Accounting and Finance for Managers

Matt Bamber and
Simon Parry

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CONTENTS

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Introduction to accounting

01

Guidance and teaching tips

The first thing to note about teaching accounting is that students from non-specialist backgrounds often arrive with the preconception that the subject is, for want of a better word, dull. Part of our job as educators is to enthuse them. When I start teaching a new group, I set out with the first objective that I will try to make them recognize that this is a dynamic field and that accounting is an essential function for businesses all over the world, regardless of size or industry. I also try to show them that it can be fun, interesting and exciting. Each of these online content sections hosts a few tricks and tips that might help you engage your classes. While none of our advice is guaranteed to work, it has helped us in the past.

My belief is that if your students are enjoying it, chances are that you will enjoy it also. This is a two-way relationship. The effect is that this will improve their learning experience and the level of fulfilment you will gain from your teaching. The exercises in the main text highlight this approach. We have pointed students towards real-world examples where possible and we encourage them to do as much of their own research as possible.

Note that the level of interest in *our* examples will vary dependent upon the cohort of students. For example, I've provided an extract from Tesco plc's annual report because this is a globally recognized brand and, being a supermarket, the business is (in theory) fairly straightforward for everyone to understand. If you teach in the United States, you might prefer to use Walmart's annual report. Alternatively, if you teach in Asia you might prefer to use Jusco (Aeon Stores HK Co Ltd). When all is said and done, the fundamental premise of financial accounting is broadly the same, and within industries and between years the accounting numbers should be broadly comparable. Some businesses have a heavy reliance on certain types of assets and/or liabilities. Some companies have high profit margins, some do not. Our job as accounting educators is to provide examples, contextualize, and engage the students with the fundamental ideas and concepts of accounting. I believe that when the students can (literally) see the importance of what they're studying and see what the final product looks like, they are more likely to want to learn and contribute to classes positively. Too often, as lecturers, we forget that students do not share our

knowledge and experiences. It is worth being clear and explicit about the objectives of the accountant's role and its many variations.

You might choose to show other examples of annual reports. Indeed, this is to be encouraged. Students react positively to things that interest them and if you can find a company that the group would be more interested in than a supermarket or an airline, then chances are you will enjoy the teaching experience more and so will they. As a word of caution, however, I wouldn't lead off by providing the annual report of a bank or an insurance company at this early stage. This is a temptation because of their role in capital markets and their global brand recognition. The problem is that the long and complex annual reports and financial statements of such companies are a reflection of the industry's own complexity.

You might try a different tack to engage students with the real world. I have, for example, provided a worked example of a start-up business – Climb On! This is because climbing is close to *my* heart. It is also a business which I can easily envisage. If you have special knowledge of a business, you should use this as an example. In short, what I am saying is that you might want to tailor the examples to your class and that this is to be encouraged!

Another problem that you will face when dealing with teaching basic financial accounting is that students need to know the 'background'. How much of this background they need to know is up to you. In the first chapter I have included some really interesting information that will engage students immediately alongside some more mundane factual information which, in my experience, tends to turn students off. I have typically found that students like to know what accountants do and who uses the information we produce! They enjoy hearing examples of our work and the impact/role that it has/plays in corporate development and capital markets, the types of organization we work in, the differences between management accounting and financial accounting, the types of professional accounting qualifications that exist and the differences between them, and so forth. Therefore I have placed this central and up front in the chapter. Students typically, however, do not like hearing about the conceptual and regulatory framework. Yet this is essential.

To this end, I have made this section both brief and as interesting as possible. This brings me to an interesting and important aside. I think a critical distinction between teaching this as a first-year undergraduate (or open) unit and teaching this as a postgraduate unit is the level of academic research you bring into your teaching. There is a growing demand that we make our teaching research-led. I think it is also important for researchers to be guided by practice and reality. I have kept academic references to a minimum in the main text but I would strongly recommend that those teaching postgraduates point their students towards the academic debate(s). Here follows a list of useful references, but this is far from complete or exhaustive:

- Barth, M E (2007) Standard-setting measurement issues and the relevance of research, *Accounting and Business Research*, **37** (sup1), pp 7–15
- Bryer, R A (1999) A Marxist critique of the FASB's conceptual framework, *Critical Perspectives on Accounting*, **10** (5), pp 551–89
- Christensen, J (2010) Conceptual frameworks of accounting from an information perspective, *Accounting and Business Research*, **40** (3), pp 287–99

- Fogarty, T J (1993) Financial accounting standard setting as an institutionalized action field: constraints, opportunities and dilemmas, *Journal of Accounting and Public Policy*, **11** (4), pp 331–55
- Hendriksen, E S and Van Breda, M F (1992) *Accounting Theory* (5th edn), Editora Irwin Incorp, Boston, USA
- Hines, R D (1989) Financial accounting knowledge, conceptual framework projects and the social construction of the accounting profession, *Accounting, Auditing & Accountability Journal*, **2** (2), pp 72–92
- Hines, R D (1991) The FASB's conceptual framework, financial accounting and the maintenance of the social world, *Accounting, Organizations and Society*, **16** (4), pp 313–31
- Maines, L A *et al* (2003) Evaluating concepts-based vs. rules-based approaches to standard setting, *Accounting Horizons*, **17** (1), pp 73–89
- Macve, R (2010) Conceptual frameworks of accounting: some brief reflections on theory and practice, *Accounting and Business Research*, **40** (3), pp 303–08
- Meeks, G and Swann, G P (2009) Accounting standards and the economics of standards, *Accounting and Business Research*, **39** (3), pp 191–210
- Peasnell, K V (1982) The function of a conceptual framework for corporate financial reporting, *Accounting and Business Research*, **12** (48), pp 243–56
- Power, M (2010) Fair value accounting, financial economics and the transformation of reliability, *Accounting and Business Research*, **40** (3), pp 197–210
- Rayman, R A (2007) Fair value accounting and the present value fallacy: the need for an alternative conceptual framework, *The British Accounting Review*, **39** (3), pp 211–25
- Richardson, A J and Eberlein, B (2011) Legitimating transnational standard-setting: the case of the international accounting standards board, *Journal of Business Ethics*, **98** (2), pp 217–45
- Solomons, D (1983) The political implications of accounting and accounting standard setting, *Accounting and Business Research*, **13** (50), pp 107–18
- Sutton, T G (1984) Lobbying of accounting standard-setting bodies in the UK and the USA: a Downsian analysis, *Accounting, Organizations and Society*, **9** (1), pp 81–95
- Tutticci, I, Dunstan, K and Holmes, S (1994) Respondent lobbying in the Australian accounting standard-setting process: ED49 – a case study, *Accounting, Auditing & Accountability Journal*, **7** (2), pp 86–104
- Whittington, G (2008) Harmonization or discord? The critical role of the IASB conceptual framework review, *Journal of Accounting and Public Policy*, **27** (6), pp 495–502
- Zeff, S A (2013) The objectives of financial reporting: a historical survey and analysis, *Accounting and Business Research*, **43** (4), pp 262–327

The second half of Chapter 1 introduces some essential accounting terminology. Accounting is a subject rich in jargon, and breaking down this barrier to entry is important for students' learning. Simply introducing phrases into your teaching is one way to do it. Another way is to provide key terms and examples of these. The latter approach is adopted in this text. The temptation is that you make this self-study on the basis that there is little you feel you can add over and above the text. This is not the case, however, and students commonly need you to hold their hand through this jargon-busting process. It would be awful for you to get to the end of the year and a student to ask you, for instance, what the difference is between a sole trader, partnership and company. We must be aware that these everyday phrases are only everyday for us.

Also, there are a small number of fundamental financial accounting definitions which need to be discussed, for example asset, liability, equity, gain, loss. The definitions on their own mean very little without some illustrations. Therefore, I have designed a couple of exercises which you can use to help communicate the differences. I have always found that breaking the definitions down into their sub-clauses really helps classes to understand, for example, that an asset is (1) a resource controlled by an entity, (2) as a result of past events, and (3) from which *economic benefits* are expected to flow to the entity.

If you want to illustrate some of the complexities that the International Accounting Standards Board (IASB) faced in arriving at their definitions, you might like to refer students to papers such as Barker and McGeachin's (2013) review of liability accounting or Barker's (2010) look at gains and losses:

- Barker, R and McGeachin, A (2013) Why is there inconsistency in accounting for liabilities in IFRS? An analysis of recognition, measurement, estimation and conservatism, *Accounting and Business Research*, **43** (6), pp 579–604
- Barker, R (2010) On the definitions of income, expenses and profit in IFRS, *Accounting in Europe*, **7** (2), pp 147–58

The chapter concludes by taking a look at Tesco's position and performance. This will undoubtedly be a difficult exercise for students who are completely new to accounting. They need to deal with new terminology, presentational idiosyncrasies and so forth. The key for educators is to make sure that: they are not overwhelmed by the complexity and yet appreciate that it is there; they are not bamboozled by the jargon, but understand broadly what is meant by the major sub-headings; they are not stunned into silence, but are willing to discuss the information which they are being shown.

At the end of the session(s), be sure to recap on the key information. Stress to the class that accounting – and in particular, financial accounting – is a building-block process. By and large, your group must understand (the majority of) the first moment to be able to engage with the second and so forth. In this light, my final piece of advice is: don't be scared of going too slowly.

Additional questions

Question 1

The management of Bob's Climb plc, a rope manufacturer, have become increasingly concerned about the level of investment that is required in non-current assets in order to boost future financial performance.

Required:

(i) What is meant by the terms 'asset' and 'non-current asset'?
(ii) Provide three examples of current assets which Bob's Climb plc might hold.
(iii) Provide three examples of non-current assets which Bob's Climb plc might require.
(iv) What do you think is meant by the term 'financial performance'?
(v) In what format is Bob's Climb plc required to present its annual financial performance to its shareholders?
(vi) In what format is Bob's Climb plc required to present its financial position to its shareholders?

Question 2

The Arete Limited, a small family-run greengrocer, needs to borrow some money to pay its most recent rent, rates and utilities bill. Each family member, of whom there are five, has agreed to lend the business £5,000. The agreements show that the balances will be paid off in equal annual instalments over the next four years.

Required:

(i) Define what is meant by a liability.
(ii) Define what is meant by a non-current liability.
(iii) Are the loans made by the family current or non-current liabilities?
(iv) The rent, rates and utilities are overdue. How do you think you would account for these at the period-end?
(v) What is meant by the accruals principle?

Question 3

This question relates to the introduction to the accounting regulatory system and the way it has shaped the informational content of financial statements.

Required:

(i) What are the names and main purposes of the bodies that make up the International Accounting Standards Foundation?
(ii) Describe the main phases of the standard-setting process.
(iii) List and describe the qualitative characteristics, analysing them according to those which are deemed *fundamental* and those which are *enhancing*.

Question 4

Arsenal Football Club plc is a listed company and therefore produces a publicly available annual report (available at: **http://www.arsenal.com/the-club/corporate-info/arsenal-holdings-financial-results**).

Extracts from the annual report for 2012/13 are shown in Figures 1.1 and 1.2.

FIGURE 1.1 Consolidated profit and loss account for Arsenal Holdings Plc 2013

ARSENAL HOLDINGS PLC

CONSOLIDATED PROFIT AND LOSS A

FOR THE YEAR ENDED 31 MAY 2013

	Note	2013 Operations excluding player trading £'000	2013 Player trading £'000	2013 Total £'000	2012 Operations excluding player trading £'000	2012 Player trading £'000	2012 Total £'000
Turnover of the Group including its share of joint ventures		281,176	1,598	282,774	242,577	2,901	245,478
Share of turnover of joint venture		(2,400)	-	(2,400)	(2,465)	-	(2,465)
Group turnover	3	278,776	1,598	280,374	240,112	2,901	243,013
Operating expenses	4	(261,634)	(47,021)	(308,655)	(217,018)	(42,319)	(259,337)
Operating profit/(loss)		17,142	(45,423)	(28,281)	23,094	(39,418)	(16,324)
Share of joint venture operating result		945	-	945	952	-	952
Profit on disposal of player registrations		-	46,986	46,986	-	65,456	65,456
Profit on ordinary activities before finance charges		18,087	1,563	19,650	24,046	26,038	50,084
Net finance charges	5			(12,996)			(13,496)
Profit on ordinary activities before taxation				6,654			36,588
Taxation	8			(849)			(6,995)
Profit after taxation retained for the financial year				5,805			29,593
Earnings per share							
Basic and diluted	9			£93.30			£475.64

FIGURE 1.2 Balance sheet for Arsenal Holdings Plc 2013

ARSENAL HOLDINGS PLC

BALANCE SHEET AS AT MAY 2013

	Note	Group 2013 £'000	Group 2012 £'000	Company 2013 £'000	Company 2012 £'000
Fixed assets					
Goodwill	10	1,924	-	-	-
Tangible fixed assets	11	421,539	427,157	-	-
Intangible fixed assets	12	96,570	85,708	-	-
Investments	13	3,031	2,326	30,059	30,059
		523,064	515,191	30,059	30,059
Current assets					
Stock - development properties	15	12,987	37,595	-	-
Stock - retail merchandise		2,131	1,681	-	-
Debtors - due within one year	16	88,484	52,332	4	-
- due after one year	16	8,287	5,201	132,311	133,001
Cash and short-term deposits	17	153,457	153,625	7,561	6,517
		265,346	250,434	139,876	139,518
Creditors: amounts falling due within one year	18	(149,931)	(145,159)	(22)	(22)
Net current assets		115,415	105,275	139,854	139,496
Total assets less current liabilities		638,479	620,466	169,913	169,555
Creditors: amounts falling due after more than one year	19	(274,721)	(268,066)	(14,822)	(14,466)
Provisions for liabilities and charges	21	(60,403)	(54,852)	-	-
Net assets		303,355	297,548	155,091	155,089
Capital and reserves					
Called up share capital	22	62	62	62	62
Share premium	23	29,997	29,997	29,997	29,997
Merger reserve	24	26,699	26,699	-	-
Profit and loss account	25	246,597	240,790	125,032	125,030
Shareholders' funds		303,355	297,548	155,091	155,089

These financial statements of Arsenal Holdings Plc (registered number 4250459) were approved and authorised for issue by the Board of Directors on 23 September 2013.

Signed on behalf of the Board of Directors

SIR CHIPS KESWICK
DIRECTOR

Required:

Looking at the GROUP accounts:

(i) How much operational revenue did Arsenal generate during the financial years 2012 and 2013?

(ii) What profit did the club make on player trading during 2013 compared to 2012?

(iii) What was the level of earnings per share in 2013 compared to 2012 and, in simple terms, how would you explain the change?

(iv) What was the value of tangible fixed assets held at the end of 2013?

(v) How much retail merchandise did the club own at the end of 2012?

(vi) What level of cash and cash equivalents did Arsenal hold on its balance sheet (statement of financial position) as at the end of 2013?

Question 5

There are various options available to business owners when establishing their entity. What are the key differences between a sole trader, a partnership and a limited company?

Question 6

List and explain **four** key problems commonly associated with financial statements.

Suggested solutions

Question 1

(i) An asset is defined as: a resource controlled by an entity as a result of past events and from which *economic benefits* are expected to flow to the entity.

While current assets are assets which are typically expected to be realized in the next 12 months (foreseeable future), non-current assets are those which will continue to be used within the normal operating cycle of a business for a period greater than one year.

(ii) Examples of current assets include inventories, trade receivables and cash held at bank and in hand.

(iii) Examples of tangible non-current assets include property, plant and equipment, motor vehicles, fixtures and fittings. There are also intangible non-current assets such as goodwill, patents, royalties and so forth.

(iv) There are many different ways to measure financial performance. Broadly speaking, this term refers to a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This

term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

(v) The financial performance of a firm is summarized in two ways: an accruals approach through the statement of comprehensive income (income statement); and a cash approach through the statement of cash flows.

Note that the financial position is summarized in the statement of financial position.

A reporting entity will typically also have a series of key performance indicators which are regularly reported to stakeholders. These will be made up of a combination of financial and non-financial measures.

(vi) As stated above, the financial position is summarized at period-ends (typically year-ends) in the statement of financial position, also known as the balance sheet. This statement presents details of assets, liabilities and equity. There are also several other communication methods which firms might use (including the key performance indicators described above), but the financial statements contained within the annual report are an accepted mode of information distribution. The financial statements have the advantage over other sources of financial information of being highly regulated in terms of both format and content. This makes comparability between and within entities a simpler exercise for stakeholders.

Question 2

(i) A liability is defined as a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying *economic benefits*.

(ii) A non-current liability fits the same definition as above, except that rather than being due within one year it is due in more than one year. An example of a current liability might be an amount you owe to a supplier for goods or services received, invoiced but unpaid (ie trade payables). An example of a non-current liability might be a mortgage (ie a loan taken out to finance the purchase of property).

(iii) This is a bit of a trick question! As the loans are being paid off in equal annual instalments, you need to work out, at each period, first, how much of the loan is outstanding, and second, how much is due within one year. The amount due within one year would be presented on the face of the statement of financial position as a loan due within one year (ie current liability) and the remainder would be disclosed as a non-current liability.

This classification might be important for investors who are looking to gauge a company's working capital position or long-term solvency. A misclassification will either inflate or deflate one or more key ratios.

(iv) These are expenses incurred during the period but which remain unpaid. Therefore they meet the definition of a liability and you will have to accrue for them. Note: the account 'accruals' is sometimes confused by students with the term 'accruals accounting' or the 'accruals principle'. Tutors might like to rename this account 'other payables' (or 'other creditors') until they feel comfortable that this confusion will not be an issue.

(v) The accruals principle (also known as the matching principle) describes a method of accounting. This accounting method measures the performance and position of a company by recognizing economic events regardless of when cash transactions occur. The general idea is that economic events are recognized by matching revenues to expenses (the matching principle) at the time at which the transaction occurs rather than when payment is made (or received). This method allows the current cash inflows/outflows to be combined with future expected cash inflows/outflows to give a more accurate picture of a company's current financial condition.

Question 3

(i) A link to the IFRS Foundation website shows neatly who the organization is and what it does: **http://www.ifrs.org/The-organization/Documents/WhoWeAre_JAN-2014_ENG.PDF**.

A summary of its activities, purpose and bodies is as follows (taken from **www.IFRS.org**):

The IFRS Foundation is an independent, not-for-profit private sector organization working in the public interest.

The principal objectives of the IFRS Foundation are:

- to develop a single set of high quality, understandable, enforceable and globally accepted International Financial Reporting Standards (IFRSs) through its standard-setting body, the International Accounting Standards Board (IASB);
- to promote the use and rigorous application of those standards;
- to take account of the financial reporting needs of emerging economies and small and medium-sized entities (SMEs); and
- to promote and facilitate adoption of IFRSs, being the standards and interpretations issued by the IASB, through the convergence of national accounting standards and IFRSs.

The governance and oversight of the activities undertaken by the IFRS Foundation and its standard-setting body rests with its Trustees, who are also responsible for safeguarding the independence of the IASB and ensuring the financing of the organization. The Trustees are publicly accountable to a Monitoring Board of public authorities.

Standard-setting

The IASB (International Accounting Standards Board)

The IASB is the independent standard-setting body of the IFRS Foundation. Its members (currently 16 full-time members) are responsible for the development and publication of IFRSs, including the IFRS for SMEs and for approving Interpretations of IFRSs

as developed by the IFRS Interpretations Committee (formerly called the IFRIC). All meetings of the IASB are held in public and webcast. In fulfilling its standard-setting duties the IASB follows a thorough, open and transparent due process of which the publication of consultative documents, such as discussion papers and exposure drafts, for public comment is an important component. The IASB engages closely with stakeholders around the world, including investors, analysts, regulators, business leaders, accounting standard-setters and the accountancy profession.

The IFRS Interpretations Committee

The IFRS Interpretations Committee is the interpretative body of the IASB. The Interpretations Committee comprises 14 voting members appointed by the Trustees and drawn from a variety of countries and professional backgrounds. The mandate of the Interpretations Committee is to review on a timely basis widespread accounting issues that have arisen within the context of current IFRSs and to provide authoritative guidance (IFRICs) on those issues. Interpretation Committee meetings are open to the public and webcast. In developing interpretations, the Interpretations Committee works closely with similar national committees and follows a transparent, thorough and open due process.

