financing requirements.

Cash from sales Cash collected in one year from sales made in that and previous years.

Financing requirements Amount of financing required to meet the combination of an operating cash deficit, debt amortization and capital spending. Calculated by deducting capital spending and long-term investment from cash after debt amortization.

Net operating cash flow The most important item in your cash flow statement, this is the amount of cash generated from sales after cost of goods sold and other operating costs are deducted and after movements in working capital (debtors, stocks, and creditors being the principle elements). This figure is referred to as net operating cash flow, or NOCF.

Cash ratios

Cash flow interest cover ratio NOCF/interest expense. This ratio indicates whether the company is generating sufficient cash flow to service

(not repay) its debt commitments. If the ratio is below 1, the company is unable to service the interest, let alone repayment on its debt, and may be in serious difficulties.

Financing payments cover ratio NOCF/(interest expenses, dividends (or withdrawals), scheduled debt amortization and lease payments). This ratio indicates if the firm generates sufficient cash from operations to meet financing costs and amortize scheduled debt. If this ratio is greater than 1, the firm is able to pay financing costs and repay debt as scheduled. If the ratio is less than 1, the firm is not able to do so.

Total debt payout ratio (years) Total interest-bearing debt/NOCF. This ratio basically tells you how many years it will take the company to repay its current levels of debt.

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