(ii) The standard-setting process follows through a series of key phases. International Financial Reporting Standards (IFRSs) are developed through an international consultation process, the 'due process', which involves interested individuals and organizations from around the world.

The due process comprises six stages, with the Trustees having the opportunity to ensure compliance at various points throughout:

(i) setting the agenda;
(ii) planning the project;
(iii) developing and publishing the discussion paper;
(iv) developing and publishing the exposure draft;
(v) developing and publishing the standard;
(vi) after the standard is issued.

If you are interested and wish to find out more, follow this link: **http://www.ifrs.org/How-we-develop-standards/Pages/How-we-develop-standards.aspx**.

(iii) The fundamental characteristics

- *Relevant* financial information is capable of making a difference in the decisions made by users. Information may be capable of making a difference in a decision even if some users choose not to take advantage of it or are already aware of it from other sources. Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value or both.
- Financial reports represent economic phenomena in words and numbers. To be useful, financial information must not only represent relevant phenomena, but it must also *faithfully represent* the phenomena that it purports to represent. To be a perfectly faithful representation, a depiction would have three characteristics. It would be complete, neutral and free from error.

The enhancing characteristics

- Users' decisions involve choosing between alternatives; for example, selling or holding an investment, or investing in one reporting entity or another. Consequently, information about a reporting entity is more useful if it can be compared with similar information about other entities and with similar information about the same entity for another period or another date. *Comparability* is the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items.
- *Verifiability* helps assure users that information faithfully represents the economic phenomena it purports to represent. Verifiability means that different knowledgeable and independent observers could reach consensus, although not necessarily complete agreement, that a particular depiction is a faithful representation. Quantified information need not be a single-point estimate to be verifiable. A range of possible amounts and the related probabilities can also be verified.
- *Timeliness* means having information available to decision-makers in time to be capable of influencing their decisions. Generally, the older the information the less useful it is. However, some information may continue to be timely long after the end of a reporting period because, for example, some users may need to identify and assess trends.
- Financial reports are prepared for users who have a reasonable knowledge of business and economic activities and who review and analyse the information diligently. Classifying, characterizing and presenting information clearly and concisely make it *understandable*.

Question 4

Arsenal Football Club plc is a listed company and therefore produces a publicly available annual report (available at: **http://www.arsenal.com/the-club/corporate-info/arsenal-holdings-financial-results**).

Extracts from the annual report for 2012/13 are shown in Figures 1.1 and 1.2. Looking at the GROUP accounts:

(i) The group's operating turnover after the allocation of revenue attributable to the joint venture was:

2013: £278,776,000
2012: £240,112,000.

(ii) In 2013: £1,563,000
In 2012: £26,038,000.

(iii) In 2013: £93.30 per share
In 2012: £475.64 per share.

The major difference seems to be that player trading has yielded lower profits. Other variables remain fairly constant between years. A rise in

operating revenue of 16% (£38.6 million) is matched by a comparable (although higher) increase in operating expenses of 20.5% (£44.6 million).

(iv) At the end of 2013, tangible fixed assets had a carrying value of £421,539,000. This is approximately £5.5 million less than the previous year. For those interested, you can delve deeper by visiting note 11 to the financial statements and seeing what this difference is attributable to.

(v) The club held £1,618,000 of retail merchandise at the end of 2012. The statement of financial position (aka balance sheet) says that this is 'stock'. This is another term for inventories and will commonly appear in UK-based companies' annual reports.

(vi) We refer to 'cash and cash equivalents' rather than other, less exact terms, such as 'cash held at bank' or 'petty cash'. This allows internal management and external analysts to be able to distinguish between forms of financing. For example, you might want to categorize some short-term investments (three months or less) as cash rather than a longer-term asset. In this case, Arsenal has aggregated its cash and short-term deposits into one heading. If you wanted to follow up and see the amount of cash it holds in the bank, for example, you simply need to turn to note 17.

The value of cash and cash equivalents held at the end of 2013 was £153,457,000.

Question 5

Sole trader

As the name suggests, a sole trader is someone opting to work for themselves. As seen in the example above – Climb On! – we put 'you' in the position of running your own business. The business is not incorporated (ie it is not a limited liability company). You do not share the ownership of the business with anyone else (ie you have no business partner(s)). This doesn't mean that you cannot have any employees; it is just not common. Businesses of this type are normally quite small in terms of assets, liabilities, revenues and expenses. There are many everyday examples of people going into business on their own, such as plumbers, electricians, hairdressers, private tutors, artists, photographers and so forth.

The financial accounting information a sole trader is *required* to produce is limited. It is normally required to satisfy tax authorities' purposes. Occasionally, financial institutions might request specific information, particularly for lending purposes.

Establishing oneself as a sole trader, therefore, is frequently the first step for many entrepreneurs. The main advantage of this business vehicle is the retention of control. The owner is solely responsible for all decision making. The other key advantage is the reduced accounting and legal regulatory burden. The major disadvantage is the unlimited liability! In other words, a sole trader is wholly responsible for all liabilities of the business.

Partnership

A partnership occurs when *two or more people* decide to run a business together. As with establishing a business as a sole trader, the regulatory burden is low, especially in comparison with limited companies. Partnerships range considerably in size. It is probably more common that they have low assets, liabilities, revenues and expenses; however, they can be huge global businesses. Examples again include hairdressers, plumbers, tutors and so forth. They also include businesses such as medical practices, legal practices and accounting practices.

The advantage of forming a partnership is that you can share responsibility and the burdens of ownership. It is also likely that the skill set available will be more varied and expertise could be easier to channel towards specific projects. In an accounting partnership, for example, you might want the skills of both a financial accountant and a tax accountant; it is rare that one person is an expert in both. The disadvantages largely stem from behavioural issues. Sharing ownership often places significant burdens on pre-existing well-functioning relationships. Also, there are some people who simply like making all the decisions, not sharing this role!

Limited company

In the UK, a privately held business is referred to as a limited company; this is commonly abbreviated to 'Ltd'. The term used for a private company equivalent in Australia is Proprietary Limited Company (abbreviated to Pty Ltd). In India and Pakistan the designation Pvt Ltd (Private Limited) is used for all private limited companies. In South Africa the term Pty Ltd is used. In the United States, the expression 'corporation' is preferred to limited company and it is common to see the abbreviation Inc. (as in 'incorporated'), but in many states Ltd is also permitted.

The word 'limited' relates to the level of financial exposure. An entity can be incorporated as a limited liability company, at which point, in law, it becomes a separate legal entity. Therefore, while sole traders and partners are personally responsible for the amounts owed by their businesses, the shareholders of a limited liability company are responsible only for the amount to be paid for their shares. A limited liability company conducts all activities in the name of the entity; for example, invoices are issued in the company's name, bank accounts need to be set up in the company's name (not directors' or managers' names). Note, however, that it is not uncommon for lenders and trading partners to ask the directors of companies for personal guarantees, which, of course, negates much of the advantage associated with incorporation.

As with partnerships, companies can range in size from small to huge. Most companies which are household names are public limited companies (plcs).

Question 6

As stated in the body of the text, there are many issues that impair the usefulness of financial statements. Some of these are as follows:

- There are necessary trade-offs between the qualitative characteristics, especially between the enhancing characteristics.
- Financial statements generally suffer from not providing timely information because of the date on which they are made available (for plcs the filing date is up to three months after the year-end and for limited companies this increases to nine months after the year-end).
- It is sometimes the case that the costs of preparing the required financial reporting information outweigh the benefits derived from its provision.
- There are a wide range of users and the potential for conflict between them is vast.
- Accounting standards underpin financial statement production but standard-setting is a complex process where full agreement between all stakeholders is (very!) unlikely.
- It is not straightforward to know what value to use to measure an asset or liability either on initial recognition or on subsequent remeasurement. Indeed, the accounting standards permit different measurement methods for different classes of assets and liabilities. In certain cases, this might mean that sophisticated users of financial information are at an information advantage because they know the measurement, recognition and presentation rules.

Accounting concepts and systems

02

Guidance and teaching advice

This chapter covers the basics of double-entry bookkeeping and financial accounting. We have presented the material in the main text in two ways: first, the chapter shows bookkeeping in a simplified form that non-accountants typically prefer; and second, there is an appendix which walks the reader through the same examples employing double-entry bookkeeping in its traditional sense. Having taught this for many years, we are acutely aware that tutors are often guided by the audience and the purpose of the accounting unit in their overall studies. Different courses will require (or prefer) to teach this in one way or the other. If this unit is being taken as part of an MBA, for example, understanding financial accounting from a top-down approach would be more useful than requiring learners to engage in the nitty-gritty of double-entry bookkeeping. If, however, this accounting unit leads into other financial accounting/financial reporting courses, you might prefer to opt for the fuller explanation and use the appendix. Very occasionally, tutors might like to work through both. It is more common, though, for tutors to redirect students to the double-entry bookkeeping section as part of their further (and/or homework) studies. We felt that having this option available for adopters of the book was a huge advantage, especially for new lecturers.

I have always enjoyed teaching basic accounting and double-entry bookkeeping but I appreciate that this is not a universal phenomenon. Many colleagues have reported that students dislike the content, find it difficult, and struggle to engage with it because of an apparent lack of reality. While I sympathize with these comments, anyone who has mastered this subject will tell you that this is an essential gateway to further understanding.

The good news for those who do struggle at first (and that is the majority!) is that most people at some point or other have what is sometimes described as an 'eureka moment' or a 'light bulb moment'. This doesn't come without some blood, sweat and tears but when it does, you never look back – except in disbelief that you ever found it hard.

We have tried to write this chapter in a way that introduces items slowly and in bite-sized chunks. A note on the teaching: in the past I have found myself speeding up as the chapter progresses on the presumption that it is all as easy as the first principle.

This isn't good, though. While you can assume a learning curve, it is rarely as fast as you might imagine. This learning exercise is formed out of a series of building-block exercises. I recommend you try to think of each step as a new principle being taught. Allow the class to digest each morsel before moving on to the next. Unless you have a tremendously committed group, the biggest risk we run as accounting educators is that we might turn the students off the subject entirely at this early stage. Needless to say, this would be disastrous. You are the master of your syllabus and in a worst-case scenario you can shave time off another section if you overrun here.

The remainder of this chapter's online content contains the following: first, some supplementary notes which you might like to incorporate into your teaching; and second, some additional questions and answers. The supplementary material supports the text and provides some extra examples which you might like to use. It also provides some interesting 'talking points' which didn't quite fit into the narrative of the main textbook.

The statement of comprehensive income (income statement)

Figure 2.1 shows the income statement for WPP plc, the world's largest communications services group. The layout is concise and provides the income statement in an appropriate format. You will see that there is a column entitled 'Notes'. The financial statements are accompanied by a series of notes which drill down into individual line items. You will find some extra detail about balances, such as revenue, operating costs, share of results of associates, finance income and costs, and taxation, in the pages that follow the presentation of the primary statements. The face of the income statement, however, has been left concise, clear and clutter-free for ease of interpretation of headline balances and information. It is necessary for companies to provide two years' worth of information: the current and prior information (for comparison purposes). You will note that WPP plc provides three years' data. This is somewhat unusual.

Figure 2.2 is another example of a large listed entity's income statement – easyJet plc. The organization is a leading airline in Europe. You will immediately notice that

FIGURE 2.1 WPP plc income statement

For the year ended 31 December 2011	Notes	2011 £m	2010 £m	2009 £m	2011 $m[3]	2010 $m[3]	2009 $m[3]
Billings[1]		**44,791.8**	42,683.6	37,919.4	**71,749.2**	65,961.2	59,388.7
Revenue	2	**10,021.8**	9,331.0	8,684.3	**16,053.4**	14,416.2	13,598.2
Direct costs		**(783.3)**	(770.5)	(703.6)	**(1,253.7)**	(1,190.0)	(1,103.8)
Gross profit		**9,238.5**	8,560.5	7,980.7	**14,799.7**	13,226.2	12,494.4
Operating costs	3	**(8,046.3)**	(7,587.5)	(7,219.0)	**(12,896.3)**	(11,728.2)	(11,275.6)
Operating profit		**1,192.2**	973.0	761.7	**1,903.4**	1,498.0	1,218.8
Share of results of associates	4	**66.1**	55.2	57.0	**105.8**	85.3	91.2
Profit before interest and taxation		**1,258.3**	1,028.2	818.7	**2,009.2**	1,583.3	1,310.0
Finance income	6	**97.3**	81.7	150.4	**155.3**	126.0	241.4
Finance costs	6	**(297.2)**	(276.8)	(355.4)	**(475.9)**	(427.8)	(562.3)
Revaluation of financial instruments	6	**(50.0)**	18.2	48.9	**(79.2)**	30.1	80.1
Profit before taxation		**1,008.4**	851.3	662.6	**1,609.4**	1,311.6	1,069.2
Taxation	7	**(91.9)**	(190.3)	(155.7)	**(151.1)**	(294.4)	(249.3)
Profit for the year		**916.5**	661.0	506.9	**1,458.3**	1,017.2	819.9

FIGURE 2.2 easyJet plc income statement

	Notes	Year ended 30 September 2012 £ million	Year ended 30 September 2011 £ million
Seat revenue		**3,794**	3,389
Non-seat revenue		**60**	63
Total revenue	25	**3,854**	3,452
Fuel		**(1,149)**	(917)
Ground operations		**(955)**	(923)
Crew		**(432)**	(407)
Navigation		**(280)**	(285)
Maintenance		**(203)**	(179)
Selling and marketing		**(104)**	(102)
Other costs		**(200)**	(171)
EBITDAR		**531**	468
Aircraft dry leasing		**(95)**	(109)
Depreciation	8	**(97)**	(83)
Amortization of intangible assets	7	**(8)**	(7)
Operating profit		**331**	269
Interest receivable and other financing income		**11**	9
Interest payable and other financing charges		**(25)**	(30)
Net finance charges	2	**(14)**	(21)
Profit before tax	3	**317**	248
Tax charge	5	**(62)**	(23)
Profit for the year		**255**	225

the face of the income statement has more information disclosed. The principle behind this is to ensure that the reader's attention is immediately drawn to significant balances, ie those which allow users to determine the relative level of success or failure for the year, such as fuel costs. It is interesting to note that this presentational format of the income statement is fairly standard throughout the airline industry.

The statement of financial position (balance sheet)

To continue the examples above – easyJet plc and WPP plc – we have also provided these entities' statements of financial position.

Figure 2.3 shows the statement of financial position for easyJet plc. You'll notice the increase in the number of notes and, by extension, the level of supporting information that an entity is required to produce related to its financial position. Though many of the sub-headings might be confusing, the headline numbers are clearly visible.

Figure 2.4 shows the statement of financial position for WPP plc.

FIGURE 2.3 easyJet plc's statement of financial position

	Notes	30 September 2012 £ million	30 September 2011 £ million
Non-current assets			
Goodwill	7	**365**	365
Other intangible assets	7	**91**	86
Property, plant and equipment	8	**2,395**	2,149
Derivative financial instruments	21	**21**	24
Loan notes	9	**10**	11
Restricted cash	12	**29**	33
Other non-current assets	10	**57**	63
		2,968	2,731
Current assets			
Trade and other receivables	11	**241**	165
Derivative financial instruments	21	**73**	83
Restricted cash	12	**130**	90
Money market deposits	12	**238**	300
Cash and cash equivalents	12	**645**	1,100
		1,327	1,738
Current liabilities			
Trade and other payables	13	**(1,021)**	(916)
Borrowings	14	**(129)**	(155)
Derivative financial instruments	21	**(26)**	(52)
Current tax liabilities		**(29)**	(9)
Maintenance provisions	16	**(59)**	(45)
		(1,264)	(1,177)
Net current assets		**63**	561
Non-current liabilities			
Borrowings	14	**(828)**	(1,145)
Derivative financial instruments	21	**(24)**	(27)
Non-current deferred income		**(46)**	(59)
Maintenance provisions	16	**(141)**	(177)
Deferred tax liabilities	5	**(198)**	(179)
		(1,237)	(1,587)
Net assets		**1,794**	1,705
Shareholders' equity			
Share capital	17	**108**	108
Share premium		**656**	654
Hedging reserve		**42**	14
Translation reserve		**1**	1
Retained earnings		**987**	928
		1,794	1,705

Note in both cases the fulfilment of the golden rule and thus the accounting equation ie:

(a) easyJet plc:

Assets	–	liabilities	=	Equity and reserves
(2,968 + 1,327)	–	(1,264 + 1,237)	=	1,794

(b) WPP plc:

Assets	–	liabilities	=	Equity and reserves
(13,406.2 + 11,288.7)	–	(11,797.3 + 6,003.3)	=	6,894.3

FIGURE 2.4 WPP plc's statement of financial position

At 31 December 2011	Notes	2011 £m	2010 £m
Non-current assets			
Intangible assets:			
Goodwill	12	**9,430.8**	9,106.3
Other	12	**1,859.9**	1,904.5
Property, plant and equipment	13	**728.3**	708.4
Interests in associates and joint ventures	14	**801.3**	792.1
Other investments	14	**190.8**	173.7
Deferred tax assets	15	**86.0**	79.1
Trade and other receivables	17	**309.1**	323.5
		13,406.2	13,087.6
Current assets			
Inventory and work in progress	16	**333.9**	366.0
Corporate income tax recoverable		**88.5**	82.9
Trade and other receivables	17	**8,919.7**	8,843.4
Cash and short-term deposits		**1,946.6**	1,965.2
		11,288.7	11,257.5
Current liabilities			
Trade and other payables	18	**(11,165.5)**	(11,703.6)
Corporate income tax payable		**(113.4)**	(115.8)
Bank overdrafts and loans	20	**(518.4)**	(255.4)
		(11,797.3)	(12,074.8)
Net current liabilities		**(508.6)**	(817.3)
Total assets less current liabilities		**12,897.6**	12,270.3
Non-current liabilities			
Bonds and bank loans	20	**(3,893.0)**	(3,598.2)
Trade and other payables	19	**(553.1)**	(388.6)
Corporate income tax payable		**(379.5)**	(481.8)
Deferred tax liabilities	15	**(741.4)**	(750.7)
Provision for post-employment benefits	23	**(282.3)**	(241.5)
Provisions for liabilities and charges	21	**(154.0)**	(161.6)
		(6,003.3)	(5,622.4)
Net assets		**6,894.3**	6,647.9
Equity			
Called-up share capital	26	**126.6**	126.4
Share premium account		**105.7**	54.5
Shares to be issued		**2.4**	3.1
Merger reserve		**(5,136.2)**	(5,136.8)
Other reserves	27	**938.9**	1,182.8
Own shares		**(177.6)**	(144.8)
Retained earnings		**10,803.5**	10,361.4
Equity share owners' funds		**6,663.3**	6,446.6
Non-controlling interests		**231.0**	201.3
Total equity		**6,894.3**	6,647.9

The statement of cash flows

Figure 2.5 shows easyJet plc's statement of cash flows. The organization generated positive cash inflows of £261 million from operating activities, spent £389 million on investing activities and used £309 million undertaking financing activities. After an amendment for exchange rate differences of £18 million, the company disclosed that its net cash position had decreased by £455 million during the course of 2012 and that its cash and cash equivalents position at the end of the year was £645 million.

Figure 2.6 shows WPP plc's statement of cash flows. The organization generated positive cash inflows of £665.2 million from operating activities, spent £709.8 million on investing activities and used £207.1 million undertaking financing activities.

FIGURE 2.5 easyJet plc's statement of cash flows

	Notes	Year ended 30 September 2012 £ million	Year ended 30 September 2011 £ million
Cash flows from operating activities			
Cash generated from operations (excluding dividends)	19	**494**	449
Ordinary dividends paid		**(46)**	–
Special dividends paid		**(150)**	–
Net interest and other financing charges paid		**(9)**	(23)
Tax paid		**(28)**	(2)
Net cash generated from operating activities		**261**	424
Cash flows from investing activities			
Purchase of property, plant and equipment		**(379)**	(550)
Proceeds from sale of assets held for sale		**–**	75
Proceeds from sale of property, plant and equipment		**1**	–
Purchase of other intangible assets		**(13)**	(6)
Redemption of loan notes		**2**	3
Net cash used by investing activities		**(389)**	(478)
Cash flows from financing activities			
Net proceeds from issue of ordinary share capital		**2**	3
Purchase of own shares for employee share schemes		**(15)**	(8)
Proceeds from drawdown of bank loans		**–**	172
Repayment of bank loans		**(305)**	(154)
Proceeds from drawdown of finance leases		**–**	71
Repayment of capital elements of finance leases		**(9)**	(6)
Net proceeds from sale and operating leaseback of aircraft		**–**	273
Net decrease / (increase) in money market deposits		**55**	(38)
Increase in restricted cash		**(37)**	(67)
Net cash (used by) / generated from financing activities		**(309)**	246
Effect of exchange rate changes		**(18)**	(4)
Net (decrease) / increase in cash and cash equivalents		**(455)**	188
Cash and cash equivalents at beginning of year		**1,100**	912
Cash and cash equivalents at end of year	12	**645**	1,100

After an amendment for exchange rate differences of £29.9 million, the company disclosed that its net cash position had decreased by £281.6 million during the course of 2012 and that its cash and cash equivalents position at the end of the year was £1,428.2 million.

Measurement rules

There are some basic measurement rules which are applied in financial accounting. These rules explain *how* balances are recorded in the financial statements. Owing to the importance of the measurement basis of the values recorded in the financial

FIGURE 2.6 WPP plc's statement of cash flows

For the year ended 31 December 2011	Notes	2011 £m	2010 £m	2009 £m
Net cash inflow from operating activities	11	**665.2**	1,361.2	818.8
Investing activities				
Acquisitions and disposals	11	**(469.8)**	(200.1)	(118.4)
Purchases of property, plant and equipment		**(216.1)**	(190.5)	(222.9)
Purchases of other intangible assets (including capitalised computer software)		**(37.1)**	(27.0)	(30.4)
Proceeds on disposal of property, plant and equipment		**13.2**	7.6	9.2
Net cash outflow from investing activities		**(709.8)**	(410.0)	(362.5)
Financing activities				
Share option proceeds		**28.8**	42.7	4.1
Cash consideration for non-controlling interests	11	**(62.6)**	(15.1)	(26.4)
Share repurchases and buy-backs	11	**(182.2)**	(46.4)	(9.5)
Net increase/(decrease) in borrowings	11	**301.4**	19.8	(426.3)
Financing and share issue costs		**(11.9)**	(3.5)	(18.8)
Equity dividends paid		**(218.4)**	(200.4)	(189.8)
Dividends paid to non-controlling interests in subsidiary undertakings		**(62.2)**	(66.7)	(63.0)
Net cash outflow from financing activities		**(207.1)**	(269.6)	(729.7)
Net (decrease)/increase in cash and cash equivalents		**(251.7)**	681.6	(273.4)
Translation differences		**(29.9)**	82.2	(98.7)
Cash and cash equivalents at beginning of year		**1,709.8**	946.0	1,318.1
Cash and cash equivalents at end of year	11	**1,428.2**	1,709.8	946.0

statements, it is unsurprising that few areas have attracted so much academic and professional commentary. In this section, we will review the following:

- historical cost accounting;
- current cost accounting;
- mixed measurement model;
- money measurement concept;
- business entity concept.

Historical cost accounting (HCA)

Historical cost is defined as the aggregate price paid by the firm to acquire ownership and use of an asset, including all payments necessary to obtain the asset in the location and condition required for it to provide services in the production or other operations of the firm (Hendriksen and Van Breda, 1992: 491). Thus, financial accountants record revenue, expenditure, asset acquisition and disposal at the actual amounts of money (or money's worth) received or paid to complete the transaction.

There are several advantages with the application of this historic cost convention, including:

- *HCA is thought to be relevant for decision making.* One of the purposes of general-purpose financial statements is to allow users to assess the results of the stewardship of management. As historic cost relates directly to past managerial decisions and business transactions, it is inherently useful for investors. From this historic information, current and potential investors can ascertain how much has been earned rather than how much will be earned.

- *Historic cost is less subject to manipulation*. HCA is based upon actual transactions, thus ensuring that the amounts disclosed in the financial statements are objective and verifiable. There are physical invoices, receipts or other documentation to support the transaction value. This reduces the risks associated with managerial earnings manipulation.
- *Recording transactions at historic cost is useful for control purposes*. A combination of HCA and the public visibility of (annual) financial reporting further drives the accountability agenda. It is simpler for internal staff to control and monitor the accounting records of the organization where there is a definite value to input to the accounting system.
- *The longevity of HCA justifies its usefulness*. The rise of current cost accounting, fair value reporting and hedge accounting is a relatively recent development in the history of accounting. HCA is thought to provide information which is easily comparable between time-periods. Any adjustments to reflect changes to current values can be made by those seeking to interpret the information. Though HCA is flawed, the fact that it is a system that has been employed for centuries convinces many commentators that it is an appropriate measurement system.

However, there are problems associated with employing HCA. Criticisms principally stem from the pressures that inflation puts on historic cost information. The following problems are thought to be exacerbated by this measurement method:

- *HCA impairs users' decision-making abilities*. From a profitability perspective, HCA leads to profits being overstated (understated) when a change in value of assets due to inflationary pressures is not recorded.

  From a position perspective, HCA does not assist current and potential investors who wish to evaluate the change in value of the entity as represented by the assets under its control and liabilities it is obligated to settle.
- *Historic cost information can be misleading and impair comparability*. Despite claims to its inherent objectivity and verifiability, HCA does not prevent managers from presenting information which has been subject to the exercise of judgement. Indeed, all measurement methods employed, including HCA, rely on the exercise of managerial subjectivity to some degree. It is claimed that transaction-oriented accounting leads to a reduction in comparability not only between years (see above) but also between entities.

Current cost accounting

Despite these criticisms, neither practitioners nor academicians have found one single system which achieves all that HCA does without being exposed to the same, or similar, weaknesses. The answer to historic cost and the problems associated with factoring inflation into the measurement method has always been seen to be derivable from a current cost accounting (CCA) methodology. Indeed, several models have been developed, of which the following are worthy of separate note:

- Current purchasing power:
  - This model proposes that entities measure their value by adopting a price index system. Thus, the model attempts to measure value in monetary

terms and bring a sense of reality to an entity's financial position. In the UK, the Office for National Statistics (**http://www.ons.gov.uk**) is responsible for compiling the Retail Price Index (RPI). This is presumed to be a general price index and by using this as a base factor, entities are able to capture gains or losses which arise as a result of changes in purchasing power.

  - There are problems with this system. It is simply an extension of HCA for a regionally specific rate of inflation. Therefore, comparability is impaired when contrasting between global entities or over significant time-periods, as the basket of goods – which is used to determine RPI – regularly changes and the measure of inflation differs across countries. Though it is commonly believed that current purchasing power reduces subjectivity through the adoption of an objective measure, there are many states where the index is subject to influence from the government or other externality. In which case, the results generated by its adoption become questionable. Also, the assumption that inflating the value of assets against this index will reveal the current value of the entity is inappropriate.
  - The concept of fair value is defined differently around the world. Some countries perceive fair value as being the entry value, while others see it as the exit value. The following two CCA methods highlight this divide in opinion.

- Replacement cost accounting:
  - Replacement cost accounting is also known as current entry cost accounting. The replacement cost model attempts to assess each line item on a replacement (entry) cost basis. The underlying principle is that the employment of the model will create a genuine measure of economic value in monetary terms. The model is not reliant on a base system, nor is it subject to influence from an externality.
  - However, the model presumes that everything has a replacement cost, which is not always true. The application of entry cost accounting is also somewhat flexible and subjective. The replacement costs for high-tech assets are likely to be highly volatile.
- Net realizable value accounting:
  - Net realizable value accounting is also known as current exit cost accounting. Economists have developed the concept of opportunity cost, which accountants have adopted into real-life everyday practices. Later chapters will develop this concept more. For the time being, let us simply note that this is an accounting method that seeks to value line items at their selling price, ie owning an asset means that an entity forgoes the opportunity to use the cash which would be received on its disposal for other purposes.
  - There are many concerns about exit value accounting. It is subject to manipulation and to a degree lacks some of the objectivity and verifiability present in HCA. It is thought to be unrealistic, as businesses do not view every item owned or owed as being immediately saleable. Also, as with entry or replacement cost, the net realizable value or exit cost is not always easily determinable.

As a result of the advantages and disadvantages of the various measurement methods, in practice, financial statements combine them. Some assets are shown at historic cost, while

others are shown at their fair value. This mixed measurement system has been both criticized and applauded. Extract 2.1 is taken from an accounting practitioners' magazine, while Extracts 2.2 and 2.3 show the divide in opinion between academics. There are clearly those on the one hand who believe that the financial statements should be flexible and cater to market needs. Supporters suggest that fair value accounting could have forewarned investors of extreme bad news incumbent in companies' financial positions at the time of the start of the financial crisis in 2007 if employed appropriately. There are others, however, who feel that the widespread introduction of fair value accounting might shift the scope of the financial reporting framework towards a focus on economic value, ie away from its roots as a transaction-oriented system (eg Power, 2010). It is argued that fair value accounting might negatively impact on the fundamental qualitative characteristics which make financial information useful for decision-making purposes.

Extract 2.1: Mixed measurement model

Investors favour mixed measurement model

14 June 2010 in *The Accountant*

Most investors would prefer a mixed measurement model for accounting for financial instruments, according to a global survey by PricewaterhouseCoopers (PwC).

The findings contradict reports from both the US Financial Accounting Standards Board (FASB) and industry group the CFA Institute that US investors favour full fair value measurement for financial instruments.

The PwC study consisted of 62 in-depth interviews with investment professionals. More than half of the interviewees were from the US.

Most respondents favoured a mixed measurement model with fair value reporting for shorter lived instruments and amortized cost reporting for longer lived instruments, particularly bank loans and deposits, when the company intends to hold those instruments for the purpose of collecting the contractual cash flows.

This view was consistent across all the countries and industry sectors surveyed.

The respondents who favoured the mixed measurement model said the information better reflects an entity's underlying business and economic reasons for holding an instrument.

They also stressed the importance of keeping net income free from fair value movements in instruments that are held for long-term cash flow rather than for short-term trading gains.

The FASB's draft financial instruments standard, released late last month (ie May 2010) proposes to introduce full fair value measurement for financial instruments.

This is dramatically different to the International Accounting Standards Board's (IASB) financial instruments standard, which contains a mixed measurement model where fair value and amortized cost are used in different circumstances.

The divergent standards threaten the IASB and FASB's project to converge IFRS with US GAAP.

Extract 2.2: Making sense of fair value accounting (1)

The crisis of fair-value accounting: Making sense of the recent debate

Laux and Leuz, 2009: 826

The recent financial crisis has led to a vigorous debate about the pros and cons of fair-value accounting (FVA). This debate presents a major challenge for FVA going forward and standard setters' push to extend FVA into other areas. In this article, we highlight four important issues as an attempt to make sense of the debate. First, much of the controversy results from confusion about what is new and different about FVA. Second, while there are legitimate concerns about marking to market (or pure FVA) in times of financial crisis, it is less clear that these problems apply to FVA as stipulated by the accounting standards, be it IFRS or US GAAP. Third, historical cost accounting (HCA) is unlikely to be the remedy. There are a number of concerns about HCA as well and these problems could be larger than those with FVA. Fourth, although it is difficult to fault the FVA standards per se, implementation issues are a potential concern, especially with respect to litigation.

Extract 2.3: Making sense of fair value accounting (2)

An analysis of the fair value controversy

Fahnestock and Bostwick, 2011: 910

This paper compares Fair Value Accounting (FVA) to the conceptual framework of accounting embodied in the Financial Accounting Standards Board's (FASB) Statements of Financial Accounting Concepts (SFACs). FVA is found to deviate significantly from this set of guiding accounting principles in several respects. FVA sacrifices reliability for a questionable degree of relevance; it fails to faithfully represent what it purports to represent; it focuses on investors to the detriment of other user groups; and it changes the focus of financial reporting from earnings to asset valuation, from business transactions to market events, and from management performance to entity liquidation value. In addition, variations in the application of FVA among firms reduce comparability, consistency, and (although not in the conceptual framework) transparency – an oft-cited benefit of FVA.

Pushing forward with FVA even beyond their international peers, US standard-setters seem more concerned with foreign approval than with the needs of their domestic constituents. FVA needs to be re-evaluated, and FASB should adopt a mixed model approach that faithfully represents the values of assets and liabilities as they are intended to be used by management. Ultimately, the 'new' FVA standards that emerge from this process should be thoroughly grounded upon and in agreement with the conceptual framework of accounting to serve the needs of all stated users of financial reporting.

Extract 2.4: Where are we with regards to the accruals concept?

This short but interesting piece written for the Institute of Chartered Accountants in England and Wales (ICAEW) highlights a contemporary debate in financial accounting surrounding one of the fundamental concepts – the accruals concept. For those who had any doubt before, this might also serve to highlight how difficult it is to be a standard-setter!

The accruals basis is dead: long live the accruals basis!

Andy Holton, SWAT UK
Written for **www.icaew.com**

The accruals basis of accounting is one of the first things you learn when you start your training as a chartered accountant.

Despite all the changes that have come with International Accounting Standards (IAS) and the new proposed Financial Reporting Standard (FRS) applicable in the UK and Ireland, it is comforting to note that the accruals basis is still there. However, things are not as they seem!

While we still prepare accounts on an accruals basis, what is meant by that term has changed over time. Statement of Standard Accounting Practice (SSAP) 2 defined the accruals basis as:

> *Revenue and costs are accrued (that is, recognized as they are earned or incurred, not as money is received or paid), matched with one another so far as their relationship can be established or justifiably assumed, and dealt with in the profit and loss account of the period to which they relate.*

However, this definition changed in FRS 18 paragraph 27, which defined the accruals basis as:

> *The accrual basis of accounting requires the non-cash effects of transactions and other events to be reflected, as far as is possible, in the financial statements for the accounting period in which they occur, and not, for example, in the period in which any cash involved is received or paid. The accruals concept lies at the heart of the definitions of assets and liabilities, which are set out in FRS 5 Reporting the Substance of Transactions. Accordingly, the use of those definitions to determine items to be recognized in an entity's balance sheet is consistent with the accruals concept.*

The definition in FRS 18 is significantly different from that in SSAP 2. It is now the definitions of an asset and a liability; hence it is when assets and liabilities are recognized that determines the accounting period in which a transaction occurs. The concept of matching no longer exists.

This is best illustrated with an example. Let's say a company incurs costs for printing brochures for 2012 during 2011. Under the SSAP 2 definition the costs incurred in 2011 would be carried forward as a prepayment to be matched with the income arising from the brochures in 2012. However, under the FRS 18 definition this is not permitted as the prepayment for the brochure costs at the end of 2011 does not satisfy the definition of an asset. There are no rights to future income and so the brochure costs must be expensed in 2011.

The definition in the proposed Financial Reporting Standard applicable in the UK and Ireland is based on IAS principles. While this is different again from the definition in FRS 18, it follows the same principle and should not result in any significant changes in practice. The definition in paragraph 2.36 states:

> *An entity shall prepare its financial statements, except for cash flow information, using the accrual basis of accounting. On the accrual basis, items are recognized as assets, liabilities, equity, income or expenses when they satisfy the definitions and recognition criteria for those items.*

What is meant by the accruals basis has changed. If you are happy with the definition in FRS 18 that is driven by the recognition of assets and liabilities then the change proposed in the draft UK Financial Reporting Standard will have little impact. However, if you still think of matching income and expenditure when considering the accruals basis, then you have a little more work to do.

Extract 2.5: The prudence concept in action

This article discusses the issue of prudence, in particular the notion that being overly prudent could be economically damaging. Is this accounting convention causing managers to act dysfunctionally? We hope not, but possibly. Why not read and decide for yourself.

Too much prudence can be a bad thing

Economia, 14 February 2013
By John Hughes and Tony Coates

Some argue that much bigger provisions would make banks safer, but John Hughes, partner in KPMG's financial services practice, and Tony Cates, head of audit at KPMG, argue they could hide problems and damage the economy.

Could too much prudence damage the economy?

On 29 November the *Daily Telegraph* reported that 'At last the Bank [of England] is tackling the regulatory fiasco of Britain's accounting system. Sir Mervyn King has just dropped a bombshell on British banks by demanding a £35bn capital raising. But the bigger shock is the reason why: bank accounts are "dishonest" because Britain's accounting rules are faulty'... The difference between expected losses and provisions runs into many billions of pounds.

It is not clear from the Financial Policy Committee's (FPC) report how overvalued it believes current balance sheets to be... parts of the report suggest that the FPC believes that the difference between expected losses and provisions runs into many billions of pounds. For example they suggest that a simple expected loss calculation would have resulted in £50bn more in provisions at the outset of the crisis. This compares to £26bn of provisions in 2007 and £67bn in 2012. The fact that their core recommendation is that a review of valuations is necessary also implies significant concern.

You might think that, as conservative accountants, we would prefer this second 'super prudent' approach. In fact, as responsible business people, we are troubled by it. Booking large additional provisions now would imply that the policy of supporting the economy through low interest rates has not worked. Of course it may not, but this is only one possible outcome and it has yet to happen. Avoiding this outcome will require objective, evidence based information that informs a transparent debate about the risks we face.

Properly compiled, accounts can help here, both by clarifying the present and by identifying future risks. Stuffing them with provisions to cover uncertain and unquantifiable outcomes will have the opposite effect: accounts based on opaque,

unreliable forecasts will mislead and probably make things worse. Accounts need to be used in a very different way if they are to inform good policy making.

A reality check

The future is more than usually uncertain. We have to acknowledge that accountants are not soothsayers, who can magically forecast it with an accuracy that eludes everyone else. Achieving the right balance between the safety of our financial system and the need to stimulate growth is extremely difficult and requires a careful and transparent assessment of future risk.

Accounts can only contribute to this by reporting objectively and transparently on the evidence available and then prompting a thorough debate that distinguishes clearly between fact and speculation. Pretending that large provisions against unquantifiable future risks will protect us is the opposite of this. It amounts to a form of Russian roulette that is potentially very dangerous. It is not just bad accounting, it is positively imprudent.

Additional questions

Question 1

John Sinister and Stanley Gronk have decided to set up a company selling old vinyl records. They buy them from vintage shops and online auction sites and sell them to collectors through auctions and via an online shop. They are unsure of how to record accounting entries in their books and records but are nevertheless keen to keep them up to date. They have asked for your help. Below is a summary of transactions:

(i) John and Stanley invested $10,000 cash each in the business in exchange for share capital.

(ii) They bought $2,500 worth of records. Of these, $2,000 worth was paid for immediately and $500 worth was acquired on credit.

(iii) They sold for $4,000 (cash) records which they had originally bought for $1,500.

(iv) They bought a vehicle to carry the records between sites, shops and auction houses. This cost $2,000 and is expected to last for four years. The depreciation policy is to charge a full year's depreciation in the year of acquisition and none in the year of disposal.

(v) They incurred operating expenses (postage, utilities etc) of $300 during the period.

Required:

Show the journal entries for each transaction, draw up a closing trial balance and prepare a statement of financial position and an income statement as at the period-end.

Question 2

Prepare a statement of financial position (balance sheet) from the following list of assets and claims, which includes everything other than the proprietor's capital.

Bob Clarion
Assets and claims as at 31 October 20X4

	$
Trade receivables	800
Trade payables	950
Cash in hand	400
Inventories	350
Loan from Piton Route (repayable in January 20X9)	2,500
Motor vehicle	3,800
Bank loan (repayable in December 20Y4)	900

Question 3

Derive a statement of financial position (balance sheet) from the following list of assets and claims.

Alexandria Petros
Assets and claims as at 31 October 20X4

	$
Trade receivables	1,200
Bank overdraft	1,800
Long-term loan	1,500
Cash in hand	150
Inventories	400
Trade payables	1,500
Freehold buildings	3,400
Proprietor's capital	350

Question 4

Morpheus plc has had an excellent year's trading and while the income statement shows the company has made a profit, the statement of cash flows reveals a net cash outflow.

Required:

(i) List and explain **three** reasons why cash and profits might differ.

(ii) Briefly explain why a lack of cash could have a more detrimental effect on your business than a lack of profitability.

Question 5

Below is a trial balance as at the year ended 31 December 20X4 for Bonbogies Limited. Your friend, who is the chief executive of the business and has prepared the trial balance, has asked for your help.

Trial balance
As at 31 December 20X4

	$	$
Motor vehicle cost	45,000	
Motor vehicle accumulated depreciation		21,000
Fixtures and fittings cost		74,000
Fixtures and fittings accumulated depreciation	23,500	
Freehold land and buildings cost		276,000
Freehold land and buildings accumulated depreciation	42,000	
Inventories		6,200
Trade receivables	3,600	
Cash and cash equivalents (asset)	7,800	
Prepayments		450
Trade payables	4,500	
Accruals	900	
Mortgage	231,000	
Long-term loans		32,000
Share capital		10,000
Retained earnings		25,900
Sales		410,000
Cost of sales		255,000
Operating expenses	89,000	
Finance income	250	
Finance costs		36,000
Corporation tax charge	8,000	
	455,550	1,146,550

Required:

(i) Your friend suspects the reason that the trial balance doesn't balance is because she has transferred the list of balances correctly.

(ii) In addition, she would like you to tell her what the profit for the year ended 31 December 20X4 is expected to be.

Suggested solutions

Question 1

(i)	Dr Cash	$20,000	
	Cr Share capital		$20,000
(ii)	Dr Inventories	$2,500	
	Cr Cash		$2,000
	Cr Trade payables		$500
(iii)	Dr Cash	$4,000	
	Cr Sales		$4,000
	Dr Cost of sales	$1,500	
	Cr Inventories		$1,500
(iv)	Dr Non-current assets (cost)	$2,000	
	Cr Cash		$2,000
	Dr Depreciation charge (income statement)	$500	
	Cr Non-current assets (accumulated depreciation)		$500
(v)	Dr Operating expenses	$300	
	Cr Cash		$300

Trial balance	Dr $	Cr $
Non-current assets (cost)	2,000	
Non-current assets (accumulated depreciation)		500
Inventories	1,000	
Bank / Cash	19,700	
Trade payables		500
Share capital		20,000
Sales (revenue)		4,000
Cost of sales	1,500	
Operating expenses	300	
Depreciation	500	
	25,000	25,000

Statement of financial position

Non-current assets	
Motor vehicle (net book value)	1,500
Current assets	
Inventories	1,000
Cash at bank	19,700
Assets	22,200
Equity and liabilities	
Share capital	20,000
Retained earnings	1,700
Current liabilities	
Trade payables	500
	22,200

Income statement

Revenue	4,000
Cost of sales	(1,500)
Gross profit	2,500
Operating expenses (including depreciation)	(800)
Net profit	1,700

Question 2

Statement of financial position
For Bob Clarion
As at 31 October 20X4

	$	$
Non-current assets		
Motor vehicle		3,800
Current assets		
Inventories	350	
Trade receivables	800	
Cash in hand	400	
		1,550
Assets		**5,350**

Equity and liabilities	
Proprietor's capital (balancing figure)	1,000
Non-current liabilities	
Loan from Piton Route	2,500
Bank loan	900
Current liabilities	
Trade payables	950
	5,350

Question 3

Statement of financial position
For Alexandria Petros
As at 31 October 20X4

	$	$
Non-current assets		
Freehold buildings		3,400
Current assets		
Inventories	400	
Trade receivables	1,200	
Cash in hand	150	
		1,750
Assets		**5,150**
Equity and liabilities		
Proprietor's capital (balancing figure)		350
Non-current liabilities		
Long-term loan		1,500
Current liabilities		
Bank overdraft		1,800
Trade payables		1,500
		5,150

Question 4

(i) The key differences between profits on an accruals basis versus those measured on a cash basis relate to:

- Timing differences. For example, goods might be sold to an entity, delivered immediately and an invoice for payment raised at the same time. However, if you grant a credit period, you should expect your customers to take advantage of it (after all, this is essentially an interest-free loan for them). Therefore, the revenue can be booked to the income statement as the transaction took place during the period, but if the cash has not been received by the end of the period, it will show as a balance being owed to you. In other words, the cash follows the sale.
- Accounting estimates. It is necessary for accountants to make accounting estimates during the preparation of the financial statements. One example is the accounting for depreciation against tangible non-current assets. Depreciation acts as a proxy for the costs related to wear and tear of an asset because, over time, assets classified as non-current must be written off to the income statement as their revenue-generating potential is consumed (more on this later).
- Accounting transactions that bypass the income statement. For example, capital expenditure, sale of share capital, repayments of loans and so forth.
- Changes in the working capital position. For example, an increase in inventories means that an entity has invested cash in inventories, which it hopes to translate back into cash through the sale of these goods. Figure 2.6 shows the working capital cycle and reveals how the process of investment and reinvestment in working capital makes the management of short-term resources crucial.

(ii) There is an old adage that 'cash is the lifeblood of a business'. While this might conjure up a rather unpleasant image, it is true. A company can be profitable by selling products or services for more than they cost, but this is irrelevant if they don't receive cash in a timely manner. Sadly, it is a lack of cash rather than a lack of profitability that is a common cause of the demise of many small businesses. The internet is full of stories about cash flow management problems. The story that follows is simply another one of those.

Small businesses still struggling with cash flow management

Ben Lobel | 2 May 2013 | News | Outlook

Bottom of Form

Cash flow issues continue to plague businesses

Cash flow management remains a significant challenge to large numbers of UK businesses, finds research.

Almost one in six small businesses in a UK-wide study say they are 'very' concerned about managing cash flow effectively over the next 12 months, with a further 27 per cent saying they are 'quite' concerned, according to a study by Santander Corporate & Commercial.

Around half (46 per cent) of businesses report being hit by at least one recent cash flow setback – with late/failed payments from customers (24 per cent), weak sales (8 per cent) and unexpected costs and charges (7 per cent) the top three reasons cited.

Larger UK businesses (those with annual revenues between £5 million–£20 million) are less concerned about cash flow than smaller companies, with 6 per cent saying they are 'very' concerned, compared to 14 per cent of firms with annual revenues between £500,000–£1 million, and 22 per cent in the £250,000–£500,000 bracket.

Marcelino Castrillo, head of SME at Santander Corporate & Commercial, says, 'Cash flow clearly remains a huge challenge for thousands of UK businesses. However, many businesses are missing out on effective alternative financing solutions such as invoice or supply chain finance – or relying excessively on loans and investments – and in doing so, are opening themselves up to unnecessary cash flow volatility and business risks.

'It can be very beneficial for companies to take a regular review of their resources, both in terms of cash flow and their wider business plans, to ensure they have the best toolkit to equip themselves for managing payments and dealing with the unexpected hurdles that all businesses face from time to time.'

On a regional basis, firms in the North West and West Midlands are the most concerned about cash flow, with more than a third (36 per cent) saying they are 'very' concerned compared to the South West, where firms were the least concerned (8 per cent).

Greater London tops the regions for suffering from late or failed payments from customers (41 per cent) as well as for unexpected costs and charges (21 per cent).

A third of businesses in Greater London (34 per cent) – the equivalent of almost 100,000 businesses – say they are worried about cash flow over the next 12 months.

Question 5

(i) The reworked trial balance should appear as follows:

Trial balance
As at 31 December 20X4

	$	$
Motor vehicle cost	45,000	
Motor vehicle accumulated depreciation		21,000
Fixtures and fittings cost	74,000	
Fixtures and fittings accumulated depreciation		23,500
Freehold land and buildings cost	276,000	
Freehold land and buildings accumulated depreciation		42,000
Inventories	6,200	
Trade receivables	3,600	
Cash and cash equivalents (asset)	7,800	
Prepayments	450	
Trade payables		4,500
Accruals		900
Mortgage		231,000
Long-term loans		32,000
Share capital		10,000
Retained earnings		25,900
Sales		410,000
Cost of sales	255,000	
Operating expenses	89,000	
Finance income		250
Finance costs	36,000	
Corporation tax charge	8,000	
	801,050	801,050

(ii) The expected profit for the year ended 31 December 20X4 is $22,250 ($410,000 – $255,000 – $89,000 + $250 – $36,000 – $8,000).

Financial analysis: Part I

03

Guidance and teaching advice

This chapter covers the fundamentals of financial analysis. When putting this book together, we wanted this to be the key chapter of the financial accounting section. Our assumption is that the majority of tutors using this textbook will be engaging with postgraduate students from non-specialist backgrounds. The skill which is most desirable is the ability to interpret financial information and, in particular, financial statements. In many ways, the previous chapters build up to this point. In the coverage weighting we have advised tutors to spend longer on this section, and this is our way of highlighting the perceived importance.

The teaching and learning approach should be fairly self-explanatory. The subject matter is inherently interesting and therefore the need to 'convince' your students of the necessity to engage or enjoy is no longer required. The one thing which we advise is to try to keep examples real. Throughout the chapter I have provided the example of Ryanair Holdings plc. Airlines are fascinating in terms of their financial performance, their competing strategies and the simplicity of forming a link between the two. There are downsides of choosing an airline, however, such as the lack of a cost of sales number. If you want, you could pretend that certain expenses are 'direct' and reattribute them for the sake of the examples. I have not done this, though.

The additional benefit of using airlines is the comparison that can be made between carriers from all over the world. This is a global marketplace and consumers are free to choose between providers. Sometimes, people go to certain locations *because* a certain carrier does that route rather than because they especially wanted to go there. For example, Ryanair started flying out of Bristol International Airport several years ago, at which stage a good friend of mine and I took almost every route the airline offered because the airport was convenient and the prices were low. Other users might choose to fly only luxury airlines or they could choose to support their national flag carrier.

The premise is simple: choose something straightforward and allow the students to interpret the figures the way they see fit and to draw conclusions based on their subjective judgements. While professional analysts have a much broader and complete mosaic of information to draw upon, ultimately we are trying to replicate what they are doing when they offer advice to clients.

I would advise that the chapter follows a neat, linear route, and there is little point deviating from it. Getting students to do some straightforward comparisons between and within years is an important starting point. It is also important that they don't stop doing these calculations as they proceed through the ratio analysis section. Calculating ratios can be insightful but they can also be misleading if not used in combination with other measures.

Regarding the ratio analysis and the method presented, I chose to divide the ratios between measures of profitability, liquidity and solvency. There is an alternative way to present ratio analysis, which might be preferable to some audiences/readers. This largely depends on how sophisticated your audience already are and what the purpose of their enquiry is. Some tutors will be faced with a class that wants to consider this topic only from the perspective of making an investment. You will notice that the chapter which I have written, and the book as a whole, is interested in accounting from a managerial decision-making perspective. These managers come from many walks of life and operate within a range of enterprises, from plcs through to artisan businesses and local charities.

The alternative to this form of ratio analysis is to employ the Du Pont method. Du Pont presents a pyramid of key ratios which ultimately seek to determine the return on equity. There are six key ratios in total – two primary investment-level ratios, one primary operative-level ratio, one primary utilization ratio, one primary efficiency ratio and one primary liquidity ratio. These are called primary because they can be drilled down.

A brief summary of the Du Pont method follows.

Primary investment-level ratios

1 Operating return on equity (operating ROE)

$$\frac{\text{Net profit}}{\text{Shareholders' funds*}}$$

* Where shareholders' funds are expressed as the total investment by the owners.

This ratio is at the apex of the ratio pyramid, and it is the product of the financial leverage multiplier and the return on capital employed.

2 Financial leverage multiplier (FLEV)

The FLEV expresses how many times bigger the capital employed is than the shareholders' funds. Thus, it is calculated as follows:

$$\frac{\text{Capital employed}}{\text{Shareholders' funds}}$$

Primary operative-level ratio

3 Return on capital employed (ROCE)

Regardless of which analysis method you choose to adopt, the ROCE is a fundamental measure of the profitability of a company. It is a popular indicator of management efficiency because it contrasts the net profit generated by the company with total asset values. It is therefore widely considered that the ROCE serves to show how well management has utilized total assets during a period of account. Care needs to be taken with the ROCE, however, because there is no single definition.

One way to calculate the ROCE is by multiplying the asset turnover ratio (see 4 below) by the net profit margin (see 5 below).

Primary utilization ratio

4 Asset turnover

The asset turnover is a measure of the level of sales generated from the asset base. As with other ratios, this ratio should be used with caution or interpreted with care. It has been described as a good measure of performance but its level of magnitude should be evaluated in terms of its constituent parts.

One issue is that if asset turnover is shown to have increased, there are three possible options: the total value of sales is increasing; the capital asset base is decreasing; or both. If it is because sales are increasing, this might signify improved performance. However, if it is because the capital base has reduced, this needs further investigation.

Asset turnover is calculated as follows:

$$\frac{\text{Revenue}}{\text{Capital employed}}$$

Primary efficiency ratio

5 Net profit margin

Another commonly used indicator of an organization's performance is the net profit margin. It also allows easy comparisons to be drawn between similar entities. Again, however, be careful when drawing conclusions. The profit margin of a business will depend on many factors, some obvious, others less so. For example, the industry will play a significant role, as will the business's pricing policies, achievable sales and production volumes, and the cost structure.

A simplistic interpretation is that a higher margin generally suggests good performance. The world is full of examples where this does not correlate with reality, though. It is important that you ask supplementary questions, such as why the profit margin is higher than the average, or why it is lower than it was last year, whether the company is setting the profit margin strategically or whether market conditions have driven the outcome.

The net profit margin is calculated as follows:

$$\frac{\text{Profit before interest and tax (PBIT)}}{\text{Revenue}}$$

Primary liquidity ratio

6 Current ratio

The current ratio is a short-term measure of the organization's liquidity position. This ratio compares current assets with current liabilities. Where the result is greater than 1, this indicates that current assets exceed the value of current liabilities. In other words, the current assets *cover* the level of current liabilities. This gives some reassurance to those looking at the short-term liquidity position. As discussed in the main text, it is often claimed that this ratio should be equal to or greater than 2:1. Note, however, that the recommended current ratio depends on the industry sector and each individual organization's experience.

Implications of an increase of the current ratio beyond the normal range include:

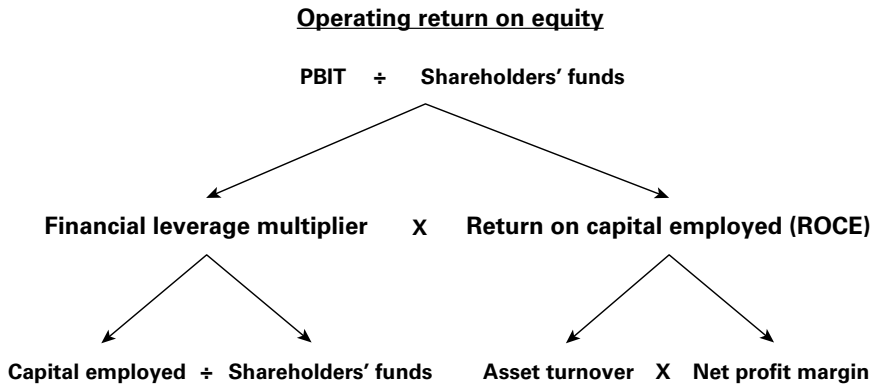
- Beneficial reasons:
  - A build-up of inventory in order to support prospective increased demand resulting from an advertising campaign, for example.
  - A permanent expansion of the business which will require continuing higher levels of inventory.
- Unwelcome reasons:
  - Operating losses may have eroded the working capital base.
  - Inefficient control of working capital.
  - Adverse litigation.
  - Adverse trading conditions.

The liquidity (current) ratio is calculated as follows:

$$\frac{\text{Current asset}}{\text{Current liabilities}}$$

A pictorial summary is given in Figure 3.1.

FIGURE 3.1 Ratios



Current ratio

Current assets ÷ Current liabilities

Proof: ***FLEV * ROCE = Operating ROE***

Appendix A

PE ratio by sector
List compiled by **Aswath Damodaran** (New York University, Stern School of Business)
Last Updated in January 2013
Data Used: Value Line database, of 6177 firms

Industry Name	Number of Firms	Aggregate Market Cap/Aggregate Net Income	Price/ Current EPS	Price/ Trailing EPS	Price/ Forward EPS	Expected Growth	PEG Ratio	Payout
Advertising	32	16.13	38.04	31.25	18.16	13.49%	2.32	38.30%
Aerospace/Defence	66	12.93	20.26	15.79	15.48	12.35%	1.28	29.59%
Air Transport	36	15.89	18.91	14.60	10.74	17.66%	0.83	24.53%
Apparel	54	21.16	18.95	21.64	17.74	13.59%	1.59	20.00%
Auto Parts	54	12.55	14.02	15.39	12.44	19.71%	0.78	18.35%
Automotive	12	12.57	16.03	15.84	9.99	19.08%	0.83	26.07%
Bank	416	13.12	19.74	16.58	14.38	9.28%	1.79	31.35%
Bank (Midwest)	68	13.98	21.83	16.43	12.41	8.20%	2.00	34.43%
Beverage	35	20.02	21.39	19.92	17.05	12.33%	1.62	49.30%
Biotechnology	214	154.73	32.89	31.24	47.35	20.28%	1.54	0.16%
Building Materials	43	NA	81.34	29.27	67.27	30.77%	0.95	NA
Cable TV	20	21.30	76.63	22.28	62.92	11.12%	2.00	26.26%
Chemical (Basic)	18	11.72	13.18	31.77	13.13	12.34%	2.57	32.85%
Chemical (Diversified)	33	17.46	14.58	19.75	13.85	12.01%	1.64	24.44%
Chemical (Specialty)	70	20.53	19.81	17.57	16.65	14.87%	1.18	31.34%
Coal	20	12.16	10.17	29.76	53.72	5.55%	5.36	36.06%
Computer Software	191	15.72	53.18	77.29	37.59	19.80%	3.90	23.05%
Computers/Peripherals	81	11.05	31.48	46.69	14.20	18.19%	2.57	20.96%

Industry Name	Number of Firms	Aggregate Market Cap/Aggregate Net Income	Price/ Current EPS	Price/ Trailing EPS	Price/ Forward EPS	Expected Growth	PEG Ratio	Payout
Diversified Co.	113	14.68	42.56	16.19	14.72	14.64%	1.11	35.62%
Drug	223	15.42	24.56	28.46	22.21	13.19%	2.16	48.28%
E-Commerce	64	67.22	61.67	237.12	121.56	22.76%	10.42	3.18%
Educational Services	33	24.92	12.42	13.29	15.26	7.63%	1.74	9.37%
Electric Util. (Central)	20	14.24	17.45	15.66	15.47	6.55%	2.39	60.93%
Electric Utility (East)	17	15.83	17.64	17.08	14.76	3.99%	4.28	66.01%
Electric Utility (West)	15	15.42	17.30	16.05	15.01	6.11%	2.63	59.16%
Electrical Equipment	64	14.00	25.89	22.95	15.49	13.09%	1.75	30.39%
Electronics	123	13.33	18.47	15.11	15.90	11.62%	1.30	14.75%
Engineering & Const	30	16.76	19.36	44.34	26.40	14.46%	3.07	10.68%
Entertainment	76	19.66	22.21	27.83	12.28	10.20%	2.73	24.31%
Entertainment Tech	42	28.25	49.73	20.13	25.42	15.90%	1.27	14.10%
Environmental	84	23.61	21.00	16.99	15.47	14.36%	1.18	45.77%
Financial Svcs. (Div.)	256	19.97	22.63	22.15	14.20	12.97%	1.71	25.33%
Food Processing	119	18.40	20.52	24.85	18.61	12.40%	2.00	49.55%
Foreign Electronics	10	NA	30.96	31.52	13.16	16.83%	1.87	NA
Funeral Services	6	18.56	18.77	17.80	15.04	10.90%	1.63	49.83%
Furn/Home Furnishings	32	27.44	22.20	21.64	20.55	21.79%	0.99	32.92%
Healthcare Information	20	41.98	46.49	54.59	75.69	14.77%	3.70	11.80%
Heavy Truck & Equip	23	11.82	31.42	16.08	13.76	18.34%	0.88	20.88%
Homebuilding	22	NA	87.95	49.55	83.51	18.29%	2.71	NA
Hotel/Gaming	57	27.36	69.04	35.36	22.99	19.09%	1.85	43.30%
Household Products	27	17.59	17.87	18.49	14.83	12.13%	1.52	53.76%
Human Resources	25	22.82	35.95	30.55	19.00	23.21%	1.32	29.41%

Industry Name	Number of Firms	Aggregate Market Cap/Aggregate Net Income	Price/ Current EPS	Price/ Trailing EPS	Price/ Forward EPS	Expected Growth	PEG Ratio	Payout
Industrial Services	136	21.07	29.38	34.78	17.72	15.51%	2.24	31.12%
Information Services	28	24.70	73.89	31.49	39.91	14.78%	2.13	39.37%
Insurance (Life)	32	10.12	23.72	20.40	13.26	12.48%	1.63	24.23%
Insurance (Prop/Cas.)	62	20.39	48.98	16.65	16.83	10.32%	1.61	45.77%
Internet	194	39.34	150.13	181.13	51.09	23.17%	7.82	1.36%
Investment Companies	31	23.92	25.04	64.45	16.51	0.00%	NA	0.00%
IT Services	63	19.24	50.48	39.49	25.44	17.20%	2.30	30.62%
Machinery	94	19.49	22.24	21.30	16.37	18.55%	1.15	23.09%
Maritime	51	140.36	14.26	22.57	18.19	10.69%	2.11	16.76%
Med Supp Invasive	87	16.42	51.41	46.69	20.39	14.22%	3.28	26.63%
Med Supp Non-Invasive	143	16.54	41.57	35.61	32.12	18.10%	1.97	38.24%
Medical Services	118	12.12	19.18	29.94	20.77	12.89%	2.32	10.18%
Metal Fabricating	25	13.52	15.56	63.26	36.57	21.05%	3.01	25.25%
Metals & Mining (Div.)	77	8.79	27.04	36.66	16.31	15.06%	2.43	24.78%
Natural Gas (Div.)	31	15.39	19.59	53.21	20.59	15.84%	3.36	26.42%
Natural Gas Utility	27	24.52	25.06	23.01	21.07	7.07%	3.25	76.95%
Newspaper	14	16.45	12.75	115.92	11.79	14.86%	7.80	22.41%
Office Equip/Supplies	22	7.80	14.67	21.17	15.54	11.83%	1.79	29.35%
Oil/Gas Distribution	12	26.73	45.99	37.30	27.84	11.93%	3.13	95.57%
Oilfield Svcs/Equip.	81	15.80	18.62	14.61	13.28	15.19%	0.96	23.26%

Industry Name	Number of Firms	Aggregate Market Cap/Aggregate Net Income	Price/ Current EPS	Price/ Trailing EPS	Price/ Forward EPS	Expected Growth	PEG Ratio	Payout
Packaging & Container	27	14.51	16.46	17.22	15.39	11.60%	1.48	24.43%
Paper/Forest Products	32	23.76	40.55	29.45	19.16	9.68%	3.04	49.04%
Petroleum (Integrated)	26	8.18	11.24	11.29	8.70	14.25%	0.79	27.05%
Petroleum (Producing)	176	13.02	37.40	24.25	20.98	18.62%	1.30	14.47%
Pharmacy Services	18	19.50	24.12	19.67	21.04	19.29%	1.02	26.55%
Pipeline MLPs	53	19.62	30.62	130.50	21.99	12.18%	10.71	69.72%
Power	101	NA	16.94	304.86	46.52	12.60%	24.19	NA
Precious Metals	83	14.30	23.00	24.60	17.95	8.88%	2.77	20.04%
Precision Instrument	82	21.20	36.66	23.56	20.58	15.63%	1.51	18.90%
Property Management	31	19.21	50.66	44.26	18.28	11.41%	3.88	23.88%
Public/Private Equity	12	6.82	7.88	8.65	7.93	17.10%	0.51	21.00%
Publishing	29	26.85	14.23	14.22	11.66	10.94%	1.30	30.35%
R.E.I.T.	127	9.72	14.10	16.85	31.68	11.18%	1.51	76.79%
Railroad	12	16.72	41.86	17.50	14.63	15.06%	1.16	35.08%
Recreation	51	18.42	39.31	24.73	25.76	17.09%	1.45	44.80%
Reinsurance	11	NA	45.24	8.25	8.77	11.82%	0.70	NA
Restaurant	65	21.00	21.23	19.52	19.52	15.74%	1.24	48.38%
Retail (Hardlines)	79	15.00	26.15	22.74	16.83	17.24%	1.32	16.85%
Retail (Softlines)	42	20.57	20.91	18.19	21.56	20.86%	0.87	24.70%
Retail Automotive	19	16.39	15.48	15.97	14.83	14.06%	1.14	2.58%
Retail Building Supply	10	23.88	46.16	25.76	24.30	17.00%	1.52	44.08%
Retail Store	38	16.03	20.02	20.34	14.85	15.35%	1.33	31.55%
Retail/Wholesale Food	30	19.49	17.64	14.89	14.02	9.66%	1.54	25.11%

Industry Name	Number of Firms	Aggregate Market Cap/Aggregate Net Income	Price/ Current EPS	Price/ Trailing EPS	Price/ Forward EPS	Expected Growth	PEG Ratio	Payout
Securities Brokerage	27	12.89	15.10	20.01	13.72	10.48%	1.91	21.76%
Semiconductor	142	15.49	25.85	50.55	30.16	17.75%	2.85	40.06%
Semiconductor Equip	10	18.70	17.25	25.21	26.98	13.45%	1.87	29.61%
Shoe	17	20.31	14.78	13.75	14.62	17.00%	0.81	29.01%
Steel	33	10.90	24.13	23.48	15.66	22.28%	1.05	20.11%
Telecom. Equipment	105	13.27	19.63	24.80	23.33	12.60%	1.97	26.69%
Telecom. Services	76	14.60	27.22	18.25	15.94	10.20%	1.79	41.17%
Telecom. Utility	23	10.91	28.83	16.70	16.65	8.31%	2.01	41.15%
Thrift	170	150.11	43.27	29.69	21.33	10.34%	2.87	20.45%
Tobacco	11	17.40	17.97	19.42	12.68	10.50%	1.85	72.59%
Toiletries/Cosmetics	14	18.87	20.49	20.39	15.86	12.69%	1.61	22.15%
Trucking	34	27.47	32.32	16.70	14.88	18.88%	0.88	27.28%
Water Utility	11	20.83	23.11	20.46	20.57	6.61%	3.09	44.67%
Wireless Networking	58	34.16	50.04	29.68	218.55	15.52%	1.91	19.19%
Total Market	6,177	16.40	30.55	33.45	23.78	14.49%	2.31	36.10%

Additional questions

Question 1

Brink of Solarity plc (BOS) is a specialist electrical retailer. The business trades across the whole of Europe through over 1,100 stores and online, spanning 30 countries and employing 40,000 people.

An extract from the chairman's report in the 2014 annual report read as follows:

> This has proved another challenging year as the post-recession downturn continues to bite into many of our core markets. Despite this, BOS has remained focused on delivering a better experience for customers, which will position the business for significant progress when the economy starts to improve and consumer spending begins to rise.
>
> Returns to shareholders are now the Board of Director's priority. We have mapped out a clear strategy of targeting customer satisfaction measures in order to facilitate these returns. The gross margins we have achieved continue to be competitive in the challenging market. Certain regions expand and become stronger, such as Northern Europe. Others we are looking to exit, such as some regions towards the South of Europe. We have taken decisive action in Spain to close our operations in a market where we saw little opportunity for short to medium term profitable recovery. Needless to say, this has meant a reduction in the cost base which far exceeds the hit taken to revenue.

You have been provided with the following summarized financial information:

	$million	$million
Revenue		
Credit sales		6,564
Cash sales		2,956
Cost of sales		5,134
Cost of sales balance includes:		
Credit purchases	3,525	
Cash purchases	325	
Other direct costs	1,284	
Operating expenses		4,912
Profit/(Loss) before interest and tax for the year		(526)
Finance costs (net)		54
Non-current assets		2,254
Current assets		1,721
Current assets balance is broken down as follows:		
Inventories	845	
Trade receivables	453	
Cash at bank and in hand	318	
Other	105	
Current liabilities		1,648

	$million	$million
Current liabilities balance is broken down as follows:		
Trade payables	1,321	
Borrowings	200	
Other	127	
Non-current liabilities		1,800
Capital and reserves		527

Required:

Based solely on the information provided above, you have been asked by a potential investor to analyse the position and performance of Brink of Solarity plc.

Question 2

Swann plc is a public company that would like to expand its market share by acquiring a suitable competitor. The following information has been obtained about two companies which Swann could potentially acquire, Flintoff Limited (hereafter 'Flintoff') and Collingwood Limited (hereafter 'Collingwood').

	Flintoff	Collingwood
Return on capital employed	16.1%	21.4%
Gross profit margin	13.0%	11.5%
Net profit margin	11.0%	9.8%
Current ratio	1.4	1.6
Inventories holding period	65 days	30 days
Trade receivables collection period	65 days	61 days
Trade payables payment period	105 days	43 days
Gearing	37.2%	68.4%
Interest cover	5.8 times	2.2 times

You have been provided with the following additional information which you might find helpful:

- Swann, Flintoff and Collingwood all distribute garden and outdoor furniture to major garden centres throughout the UK and Europe.
- In addition, Swann and Flintoff also develop and design a large proportion of the garden furniture they distribute. They both own exclusive rights to the manufacture of certain popular own-brand designs.
- Collingwood owns its own premises whereas Flintoff leases its premises.
- Collingwood's current owners are known to be receptive to a takeover; however, Flintoff's owners are known to be resistant.
- It is rumoured that Flintoff wishes to borrow a significant amount of money during the next 12 months. Industry speculation suggests that this money will be used to invest in a new factory which it will locate in the United States.

Required:

Assess the relative performance and financial position of Flintoff and Collingwood to inform the directors of Swann in their acquisition decision.

What further information would be useful to the directors of Swann when making their acquisition decision?

Explain the limitations of ratio analysis.

Suggested solutions

Question 1

	Numerator	Denominator		Result
Profitability				
Gross profit margin	Gross profit	Revenue	*100%	
	4,386	9,520		46.1%
Net profit margin	Profit before interest and tax (PBIT)	Revenue	*100%	
	(526)	9,520		–5.5%
Return on capital employed	PBIT	Capital employed (capital and reserves plus non-current liabilities)	*100%	
	(526)	2,327		–22.6%
Liquidity and working capital				
Current ratio	Current assets	Current liabilities		
	1,721	1,648		1.04
Quick ratio	Current assets minus inventories	Current liabilities		
	876	1,648		0.53
Trade receivables collection period	Trade receivables	Credit sales	*365	
	453	6,564		25.2
Inventory holding period	Inventories	Cost of sales	*365	
	845	5,134		60.1
Trade payables payment period	Trade payables	Credit purchases	*365	
	1,321	3,525		136.8
Working capital cycle				(51.5)

	Numerator	Denominator		Result
Solvency				
Gearing ratio	Non-current liabilities	Capital employed (capital and reserves plus non-current liabilities)	*100%	
	1,800	2,327		77.4%
Interest cover	Finance costs	PBIT		
	54	(526)		ie 0 times

Assessment of performance and position

Profitability

The chairman's statement highlights that these are difficult economic times, especially for a company which is heavily reliant on a high-street presence and on a large skilled/knowledgeable workforce. The market is highly competitive, especially because of the advent of online retail. These competitors can operate with a very low cost base as they require low levels of capital investment. There are other major difficulties/risks faced by companies in this sector, including technological, political and social. There is cyclical demand owing to technical developments and to the events calendars. For example, there might be a spike in demand for a specific new high-tech product but this demand needs to be capitalized on quickly as it is short lived. An overstocking or an over-prediction of demand can be problematic. An example of events which create spikes in demand is televisions being bought around important sporting events, such as the Football World Cup or Olympic Games. It is often important for large retailers, such as BOS, to time offers and promotions to kick-start demand but not erode margins.

The company has made a loss for the year. Though still in a position of significant positive equity, this is potentially a negative signal to investors, hence the stress in the chairman's statement on investor returns being a priority. Another year making these losses will see the retained earnings disappear. If losses continue going forward, paying a dividend will not be possible. If the company is in a precarious financial position, the repercussions of a run on its stock could spell the end for the firm regardless of its size or scale.

The company maintains a high gross profit margin but the operating expenses cancel this good news out. In addition, the company incurred $54 million of finance costs which, as the solvency ratios show, it could not afford.

The chairman's statement says that revenue is up year on year in the Northern European countries and that a struggling geographical zone (Spain), which had low growth and was loss making, has been closed. In addition, costs have become a focus and $millions have been cut. While this is most likely a positive move, it does not bode well given that the firm is still loss making. Most worryingly, this probably

would not allay my fears if I were an investor. The statement also fails to note where these costs have been cut: ie if they are legitimate efficiency savings then this is good news; if research and development costs, advertising, marketing or staff training costs have been cut, this might impact negatively on future performance.

Liquidity

The current ratio shows the company in a reasonable position, with current assets covering current liabilities almost 1 to 1. However, it is clear that most of the assets are inventories, ie the least liquid current asset. High inventories are required, because the company operates many stores and without display items it would not attract customers. However, as it deals in large, high-tech goods, the costs of holding, storage and security are high. In addition, the risks of obsolescence are also reasonably high. When the inventories balance is removed from current assets, the ratio drops to a little over 0.5. Although this is around the level of other retailers, the cash balance is low and one worries about the entity's ability to meet short-term problems as they arise.

The company has a genuinely low trade receivables collection period, especially if one assumes that it works on standard 28-day credit terms. The inventory holding period appears high given the costs of inventories noted above. The key worry, though, must be the trade payables days. The company is taking 137 days to pay its suppliers. How long will they tolerate this, one must ask? The company risk suppliers cutting it off. At the very least, suppliers will be hesitant to treat the company as a priority customer.

Solvency

High levels of borrowing and an inability to meet the finance costs out of profits before interest and tax is worrying. If the liquidity position is as bad as the naive overview above suggests, the company will struggle to persuade financial institutions to put forward more capital. This would, of course, leave the company needing to approach its shareholders, whom they don't seem to be keeping content. With the prospect of no dividend payments and low (negative) short-term growth, any extra capital will be likely to come at a high price.

Conclusion

This review of position and performance shows that the company is going through some difficult times and it is not immediately obvious how this can be resolved in the short or even medium term. The risks are high and the returns are low; not a welcome prospect for your average risk-averse investor. The company wishes investors to see the potential for future profits and while it seems to have a strategy to make this work, it is not clear that it will!

An initial glance at the liquidity position would seem to suggest that the company is performing reasonably well, with the current ratio being around 1. However, when one looks more closely there are significant latent problems, not least the high trade payables payment period. This balance of 137 days is extremely worrying and suggests a company which is on the verge of a liquidity crisis.

This seems to be an entity on the verge of a solvency crisis, with high borrowing levels and lacking the capability to meet its obligations.

Note, however, that there is a great deal of information that we are missing and therefore the appraisal above is very limited. We would need to see more than one year's results as well as details from competitors. We would also need to see details of current, past and projected (free) cash flows, future plans and strategies, risk information, share price information and so forth. However, based solely on the information above, I would not advise investing in this entity in the short to medium term.

Question 2

There are many issues that can be discussed by candidates; however, markers should note that candidates who choose to ignore the scenario should be awarded limited credit. General observations, such as that Flintoff has a higher GP margin, should be awarded a maximum of half a mark even when explained in context. Reasoned suggestions and explanations should be rewarded, with the greatest credit being awarded to those who seek to contextualize their possible explanations in the current environment and try to find rational external verification, eg by referring to the current economic climate, availability of finance, cost of finance and so forth.

Sample discussions

Profitability

The ROCE of 21.4 per cent of Collingwood is far superior to the 16.1 per cent return achieved by Flintoff. ROCE is traditionally seen as a measure of management's overall efficiency in the use of the finance/assets at their disposal. We do not have enough details of asset turnover to conclude on this issue; however, the other element contributing to the ROCE is profit margins.

In this area Collingwood's overall performance is slightly inferior to that of Flintoff; gross profit margins are close to each other but Flintoff's operating profit margin is 11.0 per cent compared to Collingwood's 9.5 per cent. In this situation, where one company's ROCE is superior to another's, it is useful to look behind the figures and consider possible reasons for the superiority other than the obvious one of greater efficiency on Collingwood's part.

A major component of the ROCE is normally the carrying amount of the non-current assets. Consideration of these in this case reveals some interesting issues. Flintoff does not own its premises whereas Collingwood does. Such a situation would not necessarily give a ROCE advantage to either company as the increase in capital employed of a company owning its factory would be compensated by a higher return due to not having a rental expense (and vice versa). If Collingwood's rental cost, as a percentage of the value of the related factory, were more than its overall ROCE, it would be contributing to its lower ROCE. There is insufficient information to determine this.

The other important issue within the composition of the ROCE is the valuation basis of the companies' non-current assets. Again, we don't have enough information on this issue to be able to come to any robust conclusions.

The differences in both gross profit and net profit might result directly from the fact that Flintoff designs and develops its own products. The effects of this may be

that Flintoff can charge more; it is likely that there may be greater associated developmental costs (which would, most likely, be difficult to capitalize in line with IAS 38), whereas Collingwood might have greater purchase costs as a proportion of total revenue but have lower operating costs.

Issues might be dependency on key suppliers for Collingwood and an inability to be flexible with price-setting as it will be guided by both the market and its suppliers, but Flintoff might face legal issues, developmental issues, staff competency/technical-knowledge issues and so on.

Gearing

From the gearing ratio it can be seen that 68 per cent of Collingwood's assets are financed by borrowings. This is very high in absolute terms and is almost double Flintoff's level of gearing.

The interest cover of Collingwood is only 2.2 times whereas that of Flintoff is 5.8 times. Collingwood's low interest cover is a direct consequence of its high gearing and it makes profits vulnerable to relatively small changes in operating activity. For example, small reductions in sales or profit margins or small increases in operating expenses could result in losses and mean that interest charges would not be covered.

It could be that Flintoff has benefited from grant income to facilitate the development of its products, particularly as we know that it holds the exclusive rights to several successful products.

Liquidity

Both companies have relatively low liquid ratios of 1:4 and 1:6 for Flintoff and Collingwood, respectively, although neither seems to flag any immediate problems. Looking in more depth, both companies have similar trade receivables days but there are significant differences between the inventory holding period and the trade payables payment period.

Collingwood turns over its inventories efficiently and quickly and this is probably a reflection of the way it runs its business and the fact that it does not hold raw materials which it would use to manufacture and design its products. Collingwood then also pays off its creditors relatively quickly.

The major issue for Flintoff is the very high trade payables period, which indicates a lack of cash or just poor working capital management. It might be that it needs to borrow more money to pay off its current liabilities.

Summary

Although both companies may operate in a similar industry and have similar profitability positions, they would represent very different purchases.

The fact that Flintoff develops its own products and is looking to expand in its own right and, importantly, is resistant to a takeover would probably mean that a significant offer over and above a normal valuation would need to be made to convince the existing owners to sell.

Ultimately the investment decision may be determined by Swann's attitude to risk, possible synergies with its existing business activities and, not least, by the asking price for each investment (which has not been disclosed to us).

The decision to purchase

When deciding whether to purchase a company, Swann should consider the following additional useful information:

- Full audited financial statements (assuming audits are conducted).
- Forward-looking information such as profit and financial position forecasts, capital expenditure and cash budgets and the level of orders on the books.
- The current (fair) values of assets being acquired.
- The level of risk within a business. Highly profitable companies may also be highly risky, whereas a less profitable company may have more stable 'quality' earnings.
- Not least would be the expected price to acquire a company. It may be that a more poorly performing business may be a more attractive purchase because it is relatively cheaper and may offer more opportunity for improving efficiencies and profit growth.

Generally recognized potential problems of using ratios for comparison purposes

- Inconsistent definitions of ratios.
- Financial statements may have been deliberately manipulated (creative accounting).
- Different companies may adopt different accounting policies (eg use of historical costs compared to current values).
- Different managerial policies (eg different companies offer customers different payment terms).
- Statement of financial position figures may not be representative of average values throughout the year (this can be caused by seasonal trading or a large acquisition of non-current assets near the year-end).
- The impact of price changes over time/distortion caused by inflation.

Financial analysis: Part II

04

Guidance and teaching advice

This chapter is entitled 'Financial analysis: Part II' and therefore, as the name suggests, we look to extend the section on financial analysis. Standard accounting textbooks typically stop when they have considered the financial statements. We wanted to show the readers that there was a wealth of financial information available above and beyond the annual report and financial statements.

In this chapter we introduce some of the information which we found particularly interesting. The chapter is constrained by what is available. Corporate communication is dynamic and the ways that organizations wish to disseminate news are in flux. Technology develops but so do associated risks, such as litigation risk and political risk. We know very little, for example, about the effects of social media on share prices but, over the coming years, as a community we will learn more. Without doubt, organizations that choose to ignore this medium are perceived to be falling behind.

In short, this chapter is about educating students that the world of accounting has a farther outreach than a document produced once a year (or in some cases twice or four times depending on market regulations). Tutors should feel free to consider topical events and the way companies are disclosing their financial affairs. The media is alive with financial news and there are dedicated television channels, magazines and newspapers devoted to considering *only* financial news. Do not be afraid to use these to draw inspiration.

As a note, examining this content can be tricky. We suggest that short-form narrative questions get to the heart of the issues quickly and efficiently. When setting questions for homework, case studies typically work better. Examples are presented below.

Additional questions

Question 1

Choose an organization you are familiar with, whether that is through work or other means. As fully as you can, describe whether the company's vision, culture and perceived identity align. As part of your answer, consider whether there are any gaps between these elements.

Question 2

Choose two businesses that are currently in the news for financial reasons. The first of these should be because of bad news (eg financial irregularities, reporting problems, profit warnings). The second business should be in the news because of good news (eg meeting/beating analyst forecasts, winning new contracts). Contrast the press releases of these companies over the past month, considering in particular those which directly discuss the financial issues. What is the difference between these? Among the issues you might like to consider are: volume, length, tone, topics covered.

Question 3

Identify a company or organization that has a globally recognized brand. In your opinion, how has it managed to achieve this success and to what extent has it translated into financial strength? To evaluate the latter, you might like to look at the organization's latest annual report, investor presentations (conference calls), earnings statements and press releases.

Business planning

05

Guidance and teaching advice

Chapter 5 marks the transition in the text from financial accounting to management accounting. It is our experience that many non-specialist students, particularly those with familiarity of working in junior or mid-tier management positions, relate better to management accounting than they do to financial accounting because it touches more on their personal work experiences. A comment I have often heard when teaching mature MBA students is that management accounting and finance seem to be more grounded in their real-world experience than some of the modules they study. We have sought to keep the material in this text real and grounded in commonly encountered aspects of business life.

There is a critical dimension to the presentation of management accounting in this book which is not usually found in introductory-level texts. We believe strongly that an important distinction between teaching accounting as a first-year undergraduate module and teaching at a postgraduate level is the degree of critique and academic research you bring into your teaching. Therefore, in this chapter, as well as covering the mechanics of business planning we have also touched on contemporary academic and business debate. This is an aspect of the text which the tutor has great scope for expanding if this is appropriate for the audience.

Introducing the topic

In this chapter we have situated budgeting within the wider context of business planning and control, both to make it more relevant for non-accounting students and also to provide a basis for critical examination of the budgeting process. A good way of introducing budgeting to students, therefore, is to start by discussing the wider issues of business planning. After establishing what this management function involves in broader terms, attention can then be brought to budgeting and how the budgeting process contributes to management.

The budget-setting process

Because the budget-setting process touches upon the working lives of just about everybody within an organization, it is worth spending some time dwelling on this

and looking at how information feeds in from different areas of the organization. There is much scope within this section for students to contribute to a class discussion by offering their own experiences and for the class to reflect upon these as examples of good or bad practice.

Different approaches to budget preparation

The section of the chapter which looks at different approaches to budget preparation, ie top-down and bottom-up, together with the difference in approaches across different types of organization (manufacturing, service, not-for-profit), offers the scope for introducing real-world examples. If students have suitable experience, these examples can come from them. Otherwise, the tutor can offer examples from other real-world organizations.

Budget preparation worked example

We have included a worked example of the preparation of a simple budget within the chapter. This could be worked through in class, should the tutor wish to introduce a more numeric dimension to the teaching. However, if the tutor wishes to stick to a broader and critical discussion of budgeting, this worked example could be left for the students to study in their own time.

The limitations of budgeting

This section has been included in the chapter in order to introduce a critical dimension to the topic. It is also used to provide a context for introducing developments in budgeting such as rolling budgets, zero-based budgeting and activity-based budgeting.

This section also touches upon behavioural aspects of budgeting, which is another topic that can be developed in more detail for an appropriate audience.

Recommended further reading

- The Beyond Budgeting Round Table website (**www.bbrt.org**)
- Hansen, S C (2011) A theoretical analysis of the impact of adopting rolling budgets, activity based budgeting and beyond budgeting, *European Accounting Review*, **20** (2), pp 289–319
- Hansen, S C, Otley, D T and Van der Stede, W A (2003) Practice developments in budgeting: an overview and research perspective, *Journal of Management Accounting Research*, **15**, pp 95–116
- Libby, T and Lindsay, R M (2010) Beyond budgeting or budgeting reconsidered? A survey of North American budgeting practice, *Management Accounting Research*, **21**, pp 56–75
- Ostergren, K and Stensaker, I (2011) Management control without budgets: a field study of 'beyond budgeting' in practice, *European Accounting Review*, **20** (1), pp 149–81

Additional questions

Question 1

You are a member of the management team of Anstell Co. The company has recently appointed a new CEO who has a background in sales. The CEO has several radical ideas for the company. One idea, which he wants you to explore, is the abolition of annual budgets. He has asked you to write a report which looks into the idea.

Required:

Write a brief report for the CEO setting out the advantages and limitations of an annual budgeting system.

Question 2

'It is impossible to introduce a budgetary control system into a hospital because, if someone's life needs saving, it has to be saved irrespective of the cost.' How far do you agree with this statement?

Question 3

Discuss the potential conflict between using a budget as a motivational device and as a means of control.

Question 4

Explain the process involved in zero-based budgeting.

Suggested solutions

Question 1

This question is designed to test students' understanding of the purpose and role of budgeting.

Good answers will set out and explain the different aims of budgeting and discuss how these might be best served by annual budgets, or if they might be better served some other way. Answers should include discussion of:

- planning;
- coordination;
- communication of plans;
- motivation;

- control;
- performance evaluation.

The limitations of annual budgeting should be discussed, both in terms of achieving the above, but also in terms of time, resources etc.

Question 2

This is a discussion question suitable for use in a seminar or tutorial. A range of answers is possible, but students should acknowledge the budgetary constraints which a hospital will face and the need for controlling costs. The concept of the three E's (economy, efficiency and effectiveness) should be explained, and how these measures can provide budgetary parameters for a hospital.

Question 3

This is a discussion question suitable for use in a seminar or tutorial. Students should identify that budgeting has a range of objectives and that these may be in conflict. For example, the control objective might suggest demanding targets, whereas from a motivational point of view this may have a negative impact. Students should be encouraged to explore solutions to this problem. One potential solution applied by some businesses is to have a range of different targets for different purposes.

Question 4

Zero-based budgeting involves three main steps:

1. *Define decision packages*. These are detailed descriptions of the activities to be carried out. There will be some standardization within the data to allow comparison with other activities (costs, time taken and so on). A cost–benefit analysis is often carried out at this stage to ensure that the most cost-effective and beneficial approach to the activity is taken.
2. *Evaluation and ranking of activities*. Each activity is assessed; those that are perhaps part of a legal obligation become 'must do' activities; others may be viewed as discretionary. The local government ombudsman (LGO) will have to decide which of the activities offers the greatest value for money (VFM) or the greatest benefit for the lowest cost.
3. *Allocation of resource*. The budget for the accepted activities will then be created.

Budgets and performance management

06

Guidance and teaching advice

This chapter logically follows from Chapter 5 in that it looks at how budgets can be used, once they have been established, as part of overall performance management.

In order to cater for the non-accounting audience, the emphasis of this chapter is upon the broader context of performance management. The chapter therefore goes beyond the mechanics of budget monitoring and variance analysis to look at non-financial aspects of performance management and how they are integrated with financial information in order to provide a well-rounded set of performance figures for managers. The chapter covers the balanced scorecard and looks at performance measurement in not-for-profit organizations. The chapter also continues with some of the discussion started in Chapter 5 on the behavioural aspects of budgeting, looking at how these relate to performance management with issues such as gaming and creative accounting.

The broader context of performance management

Before launching into the detailed subject of budget monitoring and variance analysis, we have attempted to place this within a broader context of performance management. We feel that this is important for non-accounting students as they need to understand how variance analysis fits within this important aspect of management. As with any topic, students are more likely to engage with some of the more difficult nitty-gritty details if they have contextual understanding of why this is important to them.

We have based the discussion of performance management around two important principles: responsibility and controllability. It is important that students understand that these two principles lie at the centre of any good performance management system, whether it be based upon financial information or non-financial information. The responsibility principle states that managers must have clearly delineated responsibility and fully understand what they are responsible for and what they are not responsible for. The controllability principle states that managers should be held

responsible only for what they can control. There is scope for interesting discussion around these two principles, particularly in terms of students' own experiences, and there is scope to introduce some interesting examples of this stage.

Profit related performance measurement and variance analysis

Although it is important to go into some numerical detail in variance analysis and for students to understand the principle of standard costing, we have emphasized the comprehension and analysis of performance data over its preparation. For non-accounting students it is more important that they are able to understand and interpret performance data than it is for them to go into a lot of detail about how to calculate variances.

The worked examples in this chapter therefore focus around presentation of variance data and their analysis. We believe that non-accounting students should be able to read a variance report, and be able to identify the most likely reasons that variances occur.

Standard costing and benchmarking

Some commentators may argue that standard costing has diminishing relevance within a modern business context, and is suitable only for manufacturing. However, we believe that it is important for students to understand the principles of standard costing and we have been at pains to point out its relevance within a modern business context. Particularly, in relation to the arguments against budgeting presented in Chapter 5, beyond budgeting approaches still depend upon some aspects of measurement and benchmarking, which makes the principles of standard costing extremely relevant.

Performance management in investment centres

As well as covering performance management in cost centres and profit centres, we have included investment-centre performance analysis within this chapter. The chapter therefore links forward to the discussion of investment appraisal in Chapter 9.

The balanced scorecard

The balanced scorecard is so widely used as a performance measurement system that we felt it was important to include it in some detail in this chapter. We have therefore included examples of the application of the balanced scorecard both in a commercial profit-seeking organization and in a not-for-profit organization. A useful exercise for students would be to seek out other examples of the application of the balanced scorecard. Also, a good class case-study exercise would be to develop a balanced scorecard for a known organization.

Performance management in not-for-profit organizations

It has been our experience that many, particularly mature, postgraduate business students come from the public sector or the voluntary sector. It is a turnoff for such students to be presented exclusively with commercially focused examples, and issues which are not relevant for the not-for-profit sector. We have therefore included a substantial section within this chapter which looks specifically at performance management within the not-for-profit sector.

Performance management in modern business systems

Performance management is one of the more dynamic areas of management accounting and one which is seeing ongoing development and innovation. In particular, there have been many developments in performance management in response to developments such as total quality management, systems thinking and just-in-time management. This is therefore a good area of the syllabus for the students to do their own research and analysis.

Further reading

- Daniels, A C and Daniels, J E (2004) *Performance Management: Changing behavior that drives organizational effectiveness*, 4th edn, Performance Management Publications, Atlanta, GA
- Johnson, H T and Kaplan, R S (1987) *Relevance Lost: The rise and fall of management accounting*, Harvard Business School Press, Cambridge, MA
- Kaplan, R S and Norton, D P (1992) The balanced scorecard: measures that drive performance, *Harvard Business Review*, Jan–Feb, pp 71–80
- Kaplan, R S and Norton, D P (1993) Putting the balanced scorecard to work, *Harvard Business Review*, Sep–Oct, pp 2–16
- Kaplan, R S and Norton, D P (1996a) Using the balanced scorecard as a strategic management system, *Harvard Business Review*, Jan–Feb, pp 75–85
- Kaplan, R S and Norton, D P (1996b) *The Balanced Scorecard: Translating strategy into action*, Harvard Business School Press, Cambridge, MA
- Kaplan, R S and Norton, D P (2004) *Strategy Maps: Converting intangible assets into tangible outcomes*, Harvard Business School Press, Cambridge, MA
- Malina, M A and Selto, F H (2001) Communicating and controlling strategy: an empirical study of the effectiveness of the balanced scorecard, *Journal of Management Accounting Research*, **13**, p 47
- Norreklit, H (2000) The balance on the balanced scorecard – a critical analysis of some of its assumptions, *Management Accounting Research*, **11**, pp 65–88
- Schneiderman, A M (1999) Why balanced scorecards fail, *Journal of Strategic Performance Measurement*, January, pp 6–11

Additional questions

Question 1

The following information relates to the wards in the cardiology department of a hospital for one accounting period:

	Wards		
	1	2	3
Number of beds	12	10	20
Total number of patients	48	32	108
Total ward staff (excluding consultants)	8	8	12
Ward staff – full-time equivalent	5	4	6
Variable operating costs for period	$58,000	$66,000	$98,000
Operating fixed costs	$85,000	$67,000	$88,000
General overhead costs	$40,000	$40,000	$40,000

General overhead costs are made up of recharges from support services. The total cost of $120,000 is split equally between the three wards.

The hospital manager is concerned about the high costs of running the three heart-care wards. She has asked you to investigate their performance.

Required:

Write a report which investigates the costs of operating the three hospital wards. Your report should include appropriate measures of performance for each ward and you should draw conclusions from the costs.

Question 2

Kitchen Co manufactures a single product, a laminated kitchen unit which has a standard cost of $80 made up as follows:

		$
Direct materials	15 sq metres at $3 per sq metre	45.00
Direct labour	5 hours at $4 per hour	20.00
Variable overheads	5 hours at $2 per hour	10.00
Fixed overheads	5 hours at $1 per hour	5.00
		80.00

The standard selling price of the kitchen unit is $100. The monthly budget projects production and sales of 1,000 units.

Actual figures for the month of September are as follows:

Sales	1,200 units at $102
Production	1,400 units
Direct materials	22,000 sq metres at $4 per sq metre
Direct wages	6,800 hours at $5 per hour
Variable overheads	$11,000
Fixed overheads	$6,000

Closing stock is valued at standard cost.

Required:

Construct a statement to reconcile Kitchen Co's actual and budgeted profit for September, showing all appropriate variances.

Question 3

Marlin Limited manufactures double glazing units. The following information relates to its production department for the month of April.

Production budget for April (1,000 units):

	$
Direct materials:	
2,000 kg plastic at $2.50 per kg	5,000
2,000 sq metres of glass at 50p per sq m	1,000
Direct labour: 3,000 hours at $6.50 per hour	19,500
Variable overheads: 3,000 hours at $3 per hour	9,000
Fixed overheads: 3,000 hours at $2 per hour	6,000
Total cost	40,500

Actual production costs for April (900 units):

	$
Direct materials:	
1,900 kg plastic at $2.60 per kg	4,940
2,020 square metres of glass at 45p per sq m	909
Direct labour: 2,800 hours at $7.50 per hour	21,000
Variable overheads:	8,680
Fixed overheads:	6,300
Total cost	41,829

Required:

(a) Explain what a standard cost is and how standard costs are established.

(b) From the information given above, calculate the following variances:

- **(i)** material price variance;
- **(ii)** material usage variance;
- **(iii)** direct labour rate variance;
- **(iv)** direct labour efficiency variance.

(c) 'Standard costing and variance analysis has no relevance in a service industry.' Discuss.

Question 4

Wideport Health Authority is undertaking a review of the cost of support services within its hospitals. You have been asked to review the laundry service. The Authority has three hospitals, each of which operates a laundry. You have been provided with the following information from the last financial year:

	Laundry A	Laundry B	Laundry C
Cost of electricity	$31,040	$31,280	$54,150
Cost of detergent	$3,840	$7,820	$8,550
Maintenance and repair	$2,560	$3,060	$3,990
Capital costs of laundries:			
Cost of buildings	$120,000	$30,000	$75,000
Cost of equipment	$11,000	$13,000	$17,000
Number of employees:			
Laundry manager	1	1	1
Supervisor	0	1	1
Full-time assistant	3	4	3
Part-time assistant	1	0	3
Number of bags of laundry washed	32,000	34,000	57,000

Notes:

1. Soiled linen is delivered to each laundry in 10 kg bags. Washing machines will take a 10 kg load for each wash cycle.
2. Laundry managers are paid $12,000 per year. Supervisors are paid $10,000 and laundry assistants are paid $7,000 (part-time staff work half the hours of full-time staff and are paid on a pro-rata basis).
3. Overheads on wages amount to 12% of the total wage cost.
4. Central administration costs are apportioned to each laundry on the basis of 5 cents per bag of laundry washed.
5. Buildings are depreciated on a straight-line basis over 40 years. Equipment is depreciated on a straight-line basis over 10 years.

Required:

(a) Explain what is meant by the '3 E's' of performance evaluation, and explain how they are relevant in the case of the three laundries above.

(b) Investigate the costs of operating the three laundries and draw appropriate conclusions from those costs.

Suggested solutions

Question 1

Calculated figures

Patient turnover (per bed)	4	3.2	5.4
FTE staff per bed	0.42	0.40	0.30
FTE staff per patient	0.10	0.13	0.06
Variable cost per bed	$4,833	$6,600	$4,900
Variable cost per patient	$1,208	$2,063	$907
Fixed cost per bed	$7,083	$6,700	$4,400
Fixed cost per patient	$1,771	$2,094	$815

Discussion points

- Allocation of general overhead costs – better per bed or per patient?
- In evaluating performance, look only at those costs which are controllable – variable costs?
- When comparing costs, consider the issue of differing size of each ward: does ward 3 benefit from economies of scale?
- Do any of the wards offer specialist or more intensive care which is more expensive?
- Ward 2 has the lowest bed turnover and highest costs – specialist/longer-term care?

Question 2

		$ *Adverse*	$ *Favourable*	$
Budgeted profit				20,000
Sales variance				
	Sales margin price		2,400	
	Sales margin volume		4,000	
Materials	price	22,000		
	usage	3,000		
Labour	rate	6,800		
	efficiency		800	
Fixed overheads				
	Expenditure	1,000		
	Volume efficiency		200	
	Volume capacity		1,800	
Variable overheads				
	Expenditure		2,600	
	Efficiency		400	
		32,800	12,200	
Net variance				20,600
Actual profit				–600

Question 3

Variances

Material price (plastic):	(SP – AP) × AQ (2.50 – 2.60) × 1,900 =	190	A
Material price (glass):	(SP – AP) × AQ (0.50 – 0.45) × 2,020 =	101	F
Total material price variance		89	A
Material usage (plastic):	(SQ – AQ) × SP (1,800 – 1,900) × 2.50 =	250	A
Material usage (glass):	(SQ – AQ) × SP (1,800 – 2,020) × 0.50 =	110	A
Total material usage variance		360	A
Labour rate:	(SR – AR) × AH (6.50 – 7.50) × 2,800 =	2800	A
Labour efficiency:	(SH – AH) × SR (2,700 – 2,800) × 6.50 =	650	A

Question 4

(a) The '3 E's' of performance evaluation

Efficiency	is a measure of the relationship of inputs to outputs. It can be measured in this case in terms of cost per bag of laundry.
Effectiveness	is a measure of the extent to which aims are achieved. In this case the issue is whether the laundries are satisfying the requirements of the hospital for clean linen.
Economy	relates to working within the given financial constraints. In this case it relates to the overall cost of running the laundries.

(b) Costs of the three laundries

This question is designed to test the students' understanding of performance evaluation in a support service situation. Students should be able to derive and comment upon appropriate measures of performance based upon the information provided. Good answers will include the following:

- a calculation of cost per load, analysed by cost elements (see table below);
- consideration of the implication of the different levels of activity of each laundry;
- consideration of the differing capitalized values of buildings and therefore depreciation charges and the appropriateness of inclusion for comparison purposes;
- similar consideration of the capital value of equipment and the possible different age/nature of the equipment and implications for efficiency;
- the different staffing structures.

	Laundry A		Laundry B		Laundry C		Total	Av
	Cost	Load	Cost	Load	Cost	Load	Cost	Load
Electricity	31,040	0.97	31,280	0.92	54,150	0.95	116,470	0.95
Detergent	3,840	0.12	7,820	0.23	8,550	0.15	20,210	0.16
Maintenance	2,560	0.08	3,060	0.09	3,990	0.07	9,610	0.08
Depreciation of building	3,000	0.09	750	0.02	1,875	0.03	5,625	0.05
Depreciation of equipment	1,100	0.03	1,300	0.04	1,700	0.03	4,100	0.03
Manager	12,000	0.38	12,000	0.35	12,000	0.21	36,000	0.29
Supervisor	0	–	10,000	0.29	10,000	0.18	20,000	0.16
Assistant	24,500	0.77	28,000	0.82	31,500	0.55	84,000	0.68
Wages on-costs	4,380	0.14	6,000	0.18	6,420	0.11	16,800	0.14
Admin	1,600	0.05	1,700	0.05	2,850	0.05	6,150	0.05
TOTAL	84,020	2.63	101,910	3.00	133,035	2.33	318,965	2.59
Number of washes	32,000		34,000		57,000		123,000	
Number of F/T equivalents	4.5		6.0		6.5		17	
Washes per staff	7,111		5,667		8,769		7,235	

Cash flow

07

Guidance and teaching advice

We have structured this chapter to meet the needs of non-accounting students. Rather than include issues of cash flow within Chapters 5 and 6 (although these chapters do touch on cash flow), we considered that it merited an independent chapter in order to go into the subject in much more detail. In particular, we have emphasized the importance of cash to business health and business survival and we have demonstrated how cash management is inextricably linked with working capital management.

We have included academic models of cash management and working capital management, and there is scope within the chapter to go into some depth of numerical analysis. However, our main emphasis has been on understanding the importance of cash management and how different aspects of working capital can impact upon cash flows and cash balances.

Cash management

The main emphasis of this chapter is on developing an understanding of why businesses need to hold cash and, based upon this, establishing how much cash a business should hold. Once this understanding has been established, the rest of the chapter is devoted to looking at techniques for managing cash and developing an understanding of where problems in cash management may arise. Within this context, broader issues of working capital management have been introduced so that the student understands that cash-flow problems often arise because of problems in other areas such as inventory management or accounts receivable management.

Critical dimension

There is less controversy and therefore less of the critical dimension to cash management than to the subjects of business planning and performance measurement which were covered in the preceding two chapters. However, we believe that it is important to continue the critical thinking that students will have developed from the material in those chapters. We therefore suggest that tutors encourage students to critically evaluate the practical use of the academic models presented in this chapter.

Cash budgets

The preparation and interpretation of cash-flow forecasts are important skills for non-specialist business students. We have therefore included some simple exercises in cash-forecast production and analysis. As was the case in the financial accounting chapters of this book, we have emphasized the analysis and interpretation skills rather than the number-crunching skills.

For those tutors wishing to include more numeric examples, either within their classes or as takeaway work for students, we have included some more exercises within these notes.

Managing accounts receivable

It has been our experience in teaching mature MBA students that this is a topic of particular interest. Many students who have experience of working in sales or in more general management are conscious of the importance of managing accounts receivable, although they may not be familiar with all aspects and techniques. We have therefore gone into some practical detail. This is one area of the chapter in which students may have personal experiences which they can offer in a workshop discussion. These can be used to illustrate the principles covered in the chapter and to reflect upon good and bad practice.

Further reading

Miller, M H and Orr, D (1966) A model of the demand for money by firms, *Quarterly Journal of Economics*, **80** (3), pp 413–35

Additional questions

Question 1

John Evans is a skilled joiner who has recently been made redundant from the large company where he has worked for the last 25 years. He proposes to start his own business building high-quality conservatories for wealthy homeowners. He has approached you for help, firstly in preparing a cash-flow forecast for the first six months of his business, and secondly in advising on a costing system for the conservatories.

In relation to the cash flow, he has provided you with the following information:

1. The business will commence on 1 September with $60,000 in the bank, made up of $30,000 redundancy pay, $10,000 savings and a business start-up loan of $20,000.
2. John will rent a workshop in which to build the conservatories. This will cost $800 per month, payable at the start of each month. The conservatories will be assembled and finished at the customer's home. A van will be bought in

September at a cost of $7,000. General workshop costs (light, heat, power etc) and the van's running costs are expected to be $500 per month.

3 Sales of conservatories are expected to be as follows:

Sept	Oct	Nov	Dec	Jan	Feb
1	1	2	3	4	4

4 The sales price is $20,000. This will be payable as 10 per cent on commencement of construction (the month of the sale) and the balance of 90 per cent in the following month.

5 Purchases of materials, which will be on one month's credit, are expected to be as follows:

Sept	Oct	Nov	Dec	Jan	Feb
$20,000	$20,000	$30,000	$30,000	$40,000	$40,000

6 John will initially employ four staff at a cost of $1,000 per month each, payable on the last day of the month. As sales reach four conservatories per month, he will employ an additional person to assist with on-site assembly at a cost of $700 per month. John will himself draw $750 each month.

7 John wishes to undertake a substantial advertising campaign to launch the business. This will cost $5,000 in the first month and $2,000 per month thereafter, payable in the month incurred.

8 The machinery and equipment needed will be bought immediately at the start of business. Most can be bought second-hand for $15,000 cash. Other machinery, costing $20,000, will be bought new on two months' interest-free credit.

9 Repayments on the business loan, including the interest element, will be $1,000 per month, payable on the 10th of the month, commencing October.

Required:

(a) Construct a cash-flow budget for the first six months of John Evans' business, showing clearly the cash balance at the end of each month.

(b) Write notes advising John on what changes he might make to his business plans in order to improve his cash-flow situation.

Question 2

You have recently been appointed as the project manager for a local-government-owned heritage visitor centre that is due to open soon. Some government officials have expressed concern about the financial viability of the centre. They claim that it will not be self-financing and will therefore represent a cash drain. Your first task in your new role is to provide a report to the director of leisure services on the monthly cash-flow forecast for the first six months of the heritage visitor centre's operation.

You have been provided with a copy of the business plan for the centre. This contains the following information:

1 The heritage centre will open on 1 December. Anticipated visitor numbers are as follows:

	Dec	Jan	Feb	Mar	Apr	May
Adults	1,800	2,000	2,000	2,200	2,500	2,500
Children	1,500	2,250	1,800	2,000	2,250	2,700

2 Admission prices, based on those for comparable attractions, have been set at $5.00 for adults and $3.00 for children.

3 In addition to daily visitors, the centre will sell annual season tickets. Sales of season tickets, based on $25.00 for adults and $10.00 for children, are expected to be as follows:

	Dec	Jan	Feb	Mar	Apr	May
Adults	200	20	20	20	20	20
Children	100	30	20	20	20	20

4 All ticket sales, both daily and seasonal, will be for cash.

5 The heritage centre will employ 15 part-time staff at a cost of $400 per month each. In addition, a manager will be employed at a cost of $1,300 per month, starting in November. All wages are payable on the last day of the month.

6 There will be a substantial advertising campaign to launch the centre. This will cost $25,000 in the first month the centre is open and $5,000 per month for the next four months, payable one month in arrears.

7 Heating, light and other general running costs are expected to be $1,500 per month in total. These will be incurred commencing in November and payable in the month incurred.

8 A major exhibition of 'mining technology through the ages' is planned for January and February following opening. This exhibition will cost $30,000, but will not have to be paid for until March. Entry to the exhibition will be charged separately from the visitor-centre entry fee at $3.00 for adults, but children will be admitted free of charge. It is expected that 60% of visitors to the heritage centre will also pay to enter the mining exhibition.

9 The centre will open with an initial cash funding of $10,000. A further grant of $15,000 will be receivable in February (two months after opening).

Required:

(a) Construct a cash-flow budget for the first six months of the heritage visitor centre, commencing on 1 November, showing clearly the cash balance at the end of each month.

(b) Write a brief memo to the director of leisure services, making recommendations for any changes to the business plan which should be considered in the light of the need to ensure the financial independence of the centre.

(c) Explain the difference between profit and cash-flow budgeting, pointing out the function of each.

Question 3

(a) Explain, with illustrations, what you understand by:

(i) buffer stock;

(ii) maximum stock level;

(iii) reorder stock level;

(iv) economic order quantity.

(b) The following data relates to an item of stock used by a business. Calculate the economic order quantity:

Unit cost of stock item	$3
Usage per month	1,200 units
Cost of ordering, per order	$500
Annual cost of holding stock	$60 per case of 12 units.

Suggested solutions

Question 1

Six-month cash-flow forecast

	Sept	Oct	Nov	Dec	Jan	Feb
Receipts						
Debtors	2,000	20,000	22,000	42,000	62,000	80,000
Payments						
Materials	0	20,000	20,000	30,000	30,000	40,000
Wages	4,000	4,000	4,000	4,000	4,700	4,700
Drawings	750	750	750	750	750	750
Workshop	800	800	800	800	800	800
Advertising	5,000	2,000	2,000	2,000	2,000	2,000
General	500	500	500	500	500	500
Van	7,000					
Equipment	15,000					
Machine			20,000			
Loan	0	1,000	1,000	1,000	1,000	1,000
	33,050	29,050	49,050	39,050	39,750	49,750
Net mvts	(31,050)	(9,050)	(27,050)	2,950	22,250	30,250
Bal b/f	60,000	28,950	19,900	(7,150)	(4,200)	18,050
Bal c/f	28,950	19,900	(7,150)	(4,200)	18,050	48,300

W1: Debtors

	Sept	Oct	Nov	Dec	Jan	Feb
Sales A	1	1	2	3	4	4
$	20,000	20,000	40,000	60,000	80,000	80,000
0.1	2,000	2,000	4,000	6,000	8,000	8,000
0.9		18,000	18,000	36,000	54,000	72,000
Receipts	2,000	20,000	22,000	42,000	62,000	80,000

Question 2

Six-month cash-flow forecast

	Nov	Dec	Jan	Feb	Mar	Apr
Receipts						
Daily tickets	0	13,500	16,750	15,400	17,000	19,250
Season tickets	0	6,000	800	700	700	700
Exhibition			3,600	3,960		
Funding/grants	10,000			15,000		
	10,000	19,500	21,150	35,060	17,700	19,950

	Nov	Dec	Jan	Feb	Mar	Apr
Payments						
Wages		6,000	6,000	6,000	6,000	6,000
Manager	1,300	1,300	1,300	1,300	1,300	1,300
Advertising			25,000	5,000	5,000	5,000
Running costs	1,500	1,500	1,500	1,500	1,500	1,500
Mining exhibition					30,000	
	2,800	8,800	33,800	13,800	43,800	13,800
Net mvts	7,200	10,700	(12,650)	21,260	(26,100)	6,150
Bal b/f	0	7,200	17,900	5,250	26,510	410
Bal c/f	7,200	17,900	5,250	26,510	410	6,560

W1: Daily tickets

	Nov	Dec	Jan	Feb	Mar	Apr
Adults		1,800	2,000	2,000	2,200	2,500
@ $5.00		9,000	10,000	10,000	11,000	12,500
Children		1,500	2,250	1,800	2,000	2,250
@ $3.00		4,500	6,750	5,400	6,000	6,750
total		13,500	16,750	15,400	17,000	19,250

W2: Season tickets

	Nov	Dec	Jan	Feb	Mar	Apr
Adults		200	20	20	20	20
@ $25.00		5,000	500	500	500	500
Children		100	30	20	20	20
@ $10.00		1,000	300	200	200	200
total		6,000	800	700	700	700

W3: mining exhibition

	Nov	Dec	Jan	Feb	Mar	Apr
Adults (60%)			1,200	1,320		
@ $3.00			3,600	3,960		

Question 3

EOQ = Square root of (2 × $500 × 1,200 × 12) / $5 = 1,697 units.

Pricing decisions

08

Guidance and teaching advice

Within introductory accounting textbooks, pricing is often either omitted or treated simply within the context of costing. We believe that for a non-accounting audience, pricing should be placed within a much broader context. One problem with modularized teaching is that different areas of business, for example marketing, strategy, economics and law, tend to be put in separate boxes such that students do not get the opportunity to see the way that they are interrelated in real business practice.

We have therefore sought to take a more holistic view of pricing in this chapter and we make no apologies for moving outside the sphere of what is traditionally regarded as accounting to touch on aspects of economics and marketing. We believe that students should understand the importance of all three of these areas to pricing and how they are interrelated in arriving at an appropriate pricing strategy.

Because the chapter is so broad in its scope, inevitably each of the subjects gets a relatively light touch. There is considerable scope for tutors to go into more depth in each of the three areas of pricing strategy and we have made relevant suggestions below.

The accountant's perspective

In this section we have given a basic numeric introduction to each of the main forms of costing used for pricing. There is considerable scope for tutors to go into more detail in each of these costing techniques and, where there is time, students can be engaged with more numeric examples. However, we feel that there is limited benefit for non-accounting students in getting bogged down in detailed computational questions on topics such as overhead cost allocation. We believe that it is more important for students to gain an overview and understanding of the principles, and for them to be able to develop a critical analysis of the techniques applied. We have therefore included a critical evaluation of each of the costing techniques we introduce.

There is scope within this section for tutors to explore real-world practices with students in more detail. Using the framework of the different costing techniques provided within the chapter, different real-world companies' costing and pricing techniques can be examined and evaluated.

The economist's perspective

Although this section introduces the concept of the price elasticity of demand, we have shied away from detailed numeric examples in favour of a broader interpretation and understanding of the implications of price elasticity for pricing strategies. If tutors feel it is appropriate, they can of course include more computational questions to develop students' understanding of the price elasticity concept.

We have linked the concept of price elasticity of demand with different market types in order to broaden understanding of the concept and put it within a competitive context. The chapter provides a basic introduction to different market types. There is scope within this for a tutor to explore market types in more detail by introducing specific examples of well-known businesses and tasking students with identifying the market type in which that business operates and evidence of the impact upon the business's pricing strategies.

The marketer's perspective

We are aware that this section of the chapter may well touch on material which students cover in a separate marketing module. However, we reiterate the importance of students being able to integrate their knowledge and understand the diverse range of forces impacting upon pricing strategies. We have kept the marketing content focused specifically on pricing; although broader marketing concepts are mentioned, they are related specifically to pricing strategies.

There is scope within this section for tutors to engage students with further exercises, such as identifying the product-positioning strategies of well-known businesses or products. The section which looks at different aspects of pricing perception is also suitable for discussion within seminars or workshops.

Additional questions

Question 1

Brigantes Electronics Co is considering the launch of two new products.

Product A is a new high-tech personal organizer. Research and development costs were high. There is no comparable product on the market, although it is known that competitors are developing similar products which are likely to appear within the next 12 to 18 months. There has been a lot of hype in the media regarding the launch of product A and demand is expected to be high, especially among young, highly paid professionals.

Product B is a personal stereo. The product has no unique features and is very similar to several other competitors' products which are already on sale. The market for such items is already well established and is highly price competitive.

Suggest and explain a pricing strategy for the launch of each of the two new products detailed above. Your answer should include discussion of any theory or concepts you consider relevant.

Brigantes Electronics Co also makes a universal mobile phone hands-free set. The variable cost of production is $4.75 per unit. Annual fixed costs are $275,000. Next year, the company would like to make a profit of $450,000 on the hands-free set. Past sales performance suggests that the company can sell 50,000 hands-free sets if the price is kept below $20.

Required:

(a) Calculate the minimum price which would have to be charged for the hands-free set to earn a profit of $450,000.

(b) Calculate the number of sales required to earn a profit of $450,000 if the price is set at exactly $20.

Question 2

Purple Co has recently developed a new product. The production director has provided the following estimates for costs of producing the new product:

Material A	5 metres at $0.50 per metre
Material B	2.5 kg at $8.00 per kg
Skilled labour	2 hours at $15.00 per hour
Semi-skilled labour	1.5 hours at $6.00 per hour

Fixed costs are estimated at $90,000 per year. The company is hoping to produce 5,000 units in the first year. The personnel director is budgeting for 12,000 hours of skilled labour and 15,000 hours of semi-skilled labour.

The company is trying to establish a suitable price for the new product. Other products in the company's range are priced at cost plus 25 per cent.

Required:

(a) Calculate a standard cost for the new product if fixed costs are absorbed based on:

(i) estimated production output;

(ii) estimated skilled labour hours.

(b) Using the standard cost calculated in part (a) (i) and the company's usual profit mark-up, calculate two different cost-plus prices using two different bases.

(c) Explain the advantages and disadvantages of each method chosen in (b).

(d) Give two other possible pricing strategies that could be adopted and describe the impact of each one on the price of the product.

Question 3

Springbok Co has developed a new sports shoe called the Springbok 2020. The company expects to sell 200,000 pairs of this new shoe in the first six months

after launch, and wishes to make a profit of $6m during that period. Costs are as follows:

Direct manufacturing cost	$10 per pair
Variable production overhead cost	$4 per pair
Fixed costs	$5.2m per annum

Required:

(i) Calculate the required sales price per pair if the company is to achieve the target of $6m profit in the first six months of sales.

(ii) Calculate the break-even sales price per pair.

(iii) The company is considering an alternative of fixing the sales price at $65 per pair and launching the shoe with a substantial advertising campaign over the six-month period, which will cost $3.8m. How many pairs of shoes would the company need to sell to achieve the target profit of $6m?

(iv) Give two other possible pricing strategies which could be adopted by Springbok Co. Describe the impact of each strategy on the price of the shoes.

Question 4

Wonderglaze Co manufactures and fits double-glazed windows. A typical job takes three to four days to complete, and the business usually has several jobs running at the same time. Production data for last month was as follows:

Direct materials consumed	$38,300
Direct wages	$28,000
Overhead costs	$17,500
Direct labour hours worked	3,500
Machine hours operated	750

A particular job, the reglazing of 'The Retirement Rest Home', consumed $12,300 of materials, and involved 600 hours of direct labour and 150 machine hours. The company sets its prices by adding a mark-up of 30 per cent to the production cost of a job to cover other expenses and provide a profit.

Required:

(a) Calculate the total price for the reglazing of 'The Retirement Rest Home' if overheads are absorbed on the basis of direct labour hours.

(b) Explain two other possible pricing methods which the company could use, setting out their comparative advantages or disadvantages.

Suggested solutions

Question 1

Pricing strategies

This question gives the student an opportunity to evaluate pricing theory in relation to a realistic scenario.

Students should suggest a suitable pricing strategy, explain it, and justify it in relation to the scenario. Most likely strategies are:

- personal organizer price skimming;
- personal stereo penetration pricing.

Minimum sales price

Fixed costs		$275,000.00
Target profit		$450,000.00
Therefore target contribution	=	$725,000.00 ($275,000.00 + $450,000.00)

Expected sales volume (units)		50,000.00 units
Therefore expected contribution per unit	=	$14.50 ($725,000 / 50,000)
Variable cost		$ 4.75
Sales price		$19.25 ($14.50 + $4.75)

Required sales

At sales price of $20, contribution per unit = $20 – 4.75 = $15.25
Target sales = $725,000.00 / $15.25 = 47,541 units

Question 2

Cost

Direct materials			
	Material A	2.50	
	Material B	20.00	22.50
Direct labour			
	Skilled	30.00	
	Semi-skilled	9.00	39.00
Prime costs			61.50

Fixed cost:

(i) Based on unit production = $\frac{90{,}000}{5{,}000}$ = 18.00 p.u.

Therefore total cost = $61.50 + $18.00 **79.50**

(ii) Based on skilled labour hours $\frac{90{,}000}{12{,}000}$ = 7.50 p.h.

Therefore total cost = $61.50 + ($7.50 × 2 hrs) **76.50**

Selling price

Total-cost-plus = $79.50 × 125% = $99.38
Variable-cost-plus = $61.50 × 125% = $76.88

Total-cost-plus:

- ensures a profit is made (if estimates are accurate);
- all costs accounted for;
- easy to calculate;
- easy to adjust;
- need to estimate unit fixed cost;
- ignores price/demand relationship.

Variable-cost-plus:

- easy to calculate;
- easy to adjust;
- focus on contribution;
- fixed costs may not be covered;
- ignores price/demand relationship.

Two other pricing strategies, eg:

- penetration pricing – low price;
- price skimming – high price;
- premium pricing – high price;
- market price – going rate.

Question 3

Required sales price

Six months' overheads = $2,600,000
Required contribution = $2,600,000 + $6,000,000 = $8,600,000
Expected sales = 200,000 units
Required contribution per unit = 8,600,000 / 200,000 = 43
Sales price = Contribution + Variable costs = 43 + 14 = 57

Break-even sales price

Required contribution = Fixed costs = $2,600,000
Expected sales = 200,000 units
Required contribution per unit = 2,600,000 / 200,000 = 13.00
Sales price = Contribution + Variable costs = 13 + 14 = 27.00

Costs to cover = Fixed costs + Advertising + Profit
2,600,000 + 3,800,000 + 6,000,000 = 12,400,000
Contribution per unit = 65 – 14 = 51
Required sales = 12,400,000 / 51 = 243,137 pairs

Other strategies which might be discussed

These include:

- market penetration;
- market skimming;
- premium pricing;
- target pricing;
- marginal-cost-plus.

Question 4

		Direct labour hours
		$
Materials		12,300
Direct labour	$28,000/3,500 × 600	4,800
Overheads	See W1	3,000
Total production cost		20,100
Mark-up	30%	6,030
Selling price		26,130

W1: Overheads: Labour hours = $17,500/3,500 × 600 = $3,000.

Investment decisions

09

Guidance and teaching advice

We wrote this chapter with the premise that non-accounting students need to develop skills in using investment appraisal information to support good decision making, rather than the numeric skills of computing the various investment appraisal techniques. The emphasis of the chapter is therefore upon critical understanding and evaluation of techniques rather than number crunching.

The chapter covers the main 'traditional' investment appraisal techniques of pay-back period, accounting rate of return, net present value and internal rate of return. We introduce each of these techniques and demonstrate how they are calculated before providing a critical evaluation of some of the strengths and weaknesses of the technique. This is as far as many introductory texts will take the subject. However, because we believe that students need to be able to use these techniques confidently within a real-world context, we then go on to examine some of the complexities of the real world which impact upon the application and usefulness of investment appraisal techniques. In particular, we examine the problem of applying cost–benefit analysis to situations in which it is difficult to quantify benefits financially. This leads to a discussion of qualitative evaluation and the use of balanced scorecards, which mirrors the discussion around performance management introduced in Chapter 6.

We believe that many introductory texts leave students with a far too simplistic understanding of investment appraisal techniques and consequently an inability to apply these techniques effectively in real-world situations. We have therefore included consideration of practical problems, such as what cash flows to include or exclude from calculations and how to conduct investment appraisal when cash flows are uncertain or where alternative outcomes have been identified.

Finally, we step back from the main traditional techniques to take a broader look at investment appraisal within strategic context, covering topics such as real options, value chain analysis and cost-driver analysis as techniques for investment appraisal.

Basic principles

We have sought in this chapter to provide a critical evaluation of traditional investment appraisal techniques. We therefore introduce the topic by getting the students

to focus on what investment appraisal is about at a basic level. By first establishing what we are trying to achieve in investment appraisal, we are able to establish a yardstick by which students can evaluate each of the traditional investment appraisal techniques. This immediately puts the students in a critical frame of mind and gives them a set of tools with which to evaluate each technique.

It has been our experience that time spent in establishing these basics, for example in establishing that investment appraisal is about return, timing and risk, means that students are better able to understand the more complex material later in the chapter when the mechanics of each technique are introduced.

Critical evaluations

We have provided a critical evaluation of each of the traditional investment appraisal techniques and have included examples of situations in which a technique may prove problematic or may fall short in terms of providing an adequate appraisal of an investment. We would suggest that these critical evaluations are important for students in developing a judicious application of the techniques. It has been our experience while working alongside managers in industry that a lack of awareness of these limitations can lead to poor decision making.

Discounted cash flows

It is our experience that many students (both accounting and non-accounting) struggle to understand the principles behind discounted cash-flow techniques and as a consequence they simply blindly learn the mechanics by rote. We have therefore taken care within this section to build up an argument which demonstrates to students both why the discounted cash-flow technique is used, and what it tells us about an investment.

We are confident that many tutors follow a similar approach in introducing the topic, and we encourage tutors to take time to build up this argument, rather than simply launching into a numeric example of net present value. The result is that students are far more likely to develop a critical appreciation of the techniques.

Relevant cash flows and opportunity costs

Our experience of working with managers in industry suggests that the question of what to include or exclude from an investment appraisal calculation often confuses. Most non-accounting managers will have accountants to guide them on this issue; however, it is still important for them to have a good grasp of the principles. To that end, we have included some comprehension questions. These can be used as a basis for wider discussion around the principles.

Further reading

International Federation of Accountants (2008) International Good Practice: Guidance on project appraisal using discounted cash flow, IFAC, New York

Additional questions

Question 1

The directors of Mortimer Co are considering investing in some new manufacturing plant with a cost of $800,000. The new plant is expected to generate the following cash-flow cost savings over the next seven years:

Year	Cash-flow saving
1	$200,000
2	$250,000
3	$230,000
4	$200,000
5	$180,000
6	$160,000
7	$160,000

If Mortimer Co has a required payback period of five years and requires all investments to give a discounted cash-flow return of at least 14 per cent, state, giving reasons, whether you would recommend this new investment.

Question 2

Explain the investment appraisal concept of internal rate of return (IRR). Compare the advantages and disadvantages of using IRR as a method of investment appraisal as opposed to accounting rate of return (ARR).

Question 3

APT Mouldings Co is evaluating two possible capital projects, each with an expected life of five years. There is sufficient funding available to accept only one project.

	Project A	Project B
Initial cost	$250,000	$260,000
Scrap value expected	$10,000	$25,000

Expected returns:	Project A		Project B	
	Cash inflow $	Profit $	Cash inflow $	Profit $
End of year 1	90,000	40,000	120,000	60,000
End of year 2	80,000	30,000	90,000	40,000
End of year 3	75,000	25,000	80,000	30,000
End of year 4	60,000	5,000	50,000	5,000
End of year 5	55,000	5,000	50,000	5,000

The cost of capital of the company is 16 per cent.

Required:

(a) Calculate the payback period for each project (to two decimal places).

(b) Calculate the ARR for each project, based on the expected cash flows and the average investment.

(c) Calculate the NPV for each project.

(d) State which project should be accepted, giving reasons.

(e) Explain the factors that management would need to consider in addition to the financial factors before making a decision.

Question 4

'ARR is a more appropriate tool for investment appraisal than NPV because managers understand it better.' Critically discuss this statement, stating whether you agree. Give reasons for your opinion.

Suggested solutions

Question 1

Investment decision

Payback period

Year	Cash flow	Cumulative
1	200,000	200,000
2	250,000	450,000
3	230,000	680,000
4	200,000	880,000
5	180,000	1,060,000

Payback period = 3 years + (800 – 680) / 200 = 3.6 years

NPV at 14 per cent

Year	Cash flow	Discount factor	Present value
0	(800,000)	1.000	(800,000)
1	200,000	0.877	175,400
2	250,000	0.769	192,250
3	230,000	0.675	55,250
4	200,000	0.592	118,400
5	180,000	0.519	93,420
6	160,000	0.456	72,960
7	160,000	0.400	64,000
		NPV	**71,680**

Decision

Accept project because:

- payback is less than five years;
- NPV is positive at 14 per cent;
- (or IRR > 14 per cent if that method is used).

Question 2

This question seeks to examine the student's understanding of IRR and how it differs from other investment appraisal methods, particularly NPV. Students should explain: the mechanics of IRR calculation, with examples; what the IRR figure means; and how it can be useful to financial managers. They will set out the limitations of the IRR calculation, explaining situations in which it is not appropriate or cannot be used. This will be contrasted with NPV. ARR will be explained and contrasted with IRR, setting out relative advantages and disadvantages.

Question 3

Payback period

Project A	$250,000 Cash flow	CUM
1	90,000	90,000
2	80,000	170,000
3	75,000	245,000
4	60,000	305,000
5	55,000	360,000
	360,000	

Payback period = 3 years + (250,000 – 245,000)/60,000 = 3.08 years

Project B	$260,000 Cash flow	CUM
1	120,000	120,000
2	90,000	210,000
3	80,000	290,000
4	50,000	340,000
5	50,000	390,000
	390,000	

Payback period = 2 years + (260,000 – 210,000)/80,000 = 2.63 years

ARR

Project A	Average profit	21,000
	Average capital	130,000
		16.15%
Project B	Average profit	28,000
	Average capital	142,500
		19.65%

NPV

Project A	**Cash flow**	**DF**	**PV**
1	90,000	0.862	77,586
2	80,000	0.743	59,453
3	75,000	0.641	48,049
4	60,000	0.552	33,137
5	55,000	0.476	26,186
5	10,000	0.476	4,761
	370,000		249,173
Rate	0.16		
Invest	250,000	**NPV**	(827)

Project B	**Cash flow**	**DF**	**PV**
1	120,000	0.862	103,448
2	90,000	0.743	66,885
3	80,000	0.641	51,253
4	50,000	0.552	27,615
5	50,000	0.476	23,806
5	25,000	0.476	11,903
	415,000		284,909
Rate	0.16		
Invest	260,000	**NPV**	24,909

Decision

Project B should be accepted because:

- payback period is lower;
- ARR is higher;
- NPV is higher;
- all three methods indicate it is the best project.

Project A has a negative NPV so would not be accepted even if project B were not available.

Other factors to consider

In considering other factors the student will demonstrate an understanding of the importance of non-financial factors and the role of investment appraisal models within the wider decision-making context.

Good answers will include consideration of:

- wider business issues and goals;
- goals other than maximizing of shareholder wealth;
- opportunity costs;
- staff morale;
- social and environmental considerations;
- legal or other legislative restrictions.

Question 4

This question gives the student the opportunity to demonstrate an understanding of the relative strengths and weaknesses of ARR and NPV as investment appraisal tools.

Strong answers will consider the issue from all angles, eg:

- the need for non-accounting managers to understand the tools;
- the merits of using cash flow vs profit;
- how ARR relates to ROCE, and the importance of that measure;
- DCFs and the time value of money.

Operational decisions

10

Guidance and teaching advice

This chapter is structured around two key management accounting techniques: cost–volume–profit analysis and relevant costing. However, in order to make the material as practically relevant as possible, we have focused upon applications of these techniques rather than the techniques themselves. Our aim in writing this chapter was to identify operational decisions which managers commonly face and to demonstrate how the techniques can be applied within that context. Thus, we introduce each technique in turn and then provide a number of examples of how it may be applied within a practical context. In common with the other chapters in this book, we encourage students to critically evaluate the techniques they learn in order to have a better understanding of appropriate application. We therefore provide a critique of each of the techniques.

Operational decision making

The techniques in this chapter are introduced within the context of operational decision making. We believe that it is worthwhile for students to spend some time reflecting upon the steps/activities that lead to effective decision making. They can then see how sound financial analysis forms part of this decision-making process.

Cost–volume–profit (CVP) analysis

Our aim in this section is to give students an appreciation of how costs behave as volumes of activity change, and how an understanding of this can be useful in decision making. We have shied away from detailed discussion of economic models. This is a topic that lends itself well to visual explanation; hence we have included a series of graphs which build up an understanding of how we arrive at concepts such as break-even point and margin of safety. We believe that these concepts are best introduced graphically before the student moves on to the use of formulae.

Once the basics of CVP have been explained, we move on to a number of practical applications, including:

- break-even analysis;
- targeting profit levels;
- margin of safety and sensitivity analysis;
- assessing the potential impact of changes in price;
- assessing the financial impact of operational changes such as production automation;
- assessing the potential benefits of an advertising campaign.

We conclude the section with a critical evaluation of the CVP technique.

Relevant costing

If the textbook has been worked through sequentially, the student will have already been introduced to the concept of relevant costs in Chapter 9 within the context of investment appraisal. However, we appreciate that the text may not be used sequentially and so the concept is explained again (and actually in more detail) here.

It is our experience that students (and some managers) struggle with the concept of relevance and we have found that the decision tree diagram included in the book as Figure 10.8 is useful in guiding students through the relevant cost decision.

Once the basic concepts have been introduced, we demonstrate the application of relevant costing to the 'make or buy' decision. This type of decision is found frequently throughout organizations, particularly within the context of outsourcing. A useful introductory exercise with students in a workshop/seminar is to get them to list all the 'make or buy' decisions that they have personally experienced, or that they are aware of. The context, and range, of such decisions is vast and it is worth spending time letting the students reflect upon the balance sought by the organization, in each case, between immediate financial benefits and longer-term strategic benefits.

Given this vast range of 'make or buy' decisions in practice, we did not want to oversimplify the concept. We have therefore covered a range of contexts, comparing short-term with long-term scenarios and demonstrating the importance of opportunity costs. We have also emphasized the importance of considering wider strategic and qualitative factors.

Finally, we have demonstrated the application of relevant costing in divisional performance evaluation.

Additional questions

Question 1

Durotriges Co makes and sells electronic circuit boards. Current production information is as follows:

Materials costs	$0.25 per unit
Direct labour costs	$0.50 per unit
Variable sales costs	$0.10 per unit
Sales price	$1.75 per unit
Annual fixed costs	$2,300,000
Current annual volume of output	13,000,000 units

The direct labour costs relate to assembly, which is currently a manual process. Direct labour is paid $5.00 per hour, and the standard productivity rate is 10 units per hour.

The company is considering automating part of the assembly process. This will involve capital investment of $1,000,000 in new machinery. The machinery will cost $12,500 to install and is expected to have a useful economic life of five years. The company has a policy of depreciating all assets on a straight-line basis.

As a result of the automation, direct labour productivity will increase to 20 units per week.

Required:

Determine the number of units that must be produced and sold to achieve the same profit as is currently earned, if the machine is purchased.

Question 2

Red Co manufactures and sells camping equipment. The company is reviewing its production costs and is considering the alternative of outsourcing the production of sleeping bags rather than producing them itself. The current unit costs of producing a sleeping bag are as follows:

	$
Direct labour	6.00
Direct materials	4.00
Variable overheads	1.50
Fixed overheads	2.00
	13.50

An outside supplier has quoted a figure of $11.00 per sleeping bag.

If Red Co were to cease production, the sleeping bag manufacturing unit would be closed. This would mean that 50 per cent of the fixed cost relating to sleeping-bag production would no longer be incurred. Any redundancy costs can be ignored.

Required:

(a) Considering cost criteria only, advise whether Red Co should continue to manufacture or whether it should purchase sleeping bags.

(b) Explain and give illustrations of the following terms:

(i) sunk cost;

(ii) opportunity cost;

(iii) incremental cost.

(c) Briefly describe those factors, other than the immediate costs, which you think Red Co should consider before making the decision in part (a).

Question 3

Bluepoint Co manufactures and sells a range of satellite navigation systems. The following financial information is extracted from the company's accounts for the year just ended:

	$m
Sales	9,400
Production cost of sales	6,016
Gross profit	3,384
Administration expenses	2,470
Net profit	914

On reviewing the performance of the company for the year, the directors are considering discontinuation of one model, the Nav-4.

The gross profit percentage of Nav-4 sales in the year was half that earned by the company as a whole. Nav-4 sales were 5 per cent of total company sales. Of the production expenses incurred in producing the Nav-4, fixed costs were $270m. Administration expenses incurred in manufacturing the Nav-4 totalled $140m, all of which can be regarded as fixed. These include $50m apportionment of general company expenses, which would not be affected if the Nav-4 were discontinued.

In the year ahead, if the Nav-4 were not discontinued, fixed costs relating to the model would be expected to increase by 15 per cent and variable costs to remain at the same percentage of sales. Sales would be expected to increase by 5 per cent.

If the Nav-4 is dropped, it is expected that sales of some other models would increase. The increased sales would provide additional contribution to profits of $20m in the year ahead.

Required:

(a) Calculate whether it would be in the best interests of the company, based upon the expected situation in the year ahead, to discontinue the Nav-4.

(b) Discuss other factors you feel should influence the decision.

Question 4

(a) GDT Co makes and sells a single product:

Direct material cost = $8 per unit

Direct labour cost = $9 per unit

Variable production overhead cost = $12 per unit

Sales price = $35

Fixed costs = $90,000 per annum.

Required:

Determine the sales volume required if the company wishes to make a profit of $30,000 per annum.

(b) FTP Co wishes to sell 10,000 units of its product, and wishes to make a profit of $55,000. Costs are as follows:

Direct material cost = $25 per unit

Direct labour cost = $12 per unit

Variable production overhead cost = $10 per unit

Fixed costs = $95,000 per annum.

Required:

Calculate the required sales price per unit.

(c) MBS Co makes and sells a single product. The variable costs of production are $15 and the current sales price is $20. Fixed costs are $35,000 per month and the annual profit of the company is currently $320,000. The volume of sales demand is constant throughout the year.

The company is considering lowering the sales price to $18 to stimulate sales, but is uncertain of the effect on sales volume.

Required:

(i) Calculate the percentage increase in volume of sales required to justify the reduction in price to $18.

(ii) Calculate the percentage change in profit if the sales price were reduced to $18 and sales volume increased to 200,000 units.

(iii) Comment on the limitations of the technique you have used in (a) to (c) above.

Suggested solutions

Question 1

Current situation:		
Current cpu = (1.75 – (0.25 + 0.50 + 0.10) = 0.90		
Current total contribution	$0.90 × 13m	11,700,000
Current fixed costs		2,300,000
Current profit		9,400,000
With new machine:		
New direct labour cost per unit	$5.00/20	0.25
New cpu = (1.75 – (0.25 + 0.25 + 0.10) = 1.15		
Additional fixed costs	$1,012,500 / 5	202,500
Required sales (units)	2,300,000 + 202,500 + 9,400,000 / 1.15	**10,350,000**

Question 2

Relevant costs

	Costs	Manufacture	Purchase
Direct labour	6.00	6.00	
Direct materials	4.00	4.00	
Variable overheads	.50	1.50	
Fixed overheads	2.00	1.00	
Purchase cost	11.00		11.00
Relevant costs		*12.50*	*11.00*

Relevant manufacturing costs are higher than the purchase price; therefore Red Co should buy in the sleeping bags rather than make them.

Assumptions:

- Labour cost is truly variable.
- Material cost is truly variable.
- Direct overhead cost is truly variable.
- Only 50 per cent of fixed cost is fixed in the longer term.

Question 3

		$m
Company gross profit:	Sales	9,400
	COS	6,016
	GP	3,384
	%	0.36
NAV-4:		
GP %		0.18
Sales	0.05	470
GP	0.18	85
Contribution	= 270m + 85m	355
Next year if NAV-4 not discontinued:		
Contribution	= 355 × 1.05	372.33
Avoidable fixed costs	[270 + (140 – 50)] × 1.15	414.00
Expected loss		**(41.67)**

If the NAV-4 is discontinued

Contribution from other models = $20.00. Continuing NAV-4 would result in the loss of this contribution. Therefore the model should be discontinued.

Question 4

(a) CPU = 35 – (8 + 9 + 12) = 6
Required units = $90,000 + $30,000/$6 = 20,000 units

(b) 10,000 = (95,000 + 55,000)/P – (25 + 12 + 10)
Therefore P = $62

(c) **(i)** Current volume = ((35,000 × 12) + 320,000) / 5 = 148,000
Required new volume = ((35,000 × 12) + 320,000) / 3 = 246,667
Percentage increase = 66.6%

(ii) At 200,000 units: Contribution = 600,000
Fixed costs = 420,000
Profit = 180,000
= 43.75% decrease